



South Central Railway

“Design, Supply, Erection, Testing & Commissioning of 2x25kV, 50Hz single phase a.c. traction overhead equipment with 65 sq.mm catenary and 107/150 sq.mm contact wire, LT supply transformer stations including modifications to the existing OHE in view of proposed doubling between Tadikalpudi - Bethampudi section with associated yard modifications on Dornakal - Bhadrachalam Road section in Secunderabad Division of SouthCentral Railway”

Tender No. E29CTrDSC_02-2026-27

Price:-Rs. NIL

June- 2026

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PREAMBLE
Tender No. E29CTrDSC_02-2026-27

1.0 SCOPE OF WORKS:

The tender document consisting of works related to “Design, Supply, Erection, Testing & Commissioning of 2x25kV, 50Hz single phase a.c. traction overhead equipment with 65 sq.mm catenary and 107/150 sq.mm contact wire, LT supply transformer stations including modifications to the existing OHE in view of proposed doubling between Tadikalpudi - Bethampudi section with associated yard modifications on Dornakal - Bhadrachalam Road section in Secunderabad Division of South Central Railway”.

All sidings, additional lines in yard, works subsequent to yard remodeling etc which may come up in the section during the execution of contract are also covered in the scope upto the stipulation in clause 1.2.34.

- (a) **OHE Works**: Design, Supply, Erection, Testing & Commissioning of 2x25 kV, 50 Hz, AC, Single phase, Traction Overhead Equipments, Switching Stations, Booster Transformer Stations and LT Supply Transformer Stations including foundations, structures, all Ancillary Equipments.
- (b) **SSP/SP works**:- NIL
- (c) **TSS Works**: -NIL-
- (d) **SCADA Works**: - NIL-

Estimated cost of the tendered work: Details available at IREPS site (www.ireps.gov.in) may be referred.

Breakup is as under:-

(a)	OHE Works	Design, Supply, Erection, Testing & Commissioning of 2x25 kV, 50 Hz, AC, Single phase, Traction Overhead Equipments, LT Supply Transformer Stations including foundations, structures, all Ancillary Equipments and Non SOR items.	Details available at IREPS site (www.ireps.gov.in) may be referred.
(b)	SSP/SP Works	- NIL -	
(c)	TSS Works	- NIL -	
(d)	SCADA Works	- NIL -	

- 1.1 The work proposed to be awarded on a composite basis is inclusive of supply of all the materials (Except Catenary Wire, Contact Wire, & Traction Transformer and other Railway supply materials listed in annexure-4 and additionally indicated at the time of issue of LOA, which will be supplied by Railway required for execution of this work). Transmission lines for making traction Power available to Railway TSS are excluded from the scope.
- 1.2 For schedule items/Non SOR items, Standard Schedule of Rates (SOR)/Non SOR items has been given. Tenderer are required to quote single percentage rate

above/at par/below (SOR for schedule items/ Non SOR items).

2.0 FOREIGN EXCHANGE:

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

3.0 DOCUMENT COST & EARNEST MONEY:

(a) The Bid Security/Earnest Money Deposit amount for the tender shall be as per NIT.

(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 90 days 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 within 5 working days of 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.

4. SECURITY DEPOSIT (For details see Part-I, Chapter-II, at para 1.2.17)

5.1 Cares 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) 5.2.1 The Tenderer shall submit a copy of **certificate** stating that 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 **Form-25**. In addition to Form-25, 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.

5.2.2 The Tenderer shall submit a copy of certificate stating that "I/We declare and certify that I/We ((Name of Sole Proprietary firm) / (Name of Partnership firm & all its partners or Company or JV firm & all its members or LLP or HUF etc. **)) is not blacklisted or debarred by Railways or any other Ministry / Department of Govt. of India from participation in tender on the date of opening of bids, either in individual capacity or as a member of the partnership firm or JV in which ((Name of Sole Proprietary firm) / (Name of Partnership firm & all its partners or Company or JV firm & all its members or LLP or HUF etc. **)) was / is a partner/member". Standard format of the certificate to be submitted by the bidder is enclosed as Form-25.

5.3 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, higher mobilisation advance, or any modification in respect of mobilisation advance, On account/ progress payment, recovery rate, insurance warranty, extension in completion period , 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.

6. SUPPLY OF MATERIALS BY THE PURCHASER :

All materials required for completion of the work shall be supplied by contractor except the materials mentioned in Annexure-4 /Annexure-4A (As applicable) of the tender papers, will be supplied by Railways.

7. BOOSTER TRANSFORMERS-DELETED-

8. DESIGN SPEED

The traction overhead equipment for main line is made suitable for maximum speed of 160 km/h.
{Refer Chapter-V, (Section-2)}

9. TYPE OF OHE TO BE PROVIDED:

- (i) Regulated Conventional all copper OHE with 65 sqmm Cadmium-Copper Catenary and 107 /150sqmm grooved HDBC/Cu-Ag Contact wire as per schedule item.

10.1 PERIOD OF COMPLETION

The entire work including commissioning of OHE works shall be completed within **the period as mentioned in the NIT** from the date of issue of the 'Letter of Acceptance' to the tenderer.

10.2 VALIDITY OF OFFER: - Period as mentioned in the NIT from the date of opening of tender.

11. TENDER BID

This is a Two packet e-tendering **without e-reverse auction**. The e-reverse auction shall be applicable for tender costing more than ₹ 50 crore. The Tender bid shall be uploaded on IREPS site (www.ireps.gov.in) in two packets which as under:

Packet-"A" - Prequalification Bid (Eligibility/Qualifying elements) of tender bid.

Packet-"B" - Technical, Commercial (Price elements) of the tender bid.

The details can be seen at para 1.1.7 & 1.1.28 (Part-I, Chapter-I).

12. ELIGIBILITY CRITERIA

12.1 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) (i) 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 during last 07 (seven) years, ending last day of month previous to the one in which tender is invited:

Three similar works each costing not less than the amount equal to 30% of advertised value of each component of tender,

OR

Two similar works each costing not less than the amount equal to 40% of advertised value of each component of tender,

OR

One similar work each costing not less than the amount equal to 60% of advertised value of each component of tender.

Note for B (i): Separate completed works of minimum required values for each component shall also be considered for fulfillment of technical eligibility criteria.

(B) (ii) In such cases, what constitutes a component in a composite work shall be clearly predefined with estimated tender cost of it, as part of the tender documents without any ambiguity.

(B) (iii) 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 (a) (ii) of Part-II of GCC or through subcontractor fulfilling the requirements as per clause 7 of Part-II of GCC 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 fulfillment of technical eligibility.

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 Part-II of GCC, with prior approval of Chief Engineer in writing.

NOTE: "This tender is not a composite work having any distinct composite component and is comprises of OHE work only, therefore the Technical Eligibility criteria as per para 12.1(A) of the Preamble will be applicable for this tender."

C. Definition of SIMILAR Work:-

(i) Definition of similar nature of Work:-

"Erection, testing and commissioning of 25 kV Overhead Electric Equipment in Railways.

(OR)

Construction and commissioning of transmission line of 66kV or above voltage of requisite value as per the technical eligibility criteria. In addition, tenderer shall also have experience of having energized 25 kV OHE work of at least 10 TKM or 20% of TKM involved in instant tender whichever is higher from single completed or ongoing work either as separate additional work or as a part of transmission line work produced to satisfy technical eligibility criteria.

(OR)

Provision or modification to sub-stations/switching stations/switch gear equipment, control and protection equipment, reactors, power factor correction equipment, transformers or any other power equipment in 25 kV Railway Sub-stations/Switching stations or any work pertaining to 66kV and above Electrical sub-station of any PSU/Govt. agencies. In addition, tenderer shall also have experience of having energized 25 kV OHE work of at least 10 TKM or 20% of TKM involved in instant tender whichever is higher from single completed or ongoing work either as separate additional work or as a part of above Substations/Switching stations work produced to satisfy technical eligibility criteria."

²Experience certificate shall be submitted as per Form-12B at Chapter-VI.

Note for item 12.1 :-

Work experience certificate from private individual shall not be considered. However, in addition to work experience certificates issued by any Govt. Organization, 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.

12.2 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.

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 clause 12 (clause 10.1 to 10.5 of GCC, 2022)- 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 0.3×0.2 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.]*

(c) Eligibility as per IE Rules 1956 with latest ammendment:

The Tenderer should have valid Electrical Contractor's License Grade "A"/33 kV or above issued by Government Electrical Licensing Board (OR) the site Supervisor should posses necessary "A" grade/33kV or above License issued by Government Electrical Licensing authority to carryout works of appropriate voltage. The license should have been issued on a date prior to date of tender opening.

(iii) Contractor shall submit following documentations along with Offer failing which offer is liable to rejected: AS
PER CHECK LIST

(iv) Delayed/ Post Tender Submission of Documents/ information of Mandatory Nature linked to Eligibility Criteria called for at Tender stage:

- a) The offer shall be evaluated only from the certificates/documents (as referred above) submitted along with the tender offer.
- b) Any Certificate/Documents offered after the tender opening shall not be given any credit and shall not be considered, whatever the case may be.
- c) Tenderer(s) shall note that conditional/alternate offer will not be considered and will summarily be rejected, even though such condition makes them as the lowest tenderer.
- d) Railway reserves the right to verify the authenticity the documents/information furnished.
- e) Railway is not bound to entertain any post tender opening correspondence or take any cognignce of that.

Note:

- i) The onus of establishing credentials lies with the tenderer and hence Railway shall evaluate the offer only from the certificates/documents submitted along with the tender/offer.
- ii) Any certificates, documents submitted after tender opening shall not be given any credit and shall not be considered.
- iii) Further, **in case of Partnership firms**, to follow IRSGCC 2022.
- iv) **In case of limited company**, to follow IRSGCC 2022.
- v) Also **in case of sole proprietary concern**, to follow IRSGCC 2022.
- vi) Without the above, tender will be treated as having been submitted by individual signing the tender document in personal capacity only and thus credentials for firm/company/sole proprietary concern (which they would otherwise have been representing) shall not be considered even if such firm/company/sole proprietary concern is working contractor or is contractor borne on approved list or had in past or in other tenders submitted such documents.
- vii) Post Tender correspondence shall not be entertained. Railway shall not call for any clarification regarding the credentials from the contractor(s) after the tender is opened.
- viii) If any certificates or details enclosed by tenderers are found to be fake/bogus/ tampered, such of those agencies shall not be awarded any work in S.C. Railway for a period of 2 years from the date of opening of tender. Joint ventures or partnership firms or any other nature of firms in which such agencies are a party shall also not be awarded any work for this period of 2 (two) years. **Railway may file First Information Report (FIR) with police under relevant section of Indian Penal Code.**
- ix) This work is not the composite work.

13. Tenderer's Credentials:-

13(a) 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) Certificates which may be an attested Certificate from the client, Audited Balance Sheet duly certified by the Chartered Accountant etc. 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 **Form-25**. In addition to Form-25, 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 (HUH / Limited Liability Partnership (LLP) etc, as the case may be. Non submission of a copy of 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 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 thereunder.
- (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.

13(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 up to two years

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

13(c) - List of works completed in the last seven qualifying financial years (as the case may be/as applicable) giving description of work, organization for whom executed, value of contract at the time of award, date of award, date of scheduled completion of work, date of actual start, actual completion, total payment received and final value of contract should also be given in respective FORMs.

- 12 **(d)-Work load:-** The tenderers shall furnish the list of works on hand indicating description of work, contract value, value of balance work yet to be done, date of award and date of scheduled completion of work in respective FORMs. Besides, they shall also advise the details of unfinalised tenders (with cost and completion period) in which they have quoted.

Note: (i) Supportive documents/certificates from the organization with whom they worked/ are working should also be enclosed.
(ii) Certificate from private individuals for whom such works are executed / being executed shall not be accepted.
(iii) Tenderer shall submit all the documents in support of minimum eligibility criteria/credential along with the Tender. No documents in support of minimum eligibility criteria/credentials will be accepted/ entertained after opening of the tender.

- 13(e) -Engineering Organization:** - The tenderers should have adequate engineering organizations required for the execution of the work. List of Personnel Organization available on hand and proposed to be engaged for the tendered work shall be furnished in forms as mentioned in respective FORMs.

- 13(f)- Construction machinery:-** The tenderers should have all the construction machinery, tools & plants, vehicles etc, required for the satisfactory execution of tendered work. List of plant & Machinery available on hand (own) and proposed to be inducted (own and hired to be given separately) for the tendered work in as mentioned in respective FORMs.

13(g)-Documents to be Submitted Along with Tender

- (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 / HUF,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) An undertaking that he is not blacklisted or debarred by Railways or any other Ministry / Department of Govt. of India from participation in tender on the date of opening of bids, either in individual capacity or as a member of the partnership firm or JV in which he was / is a partner/member. Concealment / wrong information in regard to above shall make the contract liable for determination under Clause 62 of the General Conditions of Contract.
- (ii) All other documents in terms of explanatory notes in Para 10 of tender form(second sheet) of standard GCC with latest amendments and correction slips.
- (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) An undertaking that the HUF is not blacklisted or debarred by Railways or any other Ministry / Department of Govt. of India from participation in tender on the date of opening of bids, either in individual capacity or as a member of the partnership firm or JV in which HUF was / is a partner/member. Concealment / wrong information in regard to above shall make the contract liable for determination under Clause 62 of the General Conditions of Contract.
- (iii) All other documents in terms of explanatory notes in Para 10 of tender form (second sheet) of standard GCC with latest amendments and correction slips.

- (c) Partnership Firm:
 - (i) The tenderer shall submit documents as mentioned in para 18 of the Tender Form (Second Sheet) of standard GCC with latest amendments and correction slips.
- (d) Joint Venture (JV): The tenderer shall submit documents as mentioned in para 17 of the Tender Form (Second Sheet) of standard GCC with latest amendments and correction slips.
- (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) An undertaking that the Company is not blacklisted or debarred by Railways or any other Ministry / Department of Govt. of India from participation in tender on the date of opening of bids, either in individual capacity or as a member of the partnership firm or JV in which the Company was / is a partner/member. Concealment / wrong information in regard to above shall make the contract liable for determination under Clause 62 of the General Conditions of Contract.
 - (v) All other documents in terms of explanatory notes in Para 10 of tender form(second sheet) of standard GCC with latest amendments and correction slips.
- (f) LLP (Limited Liability Partnership): If the tender is submitted on behalf of a LLP registered under LLP Act-2008, the tenderer shall submit alongwith 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 against the LLP.
 - (iv) An undertaking that the LLP is not blacklisted or debarred by Railways or any other Ministry / Department of Govt. of India from participation in tender on the date of opening of bids, either in individual capacity or as a member of JV in which the LLP was / is a member. Concealment / wrong information in regard to above shall make the contract liable for determination under Clause 62 of the General Conditions of Contract.
 - (v) All other documents in terms of explanatory notes in Para 10 of tender form(second sheet) of standard GCC with latest amendments and correction slips.
- (g) Registered Society & Registered Trust: The tenderer shall submit:
 - (i) A copy of the 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 explanatory notes in Para 10 of tender form(second sheet) of standard GCC with latest amendments and correction slips.
- (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 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 / Partnership firm etc. 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.

13(h):- The tenderer whether sole proprietor / a company or a partnership firm / joint venture (JV) / 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 Apostille certificate.

13(i) 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.

14. Participation of Joint Venture (JV) Firms in Works tender :

Joint Venture shall be considered only for tenders where advertised estimated cost of the work is more than Rs. 10 Crores (Rupees Ten Crores) only.

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

14.2 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%.

14.3 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.

- 14.4 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.
- 14.5 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
- 14.6 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. (The MoU format for this purpose shall be finalized by the Railway in consultation with their Law Branch and shall be enclosed alongwith the tender).
- 14.7 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.
- 14.8 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 tender 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.
- 14.9 Similarly, after the contract is awarded, the constitution of JV shall not normally be 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.
- 14.10 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.
- 14.11 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:

- 14.11.1 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.
- 14.11.2 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.
- 14.11.3 Governing Laws - The registered entity shall in all respect be governed by and interpreted in accordance with Indian Laws.
- 14.12 Authorized Member - Joint Venture members in the JV MoU shall authorize Lead members 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.
- 14.13 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.
- 14.14 Documents to be enclosed by the JV along with the tender:
 - 14.14.1 In case one or more of the members of the JV is/are partnership firm(s), following documents shall be submitted:
 - (a) A notarized copy of the Partnership Deed or a copy of the Partnership deed registered with the Registrar.
 - (b) 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,
 - (c) 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.
 - (d) 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.
 - 14.14.2 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.
 - 14.14.3 In case one or more members of the JV is/are companies, the following documents shall be submitted:
 - (a) A copy of resolutions of the Directors of the Company, permitting the company to enter into

- a JV agreement,
- (b) The copies of **MOA (Memorandum of Association) / AOA (Articles of Association)** of the company
- (c) A copy of Certificate of Incorporation
- (d) 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.

14.14.4 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.

14.14.5 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.

14.14.6 All other documents in terms of explanatory notes in Para 10 of tender form(second sheet) of standard GCC with latest amendments and correction slips.

14.14.70. 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 the 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.

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

14.15.1 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.

14.15.2 Financial Eligibility Criteria

The JV shall satisfy the requirement of "Financial Eligibility" mentioned at Para 12.2 above. The "financial capacity" of the lead partner of JV shall not be less than 51% of the financial eligibility criteria mentioned at Para 12.2 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.

14.15.3 Bid Capacity: The JV shall satisfy the requirement of "Bid Capacity" requirement mentioned at para 12.3 above. The arithmetic sum of individual "Bid capacity" of all the members shall be taken as JV's "Bid capacity" to satisfy this requirement.

14.16 The tenderer whether sole proprietor, a company or a partnership firm / joint venture (JV) / registered society / registered trust 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 submit the tender, sign the agreement, receive money, co-ordinate measurements through contractor's authorized engineer, witness measurements, sign measurement books, compromise, settle, relinquish any claim(s) preferred by the firm and sign "No Claim Certificate" and refer all or any disputes to arbitration.

15. Participation of Partnership Firms in works tenders:

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

15.2. 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 prior to date of tender opening as per the Indian Partnership Act prior to submission of tender.

15.3. 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.

- 15.4. 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 whatsoever. 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.

- 15.5. 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.

- 15.6. The tender form shall be submitted only in the name of partnership firm. The Bid security shall be submitted by partnership firm through e-payment gateway or as mentioned in tender document.

The Bid Security submitted in the name of any individual partner or in the name of authorized partner (s) shall not be considered.

- 15.7. One or more of the partners of the firm or any other person (s) shall be designated as the authorized person (s) on behalf of the firm, who will be authorized by all the partners to act on behalf of the firm through a "Power of Attorney", specially authorizing him / them to submit & sign the tender, sign the agreement, receive payment, witness measurements, sign measurement books, make correspondences, compromise / settle / relinquish any claim (s) preferred by the firm, sign "No Claim Certificate", refer all or any dispute to arbitration and to take similar such action in respect of the said tender / contract. Such "Power of Attorney" shall be notarized / registered and submitted along with the tender.

- 15.8. 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.

- 15.9. 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.

- 15.10. 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/alterd/ 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.

15.11. 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:

- (a) A notarized copy of partnership deed or a copy of the partnership deed registered with the registrar.
- (b) 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.
- (c) 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. 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) All other documents in terms of explanatory notes in Para 10 of tender form(second sheet) of standard GCC with latest amendments and correction slips.

15.12. 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 tender form(second sheet) of standard GCC with latest amendments and correction slips.

16.

16.1 PREBID MEETING: - Deleted –

16.2. LAST DATE FOR SUBMISSION OF TENDERS AND DATE OF OPENING OF TENDERS:

Tender is invited on e-tendering portal of CRIS. Tender offers shall be submitted on www.ireps.gov.in. All the details are available on the website. Tender submitted in any other mode other than through www.ireps.gov.in shall be summarily rejected.

17. ADDRESSES:

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.
The Chief Electrical Engineer
Annex to Rail Nirman Nilayam, 3rd
floor,
Secunderabad.

or his successor/nominee (whose address will be intimated in due course)

- (b) After award of contract:
The Chief Electrical Engineer
Annex to Rail Nirman Nilayam, 3rd floor,
Secunderabad.
- (ii) For Security Deposit:
The FA&CAO,
Construction,
Secunderabad
or his successor/nominee (whose address will be intimated in due course)
- (iii) For matters relating to particular design working
drawing:-
The Chief Electrical Engineer,
Annex to Rail Nirman Nilayam, 3rd
floor,
Secunderabad.

or his successor/nominee (whose address will be intimated in due course)

- (ii) 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
226011.
- (v) Matters relating to progressing of field work, scheduling of quantities and submission
of bills. The Chief Electrical Engineer,
Annex to Rail Nirman Nilayam, 3rd floor,
Secunderabad.

18 QUANTITIES APPROXIMATE

Quantities given in various Schedule-1, Schedule-A in FORM-5 under column quantity are only the approximate quantities of various items of the work. Tenders will be required to execute quantities needed for Successful completion of project subject to total value of agreement cost not exceeding 100%. Tenders are advised to survey to assess quantities required for the project before quoting in the tender.

19 (a). (i) Standard Schedule of Rates (For OHE/SSP/SP Works):Schedule-A, B, C & D

Form-5A of Chapter-IX of Part-II of Tender papers lists out schedule rates for various items of OHE/PSI works. Based on these SOR/Non-SOR rates, the total Contract value has been worked-out in Chapter-III.

Tenderers to note, that the unit rates mentioned against each item in the Schedule –A, Schedule-B, Schedule-C & Schedule-D of Price Schedule have been updated to the prevailing rates.

The Tenderer is advised to quote uniform percentage below/ at par/above the SOR rates as provided in the Tender. The offer where different percentages have been quoted for different SOR Individual items shall be summarily rejected.

Similarly Tenderer shall quote uniform percentage below/at par/above the departmental rate as given in the Tender paper for Schedule B : Part-I, Part-II, Part-III and Part-IV. The offer where

different percentages have been quoted for different Schedule B: ~~Non-SOR~~ "Individual items" of each Part, shall be summarily rejected.

19 (b)(i) Standard Schedule of Rates (for TSS Works):

-DELETED-

19(b)(ii) RATES OF NON SOR ITEMS (FOR TSS Works)

-DELETED-

19 (c) RATES OF NON SOR ITEMS (FOR SCADA Works) -DELETED-

19 (d) RATES OF NON SOR ITEMS (For Electrical General work portion) -DELETED-

- 20 **INDIAN RAILWAYS STANDARD GENERAL CONDITIONS OF CONTRACT:** Indian Railways Standard General Conditions of Contract –**April '2022** issued by Railway Board shall be applicable to the contract. This may be obtained by the tenderer / contractor on payment from any Divisional Railway Manager's office of concerned Railway.

In case of any difference between provisions of GCC **april'2022** and any condition contained in this tender document, the provisions of GCC –April '2022 will prevail, unless stated otherwise.

"GCC or General Conditions of Contract" wherever appearing in the tender document is to be read as General Conditions of Contract–April '2022".

21 COST OF TENDER DOCUMENT:

Details available at IREPS site (www.ireps.gov.in).

22 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 against that contract. 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) in any of the following forms, amounting to 5% of the original contract value:
- (i) A deposit of Cash;
 - (ii) Irrevocable Bank Guarantee;
 - (iii) Insurance Surety Bond as per Annexure-XVII in Part-II of GCC-2022.

Note:

In case of extension of Date of Completion, selected bidder needs to submit extended 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 Defense Certificates;
 - (x) Ten years Defense Deposits;
 - (xi) National Defense 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 in addition to forfeiture of Security Deposit available with railway.
- (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.
 - (iii) The Contract being determined or rescinded under clause 62 of the standard GCC.
- (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:

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

- (i) The value of PG to be submitted by the Contractor will not change for variation upto 25% (either increase or decrease). In case during the course of execution, value of the contract increases by more than 25% of the original contract value, an additional Performance Guarantee amounting to 5% (five percent) for the excess value over the original contract value shall be deposited by the Contractor. On the other hand, if the value of contract decreases by more than 25% of the original contract value, Performance Guarantee amounting to 5% (*five percent*) of the decrease in the contract value shall be returned to the Contractor. The PG amount in excess of required PG for decreased contract value, available with Railways, shall be returned to Contractor as per his request duly safeguarding the interest of railways.
- (j)

23 e-Payment

Tenderers are required to submit their bank details in the proforma given in FORM-24 to facilitate e-payment vide NEFT/RTGS, if any.

- 24 Whenever the contract is rescinded contractor shall return all the material to Railways which either Railway has supplied to him or for which he has taken any payment (including ONA) from Railways.

- 25 Bank Guarantees against Security Deposit, Performance Guarantee, Mobilization Advance and On Account payment, to be submitted by the contractor should preferably be sent to the concerned authorities directly by the issuing Bank under Registered Post (AD).

26 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.

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PART-I

CHAPTER-I

PART-I

CHAPTER-I

INSTRUCTIONS TO TENDERERS & CONDITIONS OF TENDERING FOR OHE, TRACTION SUB-STATION AND SCADA WORKS

Para No.	Subject
1.1.1	Tender papers.
1.1.2	Interpretations.
1.1.3	General.
1.1.4	Clarifications.
1.1.5	Earnest Money.
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	Omissions & Discrepancies.
1.1.26	Care In Submission of Tenders.
1.1.27	Right of Railway to deal with Tenders
1.1.28	Reverse Auction
1.1.29	Safety, Health, Environment (SHE) and Social Obligations of the Contractor
Annexure-I	Procedure for Conduct and Reporting of Reverse Auction
Annexure-II	Public Procurement (Preference to Make In India),
Order-2017 Annexure-III	Tenderer's Credentials (Bid Capacity)
Annexure-IV	Regarding 'Restriction under Rule144(xi) of General Financial Rules (GFRs),2017'

PART I

CHAPTER I

INSTRUCTIONS TO TENDERERS & CONDITIONS OF TENDERING.

TENDER PAPERS : 1.1.1

The instructions to Tenderers and conditions of Tendering, special conditions of Contract, Prices, Payment and Explanatory Notes, specification, standard General Conditions of contract (GCC) of Indian Railways as amended/corrected upto latest correct slips, schedule of approximate quantities and forms for Tenders, included in part-I to II 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.

- (a) **Order of Precedence of Documents:** In a contract agreement, in case of any difference, contradiction, discrepancy, with regard to conditions of tender/contract, specifications, drawings, bill of quantities etc., forming part of the tender/contract, the following shall be the order of precedence:
- i. Letter of Award
 - ii. Bill(s) of Quantities.
 - iii. Schedule of Items, Rates & Quantities
 - iv. Special Conditions of Contract
 - v. Technical Specifications as given in tender documents
 - vi. Drawings
 - vii. Indian Railways Standard General Conditions of Contract updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents.
 - viii. CPWD Specifications 2019 Vol. I & II updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents, if applicable in the contract.
 - ix. Indian Railways Unified Standard Specification (IRUSS-2019) updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents, if applicable in the contract.
 - x. Indian Railways Unified Standard Specifications (Works and Material) 2010 updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents, if applicable in the contract.
 - xi. IR Specifications/Guidelines updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents.
 - xii. Relevant B.I.S. Codes updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents.

(b) Absence of specific provision

In the absence of any specific provision on any particular issue in the aforesaid Manuals, Specifications, or Standards, the following standards shall apply in order of priority

I.E.Rules 1956

I.E.ACT 2003

Research, Designs and Standards Organisation (RDSO)

AC Traction Manual (ACTM)

Central Public Works Department (CPWD)

Bureau of Indian Standards (BIS)

Euro Codes or British Standards or American Standards

Any other specifications/standards proposed by the Contractor and reviewed by the Authority Engineer.

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:

“Chief Engineer”

shall mean the Officer-in-Charge of the Engineering Department of Railway and shall also include Chief Engineer (Construction), Chief Electrical Engineer, Chief Electrical Engineer (Construction), Chief Signal & Telecom Engineer, Chief Signal & Telecom Engineer (Construction), Chief Mechanical Engineer and shall mean and include their successors of the Successor Railway

"CONTRACT"

Means the Contract resulting from the acceptance by the Purchaser of this Tender either in whole or in part.

"CONTRACTOR"

Means the person, firm 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 authorized Engineer”

shall mean a graduate engineer or equivalent, having more than 3 years experience in the relevant field of construction work involved in the contract, duly approved by the Engineer.

"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.

“Date of inviting tender”

shall be the date of publishing tender notice on IREPS website if tender is published on website or the date of publication in newspaper in case tender is not published on website.

“Divisional Railway Manager”

shall mean the Officer-in-Charge of a Division of Zonal Railway and shall mean and include Divisional Railway Manager of the Successor Railway.

“Drawings”

Shall mean the maps, drawings, plans and tracings, or prints thereof annexed to the Tender Forms.

“ENGINEER”

Shall mean the Divisional Engineer or Executive Engineer, Divisional Signal & Telecom Engineer, Divisional Electrical Engineer, Divisional Mechanical Engineer in executive charge of the works and shall include the superior officers, both Open Line and Construction Organisations, of Engineering, Signal & Telecom, Mechanical and Electrical Departments, i.e. the Senior Divisional Engineer/Deputy Chief Engineer, Senior Divisional Signal & Telecom Engineer / Dy. Chief Signal & Telecom Engineer, Senior Divisional Electrical Engineer / Deputy Chief Electrical Engineer, Senior Divisional Mechanical Engineer and shall mean & include the Engineers of the Successor 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"

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

“Limited Tenders”

Shall mean tenders invited from all or some contractors on the approved or select list of contractors with the Railway

"MONTH"-

Means any consecutive period of thirty days.

"MATERIALS"

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

“Open Tenders”

shall mean the tenders invited in open and public manner and with adequate notice.

"PURCHASER"

Means the President of India acting through his accredited officers or any one of them. The General Manager, In-charge of this Railway Electrification (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"

Shall mean the President of the Republic of India or the administrative officers of the Railway or Successor Railway authorized to deal with any matter, which these presents are concerned on his behalf.

Schedule of Rates of the Railway”

shall mean the Standard Schedule of Rates (SSOR) shall mean the schedule of Rates adopted by the Railway, which includes-

1. “Unified Standard Schedule of Rates of the Railway (USSOR)” i.e. the Standard Schedule of Rates of the Railway issued under the authority of the Chief Engineer from time to time, updated

with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents;

2. "Delhi Schedule Of Rates (DSR)" i.e. the Standard Schedule of Rates published by Director General/ Central Public Works Department, Government of India, New Delhi, as adopted and modified by the Railway under the authority of the Chief Engineer from time to time, updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents.

"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 authorized as an extension of the site, irrespective of the terms and conditions under which they are occupied by the Contractor.

"Specifications"

shall mean the Specifications for Materials and Works of the Railway as specified under the authority of the Ministry of Railways or Chief Engineer or as amplified, added to or superseded by special specifications if any, appended to the Tender Forms.

"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.

"TENDERER"

Shall mean the person / firm / co-operative or company whether incorporated or not who tenders for the works with a view to execute the works on contract with the Railway and shall include their representatives, successors and permitted assigns.

"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 there from, 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.

"Bill of Quantities" shall mean Schedule of Item(s) included in the tender document along with respective quantities.

Words importing the singular number shall also include the plural and vice versa where the context requires.

GENERAL : 1.1.3

- (a) All documents to be submitted in connection with this TENDER SHALL BE WRITTEN IN ENGLISH AND IN INK and then uploaded to www.ireps.gov.in

- (b) --- DELETED --

- (c) **METRIC**

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

- (d) The definitions of the technical terms used will be the same as given in the international electro technical vocabulary.

CLARIFICATIONS : 1.1.4

Any clarification required by the Tenderer may be obtained from the Chief Electrical Engineer, Construction, Secunderabad or his successor/nominee (whose address will be intimated in due course).

EARNEST MONEY/BID SECURITY: 1.1.5

- (a) The Bid Security/Earnest Money Deposit amount for the tender shall be as per NIT.

(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:

- (iv) The Bid Security shall be rounded off to the nearest ₹100. This Bid Security shall be applicable for all modes of tendering.
- (v) Any firm recognized by Department of Industrial Policy and Promotion (DIPP) as 'Startups' shall be exempted from payment of Bid Security detailed above.
- (vi) 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:

- ix. A scanned copy of the Bank Guarantee shall be uploaded on e-Procurement Portal (IREPS) while applying to the tender.
- x. The original Bank Guarantee should be delivered in person to the official nominated as indicated in the tender document within 5 working days of before closing date for submission of bids. (i.e. excluding the last date of submission of bids).
- xi. Non submission of scanned copy of Bank Guarantee with the bid on e-tendering portal (IREPS) and/or non submission n of original Bank Guarantee within the specified period shall lead to summary rejection of bid.

- xii. The Tender Security shall remain valid for a period of 90 days beyond the validity period for the Tender.
- xiii. 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
- xiv. 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.
- xv. The envelope shall be addressed to the officer and address as mentioned in the tender document.
- xvi. 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.

Minimum Eligibility Criteria: 1.1.6

As per para 12 of preamble.

FORM OF TENDER : 1.1.7

The Tender Bid shall be submitted online on www.ireps.gov.in along with the entire mandatory documents required. Tender Forms shall embody the contents of the contract documents either directly or by reference and shall be as per specimen form. e-Tender Forms shall be issued free of cost to all tenderers.

(a) Tenders not uploaded in proper FORMS as indicated below are liable to be rejected.

All FORMs shall be uploaded strictly as per sequence indicated on www.ireps.gov.in and shall be properly indexed.

(b) (i) Documents to be uploaded with Prequalification Bid (Eligibility/Qualifying Elements) (Packet – "A") shall consist of the following:-

S.No.	Descriptions	Remarks
1.	Offer letter only.	FORM - 1A
2.	Model Certificate to be submitted by Tenderers for Works involving possibility of sub-contracting (Restriction under Rule 144(xi) of General Financial Rules(GFRs),2017')	As per Annexure-IV of this chapter
3.	Bid Security Declaration	
4.	Alternative Proposal of the Tenderer.	FORM - 4
5.	Tenderer's Scheme of Work and Time Schedule for OHE Works.	FORM - 10, Sh.1 to 4.
6.	Tenderer's Credentials with details as per Sheet-1to 5 for OHE	FORM - 12A, Sh.1 to 4
7.	Tenderer's Credentials with details as per Sheet for TSS	FORM - 12A, Sh.5
8.	Tenderer's Credentials with details as per Sheet for SCADA(Deleted)	Deleted
9.	Tenderer's Credentials with details for Bid capacity	FORM-12F
10.	Technical Data for Equipments, Components & MaterialsTo be uploaded by the Tenderer for TSS.	-Deleted-
11.	Bank details in the proforma to facilitate e-payment vide NEFT/RTGS, if any.	FORM - 24
12.	FORMAT FOR certificate TO BE uploaded BY TENDERER ALONGWITH THE TENDER OFFER	FORM - 25

13.	FORMAT FOR certificate TO BE uploaded BY TENDERER ALONGWITH THE TENDER OFFER	FORM - 25A
14.	All related documents required to upload with notary Attestation as under:-	Required to upload
15.	(i)Regarding Power of Attorney, who has signed the tender Documents.	Required to upload
	(ii)Power of Attorney, documents regarding constitution of firm and other Associated legal documents.	
	A copy of Tender Papers along with A & C Slips, if any, duly Signed by the Tenderer, on each and every page in token of his having studied the Tender Papers carefully, shall be attached with the Tender Offer.	

Notes:- -- Deleted --

(b) (ii)Commercial (Price elements) of the tender bid (Packet-B) shall be quoted on IREPS Website.

(c) - Deleted -

(d) Alternative proposals

Should the Tenderers have alternative proposals for basic arrangements, typical designs and specifications drawings for components and materials (See Para 1.1.10) which the Tenderer considers would improve the operating performance of the equipment or would reduce the cost of the equipment, he shall incorporate them in the Tender for consideration by the Purchaser **Form-4**. He shall clearly indicate in detail the technical and /or financial advantages which would accrue to the Purchaser, specifically for each alternative proposal suggested by him.

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 A, IIIB & IIIC for OHE, SP, SSP, TSS & SCADA - Prices and Payment.

1.1.9 -Deleted-

SPECIFICATIONS AND DRAWINGS : 1.1.10

(a) The Tenderer shall follow the standard general arrangement drawings and other drawings and specification relating to the equipment, components and fittings specified in the Tender paper. A list of standard drawings and specifications is enclosed as in Annexures in Chapter-IX of Part-II. Copies of the above standard drawings are available for inspection in the drawing office of the Chief Electrical Engineer, Construction, Secunderabad or his successor/ nominee (whose address will be intimated in due course). If the Tenderer so desires he may purchase full sets of drawings and specifications from the office of the Chief Electrical Engineer, Construction, Secunderabad /or his successor/ nominee (whose address will be intimated in due course), on payment. However, if the Tenderer desires to purchase individual drawings and specifications he may do so from the office of the Chief Electrical Engineer, Construction, Secunderabad.

(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 Incharge shall be final subject to appeal (within seven days of decision being intimated to the Contractor) to the Chief Electrical Engineer, Construction, Secunderabad 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.

Milestone for stages of completion for work (Schedule of work): 1.1.11-Deleted-

SIGNING OF TENDERS : 1.1.12

(a) Any individual or individuals signing the Tender or other documents connected there with 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 authorized 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.

(d) Power of Attorney should be executed by the competent Authority of Firm/Company and notarized on proper value of Non-Judicial stamp paper of concerned state and same should also be accepted by Attorney holder. Signature of executants should also be verified by Notary on same date and place.

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 and Fax.

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

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.

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 mentioned in Item No.10.2 of 'PREAMBLE' from the date on which Tenders are opened, during which period the Tenderer shall not withdraw his offer nor amend, impair or derogate therefrom. The Earnest Money 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 mentioned in Item No.10.2 of 'PREAMBLE'. 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 mentioned in Item No.10.2 of 'PREAMBLE' 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.

(c) Employment/Partnership etc. of Retired Railway Employees:

(I) 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 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.

- II) 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.
- III) 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 Para 1.1.19- (c) I, II) & III) above has not been furnished, contract is liable to be dealt in accordance with provision of clause 62 of Standard General Condition of contract.

IV) 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.

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

The Tender shall upload his credentials all details as required as per eligibility/ qualifying criteria as given in para 12 of the preamble of this tender for OHE works separately (**see FORM-12A, Sheet-1 to 6, FORM-12C & FORM-12D at Chapter-IX of Part-II of Tender Paper**).

SUBMISSION OF TENDER : 1.1.22

Details of Tender Notice, Tender document and corrigendum issued from time to time along with eligibility criteria are available on the web site <https://www.ireps.gov.in>. The necessary changes if required would be posted on this web site during advertisement period and may be seen on web site. Tenderers may participate in above E-tender electronically through website <https://www.ireps.gov.in> only & submission of manual offers against E-tender is not allowed. Manual offers, if submitted shall neither be opened nor considered.

OPENING OF TENDER : 1.1.23

Tender will be opened at the time and date prescribed in preamble to the tender paper, online on the website www.ireps.gov.in and in the office of the CHIEF ELECTRICAL ENGINEER, Construction, SCR or

his successor/nominee (whose address will be intimated in due course).

After the opening of the tender bids, it shall be scrutinized and analysed. If found necessary by the purchaser, the tenderer shall be asked to furnish the clarifications and the purchaser shall also hold discussions with the tenderer(s) after giving due notice.

MISCELLANEOUS : 1.1.24

Tender documents are not transferable. The cost of the Tender Papers is not refundable.

OMISSIONS & DISCREPANCIES: 1.1.25

Should a tender find discrepancies in or omissions from the drawings or any of the Tender Forms or should he be in doubt as to their meaning, he should at once notify the authority inviting tenders who may send a written instruction to all tenders. It shall be understood that every endeavor has been made to avoid any error which can materially affect the basis of the tender and the successful tenderer shall take upon himself and provide for the risk of any error which may subsequently be discovered and shall make no subsequent claim on account thereof.

: 1.1.26

- (b) (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 General Conditions of contract for the completion of works to the entire satisfaction of the Engineer.
- (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.
- (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.
- (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.
- (c) When work is tendered for by a firm or company of contractors, the tender shall be signed by the individual legally authorized to enter into commitments on their behalf.
- (d) 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.
- (e) 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.

- (f) The Tenderer shall submit a copy of certificate stating that 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 Form-25. In addition to Form-25, 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.
- (g) The Tenderer shall submit a copy of certificate stating that "I/We declare and certify that I/We ((Name of Sole Proprietary firm) / (Name of Partnership firm & all its partners or Company or JV firm & all its members or LLP or HUF etc. **)) is not blacklisted or debarred by Railways or any other Ministry / Department of Govt. of India from participation in tender on the date of opening of bids, either in individual capacity or as a member of the partnership firm or JV in which ((Name of Sole Proprietary firm) / (Name of Partnership firm & all its partners or Company or JV firm & all its members or LLP or HUF etc. **)) was / is a partner/member". Standard format of the certificate to be submitted by the bidder is enclosed as Form-25.
- (h) **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, higher mobilisation advance, or any modification in respect of mobilisation advance, On account/ progress payment, recovery rate, insurance warranty, extension in completion period , 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.

Partnership Deeds, Power of Attorney etc.:1.1.26 A

- (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 / HUF 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) An undertaking that he is not blacklisted or debarred by Railways or any other Ministry / Department of Govt. of India from participation in tender on the date of opening of bids, either in individual capacity or as a member of the partnership firm or JV in which he was / is

- a partner/member. Concealment / wrong information in regard to above shall make the contract liable for determination under Clause 62 of the General Conditions of Contract.
- (ii) All other documents in terms of explanatory notes in Clause 12 of the Preamble.
- (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) An undertaking that the HUF is not blacklisted or debarred by Railways or any other Ministry / Department of Govt. of India from participation in tender on the date of opening of bids, either in individual capacity or as a member of the partnership firm or JV in which HUF was / is a partner/member. Concealment / wrong information in regard to above shall make the contract liable for determination under Clause 62 of the General Conditions of Contract.
 - (iii) All other documents in terms of explanatory notes in Clause 12 of the Preamble.
- (c) Partnership Firm:
- (i) The tenderer shall submit documents as mentioned in clause 18 of the Tender Form (Second Sheet).
- (d) Joint Venture (JV): The tenderer shall submit documents as mentioned in Clause 14.14 of the Preamble of the Tender.
- (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) An undertaking that the Company is not blacklisted or debarred by Railways or any other Ministry / Department of Govt. of India from participation in tender on the date of opening of bids, either in individual capacity or as a member of the partnership firm or JV in which the Company was / is a partner/member. Concealment / wrong information in regard to above shall make the contract liable for determination under Clause 62 of the General Conditions of Contract.
 - (v) All other documents in terms of explanatory notes in Clause 12 of the Preamble.
- (f) LLP (Limited Liability Partnership): If the tender is submitted on behalf of a LLP registered under LLP Act-2008, the tenderer shall submit alongwith 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 against the LLP.
 - (iv) An undertaking that the LLP is not blacklisted or debarred by Railways or any other Ministry / Department of Govt. of India from participation in tender on the date of opening of bids, either in individual capacity or as a member of JV in which the LLP was / is a member. Concealment / wrong information in regard to above shall make the contract liable for determination under Clause 62 of the General Conditions of Contract.
 - (v) All other documents in terms of explanatory notes in Clause 12 of the Preamble.
- (g) Registered Society & Registered Trust: The tenderer shall submit:
- (i) A copy of the Certificate of Registration
 - (ii) A copy of Deed of Formation
 - (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) All other documents in terms of explanatory notes in Clause 12 of the Preamble.

(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 etc. shall be neither asked nor considered, if submitted. Further, no suomoto 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 / Partnership firm etc. shall be considered only where permissible as per the tender conditions.

(vi) The Railway will not be bound by any change 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.

1.1.27

(a) **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. 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.

(b) Rights of the Railway to deal with tender:

If the tenderer(s) deliberately gives/give wrong information in his/their tender or creates/create circumstances for the acceptance of his/their tender, the Railway reserves the right to reject such tender at any stage.

(c) **Pre Bid Conference:** Intenders having advertised value more than Rs 50 Crore or as mentioned in the tender document, Railway shall conduct Pre Bid Conference(s) with the prospective bidders.

(d) **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.

(e) **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.

(f) **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.

Reverse Auction (Applicable for works tenders valued more than Rs. 50 Crore): 1.1.28

1.1.28.1 Selection criteria for tender cases of Works, Stores and Services proposed through Reverse Auction (e-RA) route:

- (a) In the first phase, following method of purchase through Reverse Auction shall be the preferred method for tenders valued more than Rs. 50 Cr. in each case.
- (b) The process of procurement through Reverse Auction shall be followed only in case of tenders where there are at least three proven/likely competitive sources, prima facie competent for execution of work.
- (c) Financial Bids in single currency/parameter only shall be allowed.
- (d) For cases on Zonal Railways/Pus, personal approval of the PHOD/CHOD duly vetted by associate finance shall be required for any exception in tendering method for cases otherwise eligible to be processed through the method of procurement detailed herein.

1.1.28.2 Procedure for award of contracts through Reverse Auction:

- (e) The procedure discussed herein shall be fully implemented through IREPS. Any reference to Reverse Auction in these instructions shall imply e-RA.
- (f) Conduct and reporting of Reverse Auction shall be as per Annexure-I to Part-I, Chapter-I.
- (g) Each tender should clearly specify essential technical and commercial parameters in a transparent manner. No deviation to such essential Technical & Commercial conditions shall be permitted to the vendors in the electronic bid form.

1.1.28.2.1 Technical Bid and Initial Price Offer:

- (a) E-RA shall be adopted only for those cases where evaluation is on the basis of single parameter/currency.
- (b) Bidder shall be simultaneously required to electronically submit a Technical & Commercial Bid and Initial Price Offer.
- (i) Offers found eligible for award of contract / meeting eligibility criteria shall be categorized as Qualified for Award of Contract for the purpose of e-RA.
- (c) Offers not complying with essential technical & commercial requirement of the tender shall be declared as ineligible for award contract.
- (d) Technical & Commercial evaluation bids shall be done by a Tender Committee, as per extant guidelines, delegation and the estimated value of tender. Recommendations of Tender Committee shall be considered by Tender Accepting Authority, as per existing guidelines.
- (e) Initial Price Offer of only those bidders categorized as Qualified for Award of contract, shall be opened and tabulated by system separately. Extant instructions for electronic tabulation shall apply for tabulation of Initial Price Offers.

1.1.28.2.2 Financial Bid:

Financial Bid shall comprise of final Price Offer obtained through Reverse Auction. Following conditions and procedure shall be followed in selection of bidders for conduct of Reverse Auction:

- (a) Selection of vendors for Reverse Auction for award of Contract in Works and Services tenders and bulk ordering in Stores tenders :

Number of tenders Qualified for Award of contract / Bulk Order	Number of tenders to be selected for Reverse Auction	Remarks
< 3	NIL*	The bids disallowed from participating in the Reverse Auction shall be the highest bidder(s) in the tabulation of Initial Price Offer. In case the highest bidders quote the same rate, the initial Price Offer received last, as per time log of IREPS, shall be removed first, on the principle of last in first out, by IREPS system itself.
3 to 6	3	
More than 6	50% of Vendors Qualified for award of contract (rounded off to next higher integer)	

- (i) *If the number of tenders qualified for Bulk Order / Award of Contract is less than 3. RA shall not be done and tender may be decided on the basis of Initial Price Offer(s).

Note: (ii) Make in India criteria: All bidders eligible for benefits under Public Procurement (Preference to Make of India) Order - 2017, found Qualified for Bulk/Developmental Order/Award of Contract and are within the specified range of price preference, under the make in India policy, of lowest Initial Price offer of the vendor qualified for bulk order shall be permitted to participate in the Reverse Auction, irrespective of their inter se ranking on the basis of Initial Price Offer. Such bidders shall be over and above the number of vendors selected for Reverse Auction, as per Para: 1.1.28.2.2 (a). However, if all the bids qualified for bulk order as well as for developmental order (before applying elimination criteria) also qualify under "Make in India Order, 2017" criteria, this clause shall not apply. Refer Annexure-II to Part-I, Chapter-I.

- (b) During Reverse Auction process, bidders shall not be allowed to bid a rate higher than the lowest Initial Price Offer.

- 1.1.28.2.3 Reverse Auction among bids categorized as Qualified for award of contract shall be conducted on IREPS/Suitable Platform. Bidders shall be able to see the auction screens.
- 1.1.28.2.4 After obtaining the final price offers through Reverse Auction, the lowest bid of only those bidders who had participated in the reverse auction shall be tabulated and considered for ordering. The offers of bidders which were eliminated from reverse auction in terms of Para 1.1.28.2.2 (a) shall be tabulated separately and shall not be considered for any ordering. All the relevant policies of Government of India at the relevant time shall be applicable.
- 1.1.28.2.5 The level of Tender Committee to consider the Final Prices Offer shall be determined on the basis of lowest Initial Price Offer of bid Qualified for award of contract, as opened prior to Reverse Auction. In case the level Tender Committee which evaluated technical & commercial bids as per para 1.1.28.2.1(d) was higher than the level of TC competent to consider lowest Initial Price Offer of bid Qualified for award of contract/Bulk order, the higher level TC shall continue to finalize such tender cases.

1.1.28.2.6 Considering the fact that execution of works, delivery of services and availability of items is of paramount importance, Zonal Railways should resort to tendering through other appropriate methods to meet any exigency.

1.1.29: Safety, Health, Environment (SHE) and Social Obligations of the Contractor

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Procedure for Conduct and Reporting of Reverse Auction

1. The tendering authority shall solicit bids through an invitation to the electronic Reverse Auction to be published or communicated in accordance with the provisions similar to e-procurement.
2. Convenor of the tender committee shall fix the following, on case to case basis, depending upon the nature of work and complexity of case on hand. These shall be indicated in the tender for e-RA itself.
 - a. **Initial e-RA period:** This shall be the initial time interval for e-RA. E-RA shall be open for this duration.
 - b. **Auto extension period:** In case any offer is received in the time period equal to auto extension period before close of initial e-RA period, the e-RA shall be extended for time equal to auto extension period from the time of last bid. There shall be no upper limit on number of auto extensions. When no offer is received in the last auto extension period, e-RA shall close.
 - c. Minimum decrement in percentage of value of the last successful bid.
3. Date and time for start of e-RA shall be communicated to qualified tenderers by the convener after evaluation of Technical Bids.
4. After submission of Initial Price Bid, tenderers will not be allowed to revise the taxes and other levies.
5. During auction period, identities of the participating tenderers will be kept hidden.
6. Minimum admissible bid value will be last bid value minus minimum decrement as specified by the tendering authority before starting of reverse auction. Starting point for reverse auction shall be lowest initial Price Bid of the tenderer eligible for award of contract.
7. After close of the RA, tabulation of last (minimum) bids received from all the tenderers will be generated and made visible to Railways and participating tenderers.
8. Railway users can also view the bidding history in chronological order.
9. Bidders not be allowed to withdraw their last offer.
10. L-1 will be defined as the lowest bid obtained after the closure of R.A. session.

PUBLIC PROCUREMENT (PREFERENCE TO MAKE IN INDIA), ORDER-2017-As amended
(Important clauses are reproduced hereunder)

Whereas it is the policy of the Government of India to encourage 'Make in India' and promote manufacturing and production of goods and services in India with a view to enhancing income and employment, and

Whereas procurement by the Government is substantial in amount and can contribute towards this policy objective, and

Whereas local content can be increased through partnerships, cooperation with local companies, establishing production units in India or Joint Ventures (JV) with Indian suppliers, increasing the participation of local employees in services and training them.

Now therefore the following Order is issued:

1. **This Order is issued pursuant to Rule 153(iii) of the General Financial Rules 2017.**

2. **Definitions:** For the purposes of this Order:

'Local Content' means the amount of value added in India which shall, unless otherwise prescribed by the Nodal Ministry, be the total value of the item procured(excluding net domestic indirect taxes) minus the value of imported content in the item(including all customs duties) as a proportion of the total value, in percent.

'Class-I local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, meets the minimum local content as prescribed for 'Class-I local supplier' under this Order.

'Class-II local supplier' means a supplier or service provider whose goods, services or works offered for procurement, meets the minimum local content as prescribed for 'Class-II local supplier' but less than that prescribed for Class-I local supplier' under this Order

'Non – Local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content less than that prescribed for 'Class-II local supplier' under this Order.

'L 1' means the lowest tender or lowest bid or the lowest quotation received in a tender, bidding process or other procurement solicitation as adjudged in the evaluation process as per the tender or other procurement solicitation.

'Margin of purchase preference' means the maximum extent to which the price quoted by a local supplier may be above the L 1 for the purpose of purchase preference.

'Nodal Ministry' means the Ministry or Department identified pursuant to this order in respect of a particular item of goods or services or works.

'Procuring entity' means a Ministry or department or attached or subordinate office of or autonomous body controlled by, the Government of India and includes Government companies as defined in the Companies Act.

'Works' means all works as per Rule 130 of GFR 2017, and will also include *'turnkey works'*

3. **Eligibility of 'Class-I local supplier'/'Class-II local supplier'/'Non-local suppliers' for different types of procurement**

- (a) In procurement of all goods, services or works in respect of which the Nodal Ministry / Department has communicated that there is sufficient local capacity and local competition, only Class-I local supplier , as defined under the Order, shall be eligible to bid irrespective of purchase value.
 - (b) Only 'Class-I local supplier and Class-II local supplier , as defined under the Order, shall be eligible to bid in procurements undertaken by procuring entities, except when Global tender enquiry has been issued. In global tender enquiries, 'Non-local suppliers' shall also be eligible to bid along with 'Class-I local suppliers and 'Class-II local suppliers'. In procurement of all goods, services or works, not covered by sub- para 3(a) above, and with estimated value of purchases less than Rs. 200 Crore, in accordance with Rule 161(iv) of GFR, 2017, Global tender enquiry shall not be issued except with the approval of competent authority as designated by Department of Expenditure
 - (c) For the purpose of this Order works includes Engineering, Procurement and Construction (EPC) contracts and services include System Integrator (SI) contracts.
4. **Exemption of small purchases:** Notwithstanding anything contained in paragraph (iii), procurements where the estimated value to be procured is less than Rs. 5 lakhs shall be exempt from this Order. However, it shall be ensured by procuring entities that procurement is not split for the purpose of avoiding the provisions of this Order.
5. **Minimum local content:** The local content' requirement to categorize a supplier as Class-I local supplier is minimum 50%. For Class-II local supplier', the 'local content' requirement is minimum 20%. Nodal Ministry/ Department may prescribe only a higher percentage of minimum local content requirement to categorize a supplier as 'Class-I local supplier' / 'Class II local supplier' .For the items for which Nodal Ministry/ Department has not prescribed higher minimum local content notification under the Order, it shall be 50% and 20% for Class I local supplier'/ 'Class-II local supplier' respectively.
6. **Margin of Purchase Preference:** The margin of purchase preference shall be 20%.
7. **Requirement for specification in advance:** The minimum local content, the margin of purchase preference and the procedure for preference to Make in India shall be specified in the notice inviting tenders or other form of procurement solicitation and shall not be varied during a particular procurement transaction.
8. **Government E-market place:** In respect of procurement through the Government E-market place (GeM) shall, as far as possible, specifically mark the items which meet the minimum local content while registering the item for display, and shall, wherever feasible, make provision for automated comparison with purchase preference and without purchase preference and for obtaining consent of the local supplier in those cases where purchase preference is to be exercised.
9. **Verification of local content:**
- a. The local supplier at the time of tender, bidding or solicitation shall be required to provide self- certification that the item offered meets the minimum local content and shall give details of the location(s) at which the local value addition is made.
 - b. **In cases of procurement for a value in excess of Rs. 10 crores, the local supplier shall be required to provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.**

- c. Decisions on complaints relating to implementation of this Order shall be taken by the competent authority which is empowered to look into procurement-related complaints relating to the procuring entity.
- d. Nodal Ministries may constitute committees with internal and external experts for independent verification of self-declarations and auditor's/accountant's certificates on random basis and in the case of complaints.
- e. Nodal Ministries and procuring entities may prescribe fees for such complaints.
- f. False declarations will be in breach of the Code of Integrity under Rule 175(1)(i)(h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151(iii) of the General Financial Rules, along with such other actions as may be permissible under law.
- g. A supplier who has been debarred by any procuring entity for violation of this Order shall not be eligible for preference under this Order for procurement by any other procuring entity for the duration of the debarment. The debarment for such other procuring entities shall take effect prospectively from the date on which it comes to the notice of other procurement entities, in the manner prescribed under paragraph (ix)(h) below.
- h. The Department of Expenditure shall issue suitable instructions for the effective and smooth operation of this process, so that:
- i. The fact and duration of debarment for violation of this Order by any procuring entity are promptly brought to the notice of the Member-Convenor of the Standing Committee and the Department of Expenditure through the concerned Ministry/Department or in some other manner.
- ii. On a periodical basis such cases are consolidated and a centralized list or decentralized lists of such suppliers with the period of debarment is maintained and displayed on website(s);
- iii. in respect of procuring entities other than the one which has carried out the debarment, the debarment takes effect prospectively from the date of uploading on the website(s) in the such a manner that ongoing procurements are not disrupted.
- .

Note: For detail policy guidelines Bidders may go through the complete document available on public domain on website.

TENDERER'S CREDENTIALS (BID CAPACITY)

For tenders costing 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 bid 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 the tenderer as per the prescribed proforma of Railway for statement of all works in progress and also the works which are awarded to tenders but yet not started upto the date of inviting of tender.

Note:

- (a) The Tenderer(s) shall furnish the details of existing commitments and balance amount of ongoing works with tenderer as per the prescribed proforma (Form-12F) 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. In case of no works in hand, a 'NIL' statement should be furnished. This statement should be submitted duly verified by Chartered Accountant.
- (b) In case of JV, the tenderer(s) must furnish the details of existing commitments and balance amount of ongoing works with each member of JV as per the prescribed proforma (Form-12F) 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. In case of no works in hand, a 'NIL' statement should be furnished. This statement should be submitted 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.

Regarding 'Restriction under Rule 144(xi) of General Financial Rules (GFRs), 2017'

- I. Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority which is the registration committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT).
- II. "Bidder" (including the term 'tenderer', 'consultant' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency branch or office controlled by such person, participating in a procurement process.
- III. "Bidder from a country which shares a land border with India" for the purpose of this Order means: -
 - a. An entity incorporated, established or registered in such a country; or
 - b. A subsidiary of an entity incorporated, established or registered in such a country; or
 - c. An entity substantially controlled through entities incorporated, established or registered in such a country; or
 - d. An entity whose *beneficial owner* is situated in such a country; or
 - e. An Indian (or other) agent of such an entity; or**
 - f. A natural person who is a citizen of such a country; or
 - g. A consortium or joint venture where any member of the consortium or joint venture falls under any of the above
- IV. The *beneficial owner* for the purpose of (iii) above will be as under:
 1. In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has a controlling ownership interest or who exercises control through other means.

Explanation—

- a. **"Controlling ownership interest" means ownership of or entitlement to more than twenty-five per cent. of shares or capital or profits of the company;**
- b. "Control" shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholders agreements or voting agreements;
2. **In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership;**
3. In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals;
4. Where no natural person is identified under (1) or (2) or (3) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;

5. In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.
- V. An Agent is a person employed to do any act for another, or to represent another in dealings with third person.
- VI. The successful bidder shall not be allowed to sub-contract works to any contractor from a country which shares a land border with India unless such contractor is registered with the Competent Authority
- VII. The bidder has to submit the following certificates as applicable:

Model Certificate to be submitted by Tenderers

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that this bidder fulfills all requirements in this regard and is eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]"

Model Certificate to be submitted by Tenderers for Works involving possibility of sub-contracting

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and on sub-contracting to contractors from such countries,' I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority and will not sub-contract any work to a contractor from such countries unless such contractor is registered with the Competent Authority. I hereby certify that this bidder fulfills all requirements in this regard and is eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]"

Note:

1. If the certificate given by bidder whose Bid is accepted is found to be false, this would be a ground for immediate termination and further legal action in accordance with law (Ref: Ministry of Finance's Office Memoranda No. 6/18/2019-PPD dated 23.07.2020 regarding 'Restriction under Rule 144 (xi) of General Financial Rules (GFRs), 2017' Para 12)
2. In projects which receive international funding with the approval of the DEA, Ministry of Finance, the procurement guidelines applicable to the project shall normally be followed, notwithstanding anything contained in this Order. Exceptions to this shall be decided in consultation with DEA. (Ref: Ministry of Finance's Office Memoranda as above, Annex II, Para D)
3. The orders will not apply to bidders from those countries (even if sharing a land border with India) to which the Government of India has extended lines of credit or in which the Government of India is engaged in development projects. (Ref: Ministry of Finance's Office Memoranda No. 6/18/2019-PPD dated 23.07.2020 titled 'Exclusion from restriction under Rule 144 (xi) of General Financial Rules (GFRs), 2017- regarding' Para 2)

Declaration from the tenderer, that he abides by G.C.C. with all ammendements upto date while submission of offer

SOUTH CENTRAL RAILWAY

TENDER FORM (FIRST SHEET)

Tender No. _____

Name of Work _____

To

The President of India

Acting through the _____ 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 _____ 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 _____ 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 _____ 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 _____ with _____ and 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)

.....

PART-I

CHAPTER -II

PART-I
CHAPTER -II
CONDITIONS OF CONTRACT
FOR OHE, TSS & SCADA WORKS

PARA No.	SUBJECT
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1.2.2	Conditions of Contract.
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1.2.4	Contractor's Representative.
1.2.5	Contractor's Office & Address.
1.2.6	Purchaser's Address.
1.2.7	Deleted.
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.
1.2.18	Scheme of work.
1.2.19	Procurement of materials.
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	Assignment or Subletting of Contract.
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.

Para No.	Subject
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1.2.38.	Access to work site.
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1.2.40.	Insurance.
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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.	Letter of Credit as Mode of Payment
1.2.64.	PROPOSED SCHEME OF WORK AND TIME SCHEDULE

Annexure-I	Proforma for Agreement towards Waiver under Section 12(5) and Conciliation (Amendment) Act and Section 31A (5) of Arbitration
Annexure-II	Proforma for Certification by Arbitrators appointed under clause 63 & 64 of GCC

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.

CONDITIONS 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-IIIA, IIIB & IIIC.
- (v) Explanatory notes of Schedule A, B, C & D, Schedule of prices, Part-I, Chapter-IVA, IVB & IVC.
- (vi) General specifications, as included or referred to in Part-II and
- (vii) Particular specifications, as included or referred to in Part-I, and
- (viii) Annexures and Forms under Chapter-IX of Part-II and as modified or amended by the letter of acceptance of the tender.

PURCHASER'S REPRESENTATIVE : 1.2.3

- (i) **PURCHASER'S REPRESENTATIVE:** 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.
- (ii) **DELEGATION BY ENGINEER:** Engineer may from time to time assign duties and delegate authority to assistants, and may also revoke such assignment or delegation. These assistants may include a resident engineer, and/or independent inspectors appointed to inspect and/or test items of Plant and/or materials. The assignment, delegation or revocation shall be in writing and shall not take effect until copies have been received by both parties.

However, unless otherwise agreed by both parties, the engineer shall not delegate the authority to determine any matter in accordance with clause 1.2.14 (Determinations).

Assistants shall be suitably qualified persons, who are competent to carry out these duties and exercise this authority.

Each assistant, to whom duties have been assigned or authority has been delegated, shall only be authorized to issue instructions to the contractor to the extent defined by the delegation. Any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test or similar act by an assistant, in accordance with the delegation, shall have the same effect as though the act had been an act of the Engineer. However:

- (a) Any failure to disapprove any work, Plant or Materials shall not constitute approval, and shall therefore not prejudice the right of the engineer to reject the work, Plant or materials.
- (b) If the contractor questions any determination or instruction of an assistant, the contractor may refer the matter to the engineer, who shall promptly confirm reverse or vary the determination or instruction.

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 Chapter-VI of Part-I, 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/Speed 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 - Deleted -

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.

(c) Implementation 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 must get themselves registered from 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 from the Registering Officer of the concerned State Govt. (Labour Dept.). The cess shall be deducted from contractor's bill as per provision of the act.

ILLEGAL GRATIFICATION : 1.2.9

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, soliciting or acceptance of bribe, rewards or gifts or any material benefit, in exchange for an unfair advantage in 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, between two or more bidders, with or without the knowledge of the procuring entity, that may impair the transparency, fairness and progress of the procurement process or to establish 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 involved 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 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.

Punitive Provisions

Without prejudice and in addition to other 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 any pre-contract negotiations;
- 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) Punitive actions 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, informer to 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

- (a) This contract shall be governed by the laws for the time being in force in the Republic of India.
- (b) Deleted.

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

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 and action would be taken as per para-19 of the Preamble.

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 purpose of amalgamation or reconstruction), or
 - (iv) Have an execution levied on his goods or property on the work, or
 - (v) Assign the contract or any part thereof otherwise than as provided in clause 1.1.16 of these conditions, or
 - (vi) Abandon the contract, or
 - (vii) Persistently disregard the instructions of the Engineer, or contravene any provision of 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 Clause 8 of the Regulations for Tenders and Contracts,
- or
- (x) Fails to submit the documents pertaining to identity of JV and PAN in terms of Clause 18.11 of Tender Form available in the Regulations for Tenders and Contracts,
- or
- (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 para 25 and 27 of these conditions (GCC),
- or
- (xii) Fail to take steps to employ competent or additional staff and labour as required under clause 26 of the conditions (Para 1.2.35 of tender document), 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 the conditions (GCC), 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 Clause 16 of Tender Form (Second Sheet) of Annexure I of Part I 'Regulations for Tenders and Contract', or provision of above Clause 59(9) of Indian Railways Standard General Conditions of Contract, July'2020.
- (xvi)(A) At any time after the tender relating to the contract, has been signed and submitted by the contractor, being a partnership firm admit as one of its partners or employee under it or being an incorporated company elect or nominate or allow to act as one of its directors or employee 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, or whether holding any pensionable post or not, in the Railways for the time being owned and administered by the President of India before the expiry of one year from the date of retirement from the said service of such Engineer or Officer unless such Engineer or Officer has obtained permission from President of India or any officer duly authorized by him in this behalf to become a partner or a director or to take employment under the contract as the case may be,

or

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

- (a) The correct information as to the date of retirement of such retired engineer or retired officer from the said service or as to whether any such retired engineer or retired officer was under the employment of the Contractor at the time of submitting the said tender,
Or
- (b) The correct information as to such engineers or officers obtaining permission to take employment under the Contractor,
Or
- (c) Being a partnership firm, the correct information as to, whether any of its partners was such a retired engineer or a retired officer,
Or
- (d) Being an incorporated company, correct information as to whether, any of the Directors was such a retired engineer or retired officer,
Or
- (e) Being such a retired engineer or retired officer suppress and not disclose at the time of submitting the said Tender the fact of his being such a retired engineer or a retired officer or make at the time of submitting the said Tender a wrong statement in relation to his obtaining permission to take the contract or if the Contractor be a partnership firm or an incorporated company to be a partner or Director of such firm or Company as the case maybe or to seek employment under the Contractor.
- (f) Submits copy of fake documents/certificates in support of credentials submitted by tenderer.

Then and in any of the said clause, the Engineer on behalf of the Railway may serve the Contractor with a notice in writing to that effect and if the contractor does not within sevendays 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 Engineer, the Railway shall be entitled after giving 48 hours notice (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 will be issued.

Note:Engineer at his discretion may resort to the part termination of contract only in cases where progress of work is more than or equal to 80% of the original scope of work.

- (2) Right of Rly. 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 there to 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 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 GCC.
 - (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 & 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 of 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 per destruction thereof.
 - (e) The Engineer shall as soon may be practicable after removal of the contractor fix and determined 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.

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

- (a) **Execution of Contract Document:** The Tenderer whose tender is accepted, shall be required to appear in person at the office of Chief Electrical Engineer(Con)/ DY Chief Electrical Engineer 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.
- (b) **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).
- (c) 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 -14
- (d) If a work is transferred from the jurisdiction of one Railway to another Railway or to a project authority or vice versa while the contract is in subsistence the contract shall be binding on the Contractor and successor Railway/Project in the same manner and take effect in all respects as if the Contractor and the successor Railway/Project were parties thereto from the inception and the corresponding officers or the competent authority in the successor Railway/Project will exercise the same powers and enjoy the same authority as conferred to the Predecessor Railway/Project under the original contract/ agreement entered into.
- (e) If for administrative or other reasons the Contract is transferred to the successor Railway/Project the contract shall, notwithstanding anything contained herein contrary thereto, be binding on the Contractor and the successor Railway/Project in the same manner and take effect in all respects as if the Contractor and the successor Railway/Project had been parties thereto from the date of this contract.
- (f) **Final Supplementary Agreement:** After the work is completed or otherwise concluded by the parties with mutual consent, and taken over by the Railway as per terms and conditions of the contract agreement, and there is unequivocal no claim on either side under the Contract other than as mentioned in item 4 of Annexure XIV of standard GCC, the parties shall execute the Final Supplementary Agreement as per Annexure XIV of standard GCC.

SECURITY DEPOSIT: 1.2.17

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.

(A) **(i) Refund of Security Deposit:** Security Deposit mentioned in Clause 1.2.17(A) above shall be returned to the Contractor after the following:

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

(B) **(ii) Forfeiture of Security Deposit:** Whenever the contract is rescinded as a whole under clause 62 (1) of GCC, 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 GCC, the Security Deposit shall not be forfeited.

(C) 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 Clause 22(b) of preamble will be payable with interest accrued thereon.

SCHEME OF WORK : 1.2.18

(a) Within a period of 30 days beginning from the date of issue of Letter of Acceptance of Tender, the Contractor shall submit to the authority as mentioned in para 3.19(i) and (v), the following documents (see para 1.1.11).

(i) Detailed time schedule for design and submission of various documents enumerated in Chapter-II Form-10. Designs and Drawings to be supplied by the Purchaser shall also included in the timeschedule to make it comprehensive. The comprehensive schedule shall be planned in a manner such that the entire basic designs and drawings for the group/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.

NOTE : *The above provision is applicable provided the Purchaser has been able to supply all pegging plans and other drawings and designs in a uniformly spread out manner to the maximum extent possible over a period ending at least four months before the target dates allotted to the Contractor.*

(ii) *The Contractor shall submit a detailed time schedule for the execution of the various items of the work specifying the duration of each part of these works together with comprehensive scheme of execution of the each TSS. The planning for each stage of work shall be done in order of priority as given by the Purchaser and should be such as to complete the entire work within the stipulated period. This planning should also include the programme of delivery of materials and equipment which should synchronize with the progress of field work.*

(iii) 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 authority as mentioned in para 3.19(i) and (v) of Chapter-VI of Part-I, 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.

(e) Contractor shall widely use IT (Information Technology) for the purpose of progress reporting and Material Management. The contractor shall make the following information available to the purchaser in the form of reports which shall be uploaded on a Web based system. Following Reports shall be deliverable by the IT management system.

SN	Name of the report	Data update frequency
1	Daily progress report of all OHE works specifying the total quantum, balance quantum, location of work and the work done on the previous day.	Once a day before 09:00 hrs on the following day
2	Weekly progress report of all OHE works specifying the total quantum, balance quantum, location of work and the work done on the previous week.	Once a week on the following Monday before 09:00 hrs
3	Monthly progress report of all OHE works specifying the total quantum, balance quantum, location of work and the work done on the previous Month.	Once a month on the third day of the next MONTH before 09:00 hrs
4	Material requirement sub section wise	After completion of design once. Thereafter on every change in designs.
5	Material consumed, Ground balance and the balance material required	Once a week on the following Monday at 09:00 hrs
6	Daily, Weekly, Monthly Traffic and Power Block demanded and granted	Once a day/week/month as the case may be for each report at 09:00 hrs.
7	Traffic Block and Power Block plan for next day/week	19:00 hrs each day for the next day requirement

The Reports provided shall be generally be normally in a format which requires smaller network bandwidth to open quickly (within < 5 sec for a 64 kbps band width system).

PROCUREMENT OF MATERIALS/QUALITY OF MATERIALS: 1.2.19

All materials used in the work shall be procured from RDSO/ CORE approved sources only and of the best quality and of the class most suited for the purpose specified. It is essential that the manufacturer/s 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 these equipments components or fittings for which the requisite facilities for testing 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.

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

NOTE:-

1. The supply of all materials shall be from the approved sources only (as mentioned in the RDSO's/CORE's approved list of vendors). However, items / materials for which RDSO/CORE approved sources do not exist, the same may be procured as per relevant BIS/Specifications or from other sources after one time approval of the source (for particular work only) from the project in-charge (SAG).
- 2(a) It may be ensured, procurement of any material from a Part-II sources is limited to 15% of the total requirement of the project.
- 2(b) Procurement from Part-II can be considered beyond 15% in case that source has successfully executed a larger quantity order in the same Railway unit or other Railway units / PUs in the preceding 3 years. Successful executions will be signified by both quantitative and qualitative performance. Upper limit of quantity to be procured from such a source will not exceed 25% of the net procurable quantity in a given procurement case with another 5% on new source in deserving cases and with strict compliance of extant procedure on such educational ordering. That is to say, the procurement from a Part-II source can be upto 15% or the highest quantity of a past order, successfully executed in the preceding three years in the same Railway unit or other Railway units / PUs, whichever is higher, subject to maximum of 25% of the net procurable quantity.
- 2(c) Aggregate quantity to be procured from all Part-II approved vendors taken together, however, will not exceed 25% of the net procurable quantity.
3. Apart from deviations, if any, proposed by the contractor and accepted by the purchaser, in case of ambiguity in tender paper in respect of procurement of materials required for the subject work, the decision of the purchaser shall be final.

SPECIFIED RAILWAY STORES : 1.2.20

FOR OHE WORKS : 1.2.20.1

(a) The Purchaser shall supply to the contractor free on rail or free on lorry upto the RE siding/contractor's depot all the steel work that are indicated in Annexure-4/Annexure-4A (As applicable). The materials will be 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, Part-I, Chapter-IVA, 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 RE siding/contractor's depot, are listed in Annexure-4/Annexure-4A (As applicable). The prices in Schedule-1, Section-1 to 5, 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, Part-I, Chapter-IVA, 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) Part-I, Chapter-IVA. 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 (Part-I, Chapter- IIIA).

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 RE siding/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 RE siding/ 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 these 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(Part-I, Chapter-III A). Purchaser may also supply material to the extent of 10% of contract value as Rly supply material for which no recovery shall be affected. Instead, contract value shall get reduced to that extent which will be accepted by the contractor provided 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 as free Rly supply materials.

(c) Should it be impossible for the Contractor to obtain any of the items included in schedule – 3, Form-7(Sh.1 to 26) of Chapter-X of Part-II 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 1.2.20.1(b). The cost of such supplies shall be recovered in accordance with para 1.3.10 of (Part-I, Chapter-III A).

(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. The Purchaser shall supply to the Contractor within reasonable time (as far as possible within **3 months** of issue of the letter of Acceptance of Tender) six copies each of the drawings of all items to be supplied by the Purchaser. Wherever possible, 3 copies each of the instructions booklets for various equipments will also be supplied by the Purchaser. The Contractor shall carefully follow the instructions mentioned in the various instruction booklets and those indicated by the Purchaser during the erection of equipments supplied by the Purchaser and shall endeavor to bring such equipment into successful operation. 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) *Booster Transformers complete with all accessories will be supplied along with necessary oil for the first filling to the Contractor. The Contractor shall make his own arrangements for oil filtration, testing and commissioning as well as arrangements for oil filtration plant and power supply for the same.*

(2) *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** **DELETED**

(g) Railway may supply any item to the contractor for erection which are not provided for in the contract. Erection rate shall be mutually finalised as Non Schedule item, if Schedule of Rate for the same are not available in the contract. Railway may also supply for erection, with the consent of the contractor, any item as per the latest specifications as a substitute of the same item of old specifications provided for in the contract.

FOR TSS & SCADA WORKS: 1.2.20.2

(a) The various materials which will be supplied to the Contractor by the Purchaser, free at Contractor's depot are listed in Annexure-4/Annexure-4A (As applicable). The price in Schedule-1, Section-8 to 11, shall be exclusive of the cost of supply of these items. For the purpose of final reconciliation the procedure laid down in Para 1.4.5, Part-1, Chapter-IV B will be followed. Shortages

shall be recovered from the Contractor by the purchaser at the prices specified in the Note at the end of Para 1.4.5, Part-1, Chapter-IV B. Cost of repairs to damage of materials handed over to the Contractor, shall be borne by the Contractor.

(b) Further the Purchaser reserves the right to supply any equipments, components or materials which are in contractor's scope of supply, indigenous or imported, from his own resources in quantities which may fulfill the contract either in whole or in part up to a maximum of 10% of the total value of the contract. No handling charges will be paid to the Contractor for such supplies, and the same shall be accepted by the Contractor provided that the Purchaser shall, at the time of issue of Letter of Acceptance of Tender to the Contractor, indicate to the Contractor the list of materials and quantities thereof which will be supplied. Such materials will be supplied by the Purchaser free at the Contractor's depot/sufficiently in advance of the planned date/s of erection. Such materials shall be tested by the Contractor at his cost before use to the extent that the specifications require tests at site prior to installation but Contractor will not be responsible for any defects in the material or component and he may return to the Purchaser any materials which are found defective or damaged on account of manufacturing defects. Any undamaged surplus materials left with the Contractor on completion of the work should also be returned to the Purchaser for which necessary adjustments would be made. The cost of the 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 1.3.9 of (Part-I, Chapter-IIIB & IIIC).

(c) 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. The Purchaser shall supply to the Contractor within reasonable time (as far as possible within **3 months** of issue of the letter of Acceptance of Tender) six copies each of the drawings of all items to be supplied by the Purchaser. Wherever possible 3 copies each of the instructions booklets for various equipments will also be supplied by the Purchaser. The Contractor shall carefully follow the instructions mentioned in the various instruction booklets and those indicated by the Purchaser during the erection of equipments supplied by the Purchaser and shall endeavor to bring such equipment into successful operation. 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, (Part-I, Chapter-IVB & IVC), rates as applicable, if available or at rates to be mutually agreed to between the Purchaser and the Contractor prior to undertaking the work.

(d) 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.*

(e) SUPPLY OF CEMENT DELETED

(f) Railway may supply any item to the contractor for erection which are not provided for in the contract. Erection rate shall be mutually finalised as Non Schedule item, if Schedule of Rate for the same are not available in the contract. Railway may also supply for erection, with the consent of the contractor, any item as per the latest specifications as a substitute of the same item of old specifications provided for in the contract.

Released Material due to modification works: 1.2.20.3

- (a) During modification of OHE/SP/SSP/TSS, existing materials will be released. A joint survey of such likely materials to be released as per approved drawing to be made by the contractor, Construction & TRD representative and joint statement to be made and signed before power block works are taken up.
- (b) After commissioning of a section/yard, materials released shall be handed over to TrD depot through SSE/C/TrD.
- (c) Damaged insulators and other items during release will not be taken by TrD.
- (d) Contractor shall handover only items as they were before release.
- (e) Contractor is warned to be careful in handling released material, no damaged items will be taken over and cost of such damaged item shall be recovered as per the cost given in Schedule-3 rates of Chapter-X of Part-II.
- (f) No released items shall be reerected. Severe penalty of Rs.1Lakh for each case will be levied for reuse as it has serious effect on reliability on OHE.

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 moto 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. In case of TSS & SCADA works it shall be the supply rate of schedule-1, Section-8 to 12, whichever is higher, freight between the Purchaser's source of supply and the Contractor's depot or RE 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 for OHE works: Contractor shall follow loan policy of Railway for sparing of material on loan basis to contractor.

NOTE for TSS & SCADA works:

No material other than those specified in clause 1.2.20 above shall be supplied. The unspecified stores can be supplied to the Contractor on the discretion of the Railway administration subject to the availability of materials. The transaction shall be strictly on sale basis for which recovery will be made as per para 1.2.21 above from the first bill received from the contractor subsequent to the handing over of the materials.

CONTRACTOR'S ORGANISATION :1.2.22 FOR

OHE WORKS : 1.2.22.1

(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 for receiving and storing steel work and other materials and establish a workshop for small fabrication and assembly work, if considered necessary by the Contractor. 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. The depot will be provided with a siding of suitable length to accommodate the work trains and allow shunting of trains within the depot area, free of charge, to serve the area for the use of the Contractor.

NOTE : *For unloading of Purchaser's steel work and other Railway materials, for attention to wagons, for stabling of Purchaser's wagons of work trains the Purchaser at his own cost, will arrange for provision of additional sidings, as required by him. All other expenses for providing covered and enclosed storage and workshop accommodation, other facilities and running the establishment shall be borne by the Contractor. Labour charges for laying of additional sidings or alterations to the sidings, if considered essential by the Contractor, shall be borne by the Contractor. The recoverable costs shall be finalised and mutually agreed upon, before the tracks are laid. Track materials such as Rails, fastenings and ballast, and/or ashes cinder only for additions or alterations to sidings shall be provided free of charge to the Contractor by the Purchaser. Maintenance of all sidings will be done by the Purchaser at his own cost, On completion of the work the cost of dismantling such additional sidings shall be borne by the Contractor. In case of difference of opinion in these matters the decision of the General Manager or his successor shall be final.*

(b) The Purchaser will also provide free of charge stabling lines for work trains at suitable stations, should it be considered necessary to suit convenience of operation or to avoid haulage of work trains back to main or sub-depot/s except for the purpose of recoument of stock on work trains. Space for storage of ballast and sand may also be provided free of charge along such stabling lines as convenient to the Purchaser. The receipt of storage of materials at the main and sub-depots shall be so planned as to avoid transport of materials between the main and sub-depot/s and vice versa to the maximum extent possible.

NOTE *For para 1.2.22.1 (a) & (b): The delay in providing open space/stabling lines shall only entitle the contractor suitable DOC extension and no other compensation shall be admissible.*

(c) The main depots will be located at stations as indicated in particular specifications. The

proposed location/s of sub-depots and stabling lines is/are to be given by the Tenderer for scrutiny and approval by the Purchaser.

(d) For the main depot the services of a commercial Clerk shall be provided, when required, for complying with commercial formalities of receiving and dispatching goods. The cost of such clerk/s will be borne by the Purchaser.

(e) The contractor shall hand over the depot, sub-depot area complete with sidings, 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 except where otherwise stated. If wagons are required, the Purchaser will use his good offices for expeditious allotment. The Contractor will be responsible for all loss and/ or damage in the transfer of materials and for demurrage or wharfage he may incur, and no loss damage or expenses incurred on this account will be reimbursed by the Purchaser. Work trains for transport between depots or between depot/s and work site will be provided to the extent indicated in para 1.2.27.

(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 rate of Rs. 2/- only per 1000 liters. The Contractor shall arrange water at the work site at his own cost. However, in exceptional cases where the Purchaser is satisfied that it is not feasible for the Contractor to arrange water due to its non-availability nearby, water may be made available free of cost in water tanks at watering station/s which may be carried to work site through work trains. The decision of the Purchaser in regard to supply of water through work trains shall be final and binding on the Contractor.

(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.

(l) Contractor shall arrange and make available at their depot the following measuring equipments duly calibrated for inspection at site by the representative of the purchaser as and when required:

- (i) Weighing Machine of capacity 2 MT
- (ii) Alco meter
- (iii) Vernier Caliper
- (iv) Micrometer
- (v) Radius Gauge
- (vi) Thread Gauge
- (vii) Steel Measuring Tapes 3m & 30 m length each
- (viii) Angle Protractor
- (ix) Insulator testing jig.
- (x) Earth megger.
- (xi) IR megger.

(m) Any tool given by the Railways, hire charges will be calculated based on the cost of the item.

FOR TSS & SCADA WORKS: 1.2.22.2

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 for receiving and storing steel work and other materials and establish a workshop for small fabrication and assembly work. The location of Contractor's depot will be mutually agreed upon by the Purchaser and the Contractor. The Purchaser shall offer free of charge open space reasonably level and workable for the depots. The depot will be provided with a siding of suitable length free of charge. All other expenses for providing covered and enclosed storage and workshop accommodation and facilities

and running the establishment shall be incurred by the Contractor.

- b) The Contractor shall hand over the depot area complete with siding on completion of the work, cleared of all structures, stores or refuse unless otherwise agreed to by the Purchaser.
- c) The Contractor will be responsible for transport of materials from source of supply to the depot or between depot and work site. If wagons are required, the Purchaser will use his good offices for expeditious allotment. The Contractor will be responsible for all loss and/or damage in the transfer of materials and for demurrage or wharf age he may incur, and no loss, damage or expenses incurred on this account, will be reimbursed by the Purchaser.
- d) 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 connection and of energy consumed shall be paid by the Contractor to the Purchaser in accordance with relevant rules and prevailing rates of the Railway.
- e) At places where piped water supply is available, the Purchaser may supply water to the Contractor at convenient point/s for execution of work and for his depot, if necessary. The Contractor shall arrange to lay his own pipelines for distribution, in consultation and with the approval of the Purchaser. The Contractor will be charged for consumption at the fixed rate of Rs. two per thousand liters subject to periodical revision by the General Manager or his successor.
- f) The Contractor shall arrange at his own cost all tools, plants and facilities for erection and testing of the equipment, in compliance with the specification.

The list of machinery, tools and plants and the other infrastructure available with the Tenderer will be furnished along with the bid (Form-12B & 12C).

- g) 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 will not be required to furnish drawings, designs and calculations etc. for basic designs and employment schedules provided by the Purchaser in case no modification/deviation is required for a particular basic design/ employment schedule. In case of new developments in designs, comments on Research Designs and Standards Organisation (hereinafter called RDSO's) and decision of Purchaser to implement the same basic drawings

/designs/employment schedules will be submitted by the contractor to the Purchaser. If the RDSO's drawings/ designs/employment schedule is not revised, Contractor need not submit drawings/ designs/ employment schedules to the Railway Electrification. 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 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.

Penalty will be imposed for non submission of below tabulated drawings within given time.

Description of drawing	Completion period
Sectioning diagram	Within 15 days from the date LOA issued.
LOP's	Within 30 days from the date LOA issued.
CSD's	Within 45days from the date LOA issued.
SED'S	Within 30days from the date LOP is approved.

ASSIGNMENT OR SUBLETTING OF CONTRACT: 1.2.24

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 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 total 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.

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 ' On Account Payment ' (See para 1.3.9 of Part-I, Chapter-IIIA for OHE, para 1.3.8 of Part-I, Chapter-IIIB for TSS, & Part-I, Chapter-IIIC for SCADA), 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

(a) FOR OHE WORKS

One crane of adequate capacity with a jib of requisite length will be provided by the Purchaser, for use in a work-train for mast 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. Extra cranes required for additional work trains 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. However, in exceptional cases where the Purchaser is satisfied that it is not feasible for the contractor to arrange a road crane himself, the same may be made available to the contractor on hire basis depending on its availability with the Purchaser on mutually agreed terms and conditions.

It may, however, be noted that if the road crane required by the contractor is not available with the Purchaser or if the purchaser decides not to supply the same be that for whatever reason, the purchaser shall not be bound to arrange for the supply of the road crane nor will this fact be accepted as an excuse for delay in execution of works.

(b) FOR TSS & SCADA WORKS :Deleted-

WORK TRAINS : 1.2.27

(a) The Purchaser will provide work trains to the Contractor for erection of mast and portal structures and stringing of conductors 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, the same will be made available on payment at the rate of Rs. 6,000/-

(Rupees Six thousand) per work train per day. The work train on hire basis can also be made available for erection of Booster Transformers, unloading of Auxiliary Transformers and Interrupters subject to availability on request of Contractor. This rate will be applicable for an effective traffic block period of one and a half hours or more on each day. The charges will be reduced pro-rata if the effective traffic block hours actually provided in a day are less than one and a half hours. The running time to and fro from the depot to the work site or time required for loading at the depot shall not be reckoned for the purpose of this charge. The minimum number of wagons to be provided for work train for distribution of foundation materials will be 8 (4 wheelers) except in unavoidable circumstances.

However, no reduction in charges will be allowed if the number of wagons falls below 8 in such cases. Work trains may be used for transport of materials other than foundation materials from the depot to another only to the extent necessary. The work trains shall not be used for erection of small parts steel works, installation of droppers, adjustment of OHE or solely for transport of labour to the site of work (See para 1.2.10) . The number of work trains will ordinarily be provided for the work as indicated in Chapter-VI of Part-I.

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

The work trains provided by the Purchaser would consist of wagons open or covered, wagon under frames, coaching stock withdrawn from service, brake van/s and locomotive, to the extent available for the work. The Contractor shall indicate the equipment and super structure he intends to provide on each work train he is planning to use. This equipment and super structure shall be supplied and erected by the Contractor at his own cost on the Purchaser's Wagons or Wagons under frames in accordance with drawings to be supplied by the Contractor and approved by the Purchaser. The Contractor shall submit detailed drawings of the work trains within two months from the date of issue of the Letter of Acceptance of Tender to enable the Purchaser to obtain approval from the competent authorities for the use of such work train, if required. The Contractor may utilise his own super structure and other tools and equipment already used by him in the previous groups.

(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 under frames 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 EQUIPMENTS

Work trains will be made available to the Contractor on the basis of the block hours indicated in Chapter-VI of Part-I, (Para 3.18) per kilometer of track to be equipped in accordance with the final quantity of Item 1 of Schedule 1, (Section 1 to 5) 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. The running time to and from the work spot would be excluded from such reckoning. An amount of Rs.6,000/- per work train per day or part thereof shall be paid by the Contractor to the Purchaser for any extra period for which work trains are requisitioned by him and provided by the Purchaser, over and above that required to complete works on the above basis, unless the Contractor proves to the satisfaction of the Purchaser that the additional work trains days required by him are not due to any fault or negligence on his part. The extra work train days for the purpose of this para shall be computed by dividing the overall block hours for work trains used by the Contractor in excess of what is permitted, by six ladder trolleys may be used simultaneously with work trains employed for stringing of overhead equipment or by themselves for droppering or adjustment of equipment. The use of these ladder trolleys shall not be taken into account for computation of overall block hours.

(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

Work trains once supplied shall be used continuously. Whenever a work train is not required for a period of 3 days or more the Contractor shall be responsible to cancel the same by giving the Purchaser at least 3 days' notice in advance. If any train is subject to an idle period of a week at a time it is liable to be withdrawn. Trains or wagons if and when required for removal of spoil earth from the excavations in certain areas (specially stations) will be placed by the Purchaser free of charge, at the Contractor's disposal. Blocks granted for this purpose shall not be reckoned for the purpose of sub-para (d) above.

(g) PROGRAMME OF THE WORK TRAINS

The Contractor shall submit a chart showing the tentative programme of work for the working of various work trains for entire group within three months from the date of order to enable movement of diversion of traffic over the section to be planned well in advance.

(h) The Contractor shall submit his requirement of various types of rolling stock at least 3 months in advance of the date from which the work trains would be required for his use.

(i) MONTHLY PROGRAMME OF WORK

(ii) 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) of

(j) LADDER TROLLEYS

In addition to work trains, the Contractor may use light ladder trolleys on tracks 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) Work trains not to be granted for Traction sub-station and SCADA works.

(m) Tower car for adjustment of turnout, cross over, overlaps, removal of twist, kintes etc. Tower car will be arranged by railways including Tower rcar driver, fuel and maintenance.

TRAFFIC BLOCKS: 1.2.28

(a) The Purchaser will make arrangements to obtain traffic 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, muffing, and erection of brackets 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.

(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 also efficiently by suitable lighting equipment. The blocks granted will ordinarily be on one track at a time over a distance covered by one or two consecutive block sections. In case of blocks to be granted after sunset, the Contractor will be informed at least 24 hours in advance. The duration of blocks, normal and maximum, which would ordinarily be granted on different tracks and in different sections, during day and/or night time, is indicated in Chapter-VI of Part-I. Blocks shall not be availed of by the Contractor when it is not possible for him to complete the specific field work within the block period granted by the

Purchaser.

(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 Chapter-VI of Part-I, 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.

(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 will be carried out by the Purchaser's staff and for this purpose the Purchaser will depute a representative for each erection gang, who will be responsible for imposing traffic 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.

The protection 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 authority. Protection of track by banner flags shall be done in accordance with General Rules of Indian Railways and Subsidiary Rules of the concerned zonal Railway where work is being carried out. Flagmen so deployed by the contractor shall be medically fit for A/3 category (as per Indian Rly Medical Manual); examination and certification of which shall be given by Railway Doctor. Such medical examination from Rly Doctors shall be arranged by Rly authority; prescribed fee for which shall be borne by the contractor.

(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) Traffic blocks given after energisation (see 1.2.46.1)(a) shall not be reckoned for the purposes of Para 1.2.27 (d) or 1.2.28 (c).

(i) Traffic Blocks not to be granted for Traction sub-station and SCADA works.

(j) Traffic/power block for works which are non-power block & non-traffic block before commissioning: In case of doubling/tripling etc, if any item is not erected during erection which doesn't involve traffic or power block being new line, such traffic or power block is chargeable if delay is on the part of contractor to erect items on new line.

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 action would be taken as per 1.2.17 and para-19 of Preamble.

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) (i) and/or (ii) above-mentioned the Purchaser shall have the right of appropriation *suomoto*.

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 Railway Construction 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

The procedure detailed below shall be adopted for dealing with variations in quantities during execution of works contracts:

(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.

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

(v) In case of foundation work, no variation limit shall apply and the work shall be carried out by the Contractor on agreed rates irrespective of any variation.

(vi) As far as SOR items are concerned, the limit of 25% would apply to the value of SOR schedule as a whole and not on individual SOR items. However, in case of NS 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).

NOTE-

(a) It is also pointed out that this variation in quantities from 1.2.34 (1) to (10) above would apply not only to works items of contracted section but also to its extensions in any direction as well as existing sidings and sidings/yard modifications etc coming up in the section during the execution of the contract.

(b) The Contractor shall, if called upon by the Purchaser, supply equipment, components, fittings and materials listed in Schedule-3, Chapter-X, Form-7 (Sheet -1 to 26) of Part-II for OHE portion and material's column as listed in schedule-1, Section-8 to 12 for TSS and SCADA works for other requirements upto a maximum of 5% of the total value of supplies of the contract at prices included in Schedule-3 during the currency of the contract. Bulk requirements of the Purchaser under this sub-para would be intimated within 6 months from the date of issue of Letter of Acceptance of the Tender. Delivery of such materials shall be effected by the Contractor from ready stock, if available, or otherwise after procurement from the manufacturers.

(c) (i) **FOR TSS WORKS :** - Deleted-

(c) (ii) **FOR SCADA WORKS :** -DELETED-

COMPETENT SUPERVISORS : 1.2.35

(Clause 26 to GCC): Provision of Efficient And Competent Staff At Work Sites by The Contractor

(i) The contractor shall place and keep on the works at all times efficient and competent staff to give the necessary directions to his workmen and to see that they execute their work in sound & proper manner and shall employ only such supervisors, workmen & labourers in or about the execution of any of these works are as careful and skilled in the various trades.

(ii) The contractor shall at once remove from the works any agents, permitted sub-contractor, supervisor, workman or labourer who shall be objected to by the Engineer and if and whenever required by the Engineer, he shall submit a correct return showing the names of all staff and workmen employed by him.

(iii) In the event of the Engineer being of the opinion that the contractor is not employing on the works a sufficient number of staff and workmen as is necessary for proper completion of the works within the time prescribed, the contractor shall forthwith on receiving intimation to this effect deploy the

additional number of staff and labour as specified by the Engineer within seven days of being so required and failure on the part of the contractor to comply with such instructions will entitle the Railway to rescind the contract under Para-1.2.14 of these conditions.

1.2.35A (Clause 26A to GCC) : Deployment of Qualified Engineers at work sites by the contractor :

- (i) The Contractor shall also employ qualified Graduate Engineer(s) or equivalent, or qualified Diploma Engineer(s), as prescribed in the tender document
- (ii) In case the Contractor fails to employ the Engineer, as aforesaid in Para 1.2.35A (i), he shall be liable to pay liquidated damages at the rates, as prescribed in the tender documents.
- (iii) No. of qualified engineers required to be deployed by the contractor for various activities contained in the works contract shall be specified in the tender documents as 'special condition of contract' by the tender inviting authority.'

1.2.35B (Clause 27.(2) of the GCC) Removal of Improper Work and Materials: The Engineer or the Engineer's Representative shall be entitled to order from time to time:

- (a) The removal from the site, within the time specified in the order, of any materials which in his opinion are not in accordance with the specifications or drawings.
- (b) The substitution of proper and suitable materials, and
- (c) the removal and proper re-execution, notwithstanding any previous tests thereof or on account payments therefor, of any work which in respect of materials or workmanship is not in his opinion in accordance with the specifications and in case of default on the part of the Contractor in carrying out such order, the Railway shall be entitled to rescind the contract under Clause 62 of these conditions.
- (d) The provision of Construction and Demolition Waste Management Rule 2016 issued by Ministry of Environment Forest and Climate Change dated 29.03.2016 and published in the Gazette of India, Part – II, Section -3, Sub-section (ii) are binding upon the Contractor. Contractor shall implement these provisions at worksites, for which no extra payment will be payable.

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 remodelling plans for such lines to the Contractor and/or peg out the altered or remodelled 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) In course of checking the overhead equipment layout plans, the Contractor shall prepare a list of infringements, if any exist, and advise the Purchaser in time. The Purchaser will arrange for removal of these infringements. The works which will be carried out by the Purchaser are detailed below.

- i) Alterations of slewing of tracks to accommodate traction structures of overhead equipment or to suit the Railways requirement.
- ii) Alterations to over-bridge, tunnels, foot-over bridges and irrigation troughs, raising of bridges or troughs, or lowering of track to give sufficient clearance for overhead equipment.
- iii) Protection at over bridges to prevent accidental or malicious interference with overhead equipment.
- iv) In cuttings, any work necessary to provide clearance for traction structures.
- v) At viaducts and bridges, any alterations required to enable traction structure to be accommodated.
- vi) Alterations to station buildings, signal gantries, signal cabins and other similar constructions, which may be required for erection of overhead equipment, with requisite electrical clearances.
- vii) Deleted.
- viii) Removal of signal, telegraph, power lines and guys to enable overhead equipment to be erected, with requisite electrical clearances.
- ix) Any blasting work required for excavation in rock other than for foundations.
- x) Any rail strapping or other similar work/s necessary for the installation of track structures and overhead equipment on bridges and over-bridges.
- xi) Any special steel work and fittings for attachment for masts/portals on steel girder or other bridges, or for attachment to other non-traction structures of the Railway for carrying or anchoring overhead equipment conductors.
- xii) Dismantling and drilling of piers of bridges and walls, supply and grouting of dowel pins or holding down bolts, in the piers of bridges or walls.
- xiii) Clearing the way and removing all infringements for erection of 25KV feeder lines from grid sub-stations.
- xiv) Chopping/trimming of tree branches required for erection of Overhead equipment shall be done by the contractor. At least four metres clearance shall be made available before 25KV charging between the nearest OHE Structures 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. However cutting of the trees is NOT covered under this sub clause.

(g) In the course of checking layout plans and general arrangement drawings for switching and/or booster stations, the Contractor shall prepare a list of infringements if any exist, and advise the Purchaser in time. The Purchaser will arrange for removal of these infringements at his own cost.

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.

(d) While finalizing the general arrangement and layout of subsections, the Contractor shall prepare a list of infringements, if any, which have to be removed, and incorporate the list in the said drawings. The Contractor will arrange for the removal of such infringements at his own cost.

INFRINGEMENT OF PATENTS : 1.2.39

(a) The Contractor is forbidden 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 licence, 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 1.2.46.1(a) & 1.2.46.2(a), whichever is earlier, for commercial and operational 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-IIIA for OHE, 1.3.9 Pt.I Chapter-IIIB for TSS & 1.3.9 Pt.I Chapter-IIIC for SCADA.*

(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 Government recognised Insurance Companies.

(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), Pt. I, Chapter IVA, 1.4.5.(c), Pt. I, Chapter IVB & 1.4.5.(a), Pt. I, Chapter IVC.

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 thereunder from time to time or under any other labour and Industrial legislation made from time to time.

(b) The Contractor shall indemnify and keep the 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, Section-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. The Contractor shall be responsible to take all precautions to ensure the safety of the public whether on public or railway property and shall post such look out men as may, in the opinion of the Engineer, be required to comply with regulations appertaining to the work. Contractor shall ensure placement of barricading / partitions at the place of work to ensure safety of habitants of adjacent area, failing which Engineer may advise stoppage of work as per his discretion

- (b) (i) 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 Purchaser's 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 which will be issued to him regarding blasting operations in the vicinity of tracks. He flagmen for protection of trains and the Track in such cases will be appointed by the purchaser and no expenses on this account will be charged from the contractor.
- (ii) Explosives shall not be used on the works or on the site by the Contractor without the permission of the Engineer and then also only in the manner and to the extent to which such permission is given. Where explosives are required for the works, they shall be stored in a special magazine to be provided by and at the cost of the Contractor in accordance with the Explosive Rules. The Contractor shall obtain the necessary license for the storage and the use of explosives. All operations in which or for which explosives are employed shall be at the sole risk and responsibility of the Contractor and the Contractor shall indemnify the Railway in respect thereof

(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 authorises 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.

Competency for the above shall, however, be given by the Railway authority. Protection of track by banner flags shall be done in accordance with General Rules of Indian Railways and Subsidiary Rules of the concerned zonal Railway where work is being carried out. Flagmen so deployed by the contractor shall be medically fit for A/3 category (as per Indian Rly Medical Manual); examination and certification of which shall be given by Railway Doctor. Such medical examination from Rly Doctors shall be arranged by Rly authority; prescribed fee for which shall be borne 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, especially 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.

(o) The Contractor shall obtain a valid electrical contractor license for LT/HT/EHT of voltage equal to OR more than 110/132/200KV as applicable from the concerned statutory authority before taking up the physical execution of work and submit a copy of the same to concerned Rly Electrification project in-charge.

(p) In case of failure to adhere to above provisions or if unsafe practices/safety violation by contractor/his staff are noticed at the site of work, the contractor shall be levied with a penalty of Rs. 20,000/- for the 1st incident, Rs. 50,000/- for the 2nd incident and Rs. 1,00,000/- for subsequent such incident. Repeated safety violations shall become a valid ground for initiating the contract termination proceedings under relevant clause of GCC.

(q) In the event of any unsafe condition arising at the site of work warranting speed restrictions to be imposed at the site, such work (including any disturbance caused to assets/works of other agencies by the Contractor/his staff executing the work) shall be attended by the Railway immediately, simultaneously giving due information to the contractor. A departmental inquiry will be held and in case it is found that contractor is not properly executing/completing the work or leaving it unsafe at the end of day's work, warranting speed restrictions to be imposed, the labour cost of the work so attended, shall be recovered from the contractor. The supervision charges @ 12.5% of the work and train detention charges @ Rs. 5000/- for every half hour of delay or part thereof, shall also be recovered.

(r) Any incident involving (i) hitting of contractor's machinery/tools & plants/trolley/motor vehicle or (ii) hitting of any part of work executed/structure erected arising out of defective/unsafe execution of work(s) with the Railway's rolling stock/departmental vehicle moving on the Railway track(s), shall be treated as violation of safety on the work site and a minimum penalty imposed for each of such incident shall be Rs. 1,00,000/-. The amount of penalty imposed in such cases, as decided by the purchaser, shall be final and binding on the contractor. However, the actual amount of the liability shall be governed by the provisions contained in para-1.2.41 (Accidents) of Part-I, Chapter-II, and the imposition of the minimum penalty of Rs. 1,00,000/-, as mentioned above, shall be in addition to (over and above) the actual amount of liability in such cases, as governed by the provisions contained in para-1.2.41 (Accidents) of Part-I, Chapter-II.

(s) In case of any damage to OFC/Cable occurred due to fault of the contractor, a flat penalty of Rs. 1,00,000/- will be imposed.

RECOVERY FOR DELAY IN COMPLETION: 1.2.44

Extension of Time for delay due to Contractor:

With liquidated Damage (LD): The time for the execution of the work or part of the works specified in the contract documents shall be deemed to be the essence of the contract and the works must be completed not later than the date(s) as specified in the contract. If the Contractor fails to complete the works within the time as specified in the contract for the reasons other than the reasons specified in Clause 17 and 17-A of GCC, 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 FORM-17) 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 damage 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 1.2.14 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 of GCC, further request(s) for extension of time under clause 17A of GCC can also be considered under exceptional circumstances. Such extension(s) of time under clause 17A of GCC 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 this clause.

EXTENSION OF TIME: 1.2.45

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 and in any case not less than one month before the expiry of the date fixed for completion of the works.
- (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 GCC 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 neighboring 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. The Engineer on receipt of such request from the Contractor shall consider the same and shall grant such extension of time as in his opinion is reasonable having regard to the nature and period of delay and the type and quantum of work affected thereby. No other compensation shall be payable for works so carried forward to the extended period of time; the same rates, terms and conditions of contract being applicable as if such extended period of

time was originally provided in the original contract itself.

- (iii) **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 therefore, but in any such case, the Railway may grant such extension or extensions of the completion date as may be considered reasonable.
- (iv) **Bonus for Early Completion of Work:** In open tenders having advertised value more than Rs.50 crore and original period of completion 12 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

For OHE works : 1.2.46.1

- (a) Immediately after completion of works at each switching/booster station/TSS or after completion of work in a section of overhead equipment between two consecutive switching stations including the works of the said switching stations hereinafter referred to as a sub-group, the Contractor shall certify and advise the Purchaser in writing that the section/stations are (i) Complete
- (ii) ready for satisfactory commercial service and (iii) ready to be handed over. He will also place at the disposal of the Purchaser the required staff for checking it and putting it into operation.
- (b) The test or tests as stipulated in part - I, Chapter IV 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) Rectification of all Category- 'A' & 'B' defects given in EIG sanction and PCEE sanction is must for issue of PAC.
- (d) Handing over of released materials to TrD for each section is compulsory for issue of PAC. If materials are not handed over, cost of such items may be withheld from bill and PAC may be issued. Materials to be handed over in the condition which they were before release. Damaged insulators and other items will not be taken and contractor to give good ones, otherwise cost given in schedule-3 (Form-7) will be recovered from bills duly loading the Schedule-A percentage
- (e) 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. If an item is not erected /created as per LOP, such defect is treated as major defect and PAC can't be issued.
- (f) 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.
- (g) 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. In case of OHE modification, yards may be commissioned without SM, SI, IOL, load shifting due to delay by contractor for running of trains. No separate notice is required to be given to contractor towards this. 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 pending works relevant sections as indicated in sub-para/s above and subject to complying to paras (a) to (g) 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 one 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 three months after notification under para 1.2.46.1(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. The conditions at (a) to (g) to be followed.*

(2) *The issue of Provisional Acceptance Certificate shall not be withheld for rectification of minor defects which may reasonably be considered not essential for introduction of commercial service and operation of installation. The decision of CEE/C whether a defect is minor or not is final and binding on contractor. 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. In case, pending erection works like load shifting, IOL creation etc are pending, PAC can not be issued, even though section is open for traffic but not fit operationally from OHE point of view.*

(3) *Break down maintenance shall continue to be done by OHE contractor even after issue of PAC till PCEE inspection. Payments for materials (contractor supply) used during Break down maintenance done after issue of PAC shall be made at Sch-3, Form-7(Sh. 1 to 26) for OHE rates of the contract. Rly supply materials shall be given by Rly.*

For this purpose, payments shall continue to be made even after PAC payments. Damaged materials during break down shall be handed over by the contractor to Rly.

For SCADA works : 1.2.46.2 -DELETED-

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)(i) **FOR OHE Works:-** The Contractor shall guarantee satisfactory working of the installations erected by him for a period of **Twenty Four (24) months** from the date of commercial operation or from

the date of provisional Acceptance of each section (1.2.46.1) by the Purchaser whichever is **later**. The guarantee for spares should be coincident with the guarantee for erected equipment. Guarantee of 24 months from commissioning or 30 months from the date of supply shall be submitted by supplier directly. To avoid lapse of guarantee from OEM, equipments to be ordered as per progress of work physically.

(ii) **FOR TSS Works:-** The Contractor shall guarantee satisfactory working of the installations erected by him for a period of Twenty Four (24) months from the date of commercial operation or from the date of provisional Acceptance of each section (1.2.46.1) by the Purchaser whichever is later. The guarantee for spares should be coincident with the guarantee for erected equipment.

(iii) **FOR SCADA Works:-** The Contractor shall guarantee satisfactory working of the installations erected by him for a period of Twenty Four (24) months from the date of commercial operation or from the date of provisional Acceptance of each section (1.2.46.1) 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 Chief Electrical Engineer (Con) 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 re-supply shall be effected at the Contractor's depot or, in the event of closure of the depot, at the stores depot of the Engineer-in-charge of maintenance of overhead equipment of the section covered by the contract.

(g) In the case of materials, components, fittings and equipments supplied by the Purchaser under 1.2.20.1 (b) for OHE & 1.2.20.2(a) for TSS & SCADA, 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 on the Group 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 section, 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 suomoto 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.

(d) 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 IIIA for OHE, Chapter IIIB for TSS & Chapter IIIC for SCADA 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.

(v)(a) QUARTERLY STATEMENT OF CLAIMS

The Contractor shall prepare and furnish to the Engineer once in every quarter commencing from the month following the month of issue of Letter of Acceptance an account giving full and detailed particulars of all claims for any additional expense to 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 quarter and no claim for payment for any such work will be considered which has not been included in such

particulars.

(b) SIGNING OF NO CLAIM CERTIFICATE

The Contractor shall not be entitled to make any claim whatsoever against the Railway under or by virtue of arising out of this contract, nor shall the Railway entertain or consider any such claim, if made by the Contractor, after he shall have signed a "No claim certificate" in favour of the Railway in such forms 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 the "No claim certificate" or demanding a clearance to arbitration in respect thereof.

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, switching/ booster station sites 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 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 B rates of supply and in case of Schedule A items, payment will be made at schedule-2 rates.

Form-7(Sh. 1 to 26) prices in case of OHE and in case of TSS and SCADA at prices indicated in Supply column of Schedule-1, Section-8 to 12. 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 AND CONCILIATION: 1.2.54 :As per IRGCC (extract for reference)

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 Contactor 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 contacts/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. 10crore, 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 Administrative 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/pdf/Engineers.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.

6a.(3)(b): Two selected arbitrators are free to select presiding arbitrator (3d 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 arbitrator 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

(See tender clause 1.2.17)

PROVISIONS OF CONTRACT LABOUR REGULATION AND ABOLITION ACT: 1970: 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 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 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 provision, 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 lakh 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.

PROVISIONS OF PAYMENTS OF WAGES ACT: 1.2.59

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.

PROVISION OF WORKMEN'S COMPENSATION ACT: 1.2.60

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.

PROVISION OF MINES ACT: 1.2.61

The Contractor shall observe and perform all the provisions of the Mines Act, 1952 or any statutory modifications of re-enactment thereof for the time being in force 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: DELETED

LETTER OF CREDIT AS MODE OF PAYMENT: 1.2.63

- (a) For all the tenders having advertised cost of Rs 10 lakh or above, the contractor shall have the option to take payment from Railways through a letter of credit (LC) arrangement.
- (b) 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 Railway) by the tenderer at the time of bidding itself, and the tenderer shall affirm having read over and agreed to the term and condition of the LC option.
- (c) The 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.
- (d) In case tenderer opts for payment through LC, following shall be the procedure to deal with release of payment through LC:
 - (i) The LC shall be a sight LC.
 - (ii) 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.
 - (iii) SBI, New Delhi, Main Branch will be the nodal branch for issue of LCs based on line 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.

- (iv) 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 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 finalized by the engineer in consultation with the contractor on the basis of expected progress of work.
- (v) 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 Railway 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.
- (vi) The LC terms and conditions shall inter-alia provide that Railways will issue a Document of Authorisation (format enclosed as Annexure-1) after passing the bill for completed work, to enable contractor to claim the authorised amount from their bank.
- (vii) The acceptable, agreed upon document for payments to be released under the LC shall be the Document of Authorisation.
- (viii) The Document of Authorisation shall be issued by SrAFA/ AFA at Project and SrAFA/I at HQ level, against each bill passed by Railways.
- (ix) On issuance of Document of Authorization, 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 SrAFA(As mentioned under clause viii above) to Railway's bank (Local SBI Branch).
- (x) 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.
- (xi) The payment against LC shall be subject to verification from Railway's Bank (Local SBI Branch).
- (xii) The Contractor's bank (advising bank) shall submit the documents to the Railway's Bank (Local SBI Branch).
- (xiii) 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.
- (xiv) 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.
- (xv) The LC shall be closed after the release of final payment including PVC amount, if any, to the contractor.
- (xvi) The release of performance guarantee or security deposit shall be dealt directly by railway with the contractor i. e., not through LC.

Activities shall be planned in such a manner to complete the project in the specified time in accordance with the scheduled milestones.

FORM - 10[illegible]

Agreement towards Waiver under Section 12(5) and Section 31A (5) of Arbitration and Conciliation (Amendment) Act

I/we..... (Name of agency/Contractor) with reference to agreement no..... raise disputes as to the construction and operation of this contract, or the respective rights and liabilities, withholding of certificate and demand arbitration in respect of following claims :

Brief of claim:

- (i) Claim 1- Detailed at Annexure-
- (ii) Claim 2 –
- (iii) Claim 3 –

I/we..... (post of Engineer) with reference to agreement no..... hereby raise disputes as to the construction and operation of this contract, or the respective rights and liabilities, withholding of certificate and demand arbitration in respect of following claims:

I/we..... do/do not agree to waive off applicability of section 12(5) of Arbitration and Conciliation (Amendment) Act.

Signature of Claimant_____Signature of Respondent

Agreement under Section 31(5)

I/we..... (Name of claimant) with reference to agreement no..... hereby waive off the applicability of sub section 31-A (2) to 31-A (4) of the Arbitration and Conciliation (Amendment) Act. We further agree that the cost of arbitration will be shared by the parties as per Clause 64(6) of GCC.

Signature of Claimant_____Signature of
Respondent_____

*Strike out whichever not applicable.

.....

Certification by Arbitrators appointed under Clause 63 & 64 of Indian Railways General Conditions of Contract

1. Name:
2. Contact Details:
3. Prior experience (Including Experience with Arbitrations):
4. **I do not have more than ten on-going Arbitration cases with me.**
5. I hereby certify that I have retired from Railways w.e.f. _ and empanelled as Railway Arbitrator as per 'The Arbitration and Conciliation Act- 1996'.
6. I have no any past or present relationship in relation to the subject matter in dispute, whether financial, business, professional or other kind.
Or
I have past or present relationship in relation to the subject matter in dispute, whether financial, business, professional or other kind. The list of such interests is as under:
7. 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 in terms of The Arbitration and Conciliation Act-1996.
Or
I have 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 in terms of The Arbitration and Conciliation Act-1996. The details of such relationship or interests are as under:
8. There are no concurrent Circumstances which are likely to affect my ability to devote sufficient time to the arbitration and in particular to finish the entire arbitration within twelve months.
Or
There are Circumstances which are likely to affect my ability to devote sufficient time to the arbitration and in particular to finish the entire arbitration within twelve months. The list of such circumstances is as under:

PART - I

CHAPTER- III

SCHEDULE OF AGGREGATE COST AND PAYMENT TERMS

CHAPTER- III

SCHEDULE OF AGGREGATE COST AND PAYMENT TERMS

Sl. No.	Section	Detail of Section
1	Section- 1	Form-5D
2	Section- 2	Prices and Payments

Section –1:

FORM 5-D ::
SCHEDULE OF AGGREGATE COST :: AS MENTIONED IN THE SCHEDULE

Section –2:

PRICES AND PAYMENTS

<u>PARA NO.</u>	<u>SUBJECT</u>
1-3-1	Scope.
1-3-2	Schedule of prices.
1-3-3	Prices of equipments, components and materials.
1-3-4	Prices of spares, spare components and fittings and additional supplies.
1-3-5	Payment and Recoveries.
1-3-6	Invoicing procedure
1-3-7	Payment 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 spares and 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	Mobilization Advance

Section-2 :: PRICES AND PAYMENT

1.3.1: SCOPE This Chapter deals with prices to be paid for supply and/or erection of various items of work or for supplies and other amounts payable in accordance with accepted 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.

1.3.2: SCHEDULE OF PRICES

(a) PRICES

(i) The rates given against various work in Schedule of aggregate cost ie. Section-1 [Form-5(D)] of this chapter are based on Schedule – A (A1 & A2): S.O.R Rates, Schedule – B(B1, B2, B3 & B4): SOR Rates, Schedule – C: S.O.R Rates and Schedule – D: S.O.R Rates and other Non-SOR schedules.

The tenderers are required to quote a single percentage below/at par/above against the Schedule – A:SOR, Schedule-B-SOR against Part-I, Part-II, Part-III, Part-IV, Schedule – C: S.O.R and Schedule – D: S.O.R and other Non-SOR schedules in offer.

The actual payment to be made against any of the work indicated in the 'Schedule of aggregate cost [Form-5(D), Section-1 of this chapter] shall be derived after loading the Schedule – A: SOR, Schedule B-SOR items against Part-I, Part-II, Part-III, Part-IV, Schedule-C SOR items, Schedule-D SOR items and other schedule items.

All unit prices as above shall be FIRM irrespective of minor variations in basic quantities and use of alternative types of various components and fittings approved by the Purchaser. Minor changes in the basic designs shall not affect unit prices, so long as such changes are mutually agreed to by the Purchaser and the Contractor. The prices shall be for materials and erection. The Contractor shall carefully note the items of materials, equipments, fittings and components which will be supplied by the Purchaser.

(ii) The unit prices shall include provision for wastage in transit and erection. The prices shall include all incidental charges for transport, loading / unloading and handling of materials. The prices shall include insurance premia under the emergency risks, all taxes (except service tax), duties and levies etc.

iii) The tenderer has to quote only a uniform single percentage below / at par / above on Scheduled Rates, Schedule – A: SOR, Schedule-B-SOR against Part-I, Part-II, Part-III, Part-IV, Schedule – C: S.O.R and Schedule – D: S.O.R and other Non-SOR schedules in offer.

(iv) **QUANTITIES:** Approximate estimated quantities of various works are included in Form-5(B) at chapter-IX of Part- II.

(v) OPTIONAL ITEMS — DELETED

(b) UNIT PRICES FOR MATERIALS : The unit prices indicated in column 7 of Form-5A at chapter-IX of Part- II, shall include the prices of materials including all incidental charges for transport, loading/unloading and handling of materials, commission for arranging despatch 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 shall include all taxes (except service tax), duties and levies including octroi & VAT etc., applicable on this works contract. It is however clarified that required forms applicable/admissible to avail concessions in the sales tax, if any, on the Works Contract will be supplied to the contractor on demand as applicable in the States where the contract is being executed. The Contractor should quote prices taking into account the concession and keeping also in view the provisions contained in section of C.S.T. 1956 as amended from time to time.

The prices shall also include provision for losses and wastages in transit and erection, the separate prices for supply of concreting material against Item 2 (i.e. items under Schedule-A2) of Form-5[A] at chapter-IX of Part- II is not eligible for ONA payment.

Unit price for Erection : The unit prices indicated in Column-7 of Form-5[A] at chapter-IX of Part- II, shall include cost of erection and testing to be done by the Contractor to the extent indicated in Part-E (Schedule of works), Section-3 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 shall include cost of works and adjustments necessary to be done by the Contractor during or after the tests carried out by the Purchaser as per Chapter-VII of Part-II.

(c) COPPER FOR COMPONENTS & FITTINGS — DELETED

(d) OTHER PRICE ADJUSTMENTS: — DELETED

(e) PRICE VARIATION CLAUSE: Price Variation Clauses (PVC) shall be as per clause No.46A of Standard General Conditions of Contract – read with addendum and corrigendum slip (if any) shall be followed.

(f) ITEMS EXCLUDED FROM THE SCOPE OF PRICE ADJUSTMENT

The following shall be excluded from the value of the work done for the purpose of price adjustment.

- i) Materials supplied free by the Railway to the contractors will not form part of the value of the contract entered into and will fall outside the purview of the price variation clause.
- ii) Execution of quantities beyond **150%** of overall agreement value for which negotiations required.
- iii) Value of the additional items of work not covered in schedule of quantities, for which separate rates may be negotiated.
- iv) The value of the materials, if any, supplied by the Railway at fixed prices.
- v) Specific payments, if any, made by the contractor to the consultants engaged by him where such payments are indicated in the accepted offer.

(g) QUANTITIES : The approximate estimated quantities of various items of work are included in Form-5B at chapter-IX of Part- II

(h) Deleted

(i) EXPLANATORY NOTES:- Explanatory notes for various items of work included in FORM 5(A) at chapter-IX of Part- II are given in Chapter-IV of Part-I.

(j) NEW ITEMS OF WORK : If during the execution of the work the Contractor is called upon to carry out any new item of work not included in Form- 5(D) of this chapter, but included in Form 5(A) items at chapter-IX of Part- II, the contractor shall do the work at the unit rates given in Form-5(A) at chapter-IX of Part- II, plus the percentage so quoted by him for Scheduled Rates for Schedule – A: SOR and Schedule B- SOR items against Part-I, Part-II, Part-III & Part-IV, Schedule – C: S.O.R Rates, Schedule – D: S.O.R Rates.

If during the execution of the work the Contractor is called upon to carry out any new item of work not included in in Form 5(A) at chapter- before commencement of work. IX of Part- II, the Contractor shall execute such works at such prices as may be mutually agreed with the Purchaser

(k) Quantum of work :

The approximate quantities of various items of works are included in FORM 5D of this chapter. The Contract value may vary within (+)/(-) 25% of the quantity of Schedule of items given in FORM 5D of this chapter and as included in letter of acceptance. Such variation shall in no degree affect the validity of the Contract and it shall be performed by Contractor as provided therein and shall be subjected to the conditions, stipulations and obligations originally expressly included for specifications and drawing and amount to be paid, therefore, shall be calculated in accordance with accepted schedule of rates.

The procedure as detailed below shall be adopted for dealing with variation in quantities during execution of works contracts as per clause 42 of IRSGCC 2022 with all latest amendments and correction slips.

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.

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

(v) In case of foundation work, no variation limit shall apply and the work shall be carried out by the Contractor on agreed rates irrespective of any variation.

(vi) As far as SOR items are concerned, the limit of 25% would apply to the value of SOR schedule as a whole and not on individual SOR items. However, in case of NS 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 expressly included and provided for in the Specifications and Drawings and the amounts to be paid therefor shall be calculated in accordance with the accepted Schedule of Rates. Any extra items/quantities of work falling outside the purview of the provisions of Sub-Clause (2) above shall be paid for at the rates determined under Clause-39 of these Conditions.

Notes for Item 9 (A) of MSOP-2018:

1. Individual NS items in contracts shall be operated within variation upto plus or minus 25% and payment would have made as per the agreement rate. For this no finance concurrence would be required.

2. For the tenders accepted at the Zonal Railways level, the variation in quantities will be approved by the authority in whose current tender acceptance powers, the revised value of the agreement lies.

3. In case an increase in quantity of an individual item by more than 25% of the agreement quantity is considered unavoidable, the same shall be got executed by floating a fresh tender. If floating a fresh tender for operating that item is considered not practicable, quantity of that item may be operated in excess of 125% of the agreement quantity (100% i.e., the original quantity + 25% i.e., quantity over and above the original quantity) subject to the following conditions:

a. Since there is an in-built rate reduction Clause of 2% & 4% for variation between 125% & 140% & between 140% and 150% respectively on the accepted rates it will only require the prior approval of the Tender Accepting Authority (TAA) who is an officer not below the rank of JAG without finance concurrence subject to other conditions mentioned in Clause 42 of IRSGCC 2022.

b. However, a Supplementary Agreement/Addendum to original Agreement should be drawn subsequent to sanction of the variation by an officer not below the rank of JAG, which needs to be vetted by Associate Finance.

c. Quantities operated in excess of 125% but up to 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.

d. Quantities operated in excess of 140% but up to 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.

4. Variation in quantities of individual items beyond 150% will be prohibited and would be permitted only in exceptional unavoidable circumstances with the concurrence of Associate Finance and shall be paid at 96% of the rate awarded for that item in that particular tender.

5. The variation in quantities as per the above formula will apply only to the individual items of the contract and not on the overall contract value.

6. Execution of quantities beyond 150% of the overall agreement value should not be permitted and, if found necessary, should ordinarily be only through fresh tenders or by negotiating with the existing contractor, with personal concurrence of FA&CAO/C and personal sanction of General Manager.

7. The limit for varying quantities for minor value items shall be 100% (as against 25% prescribed for other items). A minor value item for this purpose is defined as an item whose original agreement value is less than 1% of the total original agreement value.

8. No such quantity variation limit shall apply for foundation items.

9. As far as SSR/SOR items are concerned, the limit of 25% would apply to the value of SSR/SOR schedule as a whole and not on individual SSR/SOR items. However, in case of NS 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).

10. For tenders accepted by Board Members and Railway Ministers, variations up to 110% of the original agreement value may be accepted by General Manager.

11. The aspect of Vitiating if any, shall be governed as per Railway Board's Transformation Cell Letter no 2017/Trans 01/policy dated 08.02.2018.

12. In zonal contracts, the variation in the contract should not exceed 25% of the contract value.

13. Overall agreemental Value, arrived at by adding the positive variation and subtracting the negative variation from the accepted value of the contract, shall be taken for deciding the competency of sanction. (Authority: RB Ltr no 2017/Trans/01/Policy dated 27-03-2018)

14. The estimate provision/ preparation of revised estimate shall be ensured. The extant rules for excess over estimate, if any, due to escalation/ other than escalation, shall be followed.

In cases where decrease is involved during execution of contract:

Note for item 9 (B) of MSOP-2018:

1. (a) The contract signing authority can decrease the items up to 25% of individual items without finance concurrence.
(b) For decrease beyond 25% for individual items or 25% of contract agreement value, the approval of an officer not less than rank of SA Grade may be taken, after obtaining 'No Claim Certificate' from the contractor and with finance concurrence, giving detailed reasons for each such decrease in the quantities.
(c) It should be certified that the quantities proposed to be reduced will not be required in the same work at a later stage.
2. The aspect of Vitiating if any, shall be governed as per Railway Board's Transformation Cell Letter no 2017/Trans 01/policy dated 08.02.2018.
3. The limit for varying quantities for minor value items shall be 100% (as against 25% prescribed for other items). A minor value item for this purpose is defined as an item whose original agreement value is less than 1% of the total original agreement value.
4. No such quantity variation limit shall apply for foundation items.

1.3.3: PRICE OF EQUIPMENTS, COMPONENTS & MATERIALS : Deleted

1.3.4: PRICE OF ADDITIONAL SUPPLIES:

The purchaser may accept additional supplies over and above those required for the work at the prices given in Form-5(A) at Chapter-IX of Part-II duly loading with the percentage quoted by the tenderer in FORM 5 [c] at Chapter-IX of Part-II. However, prior approval of purchaser not less than the rank of JA Grade shall be taken for such additional supplies/ surplus materials. The purchaser is not bound to take surplus materials of the contractor. For any sub-component of Schedule-A (SOR) item, rates as per Form-7 at Chapter-X of Part-II plus percentage quoted by the contractor for Schedule-A (SOR) items or market rate whichever is less will be paid to the contractor.

1.3.5: PAYMENTS AND RECOVERIES

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:

- i) On account payments
- ii) Progress payments for supply and erection.
- iii) Payment for surplus materials taken over/ additional supplies.
- iv) Final settlement.
- v) Reimbursement on account of price variation of copper, steel, Aluminium, zinc, cement and labour.

1.3.6: INVOICING PROCEDURE

(a) The Contractor shall submit his invoicing procedure for approval by the Purchaser within 15 days from the date of receipt of letter of Acceptance of Tender. Separate invoices shall be submitted for different types of payments mentioned above. All invoices shall be submitted with original supporting documents or certified true copies of supporting documents wherever these are acceptable to the Purchaser's Engineer. Where copies of original documents are required in support of several invoices, true certified/attested copies of the original documents may be forwarded to the Purchaser's Engineer, with his consent.

(b) Invoices shall be submitted only on the basis of agreed principles and prices, quantities and measurement of works completed and be approved by the Purchaser's Engineer prior to the submission of invoices. For this purpose, the Schedule of quantities and measurements submitted by the Contractor for approval of the Purchaser's Engineer may be only upto the extent of work completed except in the case of payments on provisional acceptance under para 1.3.14. All quantity schedules shall give reference of MRC (Material Receipt Certificate) number & date and DPR (Daily Progress Report) number & date. MRC shall be submitted for all equipments irrespective of whether ONA payment is claimed or not. In a nutshell, MRC shall be given for all items of Form-7 at Chapter-X of Part-II, Schedule-B and Schedule-C items. All materials shall be offered for consignee inspection as soon as receipt of the same at contractor's depot and MRC got issued before any material is erected at site. Measurements will be recorded in measurement book after approval of quantity schedule only.

1.3.7: PAYMENTS FOR DESIGNS : REFER PARA 1.3.11

1.3.8: ADVANCE PAYMENTS FOR FOUNDATIONS : D E L E T E D

1.3.9: ON-ACCOUNT PAYMENTS (ONA Payments) Refer 46(1) of IRSGCC 2022:

The Contractor shall be entitled to be paid from time to time by way of "On-Account" payment only for such works as in the opinion of the Engineer he has executed in terms of the contract. All payments due on the Engineer's/Engineer's Representative's certificates of measurements or Engineer's certified "Contractor's authorized Engineer's measurements" shall be subject to any deductions which may be made under these presents and shall further be subject to, unless otherwise required by Clause 16 of these Conditions, a retention of six percent by way of Security Deposits, until the amount of Security Deposit by way of such retentions shall amount to 5% of the total value of the contract provided always that the Engineer may by any certificate make any correction or modification in any previous certificate which shall have been issued by him and that the Engineer may withhold any certificate, if the works or any part thereof are not being carried out to his satisfaction.

ONA payment is made to contractor on receipt of materials but without erection of the materials.

[I] Eligibility: ONA payment is allowed for both Schedule-A, Schedule-B and Schedule-C items.

For Schedule-A items: Payment will be made based as per rates at Form-7, Chapter-X of Part-II for various items of Schedule- A items loaded with the percentage quoted by

Schedule -- B:

For Part-I: Steel items: Payment will be made at Steel items rates (material portion) loaded with the percentage quoted for Schedule-B, Steel items.

For Part-II: Copper items: Payment will be made at Copper items rates (material portion) loaded with the percentage quoted by contractor for Schedule B-Copper items.

For Part-III: Insulators items: Payment will be made at Insulators items rates (material portion) loaded with the percentage quoted by contractor for Schedule-B - Insulators items.

For Part-IV: General items: Payment will be made at General items rates (material portion) loaded with the percentage quoted by contractor for Schedule B-General items.

Note: For claiming ONA on account bill, quantity schedule to be submitted by contractor duly giving reference number of MRC for both Schedule1-Part-B item and Schedule-3 items of Chapter-X of Part-II.

[II] LIMIT ON-ACCOUNT PAYMENTS

"ON-ACCOUNT" payments for the supply of materials / components / equipments is allowed upto **85%** of total amount on supply portion of Form-5(D) at Chapter-IX of Part-II items i.e., 100 % payment on individual items is allowed till total reaches **85%** of sum of prices of supply/material portion of Schedule-A, B & C items required for the work. All on-account payments shall be covered by an Guarantee Bond for indemnification of Railways materials in the approved form (*Form-16 at Chapter-IX of Part-II*).

[III] INVOICING PROCEDURE FOR ON-ACCOUNT PAYMENTS

(a) 'ON ACCOUNT' payments for equipments, components, fittings and materials of schedule – will be made to the contractor on receipt of the same at Site Office of contractor at the rates explained above. The materials are under the safe custody of contractor only. The materials shall not be moved out of the contractor's depot except for erection for the work for which these items are procured.

(b) All the invoices for on-account payment shall be accompanied by the following in nine **(9)** copies:

1. Supplier's delivery Challans. (One Original plus five copies with MRC and three copies with bills).
2. Inspection Certificate granted by the Purchaser's representative after inspection at factory/site as per approval. (RITES/RDSO/ CONSIGNEE One Original plus five copies with MRC and three copies with bills).
3. Certificate of receipt of materials (MRC) at Contractor/s depot/s duly accepted by the Purchaser's Engineers. (materials shall be under the custody of contractor unless otherwise advised by the purchaser) (One Original plus five copies with MRC and three copies with bills)
4. Quality assurance documents (material test reports, instruction/operating manuals with relevant drawings, if any) (see para 1.2.25, at Chapter-II of Part-I) to be submitted separately and not to be attached with bill/invoice being technical documents. (One Original plus five copies with MRC and three copies with bills).
5. Certificate that the stores have been insured. (One Original plus five copies with MRC and three copies with bills).
6. Guarantee certificate by OEM as per para 1.2.49 of chapter-II of Part-I.

Note: Documents at Sl.No 1 to 6 are required to be submitted for all items of schedule A also irrespective of whether ONA payment is allowed or claimed for these items.

(c) Contractor should furnish a Bank Guarantee for **15%** of the amount claimed under sub-para (b) above alongwith invoices. Bank

Guarantee shall be in the prescribed form (**FORM-21**) from State Bank of India or from any Nationalized or Scheduled Bank duly conforming to the requirements specified in para 3.0 at Preamble and valid till the necessary adjustment/recoveries are completed. In case the contractor is unable to furnish the Bank Guarantee, cash would be withheld by the purchaser from the payments due to the contractor. Contractor is not permitted to change his option from one form to other for the guarantee against **15%** value, during the contract. The option exercised at the time of award of contract is final. The bank guarantee / cash will be released as and when the recoveries / adjustments are completed. The contractor shall extend the validity of the Bank Guarantee whenever completion period is extended or till the necessary adjustments /recoveries are completed whichever is earlier.

The on-account payments are set off/adjusted against progress payments for supply and / or erection progressively till entire on-account amount is adjusted. Adjustment will be done as lumpsum and not item wise. An item for which ONA is paid but not erected, purchaser is not bound to accept the material. Such surplus materials will be accepted as per para 1.3.4 above. Separate invoice to be submitted for on-account and progress bills. They should not be mixed. The BG or cash will be released progressively after adjustment of the amount from the progress payments. Contractor may furnish BG's in different denominations (maximum 10 no's) for this purpose. Each BG will be released after adjusting the ONA payment to the extent of that particular BG.

d) On-account payment will commence only when quantity assessment no. 1 as per Form-5(D) at Section-1 of this chapter, is approved by the purchaser.

IV OTHER CONDITIONS

(a) The contractor shall not shift materials from his depot to other works or other places other than the contract for which these materials are procured, without written permission from the purchaser.

(b) On-account payment is not allowed for diverted materials.

(c) On-account payment beyond 65% of the agreement value will be subject to completion of foundations, mast/ portal erections, grouting of masts/portals and muffing to an extent of 65 % or above of the agreement quantities of these items.

1.3.10: RECOVERIES FROM THE CONTRACTOR :

(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 supply and erection, (see para 1.3.11 below).

(b) The cost of materials supplied by the Purchaser under the second sub-para of 1.2.20(b) at Chapter-II of Part-I will be recovered in full by the Purchaser at issue rate (where issue rate for an item is not available, Form-7 at Chapter-X of Part-II rate loaded by the percentage quoted by the tenderer or market rate whichever is higher shall be taken), to the extent of requirement of such materials for each sub-group from the payments to be made under paras 1.3.11 below.

(c) The cost of materials if supplied under Para 1.2.21 at Chapter-II of Part-I will be recovered in the manner indicated in sub-Para (a) above.

(d) The materials supplied under paras 1.2.20 & 1.2.21 at Chapter-II of Part-I shall be covered by the Guarantee Bond for indemnification of Railway material (see Form No. 16 at Chapter-IX of Part-II).

1.3.11: PROGRESS PAYMENTS FOR SUPPLY AND ERECTION :

(A) Schedule A Items:

GENERAL: Progress payment for supply and erection are payable against items 2 to 60 and 200 to 230 of Form-5(D) at Section-1 of this chapter. Bills to be submitted sub-section wise only. MRC to be submitted for all the items before erection at site. The contractor to intimate in writing as soon as any material is received at his depot so that railway supervisor/engineer is deputed to inspect the materials and documents and issue MRC. Proforma for MRC got to be approved from purchaser well in advance of receipt of materials. No material shall be erected at site without issue of MRC. In case of urgency, approval of executive in-charge officer of the work to be taken before moving the material to site.

Submission of MRC for all items down to bolts, nuts of any sub-component of any item of schedule is a must for claiming progress payments even when ONA payment is not claimed. MRC to be submitted only once i.e., at the time of claiming ONA and /or progress payment.

The following documents shall be submitted in nine **(9)** copies for issue of MRC by purchaser's engineer.

1. Supplier's delivery Challans.
2. Inspection Certificate granted by the Purchaser's representative. (RITES/RDSO/ CONSIGNEE)

3. Quality assurance documents (material test reports, instruction/operating manuals with relevant drawings, if any) (see Para 1.2.25 at Chapter-II of Part-I) (To be submitted separately and not to be attached with bill/invoice being technical documents).
4. Certificate that the stores have been insured.
5. Guarantee certificate by OEM as per para 1.2.49 at Chapter-II of Part-I.
6. For claiming ONA on account bill, quantity schedule to be submitted by the contractor duly giving reference number of MRC for both Schedule-A items & Schedule-3 items of Chapter-X of Part-II.

On completion of each item of work in Form-5(D) at Section-1 of this chapter on agreed siding/ section/ station/ SWS/ FP/ TSS, the Contractor shall be due for payments to the extent of 100% of the prices for supply and/or erection included in Form-5(D) at Section-1 of this chapter subjected to submission of six (6) copies of approved drawings of agreed siding/ section/ station/ SWS/ FP/ TSS or part thereof. The portion of the progress payments towards the supply/material and / or erection portion of items 3 to 60 and 200 to 230 shall be progressively set off against 'On Account' payment for supply made under Para 1.3.9 above until the entire 'On-Account' payments are adjusted. Thereafter, the progress payment towards supply/material and or erection portion shall commence. Progress payments towards foundations will not be adjusted/set off against on-account payments.

(a) PAYMENTS FOR DESIGNS :

The amount payable shall be based on assessed quantities against item 1 of Form-5(D) at Section-1 of Part-K [see para 2.5.19 at Part-G (Designs & Drawings)]. Payments for designs shall be made on the following basis.

After submission of an application for obtaining **EIG's** approval, an amount of 50% of the accepted rate per Track Kilometre/ per Switching Station OR for one TSS/Capacitor Bank will be paid against each item of work in the Schedule of aggregate cost [Form-5(D) at Section-1 of this chapter].

After obtaining **CRS** approval OR after equipments charged with Power supply whichever is earlier, an amount of another 25 % of the accepted rate per Track Kilometre/ per Switching Station OR for one TSS/Capacitor Bank will be paid against each item of work in the Schedule of aggregate cost [Form-5(D) at Section-1 of this chapter].

After submission of "**As erected**" drawings such as LOPs, SED sheets, special design, if any, alongwith calculations and also requisite number copies, Originals / RTF as referred to in Part-G are submitted, an amount of another 25 % of the accepted rate per Track Kilometre/ per Switching Station OR for one TSS/Capacitor Bank will be paid against each item of work in the Schedule of aggregate cost [Form-5(D) at Section-1 of this chapter].

(b) FOUNDATIONS : On completion of foundations (with or without grouting) excluding muffs on agreed siding/section, the Contractor shall receive payment to the extent of 95% of the price on the actual volume cast and to the extent of 100% on completion of the muffs under item-2, Form-5(D) at Section-1 of this chapter.

(c) MASTS AND PORTALS : On completion of erection and grouting of masts and portals of agreed siding/section, the Contractor shall receive payments to the extent of 100% of the prices for supply and / or erection of masts and portals under item-3, Form-5(D) at Section-1 of this chapter.

(d) OTHER ITEMS OF SUPPLY AND/OR ERECTION : On completion of erection of other items included in Form-5(D) at Section-1 of this chapter on agreed siding/ section/ station/ SSP/ SP/ FP/ TSS/ Capacitor bank the Contractor shall receive payments to the extent of 100% of the prices for supply and / or erection of items included in Form-5(D) at this chapter. All the above payment shall be subject to any recoveries which may be due under para 1.3.10 above.

Note for (c) and (d) : Payments against each item shall be made after supply and erection if the particular item involves both supply and erection except when the item is taken as additional/ surplus supply without erection.

(e) Progress payment for the erection of traction masts and portals/structures (Item-3) will be made only when traction masts or structures are erected in the foundation blocks, grouting and muffing is completed. Progress payment for erected bracket assemblies (Item-4) will be made even though the register arm dropper and steady arm are not erected and final revision and adjustment are not done. 50% of the progress payments due for overhead equipment (Item-6) will be made when the catenary and contact wires are strung and droppers installed. Balance 50% of the progress payment due for overhead equipment (Item-6) will be made only after the catenary and contact wires are finally adjusted for proper height and/or stagger and all other items of work included in this item are fully completed (vide explanatory notes at Section-1 of Chapter-IV of Part-I). Progress payments for Item-5 & Item Nos. 7 to 60 and item Nos. 200 to 230 of Form-5(D) at Section-1 of this chapter will, however, may be made after the relevant/equipments are in position, even though the final revision and adjustments are not done. However, the decision of the engineer in this regard is final.

(f) For schedule-B items, DPR to be prepare separately and should not copy from Schedule-A DPRs. DPR to contain location number wise data. For copper items, unit of quantities to be adopted from Annexure-6 of Chapter-IX of Part-II.

(B) PROGRESS PAYMENT FOR SCHEDULE-B ITEMS:

Progress payment for supply and erection are payable against Part-I to VII of Schedule-B. Bills to be submitted sub-section wise only. MRC to be submitted for all the items before erection at site. The contractor to intimate in writing as soon as any material is received at his depot so that railway supervisor/engineer is deputed to inspect the materials & documents and issue MRC. Proforma for MRC got to be approved from purchaser well in advance of receipt of materials. No material shall be erected at site without issue of MRC. In case of urgency, approval of executive in-charge officer of the work to be taken before moving the material to site. Submission of MRC for all items down to bolts, nuts of any sub-component of an item of schedule is a must for claiming progress payments even when ONA payment is not claimed. MRC to be submitted only once i.e., at the time of claiming ONA and /or progress payment.

The following documents shall be submitted in One Original plus nine (9) copies for issue of MRC by purchaser's engineer.

1. Supplier's delivery Challans.
2. Inspection Certificate granted by the Purchaser's representative. (RITES/RDSO/ CONSIGNEE).
3. Quality assurance documents (material test reports, instruction/operating manuals with relevant drawings, if any) (see Para 1.2.25 at Chapter-II of Part-I) (To be submitted separately and not to be attached with bill/invoice being technical documents).
4. Certificate that the stores have been insured.
5. Guarantee certificate by OEM as per para 1.2.49 at Chapter-II of Part-I.

On completion of each item of work as per Form-5(D) at Section-1 of this chapter on agreed siding/ section/ station/ SSP/ SP/ FP/ TSS/ Capacitor bank the Contractor shall be due for payments to the extent of 100% of the prices for supply and/or erection included in Form-5(D) at Section-1 of this chapter. The portion of the progress payments towards the supply/material and / or erection portion of items Part-I to VII shall be progressively set off against 'On Account' payment for supply made under Para 1.3.9 above until the entire 'On Account' payments are adjusted. Thereafter, the progress payment towards supply/material and or erection portion shall commence. In case, an item is taken as additional supply/ surplus material, progress payment is allowed without erection of the same.

(C) PROGRESS PAYMENT FOR SCHEDULE-C ITEMS:

Progress payment for Schedule-C items is paid when the item is tested, commissioned and accepted by railway engineer.

The following documents shall be submitted in one original and nine (9) copies for issue of MRC by purchaser's engineer.

1. Supplier's delivery Challans.
2. Inspection Certificate granted by the Purchaser's representative.
(RITES/RDSO/CONSIGNEE)
3. Quality assurance documents (material test reports, instruction/operating manuals with relevant drawings, if any) (see para 1.2.25 at Chapter-II of Part-I) (To be submitted separately and not to be attached with bill/invoice being technical documents).
4. Certificate that the stores have been insured.
5. Guarantee certificate by OEM as per para 1.2.49 Chapter-II of Part-I.

1.3.12: PAYMENT FOR ADDITIONAL SUPPLIES: See para 1.3.4 above

1.3.13(A): EXCISE DUTY, SALES TAX, V.A.T. and SERVICE TAX: DELETED (a to f and h)

Prevailing GST 2017 act is applicable.

(g) DEDUCTION OF INCOME TAX AT SOURCE:

In terms of new Section 194 inserted by the Finance Act, 1972, in the Income-Tax Act, 1961, the Railway shall, at the time of arranging payments to the contractor under the contract, be entitled to deduct Income-Tax at source on income comprised in the sum of such payment and the amount so deducted shall be credited to the Central Government.

The deductions towards income-tax to be made at source from the payment due to non-residents shall continue to be governed by Section 195 of the Income-Tax Act 1961.

Tax Deduction at Source (TDS) certificate shall be issued by officer responsible to make payment i.e., Bill Paying Officer of purchaser. Contractor may approach bill paying officer for TDS and demand in writing.

1.3.13 (B) : "The Building and Other Construction Workers (RECS) Act, 1996" and "The Building and Other Construction Workers Welfare Cess Act, 1996":

"The Building and Other Construction Workers (RECS) Act, 1996" and "The Building and Other Construction Workers Welfare Cess Act, 1996": The tenderers, for carrying-out any construction work, must 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 from the Registering Officer of the concerned State Govt. (Labour Dept.). As per this Act, the tenderer shall be levied a cess @1% of cost of construction work, which would be deducted from each bill.

Note: Copies of bare Acts may be procured locally by the tenderers at their cost to thoroughly understand various provisions contained therein.

1.3.13 (C) : EPF & MP Act, 1952

The contractor shall comply with the provisions of EPF & MP Act, 1952 and obtain code number from the concerned authorities whenever workmen employed by him are 20 or more. He shall also indemnify Railways from and against any claim, penalties, recoveries under the above Act and Rules. Contractors to get the code number under the EPF so as to enable the PF Commissioners to extend the social security benefits to the workmen engaged by the Railway Contractors. The first month's bill will be released only after code number is taken from the PF office and a copy of coverage intimation produced. Subsequently for each month, bills will be released only on submission of challans & 12A. Monthly return copy in proof of remittance of PF dues for previous month.

1.3.14 : PAYMENTS OF PROVISIONAL ACCEPTANCE OF SIDING/SECTION: NIL

1.3.14(A) : Release of PG: Performance Guarantee will be refunded/released after physical completion of all works including remarks of open line and construction and issue of completion certificate i.e., "**PROVISIONAL ACCEPTANCE CERTIFICATE (PAC)**" for construction TRD works issued by the competent authority stating that the contractor has completed the work in all respects satisfactorily.

1.3.15 : PAYMENTS FOR SURPLUS MATERIALS: See para 1.3.4 above

1.3.16 : FINAL SETTLEMENT :

On expiry of the guarantee period and issue of the certificate of final acceptance of the entire installations (see para 1.2.50 at Chapter-II of Part-I), the SECURITY DEPOSIT will be refunded to the Contractor after adjustment of any dues payable by the Contractor.

1.3.17 : MEASUREMENTS :

(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 confirmation with the explanatory notes at Chapter-IV of Part-I for items at Form-5(A) at Chapter-IX of Part-II.

1.3.18 : MOBILISATION ADVANCE : Refer Para No. 46.(4) of IRSGCC-2022.

(a) If required by the Contractor, mobilisation advance limited to 10% of contract value shall be payable if estimated value of the tender is 50 Crores and above. This advance shall be payable in two stages as under:-

Stage 1 – 5% of Contract Value on signing of the contract agreement.

Stage 2 – 5% on mobilization of site-establishment, setting up offices, bringing in equipment and actual commencement of work.

The stage 1 of advance shall be payable immediately after signing of contract agreement.

The stage 2 of advance shall be payable at the time of mobilisation, only after submission of an utilization certificate by the contractor that the Stage 1 advance has been properly utilized in the contract.

These Advances shall be payable against irrevocable guarantee (Bank Guarantee, FDRs) from a scheduled commercial bank of India of at least 110% of the value of the sanctioned advance amount (covering principal plus interest).

(b): Advance Against Machinery and Equipment –

This advance shall be limited to a maximum of 10% of the contract value against new Machinery & Equipment, involving substantial outlay, brought to site and essentially required for the work. This advance shall not exceed 75% of the purchase price of such Equipment and shall be payable when Equipment is hypothecated to the President of India by a suitable bond or alternatively covered by an irrevocable Bank Guarantee from a scheduled commercial bank of India for full cost of the Plant & Equipment in a form acceptable to Railways. The Plant & Equipment shall be insured for the full value and for the entire period,

they are required for the work. This Plant & Equipment shall not be removed from the site of work without prior written permission of the Engineer. No advance should be given against old Plant & Machinery.

The advances under sub clause (a) and (b) above, are subject to the following conditions -

(i) The full amount of Advances shall be recovered from contractor dues. The recovery shall commence when the value of contract executed reaches 15% of original contract value and shall be completed when the value of work executed reaches 85% of the original contract value. The installments on each "on account bill" will be on pro-rata basis.

Interest shall be recovered on the advance outstanding for the period commencing from the date of payment of advance till date of particular on-account bill (through which recovery of principal is effected) and adjusted fully against on-account bill along with pro-rata principal recovery. In the event of any short-fall, the same shall be carried forward to the next on-account bill and shall attract interest.

(ii) The advances shall be used by the Contractor for the purpose of the Contract, and for the purpose for which they are paid. Under no circumstances, shall the advances be diverted for other purposes. Any such diversion shall be construed as a breach of the Contract and the Contractor shall be asked to return the advance at once and pay interest at 15% per annum till the advance is recovered back from him. The Contractor shall return the advance and pay the interest in one go without demur. The Contractor, if required by the Engineer shall provide the details of utilisation of Mobilisation advance.

(iii) If the Contractor is found to have contravened the provision, it will constitute a breach of contract and Railway shall be entitled to terminate the contract and forfeit his Performance Guarantee as well as Security Deposit.

(iv) In cases, where the Contract is rescinded as per clause 62 of the contract or short closed under any other condition(s) of the contract, without making full recovery of advances and accrued interest thereon, by the Railway, such balance of advances and accrued interest thereon shall immediately become due and payable by the Contractor to the Railway. The same shall be recovered from any due of Contractor with the Government of India.

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PART-I

CHAPTER-IV

PART- I
CHAPTER-IV
"A"

1.4

EXPLANATORY NOTES OF SCHEDULE
(FOR OHE, SWS, BT STATION & LT SUPPLY TRANSFORMER STATIONS) SCHEDULE
OF PRICES

Section "A"- OHE GENERAL

1.4.1 Explanatory notes for various items of work in Schedule-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 (Pt. I, Ch. IVA) 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 Part-"B"- Particular 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 Part-"B"- Particular 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 Part-"B"- Particular 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 1.2.20.1 (see Annexure 4) for OHE..

(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) SOLID-CORE-INSULATORS:** Cost of insulators will be paid in Schedule-1, Section-5.

(e) (ii) In case the Purchaser chooses to supply to the Contractor the following galvanised steel tubes for bracket assembly, the procedure to be adopted would be as under:-

- | | |
|-------------------------------|---------------------|
| (1) Standard bracket tube | (m 29.9/38.0 mm). |
| (2) Large bracket tube | (m 40.9x49.0 mm). |
| (3) Stay & register arm tube. | (m 28.4mm/33.7 mm). |

Soon after the approval of layout plan and cross section drawings the Contractor shall assess the quantity of the above types of tubes required for the work and submit his assessment indicating the phased requirement of each type of tubes in total running lengths for verification by the Purchaser. Based on this verified assessment the Purchaser will supply the tubes in random lengths varying from 5.5 metre to 6.40 metre meeting either the phased requirement or the entire requirement. On completion of work the Contractor shall return to the Purchaser all the uncut tubes or cut pieces having length more than 2.5m, which have not been utilised.

The cut pieces having length less than 2.5 m need not be returned. For final reconciliation the total length of the tubes deemed to have been utilised for the work shall be as calculated on the basis of total length

arrived at as per 'As erected' structure, erection drawings plus 7% wastage/working allowance. The total length of the tubes supplied to the Contractor less the total length returned by the Contractor shall in no case exceed the total length deemed to have been utilised for the work as stated above. In case it exceeds, the Purchaser shall be entitled to recover the cost of such excess length of tubes as per the provision specified in note at the end of para 1.4.6 (f) (Pt. I, Ch. IVA).

(e) (iii) **SUPPLY OF STEEL BY RAILWAYS** : In case the Purchaser chooses to supply galvanised, rolled steel masts, gantry masts, fabricated steel works, to the Contractor, the cost of rolled steel masts, gantry masts, fabricated steel work damaged or falling short will be recovered at rates specified in NOTE at the end of para 1.4.6 (f) (Pt. I, Ch. IVA).

(e) (iv) **SUPPLY OF COPPER CONDUCTORS BY RAILWAYS** : In case the Purchaser chooses to supply copper wires and conductors to the contractor, the procedure to be adopted would be as under:-

Soon after the approval of layout plan and cross section drawings the Contractor shall assess the quantity of the wires and conductors required for the work and submit his assessment indicating the phased requirement of each type of wires and conductors in total running lengths or in MT for verification by the Purchaser. The Purchaser will supply to the Contractor all wires and conductors required for the work based on unit quantities, inclusive of erection allowances in accordance with column 6, Annexure-6 together with the lengths of finished wires and conductors for new items of work (see para 1.3.2 (j) (Pt. I, Ch. IIIA) and the lengths of wires and conductors under items 31(h) of Schedule-1 (Pt. I, Ch. IVA). Out of the quantity as calculated above, the contractor shall return to the Purchaser wires and conductors in longest possible bits or in the form of scrap, as calculated on the basis of the final quantities of items of work of Schedule-1 (Pt. I, Ch. IVA) and the quantities specified in column 5, Annexure-6. The total length of finished wires and conductors deemed to have been erected will be the difference, viz., as calculated on the basis of the final quantities of Schedule 1 (Pt. I, Ch. IVA) and the bare unit lengths specified in column 4, Annexure-6 together with the lengths of finished wires and conductors for new items of work (see para 1.3.2 (j) (Pt. I, Ch. IIIA) and the lengths of wires and conductors under item 31(h) of Schedule-1 (Pt. I, Ch. IVA).

Notwithstanding the above, it is a general condition that the Contractors shall return to the Purchaser all wires and conductors which have been supplied to him but not utilised on works. Should the Contractor be unable to do so, the Purchaser shall be entitled to recover the cost of such wires and Conductors as specified in NOTE at the end of para 1.4.6 (f) (Pt. I, Ch. IVA). For the purpose of reconciliation the length of wire or conductor deemed to have been supplied by the Purchaser to Contractor will be the length stenciled on the drum and the length deemed to have been returned by the Contractor will be the actual length of cut-pieces and/or the length calculated on the basis of the actual weight of cut pieces scrap and linear density specified in column 2, Annexure-6.

(e) (v) **SUPPLY OF ATs & INTERRUPTERS BY RAILWAYS**: In case the Purchaser chooses to supply Auxiliary Transformers and Interrupters to the Contractor, the contractor shall return the unused equipments to purchaser on completion of the work. The cost of shortages or damages if any, will be recovered at rates specified in NOTE at the end of para 1.4.6 (f) (Pt. I, Ch. IVA).

(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 RE 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 (Pt. I, Ch. IVA) are made contractor supply by including the respective optional items in the contract.

g) Reconciliation of released materials due to modification:

- i. Before start of work, a joint survey of items going to be released based on the approved drawings shall be made by the contractor, TRD & Construction representatives and statement to be jointly signed. Any damage condition to be noted.
- ii. After release of an item, the same shall be returned within a week to TRD through SEE/C/TrD in the same condition as existed before release.

- iii. All insulators to be handled carefully during releasing and shall not be broken. Damage insulator components will not be taken and cost will be recovered as per new item cost if a new item is returned in place of released item.
- iv. If a newly erected equipment is released due to any reason, reason to be recorded in DPR.
- v. After a section is commissioned survey of as erected items quantities to be made and reconciliation of as erected quantities will be done. Any item as erected quantity less than progress bill claimed so far or DPRs quantity so far, contractor shall give the explanation for same with reasons. In case a new is removed due to change in ESP etc. released item (new) shall be handed over to claim supply item. To claim erection of same location more than one item reason to be given supported by the drawing and to be approved by the Railways.
- vi. Release old item shall not be reused. In case of released item relatively young approval may be given in exceptional cases by CEE/C with request of contractor. In such cases only dismantling and reerection will be paid. No supply payment is admissible.

(h). The separate erection rate has been mentioned for execution of work under Power Block (for the period below 04 hrs) and Extra rate on Manual Erection. The common explanatory note for applicability of extra on erection rate under Power Block and Extra rate on Manual Erection is mentioned below.

1.(a) COMMON EXPLANATORY NOTE FOR EXTRA ERECTION RATE FOR EXECUTION OF WORK UNDER POWER BLOCK (FOR THE PERIOD LESS THAN 04 HRS) :

In case the erection/dismantling of the portion of the work is carried out during power block (only for the power block of less than 04 Hrs in a day), the extra erection rate will be paid over and above the normal accepted erection of relevant item on certification by engineer. This shall be paid only for erection/dismantling of equipment in the vicinity of energized overhead equipment and feeders or erection of equipment with joints equipment already energized or on energized equipment which calls for a power block (shut off of traction power). The price payable under this item shall be extra over the normal erection rates of the item referred against the item, provided such work is not called for on account of non-compliance with specifications, approved drawings and instructions given by the Employer from time to time. The extra erection rate under this item will not be payable, if power block is given for a total duration of 04 hour or more in a day. Where the prices under this item are applicable, the contractor shall finalize the quantities of various items of work to be done under a power block, jointly with the Employer's Engineer prior to taking the work in hand.

1.(b) COMMON EXPLANATORY NOTE FOR EXTRA ON MANUAL ERECTION FOR MAST/UPRIGHT/BOOMS & CATENARY/CONTACT WIRE

- (i) No manual erection to be carried out, whether on existing lines or new lines, without prior written approval of CEE/C/SC In-charge/Project.
- (ii) In existing lines, erection of masts/uprights/booms is usually done by BFR mounted cranes and wiring by wiring train. However, in case of existing single line/double line/triple line where electrification is carried out and Rail crane is not arranged by employer and CEE/C/SC In-charge advises to expedite work in writing to undertake erection manually, manual erection rates are also applicable in such case for masts/upright/booms. In case of wiring, wiring deck & reel wagon is to be fabricated by executing agency using non AC coach and BFR given by employer. If executing agency fails to fabricate reel wagon & wiring deck & wiring is to be carried out manually to expedite work, no extra payment for manual erection of wiring will be allowed.
- (iii) In case of new single line or double line or third line or fourth line where Rail crane/wiring deck movement is not possible, manual erection is to be carried out with the prior written approval of CEE/C/SC In-charge of the project.

□□□□□

Section “B”

OHE PARTICULAR **Schedule-1, Section-1 to 5**

(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 1.2.20.1(b)). The prices in Schedule-1, Section 1 to 5 shall be exclusive of cost of supply of these items mentioned in Annexure-4 of 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.

EXPLANATORY NOTES

SCHEDULE A1: OHE & PSI Items

Item 1(a) - Preparation of Design & Drawings for Overhead Equipment

The price shall cover per TKM basis for site survey, design and preparation of complete layout plan of each station/section (i.e. including existing unmodified portion) and all related drawings for overhead equipment. The OHE is to be designed as per RDSO/CORE standards.

In case of modification works in existing electrified area, soil classification as per nearby locations may be adopted. The preparation of Layout plans (LOPs) and other designs are to be finalized by the contractor in consultation & in close coordination with Railway Engineer In-charge. The price shall include the following scope.

Layout Plan (LOP):

After site survey and based on the engineering scale plan, contractor will submit proposed OHE layout plan for approval. After approval of proposed layout plan, the work is to be started. The contractor may be asked to prepare the layout plans based on the site details if the Railway Engineer In-charge is not able to supply the Engineering scale plan (ESP).

Feeder will also be applicable independently in case of feeders running on independent structures (not supporting OHE) along or across tracks.

Note: As advised by Railway Engineer In-charge, Part LOP may be submitted for planning to start the work at site apart from Full LOP. In case of big yards, showing complete LOP in zero size sheet is not feasible to check at site. Hence, Part LOPs may be submitted as advised by Railway Engineer In-charge.

Cross Section Drawing (CSD):

The price shall cover design and preparation of complete cross section drawings (CSDs) of each location as per RDSO/CORE standards. The contractor shall submit CSDs for approval. In-so-far as yards between outer most points and crossings are concerned, cross section drawings for each structure shall indicate guy rods, if any, the cross section of the formation, height and nature of the bank, whether new or old, 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.

Note: (i) In open line sections, cross-sections drawings (CSDs) shall be submitted in the proforma, separately for each Railway line. (ii) For special foundation, drawings with all necessary details shall be submitted to the Purchaser. (iii) In case of side bearing foundation with extra depth, formation details as such location and necessary details for anchor foundation will be submitted. (iv) Prior to CSD preparation, a soil test should be conducted as per requirements to determine the exact soil-bearing capacity and soil type

Structure Erection Drawing (SED):

The Contractor shall submit structure erection drawings for each location for approval incorporating all the details included in the cross section drawing for the structure and the details of the bracket assembly, mast extensions, isolator mounting frame and anchorage of overhead equipment, feeder return conductors proposed for each structure together with all particulars necessary for the correct erection of overhead equipment at the structure. For structures with isolators, the details of electrical connections shall also be incorporated. In open line section, the contractor shall submit structure erection particulars in the 'SED' proforma separately for each main line track in addition to particular details as indicated in the proforma for cross-section drawings.

The price shall also include the following, if required:

- i) Preparation of long section drawings of overhead equipment including detailed study of over line structures such as foot over bridges, road over bridges etc. for maintaining the specified height of contact wire and requisite clearances. Contractor has to submit four (04) hard copy sets and soft copy (Auto Cad) to the purchaser.
- ii) Preparation of Bonding plan drawings and supply of 4 hard copy sets as well as soft copy. Contractor has to submit four (04) hard copy sets and soft copy (Auto Cad) to the purchaser.

Approved Drawings:

Contractor has to prepare above mentioned /or all relevant in-principle drawings and submit 01 set of check paper print for verification from railway. Contractor has to make suitable corrections/ modifications raised on check prints, and submit 08 sets for approval.

As Erected Drawings:

After completion of work at site, contractor has to prepare '**as erected drawings**' of proposed works as per site in one (01) set check paper print for verification from railway. After incorporation of remarks on check print, contractor have to submit Six (06) hard copy sets along with one tracing print and soft copy (Auto Cad) to the purchaser.

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 up to the chainage of anchor mast of the terminating OHE.

The length of line to be considered for purpose of item 1(a) shall be measured

- i) 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

- ii) 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 1(b) - Preparation of Design & Drawings for Switching Station (SP/SSP)

The price shall include the cost of preparation of design and drawing of switching station (SP/SSP) as per latest RDSO drawings & specifications. Also, it includes the necessary additions/alterations required for addition of an interrupter along with other equipment in existing SP/SSP.

The price shall cover supply of detailed drawings as mentioned below:

- a) Schematic Diagram
- b) Location Plan
- c) General Arrangement Drawing (GAD)
- d) Foundation Layout Drawing.
- e) Fencing Layout Drawing
- f) Earth mat Layout
- g) Cable trench Drawing.
- h) Cable Run Drawing
- i) Structure Assembly Drawing
- j) Any other essential drawings required in connection with SP/SSP.

Approved Drawings:

Contractor has to prepare above mentioned /or all relevant in-principle drawings of proposed work and submit one (01) set check paper print for verification from railway. Contractor have to make suitable corrections/ modifications raised on check prints, and submit two (02) sets of drawings for approval.

As Erected Drawings:

After completion of work at site, contractor has to prepare '**as erected drawing**' of proposed works per site submerged in existing portion of SP/SSP in one (01) set check paper print for verification from railway. After incorporation of remarks on check print, contractor have to submit five (05) hard copy sets along with one tracing print and soft copy (Auto Cad) to the purchaser.

Item 1(c) - Preparation of Traction Working Rule Diagram along with Working Instructions [Appendix-G]

The price shall include the preparation of the Traction Working Rule diagram (SWR Drawing) and the development of station working instructions for incorporation in Appendix-G of SWR Book at station. Traction working rule diagram is to be prepared based on Approved Layout plan and approved SIP duly incorporating signals and all elementary sections clearly. SWR (Appendix-G) should contain all instructions in connection with power block working section wise, sub section wise and protections to be taken etc.

Contractor has to prepare the SWR drawing in AutoCAD format and the instructions in MS Word format for Railway approval and submit one (01) set check paper print for verification from railway. Contractor has to make suitable corrections/ modifications raised on check prints, and submit 02 hard copy set of drawings for approval of competent authority. Upon approval, the Contractor shall supply six (06) hard copy sets of the drawings along with one soft copy, complete with coloring, operational rules, and a proper cover. The work shall be carried out in accordance with the ACTM and G&SR guidelines.

Note: (1) SWR drawings are to be printed in A3 Paper along with lamination.
(2) SWR Instructions are to be printed in A4 Paper.

Item 1(d) - Supply & Installation of Traction Working Rule Diagram Boards

The price shall include the supply and installation of fabricated Traction Working Rule Diagram (SWRD)/Sectioning/Schematic Diagram Boards of various sizes at designated locations, including Stations/Junction cabins, TPC cubicles, OHE/PSI depot, etc. The boards must be fabricated using 3 mm thick ACP (Aluminium Composite Panels) sheets, supported by iron framing, and finished with aluminium beading for durability and a professional appearance. The SWRD drawings shall be printed on adhesive vinyl, with elementary sections distinctly marked in different colours for clarity. Installation of the boards shall be carried out in accordance with the requirements and directions of the Railway Engineer In-charge at station, cabins, Depot and TPC.

Note: Dimensions of Traction working rule diagram boards are to be decided in consultation with Railway Engineer In-charge.

Item 1(e) - Preparation of Design & Drawings for Traction Substation (TSS)

The price shall include the cost of preparation of design and drawing of Traction Substation (TSS). The design & drawings for TSS should be prepared as per latest RDSO drawings & specifications. The price shall also include duly incorporating the necessary additions/alterations required for addition of an interrupter along with other equipment or addition of extra bay.

The price shall cover supply of detailed drawings as mentioned below:

- a) Schematic Diagram
- b) Location Plan
- c) General Arrangement Drawing (GAD)
- d) Foundation Layout Drawing.
- e) Fencing Layout Drawing
- f) Earth mat Layout
- g) Cable trench Drawing.
- h) Cable Run Drawing
- i) Structure Assembly Drawing
- j) Control Room Building Drawing
- k) Baffle Wall Drawing
- l) Any other essential drawings required in connection with TSS.

Approved Drawings:

Contractor has to prepare above mentioned /or all relevant drawings of proposed work and submit 01 set check paper prints for verification from railway. Contractor has to make suitable corrections/ modifications raised on check prints, and submit 02 sets of drawings for approval.

As Erected Drawings:

After completion of work at site, contractor has to prepare 'as erected drawing' of proposed works per site submerged in existing portion of TSS in 01 set check paper print for verification from railway. After incorporation of remarks on check print, contractor have to submit five (05) hard copy sets along with one tracing print and soft copy (Auto Cad) to the purchaser.

Item 1(f) - Preparation and Designing of Sectioning diagram.

The price shall include the preparation of Sectioning diagram for each station. If required for the sectioning diagram, the Contractor shall develop it based on the approved Signal Interlocking Plan (SIP) and Engineering Scale Plan (ESP), copies of which will be provided by the Railways at no cost. If required, wiring drawing is also to be submitted by contractor.

Contractor has to prepare drawings of proposed work and submit one (01) set check paper print for verification from railway. Contractor has to make suitable corrections/ modifications raised on check prints,

and submit 02 hard copy sets and PDF version of drawings for approval. Upon approval, five (05) hard copy sets of the drawings, along with one tracing print and a soft copy in AutoCAD format, shall be supplied to the purchaser. The work shall be carried out in accordance with ACTM and G&SR standards.

Item 1(g) - Design and Preparation of Structure Erected Drawing (SED)

The price shall cover for site survey, design and preparation of complete SED of each location based on existing LOP. This item will be operated for single / isolated locations or for AT Stations. The design is to be prepared as per RDSO/CORE standards. The price shall also cover soil investigation and testing in an approved manner, for new sidings and branch lines. In case of modification works in existing electrified area, soil classification as per nearby locations may be adopted. The price shall include the following scope.

Cross Section Drawings:

The price shall cover design and preparation of complete cross section drawings of each location as per RDSO/CORE standards (i.e. including existing unmodified portion). The contractor shall submit two sets of blue print for approval. In-so-far as yards between outer most points and crossings are concerned, cross section drawings for each structure, shall indicate (a) guy rods, if any, (b) the cross section of the formation, (c) height and nature of the bank, whether new or old, (d) nature of soil, (e) type of foundation block, (f) structure proposed, (g) reverse deflection of the structure and all necessary particulars for erection of the foundation and the structures.

Note: (i) In open line sections, cross-sections drawings shall be submitted in the proforma, separately for each Railway line. (ii) For special foundation, drawings with all necessary details shall be submitted to the Purchaser. (iii) In case of side bearing foundation with extra depth, formation details as such location and necessary details for anchor foundation will be submitted. (iv) Prior to CSD preparation, a soil test should be conducted as per requirements to determine the exact soil-bearing capacity and soil type

Structure Erection Drawings:

The Contractor shall submit structure erection drawings for each location for approval incorporating all the details included in the cross section drawing for the structure and the details of the bracket assembly, mast extensions, isolator mounting frame and anchorage of overhead equipment, feeder return conductors proposed for each structure together with all particulars necessary for the correct erection of overhead equipment at the structure.

For structures with isolators, the details of electrical connections shall also be incorporated. In open line section, the contractor shall submit structure erection particulars in the 'SED' proforma separately for each main line track in addition to particular details as indicated in the proforma for cross-section drawings.

Approved Drawings:

Contractor has to prepare above mentioned /or all relevant drawings and submit 01 set of check paper print for verification from railway. Contractor has to make suitable corrections/ modifications raised on check prints, and submit 02 sets for approval.

As Erected Drawings:

After completion of work at site, contractor has to prepare '**as erected drawings**' of proposed works as per site in one (01) set check paper print for verification from railway. After incorporation of remarks on check print, contractor has to submit five (05) hard copy sets and soft copy (Auto Cad) to the purchaser.

Item 3(a) - Erection of Traction Masts, Feeder Masts, AT Mast and Main Masts of Switching Stations

The price shall include the cost for erection (either manually or by crane), alignment and setting before grouting of individual traction masts, main masts of switching post, booster transformer stations, masts for LT supply transformer station, dwarf masts whether rolled or fabricated

Note: For the purpose of payment, the weight of individual traction mast shall be determined for each type

on the basis of the payable weights per meter length shown below for standard types. For special type masts, the payable weight per meter length will be indicated by the Purchaser at the time of approval of designs.

Sl. No	Type of Mast	Weight in kg per meter including galvanization.
1	BFB 6"x6"	38.30
2	RSJ 8"x6"	53.30
3	B 150	39.07
4	B 175	44.61
5	B 200	50.76
6	B 225	61.50
7	B 250	70.72
8	K 150	38.18
9	K 175	43.72
10	K 200	49.87
11	K 225	37.50
12	K 250	66.72
13	S 1	53.39
14	S 3	76.40
15	S 4	53.39
16	S 5	111.53
17	S 6	53.39
18	S 7	76.40
19	S 8	111.53
20	S100	23.72
21	S101	19.98
22	T150	38.18
23	Dwarf mast	--

Item 3(b) - Erection of TTCs, Portals and Small Parts Steel (SPS)

The price shall include the cost of erection (either manually or by crane), alignment and setting before grouting, wherever required, of portals, gantries, two/three tracks cantilever (TTC) structures and tower/steel work for feeders for traction sub-station, drop arms, standard super masts, suspension brackets for feeders and return conductors, complete with anchor plates drilled and welded in position, multiple cantilever cross arm, chairs, adaptors 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.

Note for Item 3(b):

- i) For the purpose of payment against items 3(b) weight of structures or fabricated steel work will be calculated based on black steel work will be calculated based on blacksteel weight as per RDSO drawing. There will be no addition for increased weight due to painting (or) weld material or reduction for holes or skew cuts.
- ii) The rates against item 3(b) shall be applicable to the erection of small part steel work, which are not covered under the various other items of work. Unless specifically indicated none of the other items of work shall include the cost of erection of small part steel work, which will invariably be paid for under item 3(b) as applicable.
- iii) All required galvanized bolts, nuts and washers are to be claimed under item 3(cs) of Schedule-B1, wherever not provided. Quantity requirement is to be decided as per site condition.

Note for Item 3(a), 3(b):

- The price shall also include the straightening of masts/portal uprights bent during transit and cutting of masts/portal uprights to suit the site conditions.
- The mast/structures cut to suit site condition, proportionate weight will only be paid under item 3(a)/3(b).
- The quantity schedule for item no 3(a) & 3(b) are prepared based on certain drawings given during preparation of schedule and as per site requirements.

Item 3(e) - Supply and Erection of Guy Rod Assembly

The price shall include the supply and erection of guy rod assemblies of various lengths for traction masts, portals, TTCs, feeder masts, or supports as per RDSO Drg No. ETI/OHE/P/5000 (Rev.B) or its latest revision & RDSO Drg No. ETI/OHE/01403/SH.1&2 or its latest revision. All necessary parts shall be grouted into the anchor block complete with bolts, nuts, and other required fittings. The price shall exclude supply and erection of small parts steel, if any.

The supply materials include the following components::

RI No.	Description of components	Qty per unit for Normal Anchor	Qty per unit for Dwarf Mast Anchor
5001/5001-1 /5001-3	Anchor bolts (complete with Nuts, Locknuts and Split pins)	-	2
5002	Guy rod Stirrup	1	1
5004/5005/5 006-1/ 9070/ 9071	Guy Rod (complete with Nuts, Locknuts, Washer and Split pins)	1	1
5007-1	Anchor 'V' bolt (complete with Nuts, Locknuts, Punched Washer and Split pins)	1	-
5008	Anchor Loop	1	-
5220	Guy Rod Double Strap Assembly complete with bolt, nut, washers and pins.	1 or 2	1

Item 3(g) - Supply of Steel Reinforcement for RCC Work

The price shall include the supply of tested quality of steel for reinforcement of appropriate size and for reinforcement steel above 8mm (or) suitable dia. shall be High strength deformed steel bars conforming to IS:1786/1985.

The cost towards cutting straightening hooking, bending, erecting and placing and keeping in position including all lead and lift and including cost of binding wire shall be inclusive in item 2(h)(i), 2(h)(ii) or under appropriate item respectively.

Test certificates for steel will be furnished by the contractor at his own cost from a laboratory approved by the Engineer-in-Charge. Nothing extra will be paid for unauthorized overlaps and wastage of steel involved in cutting the bars to their required sizes.

Item 4(a)(i) - Supply (without Insulators) and Erection of Single Cantilever Assembly for Conventional OHE

Supply: The price shall include the supply of a single cantilever assembly mounted on a traction mast, support or drop arm. The price includes the cost of all components complete with fasteners excluding stay & bracket insulators, dropper wires, and small parts steel if any. The supply of cantilever assembly shall conform to RDSO Drg No. ETI/OHE/G/02106 (Rev. C) (SH. 1 & 3) or its latest revisions & RDSO Drg No. ETI/OHE/G/02104 (Mod. C) (SH. 1) or its latest revisions.

The supply materials include the following components:

Rly. ID No.	Description of components	Qty for IR Cantilever	Qty for OR Cantilever
3021	Mast Fitting for Hook Insulator with two nos. GI Bolt.	1 Set	1 Set
2400	Tubular Stay Arm Assembly (2401 – 25 mm Stay Tube – 1 No (2.5meters) , 2402-1 – Tubular Stay Adjuster (large) 16 hole – 1 No, 2403-1 – Tubular Stay Sleeve – 1 No, 2402 – Stud Bolt 10 mm with Lock Nut – 2 No)	1 Set	1 Set
2110-1/2130-1/ 2380	Standard/Large Catenary Suspension Bracket with U Bolt – 2Nos, Nut – 4Nos, Spring Washers – 4 Nos	1 Set	1 Set
1160/1170	Suspension Clamp with U Bolt – 2 Nos, Pin – 1 No, Lock Plate – 2Nos, Nut – 4Nos, Split Pin – 1 No, Punched Washers – 1 No OR Double Suspension Clamp with U Bolt – 2 Nos, Pin – 1 No, Lock Plate – 1 Nos, Nut – 4 Nos, Split Pin – 1 No, Punched Washers – 1 No for anti-creep location	1 Set	1 Set
3070-1/3070-2	Mast Bracket Fitting Assembly (150/200) with two nos. GI Bolt.	1 Set	1 Set
2080/2040	Large Bracket Tube (3.8 m length) with Tube Cap (2104-1) or Standard Bracket Tube (Suitable length) with Tube Cap	1Set	1Set
2150-1 or 2160-1	Register Arm Hook assembly complete with bolts, nuts and lock nuts.	1 Set	-
2422-2	Register Arm Eye Piece 25 mm	1	-
2421/2420-1	Register Arm Tube (3.8m length) with Tube Cap (2423-1)	1 Set	-

2431	Raised Register Arm Tube (25mm dia) (3.5 m length) with dropper clip (2423-1)	-	1 Set
2360	25 mm Drop Bracket Assembly complete with bolt, locknut	1 Set	-
2550-1/2	Standard Anti-Wind Clamp complete with Strap, Bolt, Nut, Spring Washer, Snap Head Rivet	1 Set	-
2390/2540/2520	BFB Steady Arm Assembly (2390/2540/2520 - BFB Steady arm – 1 No, 2391- BFB Steady arm Hook – 1 No, 2392 - BFB Steady Arm Swivel – 1 No, AL Rivets – 4 Nos) Or Bent Steady Arm assembly (if required)	1 Set	-
1174	Packing Saddle	1 No	1 No
1220	Contact wire swivel clip (1221) and pin (1222)	1 Set	1 Set
2270-4/2270-5/ 2460style-2	49 mm Register Arm Dropper Assembly (2270-5) for Pull-off CL Excluding dropper wire (2277– Dropper Clip (49 mm) – 1 No, 2461-1 – Dropper Clip (34 mm) – 1 No, 2 Nos – Bolt, Lock Nut, Spring Washer, Spilt Pin) OR 38mm Register Arm Dropper Assembly (2270-4) Pull-off CL Excluding dropper wire (2274-1 –Dropper Clip (38 mm) – 1 No, 2461-1 – Dropper Clip (34 mm) – 1 No, 2 Nos – Bolt, LockNut, Spring Washer, Spilt Pin) OR 25 mm Register Arm Dropper Assembly (2460) for Push-off CL Excluding dropper wire (2461 – Dropper Clip (25 mm) – 1 No or 2461-1 – Dropper Clip (34 mm) – 1 No, 2 Nos – Bolt, LockNut, Spring Washer, Spilt Pin)	1 Set	-
2470 style-02	25 mm Raised Register Arm Dropper Assembly (2470) Excluding dropper wire (2471-1 – Dropper Clip (25 mm) – 1 No, 2 Nos – Bolt, LockNut, Spring Washer, Spilt Pin)	-	1 Set
	Stay Fasteners (Bolt, Nut, LockNut, Washer)	1 Set	1 Set
	Bracket Fasteners (U-Bolt, Nut, Lock Nut, Washer)	1 Set	1 Set
1371-3	Raised Register Arm Clamp	-	1 Set
2432	RRA Adjuster	-	1 Set

Erection: The price shall include fabrication and erection of a single cantilever assembly mounted on a traction mast, support or drop arm. This includes installations on high- or low-level platforms, at turnouts, over bridges, at overlaps, and at locations with reduced encumbrance or at termination locations. It includes the erection of all components, including stay & bracket insulators and dropper wires, fasteners. But,

excludes small parts steel if any.

The erection of cantilever assembly shall conform to RDSO Drg No. ETI/OHE/G/02106 (Rev. C) (SH .1 & 3) or its latest revisions & RDSO Drg No. ETI/OHE/G/02104 (Mod. C) (SH .1) or its latest revisions.

Note: Any additional material required for erection of cantilever assembly, the contractor has to supply at his own cost.

Item 4(a)(ii) - Erection of Two Cantilever Assemblies on same structure or support for Conventional OHE

The price shall cover erection of Two Cantilever Assemblies at overlap/turnout/crossover on same structure or support.

Unit 'Each' represents Two Cantilevers.

Item 4(a)(iii) - Erection of Three Cantilever Assemblies on same structure or support for Conventional OHE

The price shall cover erection of Three Cantilever Assemblies at overlap/turnout/crossover on same structure or support.

Unit 'Each' represents Three Cantilevers.

Note: (1) Any fasteners which are required, but not covered under above item are to be supplied under item no. 3(cs) of schedule B1.

(2) The erection of a single cantilever assembly falls under item no. 4(a)(i) of Sch-A1. For structures or supports requiring two or three cantilevers, the corresponding operations should be carried out under item nos. 4(a)(ii) and 4(a)(iii) of Sch-A1 respectively.

Item 4(a)(iv) - Supply (without Insulators) and Erection of Single Cantilever Assembly for Tramway OHE

Supply: The price shall include the supply of a single cantilever assembly mounted on a traction mast, support, or drop arm. The price includes the cost all components complete with fasteners except for solid core insulators, dropper wires, and small steel parts. The supply of cantilever assembly shall conform to RDSO Drg No. ETI/OHE/G/04204 (Rev. B) or its latest revisions.

The supply materials include the following components:

Rly. ID No.	Description of components	Qty per unit
3021	Mast Fitting for Hook Insulator with two nos. GI Bolt.	1
2400	Tubular Stay Arm Assembly (2401 – 25 mm Stay Tube – 1 No, 2402/2402-1 – Tubular Stay Adjuster – 1 No, 2403-1 – Tubular Stay Sleeve – 1 No, 2402 – Stud Bolt 10 mm with Lock Nut – 2 No)	1 Set
2380	Hook Bracket with U Bolt – 2 Nos, Nut – 4 Nos, Spring Washers – 4 Nos	1 Set
2140	Large Catenary Direct Clamp	1 Set
2160-1	Register Arm Hook assembly complete with bolts, nuts and lock nuts.	1 Set

2080	Large Bracket Tube (Suitable length) with Tube Cap (2104-1)	1 Set
3070-1/ 3070-2	Mast Bracket Fitting Assembly (150/200) with two nos. GI Bolt.	1 Set
2540-1	BFB Steady Arm Assembly (2540 – BFB Steady arm – 1 No, 2391- BFB Steady arm Hook – 1 No, 2392 - BFB Steady Arm Swivel – 1 No, AL Rivets – 4 Nos)	1 Set
2550-3	Anti wind clamp for Tramway	1 set
1220	Contact wire swivel clip	1 set
	Stay Fasteners (Bolt, Nut, LockNut, Washer)	1 Set
	Bracket Fasteners (U-Bolt, Nut, LockNut, Washer)	1 Set

Erection: The price shall include the fabrication and erection of a single cantilever assembly mounted on a traction mast, support, or drop arm. This includes installations on high or low platforms, in the vicinity of turnouts, over bridges, at overlaps, and at locations with reduced encumbrance or terminating wires. It includes the erection of all components, including solid core insulators and dropper wires, but excludes small steel parts. The erection of cantilever assembly shall conform to RDSO Drg No. ETI/OHE/G/04204 (Rev. B) or its latest revisions.

Item 4(a)(v) - Erection of Two Cantilever Assemblies on same structure or support for Tramway OHE

The price shall cover erection of Two Cantilever Assemblies at overlap/turnout/crossover on same structure or support.

Unit 'Each' represents Erection of Two Cantilevers.

Item 4(a)(vi) - Erection of Three Cantilever Assemblies on same structure or support for Tramway OHE

The price shall cover erection of Three Cantilever Assemblies at overlap/turnout/crossover on same structure or support.

Unit 'Each' represents Erection of Three Cantilevers.

Note: (1) Any fasteners which are required, but not covered under above item are to be supplied under item no. 3(cs) of schedule B1.

(2) The erection of a single cantilever assembly falls under item no. 4(a)(iv). For structures or supports requiring two or three cantilevers, the corresponding operations should be carried out under item nos. 4(a)(v) and 4(a)(vi), respectively.

Item 4(b)(i) - Supply (without Insulators) and Erection of a Pull Off arrangement for Conventional OHE

Supply: The price shall include the supply of all components required for a pull-off arrangement to pull one equipment only excluding SPS, solid core insulators, conductor, small jumper (50 sq.mm). The supply of cantilever assembly shall conform to RDSO Drg No. ETI/OHE/G/03301 or its latest revisions.

The supply materials include the following components:

Rly. ID No.	Description of components	Qty per unit
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5040	18 mm Single Clevis Assembly complete with pin, split pin and punched washer	2
5030	Anchor Double Strap Assembly with Snap Head Pin, Punched Washer, Split Pin	2
1350	Thimble (Packing saddle)	4
1320	U Clamp	8
1192	Catenary Dropper Clip complete with bolt, nut, spring washer and split pin	4
2340	(Low speed) Steady Arm Assembly	1
1220	Contact Wire Swivel Clip & pin	1
1160	Suspension clamp complete with U-bolt – 2 Nos, pin – 1 No., Nut – 4 Nos, suspension clamp lock plate – 2 Nos, split pin – 1 No., Punched Washer A-12 – 1 No.	1
5190-2	Equalising Plate Assembly complete with snap head pin, punched washer and split pin	1
1330	U Clamp	2
1311	Pull off clamp distance piece	1

Erection: The price shall include the erection of all components including solid core insulators, small jumper wire and conductors excluding SPS. The erection of cantilever assembly shall conform to RDSO Drg No. ETI/OHE/G/03301 or its latest revisions.

Item 4(b)(ii) - Supply (without Insulators) and Erection of a Pull Off arrangement for Tramway OHE

Supply: The price shall include the supply of all components required for a pull-off arrangement to pull one equipment only excluding SPS, solid core insulator (RI No.6020) and conductor.

Erection: The price shall include the erection of all components including solid core insulators, small jumpers and conductors excluding SPS.

Item 6(a) - Supply and Erection of Regulated Conventional OHE

Supply: The price shall include the supply of all components, such as dropper clips, parallel clamps for jumpering, complete with bolts and nuts, if any. However, it shall exclude supply of contact wire, catenary, dropper wire, jumper wire, terminating wire(s), and small parts steel works.

The supply materials include the following components:

Rly. ID No.	Description of components	Qty. per unit
1040-2	Contact wire parallel clamp small complete with bolt, nut and spring washer	12
1030-3/1030-2	PG Clamps complete with bolt, nut and spring washer	8

1180	Contact wire dropper clip (107/150) with locking wire	133
1192	Catenary dropper clip complete with bolt, nut, spring washer and Split Pin	133

Erection: The price shall include the erection of all components, including wires and conductors such as contact wire, catenary, droppers, and galvanized steel or terminating wires, if any, but shall exclude small parts steel work, if applicable. The price shall cover adjustment of OHE height & stagger at the specified rail level as per track.

Note: The termination of conductors is not included in this item. Terminations are to be operated under item no. 8(b)(ii) OF Sch-A1 separately.

Item 6(b) - Erection of Regulated Contact Wire Only

Erection: The price shall cover the erection of all components, including wires and conductors such as contact wire, catenary, droppers, and galvanized steel or terminating wires, if any, but shall exclude small parts steel work, if applicable. The price shall cover adjustment of OHE height & stagger at the specified rail level as per track.

Note: The termination of conductors is not included in this item and Terminations are to be operated under item no. 8(b)(ii)/8(b)(vi) of Sch-A1 separately.

Item 6(c) - Supply and Erection of Regulated Contact Wire (Regulated with Bridle Wire)

Supply: The price shall include the supply of all components including bridle wire clamps, dropper clips, parallel clamps for jumpering, complete with bolts and nuts etc, if any, but excluding contact wire, dropper wire, jumper wire and terminating wire/s and small parts steel works.

The supply materials include the following components:

Rly. ID No.	Description of components	Qty. per unit
1070-1	Bridle Wire Clamp Small complete with 2 Nos of bolt, nut, spring washer & punched washer	40 Set
1030-3/1030-2	PG Clamps complete with 1 No. of bolt, nut and spring washer	8 Set
1180	Contact wire dropper clip (107) with locking wire	40 Set
1194	Bridle wire dropper clip complete with 1 No. of bolt, nut, spring washer and split pin	40 Set

Erection: The price shall cover the erection of all components, including wires and conductors such as contact wire, bridle wire, droppers, and galvanized steel or terminating wires, if any, but shall exclude small parts steel work, if applicable. The price shall cover adjustment of OHE height & stagger at the specified rail level as per track.

Note: The termination of conductors is not included in this item. Terminations are to be operated under item no. 8(b)(vi) separately.

Note for Measurement:

1. For the purpose of payment against item 6(a), 6(b) and 6(c), the length of over head equipment, which shall include terminating wires and galvanized steel wire, shall be measured from the centre lines of the traction masts/structures at which the two ends of each tension length of over head equipment are anchored.
2. The length shall be the difference between the actual chainages of the two traction masts/structures at which the ends of each tension length are anchored or by the sum of the actual spans between the same two points whichever is higher as included in the "as erected" layout plans. For purpose of progress payment reference to layout plans as approved shall be made. The price under items 6(a), 6(b) & 6(c) does not cover the cost of supply and erection of cut-in insulators, the supply and erection of which shall be paid for under item 11(a), (b), (c).
3. In the case of splicing and extension of anchored OHE, the actual length of wire used at site from ending clamp/splice to the splice/ending clamp will be reckoned for measurement purpose under item No. 6(a), 6(b) and 6(c).

Item 7(a) - Erection/Stringing of Along Feeder (either All Aluminium 25 kV Feeder conductor (single spider) or Copper Feeder wire)

Erection: The price shall include the erection and stringing of Along Feeder either 25 kV All Aluminium Feeder conductor (single spider) or Copper Feeder conductor.

Note: The price does not include the erection of suspension assembly, termination and small part steel work, complete with bolts and nuts etc., if any.

Item 7(b) - Erection of Copper Cross Feeder Wire

Erection: The price shall include the erection of 25 kV feeder wire across the track at the location of SP/SSP/FP/TSS etc.

Unit 'Each' represents length of cross feeder upto 40 m.

Note: The termination of cross feeder is not included in this item, will be paid under item 8(b)(ix) of Sch-A1.

Item 7(c) - Erection of Large span wire (130 Sq. mm)

Erection: The price shall include the erection of 130 sq. mm cadmium copper large span wire.

Note: The price shall not include termination and large span wire ending clamps, will be paid under relevant items (8(b)(i)/8(b)(ii)) of Sch-A1.

Item 8(a)(iv) - Supply of Regulating Equipment Without Counter-Weight Assembly

Supply: The price shall include only supply of 3 pulley type (3:1) regulating equipment without counter-weight assembly for conventional type OHE. The supply of ATD shall conform to RDSO Drg No. ETI/OHE/P/5500 or its latest revisions, ETI/OHE/G/00195 (Rev.A) or its latest revision & RDSO specification no. TI/SPC/OHE/ATD/0060 or its latest revision.

The supply materials include the following components:

Rly. ID No.	Description of components	Qty. per unit
5500	Regulating Equipment Three-Pulley type modified pulley groove (3:1 ratio) complete with Anti-falling Rods (Tie rods), clevis & eye (forged), Arms, Spacers, All Fasteners	1 Set

	SS Wire Rope (8 m)	1
5341	SS Wire Rope Ending Clamp with Wedge RI No. 5321	2
5183	Double Eye Distance Rod	1
5020	9-ton Adjuster (Double Eye) complete with bolt, nut and split pin	2
5030	Anchor Double Strap Assembly with Snap Head Pin, Punched Washer, Split Pin	3

Note: (1) The mast anchor fittings along with fasteners required for erection of regulating equipment will be paid separately under item 3(cs) of Sch - B1. Only forged fittings are to be used.

(2) The price shall not include supply of termination, which will be paid for under item 8(b)(ii)/8(b)(vi) of Sch-A1.

(3) The erection component shall be executed under item 8(a)(v) of Sch-A1, as the erection will be carried out using counterweights supplied by the Railways.

Item 8(a)(v) - Supply and Erection of Regulating Equipment With Counter-Weight assembly for Conventional OHE

Supply: The price shall include the supply of 3 pulley type (3:1) regulating equipment with counter-weight assembly for conventional type OHE including SS wire rope with ending clamp, 9 tonne adjuster with double strap assembly and anti-theft guide tube assembly. The price shall cover cost of all components required for Regulated Equipment along with fasteners.

The supply of ATD shall conform to RDSO Drg No. ETI/OHE/P/5500 or its latest revisions, ETI/OHE/P/5090 or its latest revisions, ETI/OHE/G/00195 (Rev.A) or its latest revision & RDSO specification no. TI/SPC/OHE/ATD/0060 or its latest revision.

The supply materials include the following components:

Rly. ID No.	Description of components	Qty. per unit
5500	Regulating Equipment Three-Pulley type modified pulley groove (3:1 ratio) complete with Anti-falling Rods (Tie rods), clevis & eye (forged), Arms, Spacers, All Fasteners	1 Set
5091	40 KG Cast Iron Base Weight	1
5092	40 KG Cast Iron Counter Weight	15
5093	20 KG Cast Iron Counter Weight	1
5098	5 KG Cast Iron Counter Weight	1
5099	Counter Weight Eye Rod with split pin, nut, punched washer	1 Set
5060-2	Counter Weight Guide Tube (5.6 m) with All Fasteners	1 Set
	SS Wire Rope (8 m)	1

5341	SS Wire Rope Ending Clamp with Wedge RI No. 5321	2
5183	Double Eye Distance Rod	1
5020	9-ton Adjuster (Double Eye) complete with bolt, nut and split pin	2
5030	Anchor Double Strap Assembly with Snap Head Pin, Punched Washer, Split Pin	3

Note: (1) The mast anchor fittings along with fasteners required for erection of regulating equipment will be paid separately under item 3(cs) of Sch - B1. Only forged fittings are to be used.

(2) The price shall not include supply of termination, which will be paid for under item 8(b)(ii) of Sch-A1.

Erection: The price shall include the erection of 3 pulley type (3:1) regulating equipment (ATD) with counter-weight assembly for conventional type OHE including SS wire rope with ending clamp, 9 tonne adjuster with double strap assembly and anti-theft guide tube assembly conform to RDSO Drg No. ETI/OHE/P/5500 or its latest revisions, ETI/OHE/P/5090 or its latest revisions, ETI/OHE/G/00195 (Rev.A) or its latest revision & RDSO specification no. TI/SPC/OHE/ATD/0060 or its latest revision.

The price shall also cover adjustment of the entire regulating equipment and includes the erection of provision of anti-falling arrangement as per RDSO Drawing No. – TI/DRG/OHE/ATD /RDSO/00001/99/2 (Latest) & + (Latest).

Note: The price shall not include erection of termination and SPS, which will be paid for under item 8(b)(ii) and 3(b) of Sch-A1 respectively.

Item 8(a)(vi) - Supply and Erection of Regulating Equipment With Counter-Weight assembly for Tramway Type OHE

Supply: The price shall include the supply of 3 pulley type (3:1) regulating equipment with counter-weight assembly for tramway type OHE including SS wire rope with ending clamp, 9 tonne adjuster with double strap assembly and anti-theft guide tube assembly. The price shall cover cost of all components required for Regulated Equipment along with fasteners.

The supply of ATD shall conform to RDSO Drg No. ETI/OHE/P/5500 or its latest revisions, ETI/OHE/P/5090 or its latest revisions, ETI/OHE/G/00195 (Rev.A) or its latest revision & RDSO specification no. TI/SPC/OHE/ATD/0060 or its latest revision.

The supply materials include the following components:

Rly. ID No.	Description of components	Qty. per unit
5500	Regulating Equipment Three-Pulley type modified pulley groove (3:1 ratio) complete with Anti-falling Rods (Tie rods), clevis & eye (forged), Arms, Spacers, All Fasteners	1 Set
5091	40 KG Cast Iron Base Weight	1
5092	40 KG Cast Iron Counter Weight	9
5098	5 KG Cast Iron Counter Weight	3
5099	Counter Weight Eye Rod with Split Pin, Nut, Punched Washer	1 Set

5060-2	Counter Weight Guide Tube (5.6 m) with All Fasteners	1 Set
	SS Wire Rope (8 m)	1
5341	SS Wire Rope Ending Clamp with Wedge RI No. 5321	2
5183	Double Eye Distance Rod	1
5020	9-ton Adjuster (Double Eye) complete with bolt, nut and split pin	2
5030	Anchor Double Strap Assembly complete with pin, split pin and punched washer	3

Note: (1) The mast anchor fittings along with fasteners required for erection of regulating equipment will be paid separately under item 3(cs) of Sch - B1. Only forged fittings are to be used.

(2) The price shall not include supply of termination, which will be paid for under item 8(b)(vi) of Sch-A1.

Erection: The price shall include the erection of 3 pulley type (3:1) regulating equipment (ATD) with counter-weight assembly for conventional type OHE including SS wire rope with ending clamp, 9 tonne adjuster with double strap assembly and anti-theft guide tube assembly confirming to RDSO Drg No. ETI/OHE/P/5500 or its latest revisions, ETI/OHE/P/5090 or its latest revisions, ETI/OHE/G/00195 (Rev.A) or its latest revision & RDSO specification no. TI/SPC/OHE/ATD/0060 or its latest revision.

The price shall also cover adjustment of the entire regulating equipment and includes the erection of provision of anti-falling arrangement as per RDSO Drawing No. – TI/DRG/OHE/ATD /RDSO/00001/99/2 (Latest) & + (Latest).

Note: The price shall not include erection of termination and SPS, which will be paid for under item 8(b)(ii) and 3(b) respectively.

Item 8(a)(xii) - Marking/Painting of temperature and 'Y' - Measurement on OHE Structures at BWA locations.

The price shall include marking/painting of temperature and 'Y' measurement scale on OHE masts at [ATD] BWA locations. The price shall also include the cost of paint.

Item 8(b)(i) - Supply (without Insulator) and Erection of material for termination of single conductor of OHE or terminating wire

Supply: The price shall include the supply of all materials necessary for the termination of single conductor (contact wire / catenary wire / anti-creep wire termination on one side / large span wire) on a traction mast or structure **but excluding 9 ton insulator assembly and terminating wire, if any.**

The supply materials include the following components:

Rly. ID. No.	Description of Components	Qty per unit for Cont wire Termination	Qty per unit for Cat wire Termination	Qty per unit for AC wire for one side termination	Qty per unit for LS wire termination
5040	18 mm Single Clevis Assembly complete with pin, split pin and punched washer	1 No	1 No	1 No	---

5030	Anchor Double Strap Assembly complete with pin, split pin and punched washer	2 Nos	2 Nos	2 Nos	2Nos
1110-2	Contact wire ending clamp complete with pin, split pin and punched washer	1 No	---	---	---
1120/ 1120-1	Catenary Wire Ending clamp complete with pin, split pin and punched washer	----	1 No	---	---
1140	Large span wire ending clamp complete with snap head pin, split pin and punched washer	----	----	----	2 Nos
5020	9-ton Adjuster (Double Eye) complete with bolt, nut and split pin	1 No	1No	1 No	1 No
1360/112 0	Steel wire ending clamp or Catenary wire ending clamp	--	---	1 No	---

Erection: The price shall include the erection of all materials including the 9 ton insulator assembly for termination of single conductor (contact wire / catenary wire / anti-creep wire termination on one side / large span wire).

Note: 1) In case of "V" type anchorage is adopted for terminating a single conductor such an arrangement would be counted as two off under item 8(b)(i), for the purpose of payments.

2) The price shall not include the supply and erection of large span wire, which can be claimed under Sch-B2 item no. 7(cs) for supply and Sch-A1 item no 7(c) for erection.

Item 8(b)(ii) - Supply (without Insulator) and Erection of materials for Termination of Conventional OHE

Supply: The price shall include the supply of all materials necessary for the termination of double conductors of overhead equipment on a traction mast or structure but excluding 9 tonne insulators, mast anchor fittings and terminating wire.

The supply materials include the following components:

Rly. ID. No.	Description of Components	Qty. per unit
5040	18 mm Single Clevis Assembly complete with pin, split pin and punched washer	1 No
5030	Anchor Double Strap Assembly complete with pin, split pin and punched washer	4 Nos
5190-1/5190-2/ 5191-1-2/ 5192/5192-1-2/ 5194-1/5195-2	Equalizing Plate/Compensating Plate with snap head pin, split pin and punched washer	1 No
1110-2	Contact wire ending clamp complete with pin, split pin and punched washer	1 No

1120/1120-1	Catenary Wire Ending clamp complete with pin, split pin and punched washer	1 No
5020	9-ton Adjuster (Double Eye) complete with bolt, nut and split pin	3 Nos
1140	Large span wire ending clamp complete with snap head pin, split pin and punched washer	2 Nos (As Required)

Erection: The price shall include the erection of all materials for OHE termination including the 9-tonne insulator assembly.

Note: The price shall also include supply and erection of large span wire ending clamps, if required for any termination.

Item 8(b)(iii) - Supply (without Insulators) and Erection of materials for Termination of Along Feeder (Aluminium/Copper)

Supply: The price shall include the supply of all materials required for the termination of an all-aluminium (spider) / copper feeder but excluding the cost of 9 tonne insulators, mast anchor fittings adjuster. The supply of materials shall conform to RDSO Drg No. ETI/OHE/G/05145-1 (Rev.A) or its latest revisions.

The supply materials include the following components:

Rly. ID. No.	Description of Components	Qty per unit for AL Feeder	Qty per unit for Cu Feeder
5040	18 mm Single Clevis Assembly complete with pin, split pin and punched washer	1 No	1 No
5030	Anchor Double Strap Assembly complete with pin, split pin and punched washer	2 No	2 No
1600	20 mm Strain Clamp complete with U-bolt – 3 Nos, Nut – 6 Nos, Punched Washer A-14 – 6 Nos, snap head pin – 1 No., punched washer A-18 – 1 No., split pin – 1 No.	1 No	-
5020	9-ton Adjuster (Double Eye) complete with bolt, nut and split pin	1 No	1 No
1130	Feeder wire ending clamp complete with snap head pin, split pin and punched washer	-	1 No

Erection: The price shall include the erection of all materials including the 9-tonne insulator assembly. The erection of materials shall conform to RDSO Drg No. ETI/OHE/G/05145-1 (Rev.A) or its latest revisions.

Item 8(b)(vi) - Supply (without Insulators) and Erection of Materials for Termination of Tramway OHE

Supply: The price shall include the supply of all materials necessary for the termination of overhead equipment conductor on a traction mast or structure **but excluding 9 tonne insulator assembly, mast anchor fittings and terminating wire**. The supply of materials shall conform to RDSO Drg No. ETI/OHE/G/04212 or its latest revisions.

The supply materials include the following components:

Rly. ID. No.	Description of Components	Qty. per unit
5040	18 mm Single Clevis Assembly complete with pin, split pin and punched washer	1 No
5030	Anchor Double Strap Assembly complete with pin, split pin and punched washer	2 Nos
1110-2	Contact wire ending clamp complete with pin, split pin and punched washer	1 No
5020	9-ton Adjuster (Double Eye) complete with bolt, nut and split pin	1 No

Erection: The price shall include the erection of all materials for OHE termination including the 9-tonne insulator assembly. The erection of materials shall conform to RDSO Drg No. ETI/OHE/G/04212 or its latest revisions.

Item 8(b)(ix) - Supply (without Insulators) and Erection of Materials for Termination for Copper Cross Feeder

Supply: The Price shall include the supply of all materials required for termination of copper cross feeder wire (37/2.25mm HDBC) **but excluding 9-Ton insulator assembly**, mast anchor fitting. The supply of materials shall conform to RDSO Drg No. ETI/OHE/G/05121 or its latest revisions.

The supply materials include the following components:.

Rly. ID. No.	Description of Components	Qty. per unit
5040	18 mm Single Clevis Assembly complete with pin, split pin and punched washer	2 Nos
5030	Anchor Double Strap Assembly complete with pin, split pin and punched washer	4 Nos
5020	9-ton Adjuster (Double Eye) complete with bolt, nut and split pin	2 Nos
1130	Feeder wire ending clamp complete with snap head pin, split pin and punched washer	2 Nos

Erection: The price shall include the erection of all materials including 9-ton insulator and termination of cross feeder at both ends with gantries. The erection of materials shall conform to RDSO Drg No. ETI/OHE/G/05121 or its latest revisions.

Note: Fittings required for termination of one cross feeder at both ends constitute one set.

Notes to item 8(b)(i), 8(b)(ii), 8(b)(iii), 8(b)(vi) & 8(b)(ix):

- 1) The price shall not include SPS items, wherever required will be paid under item 3(cs) of Sch-B1 w.r.t supply and under item 3(b) of Sch-A1 w.r.t erection.

- 2) The prices shall not include the cost of jumper connection (i) between feeders and (ii) or feeders to a bus-bar, overhead equipment or isolator switch which will be paid for under item 15(a) to 15(e) of Sch-A1.

Item 9(a) - Supply (without Insulators) and Erection of Anti-creep with galvanised steel wire for Conventional OHE

Supply: The price shall include the supply of all materials for anti-creep including adjusters, galvanized steel wire at its terminations on either side on structures, ending clamps and fittings but excluding the cost of 9-ton insulator assembly and small parts steel work, if any. The supply of materials shall conform to RDSO Drg No. ETI/OHE/G/02111 or its latest revisions.

The supply materials include the following components:

Rly.ID No.	Description of components	Qty. per unit
-	Galvanised steel wire (19/2.50 mm)	As required
1360	Steel wire ending clamp	2 Nos
5020	9-ton Adjuster (Double Eye) complete with bolt, nut and split pin	2 Nos
5030	Anchor Double Strap Assembly complete with pin, split pin and punched washer	4 Nos
3010/5040	Clevis assembly complete with pin/snap head pin, split pin and punched washer	2 Nos
1170	Double suspension clamp complete with U-bolt – 2 Nos, Packing saddle – 1 No., Nut – 4 Nos, suspension clamp lock plate – 2 Nos, PIN – 1 No., split pin – 1 No., Punched Washer A-12 – 1 No.	1 No
1040-3	PG Clamps with bolt, nut and spring washer	2 Nos

Erection: The price shall include the erection of all materials including 9-ton insulator assembly but excluding small parts steel work, if any. The erection of materials shall conform to RDSO Drg No. ETI/OHE/G/02111 or its latest revisions.

Note: In case, the anti-creep extends beyond one span on either side of anti creep centre, payment for the supply and erection of extra length shall be paid additionally at the rate of 20% of the rate for 9(a) for each extra span.

Item 9(b) - Supply (without Insulators) and Erection of Anti-creep with galvanised steel wire for regulated Tramway OHE

Supply: The price shall include the supply of all materials for anti-creep for the tramway type OHE. The supply of materials shall conform to RDSO Drg No. ETI/OHE/G/02111 or its latest revisions. The supply materials include the following components but excluding the cost of 9-ton insulator assembly and small parts steel work, if any:

Rly.ID No.	Description of components	Qty. per unit
-	Galvanised steel wire (19/2.50 mm)	As required
1360	Steel wire ending clamp	2 Nos

5020	9-ton Adjuster (Double Eye) complete with bolt, nut and split pin	2 No
5030	Anchor Double Strap Assembly complete with pin, split pin and punched washer	4 Nos
3010/5040	Clevis assembly complete with pin/snap head pin, split pin and punched washer	2 No
2140	Large catenary direct clamp	1 No

Erection: The price shall include the erection of all materials of anti-creep arrangement for the tramway type OHE. The erection of materials shall conform to RDSO Drg No. ETI/OHE/G/02111 or its latest revisions.

Note: In case, the anti-creep extends beyond one span on either side of anti creep centre, payment for the supply and erection of extra length shall be paid additionally at the rate of 20% of the rate for 9(a) for each extra span.

Item 9(c) – Supply (without Insulators) and Erection of Anti-creep with cadmium copper catenary wire for Conventional OHE in polluted area (excluding supply of cadmium copper catenary wire)

Supply: The price shall include the supply of all materials for anti-creep including, adjusters, as its terminations on either side of structure, ending clamps and fittings but excluding cadmium copper catenary wire, mast anchor fittings and 9-ton insulator assembly for polluted zone and small parts steel, if any. The supply of materials shall conform to RDSO Drg No. ETI/OHE/G/02111 or its latest revisions.

The supply materials include the following components:

Rly.ID No.	Description of components	Qty. per unit
1123/1120/1122	Catenary ending clamp	2 Nos
5020	9-ton Adjuster (Double Eye) complete with bolt, nut and split pin	2 Nos
5030	Anchor Double Strap Assembly complete with pin, split pin and punched washer	4 Nos
3010/5040	Clevis assembly complete with pin/snap head pin, split pin and punched washer	2 Nos
1170	Suspension clamp complete with U-bolt – 2 Nos, Packing saddle – 1 No., Nut – 4 Nos, suspension clamp lock plate – 2 Nos, PIN – 1 No., split pin – 1 No., Punched Washer A-12 – 1 No.	1 No
1040-3	PG Clamps with bolt, nut and spring washer	2 Nos

Erection: The price shall include the erection of all materials including cadmium copper catenary wire, 9-ton insulators assembly but excluding small parts steel work, if any. The erection of materials shall conform to RDSO Drg No. ETI/OHE/G/02111 or its latest revisions.

Note: In case, the anti-creep extends beyond one span on either side of anti creep centre, payment for the

supply and erection of extra length shall be paid additionally at the rate of 20% of the rate for 9(a) for each extra span.

Item 9(d) - Supply (without Insulators) and Erection of Anti-creep with cadmium copper catenary wire for Tramway OHE in polluted area (excluding supply of cadmium copper catenary wire)

Supply: The price shall include the supply of all materials for anti-creep including, adjusters, as its terminations on either side of structure, ending clamps and fittings but excluding cadmium copper catenary wire, mast anchor fittings and 9-ton insulator assembly for polluted zone and small parts steel work, if any for tramway type OHE. The supply of materials shall conform to RDSO Drg No. ETI/OHE/G/02111 or its latest revisions.

The supply materials include the following components:

Rly.ID No.	Description of components	Qty. per unit
1123/1120/1122	Catenary ending clamp	2 Nos
5020	9-ton Adjuster (Double Eye) complete with bolt, nut and split pin	2 Nos
5030	Anchor Double Strap Assembly complete with pin, split pin and punched washer	4 Nos
3010/5040	Clevis assembly complete with pin/snap head pin, split pin and punched washer	2 Nos
2140	Large catenary direct clamp	1 No
1170	Suspension clamp complete with U-bolt – 2 Nos, Packing saddle – 1 No., Nut – 4 Nos, suspension clamp lock plate – 2 Nos, PIN – 1 No., split pin – 1 No., Punched Washer A-12 – 1 No.	1 No

Erection:. The price shall include the erection of all materials including cadmium copper catenary wire, 9-ton insulators assembly but excluding small parts steel work, if any for tramway type OHE. The erection of materials shall conform to RDSO Drg No. ETI/OHE/G/02111 or its latest revisions.

Note: In case, the anti-creep extends beyond one span on either side of anti creep centre, payment for the supply and erection of extra length shall be paid additionally at the rate of 20% of the rate for 9(a) for each extra span.

Note for item 9(a) to 9(d):

The price shall not include the cost of any additional cut-in or suspension insulator which will be paid for under item no. 11(a)(i)/11(a)(ii) w.r.to erection

Item 10(a) - Extra on item 6(a) or 6(c) for Supply and Erection of additional fittings required at a turnout, cross-over or over-lap

Supply: The price shall include the supply of additional components and fittings required at turnouts, crossings or over-laps (insulated or un-insulated) including overlaps, knuckle or crossing equipment at a turnout, or a diamond crossing and parallel clamps for jumper connections between two sets of overhead equipment conductor at a turnout, diamond crossings, overlaps or neutral section, but excluding jumper wire. The supply materials include the following components:

Rly. ID No.	Description of components	Qty. per unit
1030-3/ 1030-2	PG Clamps, Bolt with Nut and Spring Washer	6
1040-2	PG Clamps, Bolt with Nut and Spring Washer	4
1180	Contact wire dropper clip (107Sqmm)	6
1192	Catenary dropper clip, Bolt with Nut, Spring Washer and Split Pin	6
1110-2	Contact wire ending clamp, Snap Head Pin, Split Pin and Punched Washer	1
1120 or 1120-1	Catenary ending clamp, Snap Head Pin, Split Pin and Punched Washer	1
1140	Large span wire ending clamp (130) , Snap Head Pin, Split Pin and Punched Washer	2

Erection: The price shall include the erection of all materials including jumper wire, and all adjustments required at turnouts, crossings, overlaps and neutral sections.

Item 11(a)(i) - Supply (without Insulator) and Erection of 25 kV Solid Core Cut-in Insulator.

Supply: The price is applicable to the provision of an additional 9 tonne cut-in-insulator on a flat rate basis such as in a head span, cross span or in span wire or an overhead equipment conductor at an insulated overlap, anti-creep not provided for in other items. The price shall cover supply of all components required for the cut-in-insulator assembly, including appropriate terminal fittings for the conductor **but excluding 9-tonne insulator.**

The supply materials include the following components:

Rly.ID No.	Description of components	Qty. per unit
1110-2/1120-1/ 1140	Contact wire ending clamp (1110-2)/ Catenary ending clamp (1120-1)/Large Span Wire ending clamp (130) (1140) / Steel wire ending clamps complete with all fasteners	2

Erection: This price shall cover erection of all components including 9-tonne insulator but excluding small parts steel work, if any.

Item 11(a)(ii) – Supply (without Insulator) and Erection of 25 kV Solid Core Suspension Insulator.

Supply: The price is applicable to the provision of a 9-tonne suspension insulator assembly for suspension of an all-aluminium 25 KV feeder (single or double SPIDER), 150 sq. mm copper feeder wire, 130 sq.mm Large span wire or 65 sq.mm cadmium catenary wire (or) any other similar type of suspension.

The price shall cover supply of all components, required for the suspension assembly including the

appropriate suspension clamp **but excluding 9 tonne insulator and small parts steel work** if any. The supply of materials shall conform to RDSO Drg No. ETI/OHE/G/05143 (Rev. B) or its latest revisions.

The supply materials include the following components:

Rly.ID No.	Description of components	Qty. per unit for Al feeder	Qty. per unit for Cu feeder	Qty per unit for LS wire/Steel wire/Cu catenary wire
5040	18 mm Single Clevis Assembly complete with pin, split pin and punched washer	1 No	1 No	1 No
5030	Anchor Double Strap Assembly complete with pin, split pin and punched washer	1 No	1 No	1 No
1580/1160	Suspension clamp complete with U-bolt – 2 Nos, Nut – 4 Nos, spring washer – 4 Nos, Punched Washer A-14 – 4 Nos, pin – 1 No., punched washer A-18 – 1 No., split pin – 1 No. OR Suspension clamp complete with U-bolt – 2 Nos, Nut – 4 Nos, suspension clamp lock plate – 2 Nos, PIN – 1 No., split pin – 1 No., Punched Washer A-12 – 1 No.	1 No	1 No	1 No
	Flat Armour Tape with Ferrules 2 Nos	1 set	-	-
1272	18 mm brass suspension clevis with snap head pin, split pin and punched washer	-	1 No	1 No

Note: Any additional fasteners required in connection with this item are to be supplied under item 3(cs) of Schedule B1 and erection under item 3(b) of Schedule A1

Erection: The price shall cover erection of all components including the 9-tonne insulator assembly but excluding small parts steel work, if any. The erection of materials shall conform to RDSO Drg No. ETI/OHE/G/05143 (Rev. B) or its latest revisions.

Item 11(b) - Supply (without Insulators) and Erection of 25 kV Post Insulator

Supply: The price is applicable to the provision of a 25 kV 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 including fasteners and saddles but excluding supply of post insulators and small parts steel works if any. The price shall also include supply of stud bolts.

Erection: The price shall include the erection of all components required for the assembly including the post insulator, fasteners but excluding small parts steel work if any.

Item 12(a) - Supply (without Insulators) and Erection of 25 kV Section Insulator Assembly for Conventional OHE

Supply: The price shall include the supply of all components required for a section insulator assembly but excluding supply cost of sectioning core insulators, 9-tonne insulator and dropper wires. The supply of materials shall conform to RDSO Drg No. RE/33/G/05181 or its latest revisions, ETI/OHE/P/6140 or its latest

revisions, ETI/OHE/P/6120 or its latest revisions, ETI/OHE/P/6181-1 or its latest revisions, ETI/OHE/P/6180-2 or its latest revisions, ETI/OHE/P/6170 or its latest revisions.

The supply materials include the following components:

Rly.ID No.	Description of components	Qty. per unit
1120	Catenary ending clamp complete with snap head pin, punched washer, split pin	2 sets
1192	Catenary dropper clip assembly along with bolt, nut, spring washer and split pin	4 sets
6170	Parallel clamp for double contact wire complete with bolt, nut and spring washer	12 sets
6181-1	Section Insulator Double Strap Assembly (Double Strap (6181-1 – 2 Nos, Pivot Pin (6182) – 2 Nos, Punched washers – 2 Nos, Split pins – 2 Nos,	4 sets
6120	Contact Wire End Link Assembly (Contact wire end link (RI – 6121) – 1 No, Pin Ø 16x60 (6122) – 2 Nos, Pin Ø 18x75 (6123) – 1 No, Bolt M12x50/50 with Lock Nut – 1 No, Bolt M16x55/45 with Lock Nut – 1 No, Split cotter pin 4x36 – 1 No, Split cotter pin 4x40 – 2 Nos, Washer A-20 – 2 Nos, Washers A-18 – 1 No	1 set
6130	Cross Beam Assembly (Cross Beam (RI – 6131) – 1 No, Saddle Pin Ø 12x45 (6132) – 2 Nos, Pin Ø 18x75 (6123) – 1 No, Bolt M16x55/45 with Lock Nut – 1 No, Bolt M10x30/30 with Lock Nut – 4 Nos, Split cotter pin 4x36 – 2 Nos, Split cotter pin 3.2x28 – 2 Nos	1 set
6140	Runner Assembly (Runner Bracket (RI - 6141) – 2 Nos, Runner Left (RI – 6142) – 1 No, Runner Right (RI – 6143) – 1 No, special stud M12 with Nut (RI – 6144) – 2 Nos, Bolt M14x100/45 – 2 Nos, Spring Washer – 2 Nos, Split Pin – 2 Nos)	1 set

Erection: The price shall include the erection and adjustment of all components including sectioning & 9-ton insulator assembly, droppers etc. The erection of materials shall conform to RDSO Drg No. RE/33/G/05181 or its latest revisions, ETI/OHE/P/6140 or its latest revisions, ETI/OHE/P/6120 or its latest revisions, ETI/OHE/P/6181-1 or its latest revisions, ETI/OHE/P/6180-2 or its latest revisions, ETI/OHE/P/6170 or its latest revisions.

Item 12(b) - Supply (without Insulators) and Erection of 25 kV Section Insulator Assembly for Tramway OHE

Supply: The price shall cover supply of all components required for a standard section insulator assembly including special arrangements for supporting the equipment and terminal fittings **but excluding supply of section insulator (core insulator) as required**. The supply of materials shall conform to RDSO Drg No. ETI/OHE/G/04207 or its latest revisions.

Erection: The price shall include the erection and adjustment of all components such as sectioning & 9-ton insulator assembly, droppers etc. The erection of materials shall conform to RDSO Drg No. ETI/OHE/G/04207 or its latest revisions.

Item 12(c) - Erection of Light Weight Section Insulator

Erection: The price shall include the erection of Light Weight Section Insulator Assembly covering the entire assembly as per RDSO Specification No. TI/SPC/OHE/LWTSI/0060 (Rev.1) with A&C Slip No.1 or latest with all accessories, fittings and fasteners.

Item 13(a) - Supply (without Insulators) and Erection of 25 kV Single Pole Isolator without earth contact assembly

Supply: The price shall include the supply of a 25 kV single pole isolator (1250 A) (excluding the earth contact assembly) in accordance with RDSO Specification No. TI/SPC/PSI/SOLTR/0210 or its latest revision, RDSO Drg No. ETI/OHE/G/05513 or its latest revisions, ETI/OHE/G/05516 or its latest revisions. The price shall exclude the supply of post & operating rod insulators.

The supply materials include the following components:

RI No.	Component	Qty
-	Single Pole Isolator Assembly with all accessories including Arcing Horn, Operating Rod, Operating Rod Guides, Padlock with two keys etc with all Fasteners (Nut, Bolt, Washer)	1 set
1009	19 mm Terminal Connector Assembly with Fasteners (Nut, Bolt, Flat & Spring Washers)	2 or more as per requirement.
-	Integral Lock	2

Erection: The price shall include the erection of a 25 kV single pole isolator (1250 A) (excluding the earth contact assembly) in accordance with RDSO Specification No. TI/SPC/PSI/SOLTR/0210 or its latest revision, ETI/OHE/G/05513 or its latest revisions, ETI/OHE/G/05516 or its latest revisions. It includes the erection of the post and operating rod insulators also.

- Note:**
1. The price does not include the supply and erection of SPS complete with bolts, nuts, and other fasteners required for supporting the isolators and operating rods on gantries or masts.
 2. Also, it excludes the supply and erection of insulators for jumper support and the corresponding jumper connectors. This item is to be operated under 11(b)
 3. 18 mm copper bus bar or 36 mm Aluminium bus bar with associated connectors for provision of isolator on TTCs/Portals shall be claimed separately under item no. 26 of Schedule A1.

Item 13(b) - Supply (without Insulators) and Erection of 25 kV Double Pole Isolator without earth contact assembly.

Supply: The price shall include the supply of a 25 kV double pole isolator (1250 A) (excluding the earth contact assembly) in accordance with RDSO Specification No. TI/SPC/PSI/SOLTR/0210 or its latest revision. The price shall exclude the supply of post & operating rod insulators.

The supply materials include the following components:.

RI No.	Component	Qty
-	Double Pole Isolator Assembly with all accessories including Arcing Horn, Operating Rod, Operating Rod Guides, Padlock with two keys etc with all Fasteners (Nut, Bolt, Washer)	1 set

1009	19 mm Terminal Connector Assembly with Fasteners (Nut, Bolt, Flat & Spring Washers)	3 or more As per Requirement
-	Integral Lock	2

Erection: The price shall include the erection of a 25 kV double pole isolator (1250 A) (excluding the earth contact assembly) in accordance with RDSO Specification No. TI/SPC/PSI/ISOLTR/0210 or its latest revision. However, the price will only include the erection of the post and operating rod insulators.

Note: 1. The price does not include the supply and erection of SPS complete with bolts, nuts, and other fasteners required for supporting the isolators and operating rods on gantries or masts.

2. Also, it excludes the supply and erection of insulators for jumper support and the corresponding jumper connectors. This item is to be operated under 11(b)
3. 18 mm copper bus bar or 36 mm Aluminium bus bar with associated connectors for provision of isolator on TTCs/Portals shall be claimed separately under item no. 26 of Schedule A1.

Item 13(c) - Supply and Erection of Earth Contact Assembly for an Isolator

Supply & Erection: The price shall include the supply and erection of Earth Contact Assembly for an Isolator as per specification no. TI/SPC/PSI/ISOLTR/0210 or latest.

Item 13(d) - Supply and Erection of an Interlocking device

Supply & Erection: The price shall include the supply and erection of Interlocking device for an Isolator as per specification no. TI/SPC/PSI/ISOLTR/0210 or latest.

Item 13(e) - Supply (without Insulators) and Erection of 132 kV Double Pole Isolator without earth contact assembly

Supply: The price shall include the supply of a 132 kV double pole isolator (excluding the earth contact assembly) in accordance with RDSO Specification No. TI/SPC/PSI/ISOLTR/0210 or its latest revision.

The price shall exclude the supply of post & operating rod insulators.

The supply materials include the following components:.

RI No.	Component	Qty
-	132 kV Double Pole Isolator Assembly with all accessories including Arcing Horn, Operating Rod, Operating Rod Guides, Padlock with two keys etc with all Fasteners (Nut, Bolt, Washer) with suitable Terminal Connectors	1 set
-	Integral lock/Inter Lock	As Required

Erection: The price shall include the erection of a 132 kV double pole isolator (excluding the earth contact assembly) in accordance with RDSO Specification No. TI/SPC/PSI/ISOLTR/0210 or its latest revision. However, the price will only include the erection of the post and operating rod insulators.

Note: 1. The price does not include the supply and erection of SPS complete with bolts, nuts, and other fasteners required for supporting the isolators and operating rods on gantries or masts.

2. Also, it excludes the supply and erection of insulators for jumper support and the corresponding jumper connectors. This item is to be operated under 11(b)

3. 18 mm copper bus bar or 36 mm Aluminium bus bar with associated connectors for provision of isolator on TTCs/Portals shall be claimed separately under item no. 26 of Schedule A1.

Item 13(f) - Supply (without Insulators) and Erection of 25 kV Single Pole Isolator (1600 A) without earth contact assembly

Supply: The price shall include the supply of a 25 kV single pole isolator (1600 A) (excluding the earth contact assembly) in accordance with RDSO Specification No. TI/SPC/PSI/ISOLTR/0210 or its latest revision. The price shall exclude the supply of post & operating rod insulators.

The supply materials include the following components:

RI No.	Component	Qty
-	25 kV Single Pole Isolator Assembly (1600 A) with all accessories including Arcing Horn, Operating Rod, Operating Rod Guides, Padlock with two keys etc with all Fasteners (Nut, Bolt, Washer) with suitable Terminal Connectors	1 set
-	Integral lock / Inter Lock	As Required

Erection: The price shall include the erection of a 25 kV single pole isolator (1600 A) (excluding the earth contact assembly) in accordance with RDSO Specification No. TI/SPC/PSI/ISOLTR/0210 or its latest revision. However, the price will only include the erection of the post and operating rod insulators.

Note: 1. The price does not include the supply and erection of SPS complete with bolts, nuts, and other fasteners required for supporting the isolators and operating rods on gantries or masts.

2. Also, it excludes the supply and erection of insulators for jumper support and the corresponding jumper connectors. This item is to be operated under 11(b)

3. 18 mm copper bus bar or 36 mm Aluminium bus bar with associated connectors for provision of isolator on TTCs/Portals shall be claimed separately under item no. 26 of Schedule A1.

Item 13(g) - Supply (without Insulators) and Erection of 25 kV Double Pole Isolator (1600 A) without earth contact assembly.

Supply: The price shall include the supply of a 25 kV double pole isolator (1600 A) (excluding the earth contact assembly) in accordance with RDSO Specification No. TI/SPC/PSI/ISOLTR/0210 or its latest revision. The price shall exclude the supply of post & operating rod insulators.

The supply materials include the following components:

RI No.	Component	Qty
-	25 kV Double Pole Isolator Assembly (1600 A) with all accessories including Arcing Horn, Operating Rod, Operating Rod Guides, Padlock with two keys etc with all Fasteners (Nut, Bolt, Washer) with suitable Terminal Connectors	1 set
-	Integral lock/Inter Lock	As Required

Erection: The price shall include the erection of a 25 kV double pole isolator (1600 A) (excluding the earth contact assembly) in accordance with RDSO Specification No. TI/SPC/PSI/ISOLTR/0210 or its latest revision. However, the price will only include the erection of the post and operating rod insulators.

- Note:** 1. The price does not include the supply and erection of SPS complete with bolts, nuts, and other fasteners required for supporting the isolators and operating rods on gantries or masts.
2. Also, it excludes the supply and erection of insulators for jumper support and the corresponding jumper connectors. This item is to be operated under 11(b)
3. 18 mm copper bus bar or 36 mm Aluminium bus bar with associated connectors for provision of isolator on TTCs/Portals shall be claimed separately under item no. 26 of Schedule A1.

Item 14(a) - Erection of PTFE Neutral Section Assembly

The price shall include the erection, testing and commissioning of PTFE short neutral section assembly as per RDSO Spec No. TI/SPC/OHE/SNS/0000 REV-1 or latest if any, with all accessories.

Item 15(a) – Supply and Erection of 50 sq.mm Copper Jumper (C-Jumper, F-Jumper, Anti-Theft Jumper) (excludes copper jumper supply)

Supply: The price shall include the supply of PG Clamps with Bolt M16x50/38 & Nut, Spring Washer as per RDSO Drg No. ETI/OHE/P/1040-2 (Rev-E) or latest, Drg No. ETI/OHE/P/1040-3 (Rev-B) or latest and Specification No. TI / SPC / OHE / Fittings / 0130 (10/13), Rev-1 or latest, RDSO Drg No. ETI/OHE/G/05107 or its latest revision.

The supply materials include the following components:

RI No.	Component	Qty
1040-2 /1040-3	PG Clamps with bolt, nut and spring washer for C-Jumper / F-Jumper / Anti-Theft Jumper	2 Nos for C-Jumper/ 3 Nos for F-Jumper/ 4 Nos for Anti-Theft Jumper

Erection: The price shall include erection of complete 50 sq.mm jumper assembly (C-Jumper/F-Jumper/Anti-Theft Jumper) including Jumper Wire & PG Clamp with bolt, nut and spring washer.

Note: The supply cost for 50 sq.mm Jumper wire is excluded and will be paid under item no. 15(as) of Sch-B2.

Item 15(b) - Supply and Erection of 160 sq.mm Copper Jumper (Isolator Jumper, G-Jumper) (excludes copper jumper supply)

The price shall include the supply of PG Clamps with Bolt M16x50/38 & Nut, Spring Washer as per DRG No. ETI/OHE/P/1030-2 (Mod-D) or latest, DRG No. ETI/OHE/P/1030-3 (Rev-A) or latest and Specification No. TI/SPC/OHE/Fittings/0130(10/13), Rev-1 or latest.

The supply materials include the following components:

RI No.	Component	Qty
1030-2	PG Clamps with bolt, nut and spring washer for 160 sq. mm jumper	8 Nos

Erection: The price shall also include erection of complete 160 sq.mm jumper assembly (Isolator Jumper, G-Jumper) including Jumper Wire & PG Clamp with bolt, nut and spring washer.

Note: The supply cost for 160 sq.mm Jumper wire is excluded and will be paid under item no. 15(bs) of Sch-B2.

Item 15(c) - Supply and Erection of Large copper jumper wire 160 sq. mm between Aluminium Bus and Cross-feeder (excludes copper jumper supply)

Supply: This jumper shall be provided between Aluminium bus and the copper cross feeder at SP/SSP/FP locations.

The supply materials include the following components:

RI No.	Component	Qty
1050-3	PG Clamps with bolt, nut and spring washer	6 Nos
1009	19 mm Terminal connector	1 No
6480	AL Bus Terminal connector (6480) with Bi-metallic strip	1 No

Erection: The price covers the erection of the complete jumper assembly including Y Jumper as per site requirement.

Note: The supply cost for 160 sq.mm Jumper wire is excluded and will be paid under item no. 15(bs) of Sch-B2.

Item 15(d) - Supply and Erection of Large copper jumper wire 160 sq. mm between Cross-feeder and OHE (excludes copper jumper supply)

Supply: This jumper shall be provided between copper cross feeders and OHE. The supply materials include the following components:

RI No.	Component	Qty
1050-3	PG Clamps with bolt, nut and spring washer	6 Nos
1030-3	PG Clamps with bolt, nut and spring washer	4 Nos

Erection: The price covers the erection of the complete jumper assembly including Y Jumper as per site requirement.

Note: The supply cost for 160 sq.mm Jumper wire is excluded and will be paid under item no. 15(bs) of Sch-B2.

Item 15(e) - Supply and Erection of Aluminium Jumper

Supply & Erection: The price shall cover on a flat rate basis the supply and erection of an aluminium jumper of size 19/7/1.4mm bare 3/4H generally conforming to IS:8130 complete with all components and fittings required for providing jumper connection, including parallel clamps, bimetallic ALCU strips wherever required, and terminal or tee clamps at either end.

The price shall be applicable for any aluminium jumper/connections in any combination between feeders, return conductors, overhead equipment, and isolators and outgoing bus bars or switching stations and booster stations.

Item 16(a) - Supply and Erection of Structure Bond

Supply & Erection: The price includes the complete supply and installation of the structure bond between the structure and rail, in accordance with RDSO Drawing No. ETI/OHE/P/7000 (Rev.F) or the latest version, and Code No. ETI/OHE/71(11/90)-REV 1 or its latest revision.

The price includes the supply of all required materials such as **MS Flat 40 x 6 mm** (in suitable lengths), **GI**

Bolt M16x50/38, along with corresponding nuts, spring washers, and punched washers. Additionally, it covers the provision of a heat-shrinkable PVC sleeve for structure bonding on track-circuited rails, for providing proper insulation and protection.

The price also covers all necessary preparation work such as shaping and drilling the bond, ensuring precise fitting and secure erection of all materials.

Moreover, the price includes painting of the bond with **primary coat of red oxide and secondary coat of black bituminous paint** grade 85/25 (Fully Blown) as per **IS: 702 – 1961** after fabrication of bond.

Item 16(b) - Supply and Erection of Longitudinal Bond

Supply & Erection: The price includes the complete supply and installation of the longitudinal bond between the two rails, in accordance with RDSO Drawing No. ETI/OHE/P/7030 (Rev.F) or the latest version, and Code No. ETI/OHE/71(11/90)-REV 1 or its latest revision.

The price includes the supply of all required materials such as **MS Flat 40 x 6 mm** (in suitable lengths), **GI Bolt M16x65/38**, along with corresponding nuts, spring washers, and punched washers.

The price also covers all necessary preparation work such as shaping and drilling the bond, ensuring precise fitting and secure erection of all materials.

Moreover, the price includes painting of the bond with **primary coat of red oxide and secondary coat of black bituminous paint** after fabrication of bond.

Item 16(c) - Supply and Erection of Transverse & Special Bond

Supply & Erection: The price includes the complete supply and installation of the longitudinal bond between the two rails, in accordance with RDSO Drawing No. ETI/OHE/P/05251 (Rev.A) or the latest version, and Code No. ETI/OHE/71(11/90)-REV 1 or its latest revision.

The price includes the supply of all required materials such as **MS Flat 40 x 6 mm** (in suitable lengths), **GI Bolt M16x65/38**, along with corresponding nuts, spring washers, and punched washers. Additionally, it covers the provision of a heat-shrinkable PVC sleeve for bonding on track-circuited rails, providing proper insulation and protection.

The price also covers all necessary preparation work such as shaping and drilling the bond, ensuring precise fitting and secure erection of all materials.

Moreover, the price includes painting of the bond with **two coats of black bituminous paint**, after fabrication of bond.

Item 16(aa) - Drilling of Holes on Rails

The price covers drilling of holes on rails for provision of all types of bonds with suitable template approved by purchaser. The price shall also cover chamfering of the holes after drilling.

Note: Rail hole drilling is to be done with magnetic core drilling machine.

Item 16(d) - Supply and Erection of Structure Bond on Platform Area

Supply & Erection: The price shall include the supply and erection of the structure bond in the platform area as per RDSO Drawing No. ETI/OHE/P/7000 (Rev. F) or the latest version, and Code No. ETI/OHE/71(11/90)-REV 1 or its latest revision.

The bonds shall be securely embedded by cutting the concrete to a minimum depth of 15 cm and covering them with concrete to ensure stability, preventing any exposure or lifting at the ends. The width of the bond groove on the platform shall be a minimum of 10 cm, allowing for the easy installation of the 40x6 MS flat

bond. Any damage to tiles or granite during the process shall be repaired and restored to their original condition.

The price also includes all necessary preparation work, such as shaping and drilling the bond, ensuring precise fitting, and securely erecting all materials. Additionally, the price covers the provision and installation of heat-shrinkable PVC tubing for the structure bond under the track circuit rail.

It also includes the supply and erection of double cleats with fasteners for the platform bond to prevent any projection of the bond. Also, it is to be ensured that the PF bond is not exposed on PF area and coping of PF.

Moreover, the price includes painting of the bond with **two coats of black bituminous paint**, grade 85/25 (Fully Blown) as per **IS: 702 – 1961 after fabrication and before installation** of bond.

Item 17(a) - Supply and Erection of Single Earth Electrode at COP/FOB/PTFE/Steel Girder etc

Supply & Erection: The price shall cover supply and erection of an earth electrode assembly as per RDSO Drawing No. ETI/OHE/P/7020 (mod-B) or latest for COP/FOB/CLS/PTFE/Steel Girder/Single line track circuit area/earthing for isolators/buried rail etc.

The pipe shall be embedded as far as possible vertically into the ground, except when hard rock is encountered, where it may be buried inclined to the vertical, the inclination being limited to 30° from the vertical. The price also includes 3.1 m long mild steel galvanized single perforated pipe of not less than 40 mm nominal bore and 48.4 mm dia, embedded into the ground by driving or otherwise complete with fasteners, protective concrete box with lids and lugs suitable for directly connecting mild steel flats of size 40 mm x 6 mm/ 50 mm x 6 mm as per RDSO specification No. ETI/OHE/71 (11/90)-REV 1 or latest. Price of MS flat will be paid separately under relevant item.

The price shall also include the testing of earth resistance value & painting the same [Background Yellow, Marking with Black] on one side of protection box. The price shall also include the white washing of earth pit box with cover for earthing station. Bentonite powder is as per requirement is to be added till earth resistance is reached within limits.

The price also includes provision of charcoal and salt as per site requirement.

Item 17(b) – Supply and Erection of Earth Bus

Supply & Erection: The price shall cover supply of 50 mm x 6 mm MS strip conforming to IS-1731:1971 & Grade –A to IS-2062:1969 (MS flat) required for equipment earthing, connecting traction structures to the nearest non-track circuited rail or earth electrode or existing grid, including all fasteners like bolts(16x50x37), spring washers, flat washers etc at both ends. The price shall also cover erection of MS strip laid in the ground at depth of 60/30 cm / exposed as per requirement / site conditions.

Required fabrication, cutting, bending, welding & drilling is to be carried out by Contractor. The price shall also include painting as per code of practice for earthing.

Note: The payment will be made for the actual MS strip used at site for earthing & not for residual portion of MS strip leftover during fabrication / cutting.

Item 17(c) – Supply and Erection of Single Earth Electrode at TSS/SP/SSP/AT

Supply & Erection: The price shall cover supply and erection of an earth electrode assembly as per RDSO Drawing No. ETI/PSI/222-1 or latest revision, with charcoal & salt, all accessories & fasteners for 4.0 m length earth electrode at TSS/SSP/SP/AT's. The pipe shall be embedded as far as possible vertically into the ground, except when hard rock is encountered, where it may be buried inclined to the vertical, the inclination being limited to 30° from the vertical.

The price also includes 4.0 m long mild steel galvanized single perforated pipe of not less than 40 mm nominal bore and 48.4 mm dia, embedded into the ground by driving or otherwise complete with protective concrete box with lids and lugs suitable for directly connecting two mild steel flats of size 50 mm x 6 mm / 75 mm x 8 mm as per RDSO specification No. TI / SPC / PSI / EARTHING / 0210. Salt and river sand to be

mixed on the surface as one layer. Alternative layers of charcoal & salt shall be provided 150 mm around the earth pipe for embedded portion and each layer shall be 30 cm. Price of MS flat will be paid separately under relevant item.

The price shall also include the testing of earth resistance value & painting the same [Background Yellow, Marking with Black] on one side of protection box. Bentonite powder is as per requirement is to be added till earth resistance is reached within limits.

The individual resistance value of Earthing Station of a pole mounted LT supply transformer station shall not exceed 10 Ohms. If this value cannot be achieved with one electrode, additional electrodes shall have surrounded earth treated with charcoal and salt filling. For additional earth electrodes separate payment will be made.

Item 17(d) - Supply and Erection of Copper Strips (25 x 3 mm) for Equipment Earthing

Supply & Erection: The price shall cover supply and erection of 25 mm x 3 mm copper strips to connect the earth terminals of equipments like potential transformers, lightning arresters, 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 copper strips along any structure member of the gantry.

Item 17(e) - Supply and Erection of Earth leads 75 mm x 8 mm laid in the ground

Supply & Erection: The price shall cover supply and installation per meter length 75 x 8 mm mild steel flat, buried at a depth of 60 cm below ground level. The price shall also cover connections of the mild steel flats to the earth electrodes to constitute the main earth ring and to the earthed terminals of the 132/25 kV Transformers etc. as required.

Note: The price for excavation of earth is excluded and will be paid under item 34(f) of Sch - A1.

Item 17(f) - Supply and Erection of Earth leads 75 mm x 8 mm mild steel laid exposed

Supply & Erection: The price shall cover supply and installation per meter length of 75 x 8 mm mild steel flat, painted all around with two coats of painting to colour grass green shade-218 of IS:5 passing through cable trench or exposed above ground level. The price shall also cover the connections of the steel flats to the earth electrodes, to constitute the main earth ring and to the earthed terminals of the various equipment as required.

Item 17(g) - Supply and Erection of Earth leads 50 mm x 6 mm mild steel laid in the ground.

Supply & Erection: The price shall cover supply and installation per meter length of 50 x 6 mm mild steel flat buried at a depth of 60 cm below ground level. The price shall also cover connections of the steel flats to the main earth ring and to the steel structures and metallic frame work/terminals of various equipment, as required.

Note: The price for excavation of earth is excluded and will be paid under item 34(f) of Sch - A1.

Item 17(h) - Supply and Erection of Earth leads 50 mm x 6 mm mild steel laid exposed

Supply & Erection: The price shall cover supply and installations per meter length of 50 X 6 mm mild steel flat painted all around with two coats of painting to colour grass green shade – 218 of IS:5 passing through cable trench or exposed above ground level. The price shall also cover the connections of the steel flats to the main earth ring and to the steel structures and metallic frame work/ terminals of various outdoor equipment as required.

Item 17(i) - Supply and Erection of Mild steel rod 32 mm dia for Earth Mat

Supply & Erection: The price shall cover supply and installation per meter length of bare mild steel rod of dia 32 mm, to be buried at a depth of 60 cm below the ground level to form the earthing grid and connected

to earth electrodes. The price shall also cover jointing of the M.S. rods to form earthing grid and connection to M.S. flats for system earthing.

Note: The price for excavation of earth is excluded and will be paid under item 34(f) of Sch - A1.

Item 17(j) - Supply and Erection of 8 SWG G.I wire for earthing

Supply & Erection: The price shall cover supply and erection of 8 SWG G.I wire per meter, used for earthing of remote-control cubicles, fencing panels, control panels DB's etc.

Item 17(k) - Supply and Erection of Earth Screen Wire

Supply & Erection: The price shall cover supply and stringing per meter length of 19/2.5 mm [70kg/mm] galvanized steel stranded wire. It shall include the supply and erection of suitable terminations using strain clamps adjuster [on one side only] etc. It shall also include connecting by means of suitable terminal spades the end of the earth screen wire to the main members of the columns of portals gantries across which these wires are strung or to 50 x 6 mm MS flat earth leads. For purpose of payment, the clear span between the structures on which earth wire is run shall be adopted.

Item 18(a) - Erection of 25 kV Vacuum Interrupter (BM)

Erection: The price shall cover erection, testing & commissioning of Vacuum Type Interrupters complete with supporting frame-work, terminal connectors, accessories, operating mechanism, and all fittings etc for their efficient and trouble-free operation. The price for erection shall include alignment and grouting of the Interrupter on its foundation block and mounting of accessories, if any, in their respective positions.

The price also covers grouting, modifications, if any to the existing supporting steel structure/frame, positioning the mechanism box on foundation block and also the other accessories in their respective positions. In case of modification/alteration required for the existing foundation/structure, the contractor shall submit the designs/drawings for the modification/alteration with supporting explanatory notes, calculation etc. to the Purchaser/railways for approval. Concrete for modification/alteration to the foundation shall paid under item no. 2 of Sch-A2.

All the tools & plant, equipment/instruments required for testing and commissioning of the interrupter shall be arranged by the Contractor.

Item 18(b) - Erection of 25 kV Vacuum Circuit Breaker (CB)

Erection: The price shall cover erection, testing & commissioning of 25 kV Vacuum Type Circuit Breaker complete with supporting frame work and terminal connectors for their efficient and trouble-free operation. The price for erection shall include alignment & grouting of the Circuit breaker on its foundation block and mounting of accessories, if any, in their respective positions.

The price also covers grouting, modifications, if any to the existing supporting steel structure/frame, positioning the mechanism box on foundation block and the other accessories in their respective positions. In case of modification/alteration required for the existing foundation/structure, the contractor shall submit the designs/drawings for the modification/alteration with supporting explanatory notes, calculation etc. to the Purchaser/railways for approval. Concrete for modification/alteration to the foundation shall paid under item no. 2 of Sch-A2.

All necessary tools, equipment, instruments including power supply required for carrying out necessary checks, tests and commissioning shall be arranged by the contractor.

Item 18(c) - Erection of 132/220 kV Double Pole Circuit Breaker of SF-6 type

Erection: The price shall cover erection, testing & commissioning of 132 or 220 kV SF-6 Type Circuit Breaker complete with supporting frame work and terminal connectors for their efficient and trouble-free operation. The price for erection shall include alignment & grouting of the Circuit breaker on its foundation

block and mounting of accessories, if any, in their respective positions.

The price also covers grouting, modifications, if any to the existing supporting steel structure/frame, positioning the mechanism box on foundation block and also the other accessories in their respective positions. In case of modification/alteration required for the existing foundation/structure, the contractor shall submit the designs/drawings for the modification/alteration with supporting explanatory notes, calculation etc. to the Purchaser/railways for approval. Concrete for modification/alteration to the foundation shall be paid under item no. 2 of Sch-A2.

All necessary tools, equipment, instruments including power supply required for carrying out necessary checks, tests and commissioning shall be arranged by the contractor

Item 19(a) - Erection of 25 kV Type-I Potential Transformer (PT)

Erection: The price shall cover erection of a 25 kV Potential Transformer Type-I (Indication) complete with all fittings and accessories as per relevant specifications, including terminal connectors and fixing bolts. The price for erection shall include proper alignment of the potential transformer in position.

Note: The price shall not include the cost of any small parts steel work and jumper.

Item 19(b) - Erection of 25 kV Type-II Potential Transformers (PT)

Erection: The price shall cover supply and erection of a 25 kV Potential Transformer Type-II (Protection) complete with all fittings and accessories as per relevant specifications, including terminal connectors and fixing bolts. The price for erection shall include proper alignment of the transformer in position. The price shall also cover the erection of an enamelled number plate and fixing bolts.

Note: The price shall not include the cost of any small parts steel work and jumper.

Item 20(a) – Erection of 42 kV Lightning Arrester

Erection: The price shall cover erection of 42 kV, Metal Oxide Gapless Lightning Arrester complete with all fittings & accessories as per relevant specifications including terminal connectors and fasteners etc. The cost of erection shall include proper alignment of the lightning arrester in position. Erection should also comply to TI/MI/0048 Rev-1 dated 27/07/2021. Any Base modification for fixing of Lightning arrester as per Specification TI/SPC/PSI/MOGLA/0101 (2/15)

Note: The price shall not include the cost of any small parts steel work and jumper.

Item 20(b) – Erection of 120 kV Lightning Arrester

Erection: The price shall cover erection of 120 kV, Metal Oxide Gapless Lightning Arrester (suitable for 132 kV TSS) lightning arrester complete with all fittings and accessories. The cost of erection shall include proper alignment of the LA in position.

Note: The price shall not include the cost of any small parts steel work and jumper.

Item 20(c) –Erection of 198 kV Lightning Arrester

Erection: The price shall cover erection of 198, kV Metal Oxide Gapless Lightning Arrester (suitable for 220 kV TSS) lightning arrester complete with all fittings and accessories. The cost of erection shall include proper alignment of the LA in position.

Note: The price shall not include the cost of any small parts steel work and jumper.

Item 21 - Supply and Erection of Terminal Boards in control cubicles

Supply & Erection: The price shall cover supply and erection of Terminal Board consisting of six terminal

strips for connecting the cables as per RDSO drawing ETI/PSI/501 (latest). Terminal Board shall be mounted on the wall of remote-control cubicle building at a height of 1 m above the floor level.

The price also includes proper numbering of Terminal strips for Interrupter and potential transformer to indicate the equipment to which it is connected. Numbers shall be engraved on mounting plate with colour contrasting with the colour of Bakelite. The price shall also include terminal board cover of foam lining.

Item 22(a) - Supply and Erection of an Iron Clad 110 V DC Fuse Box

Supply & Erection: The price shall cover supply and erection of a 15A, 110V Iron clad or latest two way fuse box on the wall inside the remote control cubicle. The fuse box shall be complete with two fuse carriers and bases.

Item 22(b) - Supply and Erection of an Iron Clad 230 V AC Fuse Box

Supply & Erection: The price shall cover supply and erection of a 15A, 230V AC. Iron clad or latest 4-way fuse box on the wall inside the remote control cubicle, for heater supply of Interrupters. The fuse box shall contain four fuse carriers and bases.

Item 22(c) - Supply and Erection 110 V Distribution Boards

Supply & Erection: The price shall cover supply and erection of a 110 V Distribution Boards as per latest RDSO spec. The price shall include the grouting of the frame work of the distribution board in position or mounting it on the wall and necessary connections.

Item 23(a) - Erection of 110 V, 40 Ah Lead Acid Battery

Erection: The price shall cover erection of 110V, 40 Ah lead acid battery complete with stand, accessories, and a tool board. The price for erection shall include installation and connecting of the battery, but exclude the cost of connecting cables, the supply and erection of which will be paid for under appropriate Item. The price for erection shall include installation, connecting, initial charging at site if required and commissioning of the battery.

Item 23(b) - Erection of Battery charger for 110 V, 40 Ah Lead Acid Battery

Erection: The price shall include the erection of battery charger for a 110 V, 40 Ah lead acid batteries complete with connecting lead and plug for connection to 230 V AC supply. The price for erection shall include mounting of the charger in position and connecting it up to the 230V AC. distribution board in the control cubicles. The price shall not include supply and erection of any cable for connecting the charger to the 110V battery which shall be paid for under appropriate item.

Item 24(a) - Erection of 110 V, 200 Ah Lead Acid Battery

Erection: The price shall cover erection of 110 V, 200 Ah lead acid battery complete with stand, accessories, and a tool board. The price for erection shall include installation and connecting of the battery, but exclude the cost of connecting cables, the supply and erection of which will be paid for under Item 25. The price for erection shall include installation, connecting, charging at site if required and commissioning of the battery.

Item 24(b) - Erection of Battery charger for 110 V, 200 Ah Lead Acid Battery.

Erection: The price shall cover erection of battery charger for a 110 V, 200 Ah lead acid battery complete with connecting lead and plug for connection to 230 V A.C. supply. The price for erection shall include mounting of the charger in position and connecting it up to the 230V A.C. distribution board in the control cubicles. The price shall not include supply and erection of any cable for connecting the charger to the 110V battery which shall be paid for under appropriate item.

Item 25(a) - Supply and Erection of cable for Control and Indication (10 or 7 core, 2.5 sq. mm)

Supply & Erection: The price shall include the supply and installation, measured per meter, of a 1100V grade PVC insulated and sheathed armoured (heavy-duty) cable, in compliance with IS:1554 (Part-I)-1988. The cable will be 7/10 core, 2.5 sq.mm copper conductor, running from each circuit breaker or interrupter to

the Control and Relay Board. The price also shall include supply and installation of terminal connectors at both ends, if necessary, as well as any conduits required for protection or routing.

Item 25(b) - Supply and Erection of cable for Heater Supply (2 core, 4 sq. mm)

Supply & Erection: The price shall include the supply and installation, measured per meter, of a 1100V grade PVC insulated and sheathed armoured (heavy-duty) cable, in compliance with IS:1554 (Part-I)-1988. The cable will be 2 core, 4 sq.mm copper conductor, running from (i) each interrupter to interrupter (ii) from interrupter to 230 V AC Fuse box (iii) From Fuse box to LT distribution board.

The price also shall include supply and installation of terminal connectors at both ends, if necessary, as well as any conduits required for protection or routing.

Item 25(c) - Supply and Erection of cable for Catenary Indication (2 core, 2.5 sq. mm)

Supply & Erection: The price shall include the supply and installation, measured per meter, of a 1100V grade PVC insulated and sheathed armoured (heavy-duty) cable, in compliance with IS:1554 (Part-I)-1988. The cable will be 2 core, 2.5 sq.mm copper conductor, running from line indication type potential transformer to terminal board and from 240V AC LT distribution board to terminal board.

The price also shall include supply and installation of terminal connectors at both ends, if necessary, as well as any conduits required for protection or routing, to be embedded between the steel work based and the cable trench and shall include all fastenings on masts and structural members to support them.

Item 25(d) - Supply and Erection of cable for 110 V DC Power supply (2 core, 4 sq. mm)

Supply & Erection: The price shall cover supply and installation per meter length of PVC 1100V grade, 4 sq.mm (copper conductor) 2 core and sheathed armoured (heavy-duty) cable, from each current transformer to the control and relay board, from 110V DC distribution board to the control and Relay Board and from 240V AC. LT distribution board to Battery Chargers.

The price also shall include supply and installation of terminal connectors at both ends, if necessary, as well as any conduits required for protection or routing.

Item 25(e)(i) - Supply and Laying of 2 core, 70 sq. mm XLPE Aluminium cable

The price shall include the supply and laying of 2 core, 70 sq.mm XLPE insulated, PVC Sheathed, 1100 V, armoured Aluminium conductor.

Item 25(e)(ii) - Supply and Laying of 2 core, 185 / 150 sq. mm XLPE Aluminium cable

The price shall include the supply and laying of 2 core, 185 / 150 sq.mm XLPE insulated, PVC Sheathed, 1100 V, armoured Aluminium conductor.

Note for Item 25(a) to 25(e)(ii):

1. The length of cables shall be the actual distance measured along the lengths of the cable between the starting and terminating points of each cable.
2. For purpose of payment fraction of a meter in the total length of cable of each type used at a switching station, shall be rounded off to the next higher meter.
3. Price under item 25 do not include cost of concrete cable trenches which will be paid for under appropriate item.
4. The price shall also include releasing existing cables. All released cables and connectors shall be handed over to the concerned TRD depot.

5. The price for erection of cables shall include cable boxes, metallic glands, identification labels, terminal connectors, copper lugs and leading inducts or pipes as required.
6. The price for erection shall include connecting up of the cable at either end. It shall also include clamping of the cable on steel supports, fixing in the trenches, on the structures, on the framework of the equipment or on the wall of the control room as required.

Item 26(a)(i) - Supply and Erection of Aluminium Bus Bar 36 mm x 28 mm

Supply & Erection: The price shall cover supply and erection of aluminium bus bar 36 mm x 28 mm including bending and shaping.

Item 26(a)(ii) - Supply and Erection of 18 mm Copper Bus Bar

Supply & Erection: The price shall cover supply and erection of copper bus bar 18 mm including bending and shaping.

Item 26(b)(i) - Supply and Erection of Aluminium Bus Terminal (6480)

Supply & Erection: The price shall include the supply and erection of Aluminium Bus Terminal (6480) for 25 kV Isolator including Fasteners (GI Nut, Bolt & Washer etc.) as per RDSO Drawing No. ETI/PSI/P/6480 or latest. The price shall also include the supply and erection of ALCU strip if required to be provided at junction.

Item 26(b)(ii) - Supply and Erection of Aluminium Bus Splice (6490)

Supply & Erection: The price shall include the supply and erection of Aluminium Bus Splice (6490) including Fasteners (GI Nut, Bolt & Washer etc.) as per RDSO Drawing No. ETI/PSI/P/6490 or latest.

Item 26(b)(iii) - Supply and Erection of Aluminium Bus TEE connector (6500)

Supply & Erection: The price shall include the supply and erection of Aluminium Bus TEE connector (6500) including Fasteners (GI Nut, Bolt & Washer etc.) as per RDSO Drawing No. ETI/PSI/P/6500 or latest.

Item 26(b)(iv) - Supply and Erection of Aluminium Bus Bar Terminal connector 36/20 mm(6530)

Supply & Erection: The price shall include the supply and erection of Aluminium Bus Bar Terminal connector (6530) including Fasteners (GI Nut, Bolt & Washer etc.) as per RDSO Drawing No. ETI/PSI/P/6500 or latest for connecting the 20 mm spider conductor to the 36 mm Aluminium Bus Bar at Traction Substation.

Item 26(b)(v) - Supply and Erection of Aluminium Bus Bar Tap connector (6520)

Supply & Erection: The price shall include the supply and erection of Aluminium Bus Bar Tap connector (6520) including Fasteners (GI Nut, Bolt & Washer etc.) as per RDSO Drawing No. ETI/PSI/P/6520 or latest for cadmium catenary tapped from 36 mm O/D Aluminium Bus Bar for Drop Out switch in switching station.

The price shall also include the supply and erection of ALCU strip if required to be provided at junction.

Item 26(b)(vi) - Supply and Erection of Aluminium Flexible Bus Splice (6550)

Supply & Erection: The price shall include the supply and erection of Aluminium Flexible Bus Splice (6550) including Fasteners (GI Nut, Bolt & Washer etc.) as per RDSO Drawing No. ETI/PSI/P/6550 or latest for making expansion joints in long 36 mm Aluminium Bus Bar.

The price shall also include the supply and erection of ALCU strip if required to be provided.

Item 26(b)(vii) - Supply and Erection of Aluminium Bus Terminal connector bolted type (6830-1)

Supply & Erection: The price shall include the supply and erection of Aluminium Bus Terminal connector bolted type (6830-1) including Fasteners (GI Nut, Bolt & Washer etc.) as per RDSO Drawing No. ETI/PSI/P/6550 or latest for making expansion joints in long 36 mm Aluminium Bus Bar.

Item 26(c)(i) - Supply and Erection of Solid Copper Busbar Connector - 18 mm Bus Terminal (6310-1)

Supply & Erection: The price shall include the supply and erection of 18 mm Bus Terminal (6310-1) including Fasteners (GI Nut, Bolt & Washer etc.) as per RDSO Drawing No. ETI/PSI/P/6310-1 or latest.

Item 26(c)(ii) - Supply and Erection of Solid Copper Busbar Connector - 18 mm Bus Splice (6320)

Supply & Erection: The price shall include the supply and erection of 18 mm Bus Splice (6320) including Fasteners (GI Nut, Bolt & Washer etc.) as per RDSO Drawing No. ETI/PSI/P/6320 or latest.

Item 26(c)(iii) - Supply and Erection of Solid Copper Busbar Connector- 18 mm Bus TEE Joint (6330)

Supply & Erection: The price shall include the supply and erection of 18 mm Bus TEE Joint (6330) including Fasteners (GI Nut, Bolt & Washer etc.) as per RDSO Drawing No. RE/33/P/6330 or latest.

Item 26(c)(iv) - Supply and Erection of Solid Copper Busbar Connector - 18 mm Bus Terminating TEE (6350)

Supply & Erection: The price shall include the supply and erection of 18 mm Bus Terminating TEE (6350) including Fasteners (GI Nut, Bolt & Washer etc.) as per RDSO Drawing No. RE/33/P/6350 or latest.

Item 26(c)(v) - Supply and Erection of Aluminium Bus Bar 50 mm x 39 mm

Supply & Erection: The price shall include the supply and erection, measured per meter, of 50 mm x 39 mm dia. aluminium tube to serve as bus-bar or equipment to equipment bus bar connection in the traction sub-station, wherever required. The price shall include straightening, shaping and connecting/clamping of the conductor to the equipment terminals/bus bar supports as required

Item 26(c)(vi) - Supply and Erection of ACSR conductor (Zebra 61/3.18 mm)

Supply & Erection: The price shall include the supply and erection per meter length of 61/3.18 mm (ZEEBRA ACSR) conductor to serve as bus bar or equipment to equipment/bus bar connection in the traction substation, wherever required. The price shall include strengthening, shaping and connecting/clamping of the conductor to the equipment terminals/bus bar supports as required.

Item 26(c)(vii) - Supply and Erection of Rigid type Bi-metallic Terminal connector suitable for 50 mm dia AL Tubular Bus Bar to Terminal Pad of 25 kV Isolator/CT (ID no 11090)

Supply & Erection: The price shall include the supply and erection of Rigid type Bi-metallic Terminal connector suitable for 50 mm dia AL Tubular Bus Bar to Terminal Pad of 25 kV Isolator/CT (ID no 11090) including Fasteners (GI Nut, Bolt & Washer etc.) as per RDSO Drawing No. ETI/PSI/P/11090 or latest. The price shall also include the supply and erection of ALCU strip if required to be provided.

Item 26(c)(viii) - Supply and Erection of Expansion Type Terminal connector to suit 50 mm dia AL Tubular Bus Bar to Terminal Pad of 25 kV C.T/Isolator/ C.B & Interrupter (ID no 11060)

Supply & Erection: The price shall include the supply and erection of Expansion Type Terminal connector to suit 50 mm dia AL Tubular Bus Bar to Terminal Pad of 25 kV C.T/Isolator/ C.B & Interrupter (ID no 11060) including Fasteners (GI Nut, Bolt & Washer etc.) as per RDSO Drawing No. ETI/PSI/P/11060 or latest. The price shall also include the supply and erection of AL-CU strip if required to be provided. The copper flexible

connector (80 x 80 mm) suitable for 50 mm dia AL busbar shall be supplied as advised by Railway Engineer In-charge.

Item 26(c)(ix) - Supply and Erection of 25 kV System Rigid Bus Splice connector to suit 50 mm O/D AL Tube on Both ways. (ID no 11180)

Supply & Erection: The price shall include the supply and erection of 25 kV System Rigid Bus Splice connector to suit 50 mm O/D AL Tube on Both ways. (ID no 11180) including Fasteners (GI Nut, Bolt & Washer etc.) as per RDSO Drawing No. ETI/PSI/P/11180 or latest.

Item 26(c)(x) - Supply and Erection of 25 kV System TEE connector to suit 50 mm O/D AL Tubular Bus Bar to 50 mm O/D AL Bus Bar (ID no 11150)

Supply & Erection: The price shall include the supply and erection of 25 kV System TEE connector to suit 50 mm O/D AL Tubular Bus Bar to 50 mm O/D AL Bus Bar (ID no 11150) including Fasteners (GI Nut, Bolt & Washer etc.) as per RDSO Drawing No. ETI/PSI/P/11150 or latest.

Item 26(c)(xi) - Supply and Erection of Rigid Through connector to suit 50 mm dia AL Tubular Bus Bar and Spider AAC Conductor for 25 kV PT Type-II (ID no 11110)

Supply & Erection: The price shall include the supply and erection of Rigid Through connector to suit 50 mm dia AL Tubular Bus Bar and Spider AAC Conductor for 25 kV PT Type-II (ID no 11110) including Fasteners (GI Nut, Bolt & Washer etc.) as per RDSO Drawing No. ETI/PSI/P/11110 or latest.

Item 26(c)(xii) - Supply and Erection of 25 kV System TEE connector to suit 50 mm O/D AL Tube and Spider AAC Conductor (ID no 11140)

Supply & Erection: The price shall include the supply and erection of 25 kV System TEE connector to suit 50 mm O/D AL Tube and Spider AAC Conductor (ID no 11140) including Fasteners (GI Nut, Bolt & Washer etc.) as per RDSO Drawing No. ETI/PSI/P/11140 or latest.

Item 26(c)(xiii) - Supply and Erection of TEE connector to Suit Zebra (28.58 DIA) ACSR Conductor on Both ways for 220 kV System (ID no 11040)

Supply & Erection: The price shall include the supply and erection of TEE connector to Suit Zebra (28.58 DIA) ACSR Conductor on Both ways for 220 kV System (ID no 11040) including Fasteners (GI Nut, Bolt & Washer etc.) as per RDSO Drawing No. ETI/PSI/P/11040 or latest.

Item 26(c)(xiv) - Supply and Erection of 220 kV System Bi-metallic Terminal Connector to suit ZEBRA (28.62 DIA) ACSR Conductor and Al/Cu Pad Isolator/CT/BT (ID no 11120/11030)

Supply & Erection: The price shall include the supply and erection of 220 kV System Bi-metallic Terminal Connector to suit ZEBRA (28.62 DIA) ACSR Conductor and Al/Cu Pad Isolator/CT/BT (ID no 11120/11030) including Fasteners (GI Nut, Bolt & Washer etc.) as per RDSO Drawing No. ETI/PSI/P/11120 or latest (or) ETI/PSI/P/11030 or latest. The price shall also include the supply and erection of AL-CU strip if required to be provided at junction.

Item 26(c)(xv) - Supply and Erection of Rigid type connector on S.I. to suit 50 O/D AL Bus Bar for 25 kV System (ID no 11200)

Supply & Erection: The price shall include the supply and erection of Rigid type connector on S.I. to suit 50 O/D AL Bus Bar for 25 kV System (ID no 11200) including Fasteners (GI Nut, Bolt & Washer etc.) as per RDSO Drawing No. ETI/PSI/P/11200 or latest.

Item 26(c)(xvi) - Supply and Erection of 25 kV System TEE Connector to suit 36 mm O/D AL Bus Bar to 50 mm O/D AL Bus Bar (11240)

Supply & Erection: The price shall include the supply and erection of 25 kV System TEE Connector to suit 36 mm O/D AL Bus Bar to 50 mm O/D AL Bus Bar (11240) including Fasteners (GI Nut, Bolt & Washer etc.) as per RDSO Drawing No. ETI/PSI/P/11240 or latest.

Item 26(c)(xvii) - Supply and Erection of Siding clamp for 50 mm AL Busbar (11190)

Supply & Erection: The price shall include the supply and erection of Siding clamp for 50 mm AL Busbar (11190) including Fasteners (GI Nut, Bolt & Washer etc.) as per RDSO Drawing No. ETI/PSI/P/11190 or latest.

Item 26(c)(xviii) - Supply and Erection of 220 kV system Rigid connector on SI to suit ZEBRA (28.58 mm dia) ACSR Conductor (ID no 11050)

Supply & Erection: The price shall include the supply and erection of 220 kV system Rigid connector on SI to suit ZEBRA (28.58 mm dia) ACSR Conductor (ID no 11050) including Fasteners (GI Nut, Bolt & Washer etc.) as per RDSO Drawing No. ETI/PSI/P/11050 or latest.

Item 26(c)(xix) - Supply and Erection of Rigid type Bi-metallic connector for 50 mm AL Busbar (ID no 11070)

Supply & Erection: The price shall include the supply and erection of Rigid type Bi-metallic Terminal connector suitable for 50 mm dia AL Tubular Bus Bar to 30 dia Cu Stud of 25 kV Current Transformer (ID no 11070) including Fasteners (GI Nut, Bolt & Washer etc.) as per RDSO Drawing No. ETI/PSI/P/11090 or latest. The price shall also include the supply and erection of ALCU strip if required to be provided.

Item 26(c)(xx) - Supply and Erection of 25 KV Expansion Bus Coupler to suit 50 mm AL Busbar (ID no 11210)

Supply & Erection: The price shall include the supply and erection of 25 KV Expansion Bus Coupler to suit 50 mm AL Busbar (ID no 11210) including Fasteners (GI Nut, Bolt & Washer etc.) as per RDSO Drawing No. ETI/PSI/P/11210 or latest.

Item 27(a) -Erection of 25 kV/240 V 5/10/25/50/100 kVA Auxiliary Transformer

Erection: The price shall include erection of 25kV/240V LT supply transformer of capacity 5/10/25/50/100kVA, at site, as per the RDSO's latest specification complete with terminal connectors on a mast or gantry. The price shall be applicable for transformers mounted on steel pedestals at switching stations also. The price shall also cover oil filtration and pre commissioning tests confirming to IS 1866 and as approved by the Employers or Engineer. The contractor shall make his own arrangement for oil filtration equipment, as well as power supply required for the same, all necessary tools, equipment, instruments required for carrying out oil filtration/checks/tests and the contractor shall arrange for commissioning.

Note: Contractor at his own cost shall do the replenishment of the transformer oil on account of testing and leakages during the warranty period.

Item 27(b) - Supply and Erection of 240 V L.T. Distribution Board in the control room for L.T supply transformer with changeover switch

Supply & Erection: The price shall include the supply and erection of 240 V L.T. Distribution Board in the control room for L.T supply transformer with changeover switch.

Item 28 - Supply (without Insulators) and Erection of 25 kV Drop Out Fuse switch for Auxiliary Transformer of all capacities and for Type-I PTs

Supply & Erection: The price shall include the supply and erection of 25 kV DO fuse switch complete with all mounting accessories and terminal connectors as required excluding the supply of 25 kV solid core insulator as per RDSO Drg No. ETI/PSI/038 or its latest revision.

The price shall not include erection of small parts steel work. The actual quantity will be decided by Railway Engineer In-charge. The provision of DO fuse switch for Type-I PTs shall also be claimed under this item.

Item 30(a)(i) - Supply and Erection of Fencing Panel at SP/SSP/TSS

Supply & Erection: The price shall include the supply and erection of fencing panel as per RDSO Specification No. ETI/C/0186 SH-1 for SP/SSP & ETI/PSI/121 for TSS or latest revision. The price also shall include two coats of red oxide zinc chromate primer confirming to IS: 2074 and finished with two coats of aluminium paint.

The prices shall not include supply and erection of fencing up-rights, anti-climbing devices. But, shall include the cost of fasteners and the price shall be for a meter length of the panels, 2.4 m for SP/SSP or 2.5 m for TSS height measured in the plan view of the appropriate approved drawings. However dimensions of fencing panels are to be done as approved by Railway Engineer In-charge.

Item 30(a)(ii) - Supply and Erection of Fencing Upright at SP/SSP/TSS

Supply & Erection: The price shall include the supply and erection of fencing upright as per RDSO specification No. ETI/C/0186 SH-2 for SP/SSP & ETI/PSI/121 for TSS or latest revision. The price also shall include two coats of red oxide zinc chromate primer to IS: 2074 and finished with two coats of aluminium paint.

The price shall be on the basis of black weight of the steel with no deduction for holes or skew cut or no increase for weld materials.

Note: The cost of foundation of uprights will be paid under appropriate item.

Item 30(a)(iii) - Supply and Erection of Gates

Supply & Erection: The price shall include the supply and erection of Gates for SP/SSP/TSS as per RDSO Drg. No. ETI/C/0186 (SH 1&2) or its latest revision (or) the dimensions of Gate may be decided as per site condition by Railway Engineer In-charge. As per drawing approved by Railway Engineer In-charge, may be executed.

The price shall also include two coats of red oxide zinc chromate primer to IS: 2074 and finished with two coats of aluminium paint.

Item 30(b)(i) - Supply and Erection of Anti-climbing device at TSS/SP/SSP

Supply & Erection: The price shall cover supply and erection of an anti-climbing device consisting of galvanized steel fixtures and barbed wire mounted on the fencing panels as per RDSO Drg. No. ETI/PSI/121 or its latest revision, ETI/PSI/104 or its latest revision & ETI/C/0186 (SH 1&2) or its latest revision.

The price shall be per meter length of the panel.

The price shall also include painting of the fixtures with two coats of red oxide zinc chromate primer and finished with two coats of Aluminium paint as per IS 2074.

Item 30(b)(ii) - Supply and Erection of Anti-climbing device for Auxiliary Transformer.

Supply & Erection: The price shall include the supply and erection of anti-climbing device consisting of galvanized steel fixtures and barbed wire mounted on the AT mast as per RDSO Drg No. ETI/OHE/SK/106 or its latest revision.

The price shall be for each mast provided with the devices.

The price shall also include painting of the fixtures with two coats of red oxide zinc chromate primer and

finished with two coats of Aluminium paint as per IS 2074.

Item 31(a) - Transfer of Overhead Equipment from one Mast or Support to another, including removal of Cantilever Assembly from old Mast or Support.

The price shall include the transfer of overhead equipment to a cantilever assembly on a new mast or support. The price shall also include **dismantling of the existing bracket assembly/assemblies** including **SPS** from the old mast or support.

The dismantled cantilever assembly shall be properly stacked and transported to nearest TRD depot as advised by Railway Engineer In-charge.

The foundation, steel work and bracket assembly for the new mast or structure will be paid under appropriate items.

Note: Dismantling of cantilevers (item no. 31(r) of Sch-A1) should not be operated, when this item is operated

Item 31(b) - Erection of additional bracket assemblies on a same mast or support

The price shall include the dismantling of existing bracket assemblies including SPS. The price shall also include the provision of a multiple cantilever cross arm and erection of bracket assembly/assemblies on the multiple cantilever cross arm.

Note: 1. This item is to be operated when conversion of single cantilever to multi cantilevers is planned.

2. The price shall not include the supply cost of multiple cantilever cross arm, which will be paid under item no. 3(cs) of Sch-B1

3. This price shall not include the price for supply of new cantilever assembly/assemblies, which will be paid for under item no. 4(a)(i) of Sch-A1.

Item 31(c) - Dismantling of Overhead Equipment

The price shall include the dismantling of overhead equipment which includes contact wire, catenary wire, jumpers and droppers.

The dismantled materials shall be properly stacked and transported to nearest TRD depot as advised by Railway Engineer In-charge.

Note: Dismantling of Terminations are to be covered under 31(t)(v) of Sch-A1 for conventional OHE and 31(t)(vi) of Sch-A1 for Tramway OHE.

Item 31(d) - Dismantling of Along Feeder wire (Aluminium or copper feeder wire)

The price shall include the dismantling of Aluminium or Copper Feeder wire.

The dismantled feeder wire shall be properly stacked and transported to nearest TRD depot as advised by Railway Engineer In-charge.

Item 31(e) - Splicing and Extension of Anchored OHE

The price shall include the splicing of terminated overhead equipment for extension, along with the necessary adjustments to the affected equipment. The splicing of contact and catenary wire after dismantling of section insulator shall also be claimed under this item.

The cost of dismantling the overhead equipment will be covered separately under Item 31(c). The extended overhead equipment shall be measured and paid from the center line of the splice to the newly extended section under Item 6(a), 6(b), or 6(c).

If only the catenary or contact wire is spliced and extended, half the rate shall be paid. In the case of anti creep wire splicing and extension is done, half the rate shall also apply. When splicing a catenary wire with a contact wire or an insulated catenary wire using an ending clamp/splice under a Road Over Bridge (ROB), payment shall be made under this item at half the rate per splice.

The dismantled equipment must be properly stacked and transported to the nearest TRD depot, as instructed by the Railway Engineer In-charge.

Note: The price does not include supply of splices and any additional wire pieces (contact and catenary).

Item 31(f) - Dismantling of Section Insulator

The price shall include the dismantling of Section Insulator assembly along with sectioning and 9-ton insulators. The dismantled equipment shall be properly stacked and transported to nearest TRD depot as advised by Railway Engineer In-charge.

Item 31(g) - Slewing and Putting back of OHE in original position

The price shall include the temporary slewing or lowering of OHE to ground for carrying out special works, at the request of the Railway Engineer In-charge and restoration & readjustment of the OHE after completion of special work.

Slewing of OHE shall be paid for the OHE slewed in terms of span and putting back of OHE to normal condition after completion of special works. It is paid in terms of spans and slewing is done including anchoring spans. This is inclusive of and RC wire / earth wire if any in case of 2x25 kV AT system.

Additional components or materials used during such restoration of OHE shall be paid separately under appropriate items.

Item 31(h) - Dismantling of an Isolator

The price shall cover cost of dismantling of single or double pole isolator including post insulators, operating rod insulators, operating rod, earthing heel arrangement and associated small parts steel (SPS) work in isolated cases. The price shall also include the dismantling of busbars.

The dismantled equipment shall be properly stacked and transported to nearest TRD depot as advised by Railway Engineer In-charge.

Note: The dismantling of isolator jumpers shall be claimed under item no. 31(t)(iv) of Sch-A1.

Item 31(i) - Dismantling of Post Insulator

The price shall include the complete dismantling of post insulators, along with their associated fittings, that are not covered under any other specified items. The dismantled equipment shall be properly stacked and transported to nearest TRD depot as advised by Railway Engineer In-charge.

Item 31(j)(i) - Dismantling of Suspension Insulator

The price shall include the complete dismantling of suspension insulators, along with their associated fittings, that are not covered under any other specified items. The dismantled equipment shall be properly stacked and transported to nearest TRD depot as advised by Railway Engineer In-charge.

Item 31(j)(ii) - Dismantling of Cut-in Insulator

The price shall include the complete dismantling of cut-in insulators, along with their associated fittings, that are not covered under any other specified items. The dismantled equipment shall be properly stacked and transported to nearest TRD depot as advised by Railway Engineer In-charge.

Item 31(k)(i) - Dismantlement of OHE Mast or structure by cutting

The price shall include the dismantling of existing OHE mast /PSI mast/ structure by cutting just above the foundation level by breaking the muff, if required, without causing any damage to the mast or any adjacent structure. The dismantled OHE mast shall be properly stacked.

Note: The transportation of OHE mast to nearest TRD depot as advised by Railway Engineer In-charge can be claimed under item no. 38 of Sch-A1.

Item 31(k)(ii) – Dismantlement of Upright of TTC/Portal by cutting

The price shall include the dismantling of existing traction Portals/TTC uprights by cutting just above the foundation level by breaking the muff, if required, without causing any damage to the masts/ Portals/ TTC uprights or any adjacent structure. The dismantled OHE Portals/TTC shall be properly stacked.

Note: The transportation of OHE Portals/TTC to nearest TRD depot as advised by Railway Engineer In-charge can be claimed under item no. 38 of Sch-A1.

Item 31(l)(i) - Retrieval of Traction Masts, Main Masts of Switching Station, TTC Uprights etc

The price shall include the excavation of surrounding earth of the existing foundation to the required depth, breaking of foundation block and extracting of mast in full length.

The price shall also cover refilling of excavation pit with surrounding soil and stacking of retrieved mast. No explosives shall be used for this work.

Note: The transportation of retrieved mast to nearest TRD depot as advised by Railway Engineer In-charge can be claimed under item no. 38 of Sch-A1.

Item 31(l)(ii) - Removal of OHE Masts on Bridges

The price covers removal of OHE Masts on bridges by removing the nuts by spanners or by cutting if rusted.

Note: (1) In view of safety involved and site constraints, UTV machine is to be used for removal of OHE Masts on Bridges. In case of UTV machine utilization, proportional deduction of UTV machine utilization charges are to be deducted while paying.

(2) The transportation of retrieved mast to nearest TRD depot as advised by Railway Engineer In-charge can be claimed under item no. 38 of Sch-A1.

Item 31(m) - Releasing of pole mounted LT supply transformer

The price shall include the releasing of pole mounted LT supply transformer including D.O. fuse switch, insulators, jumpers, anti-climbing device, fencing panels, LAs and associated small parts steel work.

The dismantled equipment shall be properly stacked and transported to nearest TRD depot as advised by Railway Engineer In-charge.

Item 31(n) - Dismantling of Guy Rod

The price is applicable to dismantling/cutting of guy rod assembly not provided for in other items. The price shall cover dismantling of guy rod assembly and associated small parts steel work (excluding components embedded in concrete).

Note: In case of buried anchor loop, cutting of guy rods can be done if dismantling is not possible.

Item 31(o) - Releasing of Multiple Cantilever Cross arm cantilever assemblies where single cantilever assembly is leftover.

The price shall cover dismantling of existing single bracket assembly leftover on multiple cantilevers cross arm assembly, dismantling of multiple cantilever cross arm assemblies, erection of bracket adaptor assemblies if required and erection of dismantled bracket assembly.

Note:

- 1) The price shall not include any consequential adjustment to traction overhead equipment such as re-spacing of droppers, levelling, etc.
- 2) The price shall not include supply of small parts of steel which will be paid for under item 3(c).
- 3) Bracket adaptor erection should not be claimed under 3(b) and MCC dismantling should not be claimed under 31(s).

Item 31(p) - Dismantling of Drop Arms / TTB / Portal Booms/ Temporary Masts

The price shall include the dismantling of drop arms, TTB, Portal booms and temporary masts etc. The dismantled equipment shall be properly stacked.

Note: The transportation of drop arms/booms/temporary masts to nearest TRD depot as advised by Railway Engineer In-charge can be claimed under item no. 38.

Item 31(q) – Splicing and Extension of Feeder conductor

The price shall include the splicing of terminated all aluminium (spider) / copper feeder conductor for extension.

The cost of dismantling of feeder conductor would be paid for under item no. 31(d) for the whole length of the anchoring span irrespective of the physical position of the splices.

The extended feeder conductor (single spider) shall be deemed as starting from the centre line of the structure preceding the old terminating structure and the extended feeder conductor (single spider) shall be paid under item no. 7(a).

The dismantled equipment shall be properly stacked and transported to nearest TRD depot as advised by Railway Engineer In-charge.

Note: The price does not include the supply of splices.

Item 31(r) - Dismantling of cantilever assemblies including insulators

The price shall include the dismantling of cantilever assemblies, not provided for in other items. The price includes the dismantling of cantilever assemblies including stay & bracket insulators, excluding small parts steel work. The dismantled equipment shall be properly stacked and transported to nearest TRD depot as advised by Railway Engineer In-charge.

Item 31(s) - Dismantling of Fabricated steel or SPS

The price shall include the dismantling of fabricated steel work or small parts steel (SPS), not provided for in other items. The dismantled equipment is to transported to nearest TRD Depot and to be properly stacked.

Item 31(t)(i) - Dismantling of a regulating equipment (Three pulley type) with counter weight assembly for conventional OHE

The price shall include the dismantling of regulating equipment (3 pulley type) with counter weight assembly for Conventional OHE, excluding small parts steel work. The dismantled equipment shall be transported to nearest TRD depot and properly stacked as advised by Railway Engineer In-charge.

Item 31(t)(ii) - Dismantling of a regulating equipment (three pulley type) with counter weight assembly for Tramway OHE

The price shall include the dismantling of regulating equipment (3 pulley type) with counter weight assembly

for tramway OHE, excluding small parts steel work. The dismantled equipment shall be transported to nearest TRD depot and properly stacked as advised by Railway Engineer In-charge.

Item 31(t)(iii) - Dismantling of anti-creep with galvanized Steel wire or copper catenary wire

The price shall include the dismantling of anti-creep galvanized steel wire or copper catenary wire not provided for in other items. The price shall cover cost of dismantling of anti-creep including terminations, excluding small parts steel work (excluding components embedded in concrete). The dismantled equipment shall be properly stacked and transported to nearest TRD depot as advised by Railway Engineer In-charge.

Item 31(t)(iv) – Dismantling of copper jumper

The price shall include the dismantling of all types of jumpers not accounted for in other items. The price shall cover the cost of dismantling jumpers, along with associated clamps, connectors, and other fittings. The dismantled equipment shall be properly stacked and transported to nearest TRD depot as advised by Railway Engineer In-charge.

Item 31(t)(v) - Dismantling of termination for conventional over head equipment conductor

The price shall include the dismantling of termination of conventional overhead equipment conductors for ATD & FTA, not accounted for in other items. The price shall cover cost of dismantling of termination of double overhead equipment conductors, excluding small parts steel work. The dismantled equipment shall be properly stacked and transported to nearest TRD depot as advised by Railway Engineer In-charge.

Item 31(t)(vi) - Dismantling of termination for tramway type OHE or single conductor of overhead equipment

The price shall include the dismantling of termination of tramway OHE for ATD & FTA, not accounted for in other items. The price shall cover cost of dismantling of termination of tramway OHE, excluding small parts steel work.

The price for dismantling of termination on one side of anti-creep can be claimed under this item.

The dismantled equipment shall be properly stacked and transported to nearest TRD depot as advised by Railway Engineer In-charge.

Item 31(t)(vii) - Dismantling of Termination for Along Feeder (Aluminium or Copper)

The price shall include the dismantling of termination of all aluminium or copper 25 kV feeder conductors not accounted for in other items. The price shall cover cost of dismantling of termination of feeder, excluding small parts steel work.

The dismantled equipment shall be properly stacked and transported to nearest TRD depot as advised by Railway Engineer In-charge.

Item 31(t)(viii) - Transfer of feeder wire from one mast to another

The price shall include the transfer of feeder to a suspension insulator on a new mast or support, and dismantling of the erected suspension insulator from the old mast or support, excluding the small parts steel work.

The foundation and steel work for the new mast or structure will be paid under appropriate items. The dismantled equipment shall be properly stacked and transported to nearest TRD depot as advised by Railway Engineer In-charge.

Item 31(t)(ix) - Re-adjustment of OHE spans including droppers

The price shall include the readjustment of OHE spans including droppers in a span, setting stagger, associated section insulator droppers and jumpers in a span. The price also includes the dismantling and re-erection of droppers, if required. The dismantled equipment shall be properly stacked and transported to nearest TRD depot as advised by Railway Engineer In-charge.

Note: Half of the rate to be paid, if less than or equal to 4 droppers adjusted in any span.

Item 31(t)(x) – Dismantling of Structure Bond/Longitudinal Bond/Transverse & Special Bond / Platform Bond

The price shall include the dismantling of structure bond / longitudinal bond / transverse & special bond / platform bond. The dismantled bond shall be properly stacked and transported to nearest TRD depot as advised by Railway Engineer In-charge.

Item 31(u)(i) - Dismantling of 25 kV Potential Transformer (Type I, II)

The price shall include the dismantling of 25 kV Potential Transformer complete with all fittings and accessories including terminal connectors. The process should ensure that no damage occurs to the potential transformer, associated equipment, or surrounding infrastructure. The price shall exclude the small parts steel (SPS).

The dismantled equipment shall be properly stacked at substation and/or shall be transported to nearest TRD depot as advised by Railway Engineer In-charge.

Item 31(u)(ii) - Dismantling of 25 kV Current Transformer

The price shall include the dismantling of 25 kV Current Transformer complete with all fittings and accessories including terminal connectors. The process should ensure that no damage occurs to the current transformer, associated equipment, or surrounding infrastructure.

The dismantled equipment shall be properly stacked at substation and/or shall be transported to nearest TRD depot as advised by Railway Engineer In-charge.

Item 31(u)(iii) - Dismantling of 132 kV Current Transformer

The price shall include the dismantling of 132 kV Current Transformer complete with all fittings and accessories including terminal connectors. The process should ensure that no damage occurs to the current transformer, associated equipment, or surrounding infrastructure.

The dismantled equipment shall be properly stacked at substation and/or shall be transported to nearest TRD depot as advised by Railway Engineer In-charge.

Item 31(u)(iv) - Dismantling of 42 kV Lightning Arrester

The price shall include the dismantling of 42 kV Lightning Arrester complete with all fittings and accessories including terminal connectors. The process should ensure that no damage occurs to the Lightning Arrester, associated equipment, or surrounding infrastructure.

The dismantled equipment shall be properly stacked at substation and/or shall be transported to nearest TRD depot as advised by Railway Engineer In-charge.

Item 31(u)(v) - Dismantling of 120/198kV Lightning Arrester

The price shall include the dismantling of 120 kV or 198 kV Lightning Arrester complete with all fittings and accessories including terminal connectors. The process should ensure that no damage occurs to the Lightning Arrester, associated equipment, or surrounding infrastructure.

The dismantled equipment shall be properly stacked at substation and/or shall be transported to nearest

TRD depot as advised by Railway Engineer In-charge.

Item 31(u)(vi) - Dismantling of 132 kV Double Pole Isolator

The price shall include the safe dismantling of 132 kV double pole isolators. The price also shall include the disconnection of all electrical connections, removal of mounting hardware, and any associated components. The process should ensure that no damage occurs to the isolator, associated equipment, or surrounding infrastructure.

The dismantled equipment shall be properly stacked at substation and/or shall be transported to nearest TRD depot or as advised by Railway Engineer In-charge.

Item 31(u)(vii) - Dismantling of 25 kV Single Pole Isolator 1600 A

The price shall include the safe dismantling of 132 kV/25 kV isolators. The price also shall include the disconnection of all electrical connections, removal of mounting hardware, and any associated components. The process should ensure that no damage occurs to the isolator, associated equipment, or surrounding infrastructure.

The dismantled equipment shall be properly stacked at substation and/or shall be transported to nearest TRD depot as advised by Railway Engineer In-charge.

Item 31(u)(viii) - Dismantling of 25 kV Double Pole Isolator 1600 A

The price shall include the safe dismantling of 25 kV Double Pole Isolator (1600 A). The price also shall include the disconnection of all electrical connections, removal of mounting hardware, and any associated components. The process should ensure that no damage occurs to the isolator, associated equipment, or surrounding infrastructure.

The dismantled equipment shall be properly stacked at substation and/or shall be transported to nearest TRD depot as advised by Railway Engineer In-charge.

Item 31(u)(ix) - Dismantling of 132/220 kV CB SF-6 type

The price shall include the safe dismantling of 132/220 kV SF-6 type CB. The price also shall include the disconnection of all electrical connections, removal of mounting hardware, and any associated components. The process should ensure that no damage occurs to the CB, associated equipment, or surrounding infrastructure.

The dismantled equipment shall be properly stacked at substation and/or shall be transported to nearest TRD depot as advised by Railway Engineer In-charge.

Item 31(u)(x) – Dismantling of 25 kV CB Vacuum/SF-6 type

The price shall include the safe dismantling of 25 kV CB. The price also shall include the disconnection of all electrical connections, removal of mounting hardware, and any associated components. The process should ensure that no damage occurs to the CB, associated equipment, or surrounding infrastructure.

The dismantled equipment shall be properly stacked at substation and/or shall be transported to nearest TRD depot as advised by Railway Engineer In-charge.

Item 32 - Extra Rate for Erection Under Power Block

The price under this item includes extra charges over and above erection rates of Schedule—A (SOR items), for erection of equipment in the vicinity of energized overhead equipment and feeders or erection of equipment with joints equipment already energized or on energized equipment which calls for a power block (shut off of traction power).

The price payable under this item shall be **100% extra on the erection rates** of the item referred against

each item, provided such work is not called for on account of non-compliance with specifications, approved drawings and instructions given by the purchaser from time to time.

Where the prices under this item are applicable, the contractor shall finalize the quantities of various items of work to be done under a power block, jointly with the Railway Engineer In-charge prior to taking the work in hand.

Item 34(a) - Construction of switching station building (super structure portion including plinth beam)

Supply & Erection: The price shall cover the construction of Control room of SP/SSP building above plinth and will include labour and material cost for the following works:

- (i) RCC work in plinth, lintels, chajja, Roof slab.
- (ii) Pre-cast RCC slab, RCC jail.
- (iii) Cement concrete in flooring.
- (iv) Brick masonry in walls.
- (v) Plastering works.
- (vi) For control room and battery room, Doors, windows grills, water pipeline ventilators and painting are to be provided.
- (vii) For control room, tiles to be provided and for battery room acid resistant tiles to be provided along with acid proof painting for walls in battery room.
- (i) White washing and colour washing.
- (ii) Spreading of stone metal (ballast).
- (iii) Provision of RCC pipe etc.
- (iv) Any other Item of work required to complete the work which has not been mentioned/included above shall also be done by the contractor and nothing extra shall be paid the same.
- (v) Room size to be decided as per joint inspection at site suitably.

Construction of switching station shall be done strictly as per RDSO's drawing No.ETI/C/0067C (Mod-A) or latest.

The price shall cover the provision of all shuttering, frame works, arrangement of water, all tools and plants are required for the work, consumable materials etc. The materials used for the work such as brick, sand, stone aggregates, steel for door frame, grill, RCC pipe shall be of best quality in accordance with Railways specification.

The price shall also cover the provision of vent suitably on the wall, for installation of Exhaust fan in the battery room as well as control room.

Item 34(c) - RCC work for foundation and plinth in ratio 1:2:4

Supply & Erection: The price shall cover the price of reinforcement concrete work for construction of column including supply of cement, concrete, structuring arrangements and dismantling thereto but excluding cost of steel required for reinforcement which has been covered under appropriate item. The price shall cover cutting, bending and laying of reinforcement in column. The concrete mixture shall also be of 1:2:4 ratio before casting the same in accordance with IS: 456/1978

Item 34(d) – Brick work for foundation plinth

Supply & Erection: The price shall cover all labour and materials including cement and brick. The price covers supply, fixing, erecting, and removal of scaffolding, timber or steel frame work, shuttering, centering etc. The price covers arrangement of water at site, mixing of mortar, soaking bricks and all watering during the work and prescribed period of curing afterwards. The price shall cover the arrangement of all tools and plants required for work. The price shall cover all consumable materials e.g. fuel, oil, string, rope, wedges etc.

Item 34(e) - Construction of retaining wall with stone masonry

Supply & Erection: The price shall include all labour and materials including cement for Construction of retaining wall with Random rubble/stone masonry in cement & sand 1:4. The price shall cover supplying, fixing, erecting, and removal of scaffolding, timber or steel frame work, shuttering, centering etc. The price shall also include watering during the work.

Item 34(f) - Excavation of Earth, filling including compaction in all kinds of soil

The price shall cover the excavation of earth and earth filling at SP/SSP/TSS/OHE foundations. The price covers all labour and materials required including arrangement of necessary tools and plants required for the work. This price includes the transportation cost of earth in case, earth is not available for filling up the nearby area. The price covers the watering and ramming of levelled / filled earth either manually or by mechanical means. The price shall cover arrangement of necessary water required for the work.

The price also includes the disposal of excavated earth/leveling etc. for foundations, drainage etc

Item 34(h) - Excavation of Pile of 100 mm to 200 mm dia upto 3.5 m

The price shall cover the cost of all labour tools and plants required at site during making of a 100 to 200 mm dia bore hole along-with single under ream up to a depth of 3.50 metre. The excavated earth from the bore hole shall be disposed off and leveled all around. The price shall also cover the cost of all consumable materials and water is required at site during execution of work.

Item 34(i) - Plastering of Retaining wall with 1:4 cement mortar

Supply & Erection: The price shall cover the supply of all materials and labour cost including cement for plastering of Retaining wall either constructed by Rubble masonry work or Brick work. Plastering work shall be done by cement mortar in 1:4 (1 cement and 4 sand). The price shall also cover the cost of arrangement of necessary water is required for the work. The price shall cover the cost of necessary tools and plants required for the work and necessary consumable Items. Nothing extra shall be paid to the contractor for any rehandling of materials from the place of delivery to place of work. The price shall cover the cost of cleaning and wetting the surface of the work. The price shall also cover the cost of curing of the plastered surface as per extent practice.

Item 34(j) - Providing and Laying Pitching with Stone Boulders

Supply & Erection: Providing and laying Pitching with Stone Boulders, weighing approximately 25 kg each with voids filled with cement sand mortar 1:4 on slopes laid over prepared filter media including boulder apron laid dry in front of toe of embankment complete as per Technical Specification. Rate is including the cost of cement.

Item 34(k) - Supply and spreading of 20 mm ballast at TSS/SSP/SP yards

Supply & Erection: The price shall include supply and spreading of uniformly graded 20 mm Ballast stone size in the TSS/SSP/SP yards, duly levelling the area. The Ballast stone shall be of good quality and free from any dust/dirt/muck. Prior approval shall be obtained from the Railway Engineer In-charge for the ballast stone sample. The ballast stones shall be spread out uniformly to a depth of 10 cm to 20 cm as directed by Railway Engineer In-charge.

Item 35 - Internal and External Lighting of Switching (SP/SSP) station building

Supply & Erection: The price shall cover all cost of labour and materials required for the work. Wiring work shall be done in accordance with IE rules, IS-732. The price shall also cover the cost of testing and commissioning of the installations. The various activities involved in the work are as follows:

- Fixing of MS conduits on wall and drawing of wires for circuit and point wiring.
- Provision of C.I. Switch boxes of appropriate size concealed in wall at appropriate height with phenolic laminated (Hylum) sheet for fixing of switches, plugs etc.
- Provision of Main Board and Distribution Boards and connection thereof.

- Provision of LED light fittings, Exhaust fan, Outdoor LED Light fittings complete with tubes and bulbs respectively as per requirement.
- Provision of Earthing station and connection between earthing station to Main Board with the help of 8 SWG GI wire. Earthing work shall be done in accordance with IS: 3043/1987.
- Materials such as energy efficient (LED) light fittings, Exhaust fan, switches sockets, Ceiling Rose, Socket outlets all shall be with ISI mark.
- Provision of Switches, sockets outlets, Ceiling Roses on respective switch boards and points in appropriate numbers and connection thereof.
- Provision of LED Street light fitting (80 Watt or above as per requirement) complete in all respect on the wall of the building facing towards switchyard.

After completion of wiring work necessary testing of wiring and Earthing station shall be done and results submitted to the site-in-charge duly signed by representatives of both the contractor and purchaser.

Item 36(a) – Unloading of all types of Steel Structures

The price shall cover unloading charges for all type of steel structures (BFB/RSJ, B-series, Special structures, N, O, R type structures, SPS etc.) from trailer/truck.

Item 36(b) – Loading of all types of Steel Structures

The price shall cover loading charges for all type of steel structures (BFB/RSJ, B-series, Special structures, N, O, R type structures, SPS etc.) from trailer/truck.

Item 37(a) – Unloading of all types of Copper and Aluminium Conductors

The price shall cover unloading charges for all type copper conductors (contact wire, catenary wire, Dropper wire, Bridle wire, Jumpers, etc.) and Aluminium conductors (spider conductor etc.) from trailer/truck.

Item 37(b) – Loading of all types of Copper and Aluminium Conductors

The price shall cover loading charges for all type copper conductors (contact wire, catenary wire, Dropper wire, Bridle wire, Jumpers, etc.) and Aluminium conductors (spider conductor etc.) from trailer/truck

Item 38 – Transportation of OHE structures / Materials / Equipments

The price shall include the transportation of new or released OHE structures / Materials / Equipments which are not covered in other items.

Item 39 – Erection of Released Equipment

The price for items 39(a), (b), (c), (d), (f), (g), (h), (i) and (j) shall include the erection of respective dismantled equipment under item no. 31 and taken into account by the Contractor as deemed to be supplied by the Purchaser. The payment for SPS in connection with erection of these items will be as per item no. 3(b) as per procedure as applicable to item 1 to 31.

If dismantled equipment is common to conventional and tramway OHE, same will be erected either for conventional or tramway OHE depending on requirement.

The price against these items shall include transportation of dismantled equipment, which are fit for erection as decided mutually by the Purchaser and the Contractor. The price shall also cover transport of released material (unused) to handover at nearest Purchaser's depot or any depot nominated by the purchaser.

Item 40(a) – Supply and Erection of Number Plates (Enamel Type)

Supply & Erection: The price shall include the supply and erection of one enamel number plate along with clamps & Fasteners (Bolt, Nut, Locknut, Spring Washer, Lead Washer etc.) on OHE structures (Masts/Portals/Drop Arms etc). The supply and erection of number plate shall conform to Drg No. RE/33/P/7501 (Rev. F) or latest, clamps shall be as per RDSO drawing no. ETI/OHE-G-01701 & ETI/OHE-P-3300 or latest and specification no. ETI/OHE/33 (8/85) or latest.

Item 40(b) – Supply and Erection of Number Plates (Retro-Reflective Type)

Supply & Erection: The price shall include the supply and erection of one retro-reflective number plate along with clamps, Fasteners (Bolt, Nut, Locknut, Spring Washer, Lead Washer etc.) on OHE structures (Masts/Portals/Drop Arms etc). The supply and erection of retro-reflective number plate shall conform to RDSO Drg No. ETI/OHE/P/7503 or latest, clamps shall be as per RDSO drawing no. ETI/OHE-G-01702 & ETI/OHE-P-3330 or latest and specification no. ETI/OHE/33A (12/97) Rev.8 or latest.

Item 41(a) – Supply and Erection of Retro-reflective type DJ ON (CLOSE)/DJ OFF (OPEN)/ 500 m/250 m/Train-18/MEMU Neutral Section Boards

Supply & Erection: The price shall include the supply and erection of Retro- Reflective type 500 m / 250 m warning board for neutral section of size 750 x 450 x 2 mm and DJ ON (Close)/ DJ OFF (Open)/Train-18/MEMU Neutral section boards of size 800 x 400 x 2 mm as per RDSO Specification No. ETI/OHE/33A (12/97) REV-8 or latest. The price shall also include the supply and erection of clamping material (fixing arrangement with anti-corrosive paint) along with Fasteners (GI Bolt, Nut, Washers etc.)

Item 41(b) – Supply and Erection of Enamel type Public Caution board Board with skull and bones symbol

Supply & Erection: The price shall include the supply and erection of Enamel type Public Caution Board / Staff Caution Board along with **skull and bones symbol** (3 Language - Hindi, English, Regional language) of size 700 mm x 400 mm x 2mm as per RDSO Specification No. ETI/OHE/33A (12/97) Rev-8 or latest and similar as per RDSO Drg No.RE/33/P/7551. The price shall also include the supply and erection of clamping material (fixing arrangement with anti-corrosive paint) along with Fasteners (GI Bolt, Nut, Washers etc.)

Item 41(c) – Supply and Erection of Enamel type Staff Caution Board

Supply & Erection: The price shall include the supply and erection of Retro-reflective type Public Caution Board / Staff Caution Board along with **skull and bones symbol** (3 Language - Hindi, English, Regional language) of size 500 mm x 400 mm x 2 mm as per RDSO Specification No. ETI/OHE/33A (12/97) Rev-8 or latest and similar as per RDSO Drg No.RE/33/P/7551. The price shall also include the supply and erection of clamping material (fixing arrangement with anti-corrosive paint) along with Fasteners (GI Bolt, Nut, Washers etc.)

Item 41(d) – Supply and Erection of Retro reflective Type Electric Engine Stop Board/ Caution Unwired Turnout Board

Supply & Erection: The price shall include the supply and erection of Retro-reflective Electric Engine Stop Board/Caution Unwired Turnout Board of size 900 mm x 600 mm x 2mm as per RDSO Specification No. ETI/OHE/33A (12/97) Rev-8 or latest and similar as per RDSO Drg No.RE/33/P/7572 Rev. B or latest. The price shall also include the supply and erection of clamping material (fixing arrangement with anti-corrosive paint) along with Fasteners (GI Bolt, Nut, Washers etc.)

Item 41(e) – Supply and Erection of Retro-Reflective Type Power Block working limit Board

Supply & Erection: The price shall include the supply and erection of Retro-Reflective type Power Block Working Limit Board of size 450 x 450 x 2 mm as per RDSO Specification No. ETI/OHE/33A (12/97) REV-8 or latest and RDSO Drg no. ETI/OHE/P7574 Rev B or latest. The price shall also include the supply and erection of clamping material (fixing arrangement with anti-corrosive paint) along with Fasteners (GI Bolt, Nut, Washers etc.)

Item 41(f) - Supply and Erection of Enamel Caution Clearance to OHE nearby Restricted Board

Supply & Erection: The price shall include the supply and erection of Retro-reflective type Caution board 25 KV (OHE Nearby) of size 400 mm x 270 mm x 2 mm as per RDSO specification No. ETI/OHE/33A (12/97) Rev-8 (latest) and RDSO Drg. no.RE/33/436. The price shall also include the supply and erection of clamping material (fixing arrangement with anti-corrosive paint) along with Fasteners (GI Bolt, Nut, Washers etc.)

Item 41(g) - Supply and Erection of Retro-reflective type Danger Board with skull and bones for Height gauges

Supply & Erection: The price shall include the supply and erection of Retro-reflective type 25 KV Danger board with skull and bones for Height gauge at Level Crossing gate of size 1400 mm x 300mm x 2mm as per RDSO specification No. ETI/OHE/33A (12/97) Rev-8 or latest and RDSO Drg. No. ETI/C/0069 Mod-D (latest). The price shall also include the supply and erection of clamping material (fixing arrangement with anti-corrosive paint) along with Fasteners (GI Bolt, Nut, Washers etc.)

Item 41(h) - Supply and Erection of Vitreous Enameled 25 kV Danger Board with skull & bones for Over-line Structure (OLS), Auxiliary Transformer

Supply & Erection: The price shall include the supply and erection of 25 kV Danger Board Vitreous Enameled with Skull & Bones of size 250 mm x 200 mm x 1.6 mm for AT & OLS protective screen(3 Language- Hindi, English, Regional language) as per RDSO Specification No. ETI/OHE/33A (12/97) Rev.8 or latest and RDSO Drg. No. ETI/OHE/SK/104 or latest. The price shall also include the supply and erection of clamping material (fixing arrangement with anti-corrosive paint) along with Fasteners (GI Bolt, Nut, Washers etc.)

Item 41(i) - Supply and Erection of Enamel Protected Area Board

Supply & Erection: The price shall include the supply and erection of Protected area-No Admission board with skull and bones(3 Language- Hindi, English, Regional language) of size 1200 mm x 450 mm x 2mm as per RDSO Specification No. ETI/OHE/33A (12/97) Rev.8 or latest. The price shall also include the supply and erection of clamping material (fixing arrangement with anti-corrosive paint) along with Fasteners (GI Bolt, Nut, Washers etc.)

Item 41(j) - Supply and Erection of Retro-Reflective Sigma Board

Supply & Erection: The price shall include the supply and erection of Retro-Reflective sigma sign board of size 450 mm x 600 mm x 2 mm as per RDSO specification No. ETI/OHE/33A/12/97) Rev.8 or latest and RDSO Drg. No. TI/DRG/OHE/PLTBRD/RDSO/0036/12/0 or latest. The price shall also include the supply and erection of clamping material (fixing arrangement with anti-corrosive paint) along with Fasteners (GI Bolt, Nut, Washers etc.)

Item 41(k) - Supply and Erection of Vitreous Enamelled TSS/SP/SSP Name Board

Supply & Erection: The price shall cover supply of TSS/SP/SSP name boards vitreous enamelled (Trilingual: Hindi, English, Telugu) of size 450 mm x 1200 mm x 2mm. Erection of name board at SP/SSP/TSS for provision on fencing panel. The price shall also include the supply and erection of clamping material (fixing arrangement with anti-corrosive paint) along with Fasteners (GI Bolt, Nut, Washers etc.)

Item 41(l) - Supply and erection of set of Isolator operation OPEN/CLOSE boards

Supply & Erection: The price shall cover supply of set of isolator operation open/close boards of size 600mmX900mm with thickness 5mm made of colour photo paper printed with chemical lamination. These boards are to be provided at Dy.SS rooms, SP's, SSP's, TSS's and depots. The price shall also include the supply and erection of clamping material (fixing arrangement with anti-corrosive paint) along with Fasteners (GI Bolt, Nut, Washers etc.)

Item 42 - Supply and Erection of Shock Treatment Chart

Supply & Erection: The price shall include the supply and erection of shock treatment chart of size 900mmx 600mmx 8mm made of colour photo paper printed with chemical lamination as per relevant specification duly written instruction in English, Hindi and local language with all columns filled in. The price shall also include the supply of the required fixture/ fasteners for mounting on wall at the control cubicle/ station wherever required as directed by the Railway Engineer In-charge of the work. The price shall also include the supply and erection of clamping material (fixing arrangement with anti-corrosive paint) along with Fasteners (GI Bolt, Nut, Washers etc.)

43 – Supply and Erection of Protective Screens at/on ROB/FOBs

Supply & Erection: The price shall include on per track basis on both sides of ROB/FOB, the cost of all material required for fabrication of protective screen including angle, Tee, expanded metal (Jali), GI sheet, paints etc.

The price shall also include the labour cost for fabrication, erection and painting at various locations. The fabrication and erection work shall be done as per RDSO Drg. No. ETI/C/0068 Mod. I or latest. The price shall also include the filling of gap between gangway floor and protective screen with cement to avoid escape of water from floor of FOB while cleaning and fall on OHE to avoid continuous path to fault current.

Item 45(a) – Erection of 25 kV Current Transformer

Erection: The price shall include erection, testing, commissioning, and connecting of a 25 kV Current Transformer of all ratings complete with all fittings and accessories including terminal connectors. It shall also include mounting of the transformer in position.

Item 45(b) - Erection of 132 kV or 220 kV Outdoor Current Transformer

Erection: The price shall include erection, testing, commissioning, and connecting of a 132 kV or 220 kV Current Transformer of all ratings complete with all fittings and accessories including terminal connectors. It shall also include mounting of the transformer in position.

SCHEDULE A2: FOUNDATION ITEMS (SUPPLY & ERECTION)

Item 2(a)(i) - Concrete for foundations and plinth in Hard Soil &

Item 2(a)(ii) - Concrete for foundations and plinth in Rocky Soil

Supply & Erection: The price shall cover excavation, supply & handling of all materials, accessories, temporary arrangements for excavation in hard soil and in concrete/masonry drains/walls requiring use of chisel and hammer under item 2(a)(i) or requiring blasting under item 2(a)(ii), Shoring wherever necessary, casting concrete including frame work wherever 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 soil.

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 & 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 2(a) (i) or 2 (a) (ii) 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 2 (a) (ii). The price shall include the cost of cement. Proper curing of foundation is to be ensured.

Notes for measurement for items 2(a)(i) and (ii)

1. The payable volume of the foundations under item 2(a)(i) and (ii) 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.

Item 2(b) - Concrete for foundations and plinth in other than Hard and Rock Soil

Supply & Erection: The price shall include all works mentioned in item 2(a)(i) & 2(a)(ii) in all classes of soil except hard soil, masonry drains, walls and rock. Proper curing of foundation is to be ensured. The price shall also include foundations for AT/BT masts.

Note for item 2(a)(i), 2(a)(ii) & 2(b):

- (a) In coastal area, M15 for foundation and M20 for grouting may be followed.
- (b) For remaining areas, M10 for foundation and M15 for grouting may be followed.

Item 2(c)(i) - Reinforced Concrete for foundation, plinth and trench

Supply & Erection: The price shall cover excavation and all reinforced concrete work for foundations including supply of steel for reinforcement & other materials including bending, binding, laying of the reinforcement, shoring wherever necessary, casting concrete including framework wherever necessary, grouting and finishing the tops of foundation blocks. The price shall also include dismantling of all connected temporary arrangements, back filling as required and removal of soil.

The price shall also cover all concrete work for foundation (including that of Height gauge) or anchor blocks on bridge piers, irrespective of whether they are actually reinforced or not, those for cast-in-situ piles foundation and counter weight foundations. Rails and fasteners required for counter weight foundations shall be supplied by the Purchaser free at the Contractor's depot or work spot according to convenience of the Purchaser. The volume of cast-in-situ piles shall be added to the volume of foundation block for the purpose of payment. Dowel bars as may be required for bond with bridge structures shall be supplied and erected free of cost by the Purchaser. Dowel bars will not be considered as reinforcement for the purpose of this item. The price shall also include the cost of cement. Proper curing of foundation is to be ensured.

Item 2(c)(ii) - Reinforced concrete for Cable Trench covers

Supply & Erection: The price shall cover casting of cable trench covers in reinforced concrete as per RDSO Drg. No. ETI/C/0038 MOD-E and SCR/HQ/Elcet/SSP&SP/CABLE TRENCH or as per site requirement with superior quality. The price shall include the supply of steel for reinforcement angle iron for the frame and fabrication of angle iron frame etc. The price shall include positioning and dressing up of trench covers, if required. The price shall include the cost of cement also. Cement will not be supplied by Railways. Proper curing is to be ensured.

Note: Nominal reinforcement will be necessary in black cotton soil foundations. Such nominally reinforced foundations in black cotton soil will be payable under item 2(b) and not under item 2(c). The steel for nominal reinforcement will be arranged by the Contractor and the concrete mixture, in such a case shall be as for normal foundations 1:3:6.

Item 2(d)(i) - Reinforcement of Brick Work

Supply & Erection: The price shall cover excavation and construction of reinforced brick work laid in cement mortar 1:3 mix for the baffle wall. The price shall include supply of steel for reinforcement and other materials. The price shall also include bending/binding and laying of reinforcement, shoring, shuttering and scaffolding arrangement, required for the construction of brick wall and its curing.

The price shall also include dismantling of all connected temporary arrangements, back filling required and removal of spoil. The price shall also include the cost of cement. Proper curing is to be ensured.

Item 2(d)(ii) - Plastering of Brick Work

Supply & Erection: The price shall cover supply and handling of all materials, scaffolding arrangements, raking out joints, curing and finishing of plaster (12 mm. thicknesses with cement mortar 1:4 mix.) on the Baffle wall.

The price shall also include dismantling of all connected temporary arrangements and removal of spoil. The price shall also include the cost of cement. Proper curing of is to be ensured.

Item 2(e) - Extra for supply & sinking of concrete shells (M15 grade)

Supply & Erection: The price shall cover on items 2(a), (b) and (c) for supply and sinking of a concrete shell before casting of concrete for traction structure foundations or anchor blocks including pumping of water wherever necessary. Purchaser's Engineer shall decide whether sinking of concrete shells is necessary. Proper curing of is to be ensured.

Item 2(f) - Casting of foundations using mechanised Augur (M15 grade)

Supply & Erection: The price shall cover excavation, supply and handling of all materials including supply and erection of steel for reinforcement, accessories/temporary arrangements and all associated operations for casting of foundations by mechanized Augur in all type of soils except rocks. All machines, tools and equipment needed for the above shall be supplied by the Contractor at his own cost. The price shall include the cost of cement.

NOTE:

1. The payable volume of the foundation shall be the designed one as shown in the drawings for which the pit has been excavated irrespective of the actual configuration assumed by the latter after auguring.
2. The depth of the excavation shall be measured from the formation level to the maximum excavated point.

Item 2(g) - Casting of single under reamed pile foundation (M15 grade)

Supply & Erection: The price shall cover boring of hole for under reamed pile as per RDSO Drg. No.ETI/C/0062 which is having dia. of 300 mm or if any sizes as approved by Purchaser required for cast-in-situ pile foundation including difficult location like low lying areas near river, ponds or at any other location of which foundation is not covered under item No. 2(a) to 2 (f). The price shall also cover the charges of pumping set required for draining of water encountered while boring the holes, cost of compressor or any other machine required for breaking of brick apron or any other hard strata if it is coming in way of boring of holes. The price shall also cover the casting of concreting of ratio 1:2:4 mix 20mm graded stone or downgraded and cost of shuttering and its removal and cost of any other item which is encountering during course of boring and casting of pile. Proper curing of is to be ensured.

The price shall also cover the cost of cutting, bending and laying of reinforcement but excluding the cost of steel required for reinforcement which has been covered under appropriate item. The price shall also cover the cost of all other materials including cement required for the work.

The work shall be executed strictly in accordance with IS-456/2000. The price shall also cover the cost of transportation (to and fro) of all materials, tools and plants required for the work. The price shall cover the cost of compactness the concrete with the help of Electrical/Mechanical vibrator.

The price shall also cover the screening and washing of concrete. The price shall also cover the cost of consumable like fuel, oil, wedges, string rope etc., required for the finishing the work.

The cost of full volume of RCC pile cap and RCC column upto Rail level height more than one meter on top of piles shall be covered under item 2(g)(i), however for heights, less than one meter the rates of item 2(c) shall be applicable.

Item 2(h)(i) - Reinforcement cement concrete, ratio 1:2:4 in columns with 20 mm and downgraded stone aggregate and coarse sand.

Supply & Erection: The price shall cover the cost of reinforcement cement concrete work for construction of column including supply of cement, concreting, shuttering arrangements and dismantling thereto but excluding cost of steel required for reinforcement which has been covered under item 3(g). The price shall cover cutting, bending and lying of reinforcement in column. The concrete mixture shall be of 1:2:4 ratio and casting of the same to be done in accordance with IS: 456/2000.

The item shall cover any requirement of concreting in the special foundation design which has not been covered under item 2(c) or where foundations are required to be projected above ground level to the extent of more than 1 meter, and shall be operated for the work of foundation or OHE supports only. Proper curing of is to be ensured.

Item 2(h)(ii) - Reinforcement cement concrete, ratio 1:3:6 in pile caps with 20 mm and downgraded stone aggregate and coarse sand.

Supply & Erection: The price shall cover the cost of reinforcement concrete work for construction of pile caps including supply of cement, concreting, shuttering arrangements and dismantling thereto but excluding cost of steel required for reinforcement which has been covered under appropriate item. The price shall cover cutting, bending and laying of reinforcement in column. The concrete mixture shall be of 1:3:6 ratio and casting of the same to be done in accordance with IS:456/1978. Proper curing of is to be ensured.

Item 2(h)(iii) - Mass concrete (PCC), ratio 1:4:8 stone with nominal size stone aggregate 40 mm gauge and ordinary sand in mud mat.

Supply & Erection: The price shall cover the cost of all materials e.g. 40mm graded stone aggregate, sand, cement, arrangement of water and necessary tools and plants. The price shall be inclusive of shuttering arrangement, cutting, levelling, finishing etc. The price shall cover the cost of transportation (to and fro) of all materials, tool and plants etc., and handling/re-handling of materials at the site. The price shall cover the screening and washing of concrete. The price shall also cover the cost of consumable materials like fuel, oil, wedges, string rope etc. required for the work. Proper curing of is to be ensured.

Item 2(i) - Breaking of foundation up to 200 mm below track formation and drain / PF surface etc

Supply & Erection: The price shall include breaking of concrete of OHE foundation / Drain / PF etc up to 200 mm below the formation / ground level using required hand operated electrical / pneumatic hammer / tools and plant including cutting of embedded metallic parts to facilitate the casting of OHE foundations and the installation of earth pits on platforms. It also covers the disposal of debris beyond the station yard limits. After the foundations are cast/earth pits are installed, the flooring must be neatly restored to its original condition. The work shall be carried out as per the instructions of Railway Engineer In-charge.

SCHEDULE B1: STEEL SUPPLY

Item 3(as) – Supply of Rolled or Fabricated and Galvanized Traction Masts, Switching Station Masts, AT Mast, Feeder Mast etc as per latest RDSO and IS Specifications.

Supply: The price shall include the supply of traction masts and main masts including B, K, and S series masts, as well as masts for switching stations, ATs (Auxiliary Transformers), and FPs (Feeder Posts), in accordance with the latest RDSO drawings and IS specifications.

Delivery shall be made to the OHE depot and subsequently transported to the designated worksite location or as directed by the Railway Engineer In-charge. Additionally, the price shall also include the weighing of the aforementioned steel components prior to handing them over to the purchaser for execution of the work.

Item 3(bs) – Supply of Fabricated and Galvanized structures other than masts such as TTC, Portals, as per latest RDSO and IS Specifications.

Supply: The price shall include the supply of fabricated steel structures, excluding masts, such as TTCs and portal sets as required for the work, in accordance with the latest RDSO drawings and relevant IS specifications.

Delivery shall be made to the OHE depot and subsequently transported to the designated worksite location or as directed by the Railway Engineer In-charge. Additionally, the price shall also include the weighing of the aforementioned steel components prior to handing them over to the purchaser for execution of the work.

Item 3(cs) – Supply of Fabricated and Galvanized Small Parts Steel (SPS) other than masts, TTC and Portal as per latest RDSO and IS Specifications.

Supply: The price shall include the supply of all fabricated steel work, including fasteners.

Delivery shall be made to the OHE depot and subsequently transported to the designated worksite location or as directed by the Railway Engineer In-charge. Additionally, the price shall also include the weighing of the aforementioned steel components prior to handing them over to the purchaser for execution of the work.

The cost of erection for this steel work, if undertaken by the contractor, will be paid separately under item 3(b) of Schedule A.

For standard fabricated steelwork for which RDSO's approved drawings are available, the weights of steelwork as specified in RDSO's drawings shall be considered for payment. However, in case the unit sectional weight of any member indicated in RDSO's drawings is not in conformity with the unit sectional weight as per the latest I.S. specification, the weight of the fabricated steel work shall be calculated on the basis of latest I.S. specification and the same will be considered for payment.

For the non-standard fabricated steelwork (like base frame for interrupters/ CB's, plate for boom splicing etc., the calculated weight to be considered for payment under this shall be included in the relevant drawing based on, latest I.S. sectional weight at the time of submitting the designs for approval of the purchaser.

All fabricated steel work shall be galvanized with hot dip galvanization.

Note for 3(cs): For the purpose of payment against 3(c) 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. There will be no addition for increased weight due to galvanizing or painting or weld materials or reduction for holes or skew cuts.

SCHEDULE B2: COPPER SUPPLY

Item 6(cs) - Supply of 7 mm dia Solid Round Hard Drawn Copper Dropper Wire

Supply: The price shall include the supply of 7 mm dia. Solid Round Hard Drawn Copper Dropper Wire as per IS: 282-1982 Specification with latest revision.

Delivery shall be made to the OHE depot and subsequently transported to the designated worksite location or as directed by the Railway Engineer In-charge. Additionally, the price shall also cover the weighing of the copper dropper wire before its handover to the purchaser for execution of the work.

Item 6(ds) - Supply of 5 mm dia Solid Round Hard Drawn Copper Dropper Wire

Supply: The price shall include the supply of 5 mm dia. Solid Round Hard Drawn Copper Dropper Wire, as per IS: 282-1982 Specification with latest revision.

Delivery shall be made to the OHE depot and subsequently transported to the designated worksite location or as directed by the Railway Engineer In-charge. Additionally, the price shall also cover the weighing of the copper dropper wire before its handover to the purchaser for execution of the work.

Item 6(es) - Supply of Cadmium Copper Bridle Wire (7/2.1 mm)

Supply: The price shall include the supply of 20 sq mm cadmium copper bridle wire (7/2.1 mm) as per RDSO Specification TI/SPC/OHE/CAT/Cu-Cd/0971 or latest revision.

Delivery shall be made to the OHE depot and subsequently transported to the designated worksite location or as directed by the Railway Engineer In-charge. Additionally, the price shall also cover the weighing of the copper bridle wire before its handover to the purchaser for execution of the work.

Item 7(bs) - Supply of 150 sq.mm Hard Drawn Stranded Copper Cross Feeder Wire

Supply: The price shall include the supply of 150 sq. mm hard drawn bare copper cross feeder wire (37/2.25mm) as per RDSO Specification TI/SPC/OHE/HDCSCF/0031 or latest revision.

Delivery shall be made to the OHE depot and subsequently transported to the designated worksite location or as directed by the Railway Engineer In-charge. Additionally, the price shall also cover the weighing of the copper cross feeder wire before its handover to the purchaser for execution of the work.

Item 7(cs) - Supply of 130 sq.mm Cadmium Copper Large Span Wire

Supply: The price shall include the supply of 37/2.10 mm cadmium copper large span wire (130 sq.mm), required for the work, as per RDSO's Specification No. ETI/OHE/50(6/97) with latest revision.

Delivery shall be made to the OHE depot and subsequently transported to the designated worksite location or as directed by the Railway Engineer In-charge. Additionally, the price shall also cover the weighing of the copper large span wire before its handover to the purchaser for execution of the work.

Item 15(as) - Supply of 50 sq.mm Annealed Stranded Copper Jumper Wire

Supply: The price shall include the supply of 50 sq. mm annealed stranded copper conductors (19/1.8) – jumper wire (unit weight of 0.438 kg/m) as per RDSO Specification TI/SPC/OHE/JMP/0941 or latest revision.

Delivery shall be made to the OHE depot and subsequently transported to the designated worksite location or as directed by the Railway Engineer In-charge. Additionally, the price shall also cover the weighing of the copper jumper wire before its handover to the purchaser for execution of the work.

Item 15(bs) - Supply of 160 sq.mm Annealed Stranded Copper Jumper Wire

Supply: The price shall include the supply of 160 sq. mm annealed stranded copper conductors (19/7/1.25) – jumper wire (unit weight of 1.504 kg/m) as per RDSO Specification TI/SPC/OHE/JMP/0941 or latest revision.

Delivery shall be made to the OHE depot and subsequently transported to the designated worksite location or as directed by the Railway Engineer In-charge. Additionally, the price shall also cover the weighing of the copper jumper wire before its handover to the purchaser for execution of the work.

Item 15(cs) - Supply of 105 sq.mm Annealed Stranded Copper Jumper Wire

Supply: The price shall include the supply of 105 sq. mm annealed stranded copper conductors (19/7/1.25) – jumper wire (unit weight of 0.9936 kg/m) as per RDSO Specification TI/SPC/OHE/JMP/0941 or latest revision.

Delivery shall be made to the OHE depot and subsequently transported to the designated worksite location or as directed by the Railway Engineer In-charge. Additionally, the price shall also cover the weighing of the

copper jumper wire before its handover to the purchaser for execution of the work.

SCHEDULE B3: INSULATOR SUPPLY

Item 4(ax) – Supply of Porcelain Stay and Bracket Insulators for item no. 4(a)(i) / 4(a)(iv).

Supply: The price shall include the supply of one Porcelain Stay Arm Insulator (RI 6000-2) (1050 mm CD) and one Porcelain Bracket Insulator (RI 6030-1) (1050 mm CD) as per RDSO Specification TI/SPC/OHE/INS/0071(04/2022) or Latest for cantilever assembly covered under item no. 4(a)(i) / 4(a)(iv).

Delivery shall be made to the OHE depot and subsequently transported to the designated worksite location or as directed by the Railway Engineer In-charge. Additionally, the price shall also cover testing of insulator before installation as per RDSO Specification TI/SPC/OHE/INS/0071(04/2022) or its latest revision.

Item 4(ax)(i) – Supply of Porcelain Stay Insulator for item no. 4(a)(i) / 4(a)(iv).

Supply: The price shall include the supply of one Porcelain Stay Arm Insulator (RI 6000-2) (1050 mm CD) as per RDSO Specification TI/SPC/OHE/INS/0071(04/2022) or Latest for cantilever assembly covered under item no. 4(a)(i) / 4(a)(iv).

Delivery shall be made to the OHE depot and subsequently transported to the designated worksite location or as directed by the Railway Engineer In-charge. Additionally, the price shall also cover testing of insulator before installation as per RDSO Specification TI/SPC/OHE/INS/0071(04/2022) or its latest revision.

Item 4(ax)(ii) – Supply of Porcelain Bracket Insulators for item no. 4(a)(i) / 4(a)(iv).

Supply: The price shall include the supply of one Porcelain Bracket Insulator (RI 6030-1) (1050 mm CD) as per RDSO Specification TI/SPC/OHE/INS/0071(04/2022) or Latest for cantilever assembly covered under item no. 4(a)(i) / 4(a)(iv).

Delivery shall be made to the OHE depot and subsequently transported to the designated worksite location or as directed by the Railway Engineer In-charge. Additionally, the price shall also cover testing of insulator before installation as per RDSO Specification TI/SPC/OHE/INS/0071(04/2022) or its latest revision.

Item 4(axx) - Supply of Composite Stay and Bracket Insulators for item no. 4(a)(i) / 4(a)(iv).

Supply: The price shall include the supply of one Composite Stay Arm Insulator (1600 mm CD) and one Bracket Composite Insulator (1600 mm CD) as per RDSO specification TI/SPC/OHE/INSCOM/1072 or Latest for cantilever assembly covered under item no. 4(a)(i) / 4(a)(iv).

Delivery shall be made to the OHE depot and subsequently transported to the designated worksite location or as directed by the Railway Engineer In-charge. Additionally, the price shall also cover testing of insulator before installation as per RDSO Specification TI/SPC/OHE/INS/0071(04/2022) or its latest revision.

Item 4(axx)(i) - Supply of Composite Stay Insulator for item no. 4(a)(i) / 4(a)(iv).

Supply: The price shall include the supply of one Composite Stay Arm Insulator (1600 mm CD) as per RDSO specification TI/SPC/OHE/INSCOM/1072 or Latest for cantilever assembly covered under item no. 4(a)(i) / 4(a)(iv).

Delivery shall be made to the OHE depot and subsequently transported to the designated worksite location or as directed by the Railway Engineer In-charge. Additionally, the price shall also cover testing of insulator before installation as per RDSO Specification TI/SPC/OHE/INS/0071(04/2022) or its latest revision.

Item 4(axx)(ii) - Supply of Composite Bracket Insulator for item no. 4(a)(i) / 4(a)(iv).

Supply: The price shall include the supply of one Composite Bracket Insulator (1600 mm CD) as per RDSO specification TI/SPC/OHE/INSCOM/1072 or Latest for cantilever assembly covered under item no. 4(a)(i) / 4(a)(iv).

Delivery shall be made to the OHE depot and subsequently transported to the designated worksite location or as directed by the Railway Engineer In-charge. Additionally, the price shall also cover testing of insulator before installation as per RDSO Specification TI/SPC/OHE/INS/0071(04/2022) or its latest revision.

Item 4(bx) - Supply of Porcelain Insulator for item no. 4(b)(i) / 4(b)(ii)

Supply: The price shall include the supply of one Porcelain 9-ton insulator (RI 6020-1) (1050 mm CD) as per RDSO specification TI/SPC/OHE/INS/0071(04/2022) or Latest for pull-off arrangement.

Delivery shall be made to the OHE depot and subsequently transported to the designated worksite location or as directed by the Railway Engineer In-charge. Additionally, the price shall also cover testing of insulator before installation as per RDSO Specification TI/SPC/OHE/INS/0071(04/2022) or its latest revision.

Item 4(bxx) - Supply of Composite Insulator for item no. 4(b)(i) / 4(b)(ii)

Supply: The price shall include the supply of one Composite 9-ton insulator (1600 mm CD) as per RDSO specification TI/SPC/OHE/INSCOM/1072 or latest for pull-off arrangement.

Delivery shall be made to the OHE depot and subsequently transported to the designated worksite location or as directed by the Railway Engineer In-charge. Additionally, the price shall also cover testing of insulator before installation as per RDSO Specification TI/SPC/OHE/INS/0071(04/2022) or its latest revision.

Item 8(bx) - Supply of Porcelain 9-ton Insulator for item no. 8(b)(i) / 8(b)(ii) / 8(b)(iii) / 8(b)(vi) / 8(b)(ix), 9(a) / 9(b) / 9(c) / 9(d) and 11(a)(i) / 11(a)(ii)

Supply: The price shall include the supply of one Porcelain 9-ton insulator (RI 6020-1) (1050 mm CD) as per RDSO specification TI/SPC/OHE/INS/0071(04/2022) or Latest for termination / anti-creep arrangement / cut-in insulator / suspension insulator etc.

Delivery shall be made to the OHE depot and subsequently transported to the designated worksite location or as directed by the Railway Engineer In-charge. Additionally, the price shall also cover testing of insulator before installation as per RDSO Specification TI/SPC/OHE/INS/0071(04/2022) or its latest revision.

Item 8(bxx) - Supply of Composite 9-ton Insulator for item no. 8(b)(i) / 8(b)(ii) / 8(b)(iii) / 8(b)(vi) / 8(b)(ix), 9(a) / 9(b) / 9(c) / 9(d) and 11(a)(i) / 11(a)(ii)

Supply: The price shall include the supply of one Composite 9-ton insulator (1600 mm CD) as per RDSO specification TI/SPC/OHE/INSCOM/1072 or latest for termination / anti-creep arrangement / cut-in insulator / suspension insulator etc.

Delivery shall be made to the OHE depot and subsequently transported to the designated worksite location or as directed by the Railway Engineer In-charge. Additionally, the price shall also cover testing of insulator before installation as per RDSO Specification TI/SPC/OHE/INS/0071(04/2022) or its latest revision.

Item 11(bx) – Supply of Post Insulator for item no. 11(b)

Supply: The price shall include the supply of one Post Insulator for 25 kV Isolator and Bus bar Assembly (RI No. 6090), as per RDSO specification No. TI/SPC/OHE/INS/0071 and Drawing No. ETI/OHE/P/6090-1 or Latest covered under item no. 11(b) of Sch-A1.

Delivery shall be made to the OHE depot and subsequently transported to the designated worksite location or as directed by the Railway Engineer In-charge. Additionally, the price shall also cover testing of insulator before installation as per RDSO Specification TI/SPC/OHE/INS/0071(04/2022) or its latest revision.

Item 12(ax) - Supply of Sectioning and 9-ton Insulators for item no. 12 (a)

Supply: The price shall include the supply of one 25 kV Sectioning (Core) Insulator (RI No. 6110) (CD 850 mm) and one Porcelain 9-ton insulator (RI 6020-1) (1050 MM CD) as per RDSO specification TI/SPC/OHE/INS/0071(04/2022) or Latest covered under for item no. 12(a) of Sch-A1.

Delivery shall be made to the OHE depot and subsequently transported to the designated worksite location or as directed by the Railway Engineer In-charge. Additionally, the price shall also cover testing of insulator before installation as per RDSO Specification TI/SPC/OHE/INS/0071(04/2022) or its latest revision.

Item 12(bx) - Supply of Sectioning Insulator for item no. 12(b)

Supply: The price shall include the supply of one 25 kV Sectioning (Core) Insulator (RI No. 6110) (CD 850 mm) as per RDSO specification TI/SPC/OHE/INS/0071(04/2022) or Latest covered under item no. 12(b) of Sch-A1.

Delivery shall be made to the OHE depot and subsequently transported to the designated worksite location or as directed by the Railway Engineer In-charge. Additionally, the price shall also cover testing of insulator before installation as per RDSO Specification TI/SPC/OHE/INS/0071(04/2022) or its latest revision.

Item 13(ax) - Supply of Post and Operating Insulators for item no. 13(a)/13(f)

Supply: The price shall include the supply of two Post Insulators (RI No. 6090) and one Operating Rod Insulator (RI No. 6260) (CD 850 mm) as per RDSO Specification No. TI/SPC/OHE/INS/0071 or Latest covered under item no. 13(a) /13(f) of Sch-A1.

Delivery shall be made to the OHE depot and subsequently transported to the designated worksite location or as directed by the Railway Engineer In-charge. Additionally, the price shall also cover testing of insulator before installation as per RDSO Specification TI/SPC/OHE/INS/0071(04/2022) or its latest revision.

Item 13(bx) - Supply of Post and Operating Insulators for item no. 13(b)/13(g)

Supply: The price shall include the supply of four Post Insulators(RI No. 6090) and two Operating Rod Insulator (RI No. 6260) (CD 850 mm) as per RDSO Specification No. TI/SPC/OHE/INS/0071 or Latest covered under item no. 13(b) /13(g) of Sch-A1.

Delivery shall be made to the OHE depot and subsequently transported to the designated worksite location or as directed by the Railway Engineer In-charge. Additionally, the price shall also cover testing of insulator before installation as per RDSO Specification TI/SPC/OHE/INS/0071(04/2022) or its latest revision.

Item 28(x) – Supply of Post Insulators for item 28

Supply: The price shall include the supply of two Post Insulators as per RDSO specification No. TI/SPC/OHE/INS/0071 and Drawing No. ETI/OHE/P/6090-1 or Latest covered under item no. 28 of Sch-A1.

Delivery shall be made to the OHE depot and subsequently transported to the designated worksite location or as directed by the Railway Engineer In-charge. Additionally, the price shall also cover testing of insulator before installation as per RDSO Specification TI/SPC/OHE/INS/0071(04/2022) or its latest revision.

SCHEDULE B4: GENERAL SUPPLY

Item 7(as) - Supply of All Aluminium 25 kV Feeder conductor (Single Spider 19/3.99 mm)

Supply: The price include supply of 25 kV Aluminium feeder conductor made of all aluminium bare, hard drawn conductor 19/3.99 mm (Single Spider) as per IS:398 (Part-I) 1996 or latest or RDSO latest specification.

Item 12(cs) - Supply of Light Weight Section Insulator

Supply: The price shall include the supply of Light Weight Section Insulator as per RDSO Specification No. TI/SPC/OHE/LWTSI/0060(Rev.1) with A & C Slip no. 1 or its latest revision.

Item 14(as) – Supply of PTFE Short Neutral Section Assembly

Supply: The price shall include supply of PTFE Short Neutral Section Assembly Complete (Phase Break) suitable for 107 Sq mm Grooved Copper/Cu-Ag Contact Wire and 65 Sq mm Cadmium Copper Wire as per RDSO Specification No. TI/SPC/OHE/SNS/0000 Rev-1 with A & C Slip No. 1 or latest revision.

Item 18(as) – Supply of 25 kV Vacuum Interrupter (BM)

Supply: The price shall include supply of 25 kV Single Pole Vacuum Interrupter complete with all necessary fittings, terminal connectors, accessories, fasteners etc., as per RDSO Spec. No. TI/SPC/PSI/LVCBIN/0121 (05/23) or latest revision. This is to ensure efficient and trouble-free operation at the designated site of work or the depot nominated by the Railways.

Item 18(bs) – Supply of 25 kV Vacuum Circuit Breaker (CB)

Supply: The price shall include supply of 25 kV Single Pole Circuit Breaker (CB) complete with all necessary fittings, terminal connectors, accessories, fasteners etc., as per RDSO Spec. No. TI/SPC/PSI/LVCBIN/0121 (05/23) or latest revision. This is to ensure efficient and trouble-free operation at the designated site of work or the depot nominated by the Railways.

Item 18(cs) - Supply of 132kV Double Pole SF-6 Circuit Breaker

Supply: The price shall include supply of 132 kV Double Pole SF-6 Gas Circuit Breaker, complete with all necessary fittings, terminal connectors, accessories, fasteners etc., as per RDSO Spec. No. TI/SPC/PSI/HVCB/0121 with A&C slip no.1 or latest revision. This is to ensure efficient and trouble-free operation at the designated site of work or the depot nominated by the Railways.

The price shall also cover supply of terminal connectors, supporting frame and SF6 gas for first filling for commissioning of the Circuit Breaker. The price shall also include interlocking arrangement with the adjacent isolators.

Item 19(as) - Supply of 25 kV Type-I Potential Transformer (PT)

Supply: The price shall include the supply of a 25 kV Potential Transformer Type-I (Indication/Measuring), complete with all necessary fittings, terminal connectors, accessories, fasteners etc., in accordance with RDSO Specification No. TI/SPC/PSI/PT/0120 (06/2021) or the latest revision. This is to ensure efficient and trouble-free operation at the designated site of work or the depot nominated by the Railways. However, the price shall exclude the cost of any small parts or steelwork.

Item 19(bs) - Supply of 25 kV Type-II Potential Transformer (PT)

Supply: The price shall include the supply of a 25 kV Potential Transformer Type-II (Protection), complete with all necessary fittings, terminal connectors, accessories, fasteners etc., in accordance with RDSO Specification No. TI/SPC/PSI/PT/0120 (06/2021) or the latest revision. This is to ensure efficient and trouble-free operation at the designated site of work or the depot nominated by the Railways. However, the price shall exclude the cost of any small parts or steelwork.

Item 20(as) - Supply of 42 kV, 10 kA Metal oxide Gapless type lightning arrester

Supply: The price shall include supply of 42 kV, 10 kA rating Metal Oxide Gapless Lightning arrester complete with all necessary fittings, terminal connectors, accessories, fasteners etc., as per TI/SPC/PSI/MOGLA/0101 (02/2015) at the work-site or at the depot nominated by Railways. However, the price shall exclude the cost of jumper wire and any small parts steel work.

Item 20(bs) - Supply of 120 kV, 10 kA Metal oxide Gapless type lightning arrester

Supply: The price shall include supply of 120 kV, 10 kA rating Metal Oxide Gapless Lightning arrester with surge counters complete with all necessary fittings, terminal connectors, accessories, fasteners etc., as per TI/SPC/PSI/MOGLA/0101 (02/2015) at the work-site or at the depot nominated by Railways. However, the price shall exclude the cost of jumper wire and any small parts steel work.

Item 20(cs) - Supply of 198 kV, 10 kA Metal oxide Gapless type lightning arrester

Supply: The price shall include supply of 198 kV, 10 kA rating Metal Oxide Gapless Lightning arrester with surge counters complete with all necessary fittings, terminal connectors, accessories, fasteners etc., as per TI/SPC/PSI/MOGLA/0101 (02/2015) at the work-site or at the depot nominated by Railways. However, the price shall exclude the cost of jumper wire and any small parts steel work.

Item 23(as) - Supply of 110 V, 40 Ah Low Maintenance Lead Acid Battery

Supply: The price shall cover supply of 110V, 40 Ah low maintenance lead acid battery complete with stand, accessories and a tool board as per RDSO Specification No. RDSO/PE/SPEC/TL/0040(Rev-2)/2021 or latest revision at the site of work or at the depot nominated by railways. The price excludes the cost of connecting cables, the supply and erection of which will be paid for under appropriate Item.

Item 23(bs) - Supply of Battery Charger for 110 V, 40 Ah lead acid battery.

Supply: The price shall cover supply of battery charger for a 110V, 40 Ah lead acid battery complete with connecting lead and plug for connection to 230 V A.C. supply as per RDSO specification No. TI/SPC/PSI/40-150 CHGR/1210 or latest revision at the site of work or at the depot nominated by railways. The price shall not include supply of any cable for connecting the charger to the 110V battery which shall be paid for under appropriate Item.

Item 24(as) - Supply of 110 V, 200 Ah Low Maintenance Lead Acid Battery.

Supply: The price shall cover supply of 110V, 200 Ah low maintenance lead acid battery complete with stand, accessories, and a tool board as per RDSO Specification No. RDSO/PE/SPEC/TL/0040(Rev-2)/2021 or latest revision at the site of work or at the depot nominated by railways. The price excludes the cost of connecting cables, the supply and erection of which will be paid for under appropriate item.

NOTE: One set containing 55 nos. of 2 V, 200 Ah Lead Acid battery.

Item 24(bs) - Supply of Battery Charger for 110 V, 200 Ah lead acid battery

Supply: The price shall cover supply of battery charger for a 110V, 200 Ah lead acid battery complete with connecting lead and plug for connection to 230 V A.C. supply as per RDSO specification No. TI/SPC/PSI/200-250CHGR/0210 or latest revision at the site of work or at the depot nominated by railways. The price shall not include supply and erection of any cable for connecting the charger to the 110V battery which shall be paid for under appropriate item.

Item 27(as) – Supply of 5 kVA, 25 kV/ 240 V Oil filled Auxiliary Transformer

Supply: The price shall cover supply of Auxiliary Transformer 5 kVA, 25kV/240V, Oil type as per RDSO specification No. ETI/PSI/15(11/92) or latest revision, complete with terminal connectors at the work site or at the depot nominated of railways.

Item 27(bs) - Supply of 10 kVA, 25 kV/ 240 V Oil filled Auxiliary Transformer

Supply: The price shall cover supply of Auxiliary Transformer 10 kVA, 25kV/240V, Oil type as per RDSO specification No. ETI/PSI/15(11/92) or latest revision, complete with terminal connectors at the work site or at the depot nominated of railways.

Item 27(cs) - Supply of 25 kVA, 25 kV/ 240 V Oil filled Auxiliary Transformer

Supply: The price shall cover supply of Auxiliary Transformer 25 kVA, 25kV/240V, Oil type as per RDSO specification No. ETI/PSI/15(11/92) or latest revision, complete with terminal connectors at the work site or at the depot nominated of railways.

Item 45(as) - Supply of 25 kV Current Transformer CT Ratio 1500-750/5A

Supply: The price shall include the supply of a 25 kV Current Transformer CT Ratio 1500-750/5A complete with all necessary fittings, terminal connectors, accessories, fasteners etc., in accordance with RDSO Specification No. TI/SPC/PSI/CT/0210(07/2021) or the latest revision. This is to ensure efficient and trouble-free operation at the designated site of work or the depot nominated by the Railways. However, the price shall exclude the cost of any small parts or steel work.

Item 45(bs) - Supply of 132 kV oil filled current transformer of ratio 400-200/5A

Supply: The price shall include the supply of a 132 kV Oil filled Current Transformer CT Ratio 400-200/5A complete with all necessary fittings, terminal connectors, accessories, fasteners etc., in accordance with RDSO Specification No. TI/SPC/PSI/CT/0210(07/2021) or the latest revision. This is to ensure efficient and trouble-free operation at the designated site of work or the depot nominated by the Railways. However, the price shall exclude the cost of any small parts or steel work.

Item 45(cs) - Supply of 220 kV oil filled current transformer of ratio 200-100/1-1 A

Supply: The price shall include the supply of a 220 kV oil filled current transformer of ratio 200-100/1-1 A complete with all necessary fittings, terminal connectors, accessories, fasteners etc., in accordance with RDSO Specification No. TI/SPC/PSI/CT/0210(07/2021) or the latest revision. This is to ensure efficient and trouble-free operation at the designated site of work or the depot nominated by the Railways. However, the price shall exclude the cost of any small parts or steel work.

SCHEDULE C: GENERAL ITEMS

Item 3(z) – Portal Boom Splicing and Extension

Splicing & Extension: The price is applicable to splicing of all types of portal booms for extension of clear span. The price shall cover modification of two end pieces (one existing at one end of boom and the other to be erected) involving cutting, drilling, welding, cold galvanization etc. to suit clear span as per site condition. The price shall also cover erection of modified end piece, splicing including supply and erection of bolts, nuts, washers required for splicing of boom.

The price shall exclude dismantling of upright and supply of end piece, small part steel required for modification of end pieces including splice/covering angle, etc. which will be paid for under items 31(k)(ii) of Sch-A1 & 3(cs) of Sch-B1.

Note: Splicing plates shall be supplied suitably as per requirement. Splicing plates are different for N, O and R type portals

Item 4(z)(i) - Replacement of Stay Insulator under Power Block

Replacement: The Price shall include Dismantling of existing Stay Insulator (Porcelain/Composite) and Erection of new Stay Insulator (Porcelain/Composite) at same location with adjustment of OHE parameters (height, stagger etc.) as per standards/instructions of Railway Engineer In-charge.

The price shall also cover erection of all the associated components/fittings and necessary modification or fabrication required in Stay Tube etc. (New Stay Tube will be provided by Railway if required)

The price shall also cover testing of stay insulator as per RDSO specification TI/SPC/OHE/INTEST/0091 or latest revision.

Dismantled insulators without any fracture/damage in existing condition along with other dismantled material shall be handed over to the Railway Engineer In-charge. The price shall include the transportation of dismantled material to the nearest depot as per the instructions of Railway Engineer In-charge.

Note: (1) Supply of Stay insulators is not included in this item.

(2) In case of operation of above item under Non Power blocks, half the rate is to be paid

Item 4(z)(ii) - Replacement of Bracket Insulator under Power Block

Replacement: The Price shall include Dismantling of existing Bracket Insulator (Porcelain/Composite) and Erection of new Bracket Insulator (Porcelain/Composite) at same location with adjustment of OHE parameters (height, stagger etc.) as per standards/instructions of Railway Engineer In-charge.

The price shall also cover erection of all the associated components/fittings and necessary modification or fabrication required in Bracket Tube etc. (New Bracket Tube will be provided by Railway if required)

The price shall also cover testing of Bracket insulator as per RDSO specification TI/SPC/OHE/INTEST/0091 or latest revision.

Dismantled insulators without any fracture/damage in existing condition along with other dismantled material shall be handed over to the Railway Engineer In-charge. The price shall include the transportation of dismantled material to the nearest depot as per the instructions of Railway Engineer In-charge.

Note: (1) Supply of Bracket insulators is not included in this item.

(2) In case of operation of above item under Non Power block, half the rate is to be paid

Item 4(z)(iii) - Replacement of 9-tonne Insulator under Power Block

Replacement: The Price shall include Dismantling of existing 9-tonne Insulator (Porcelain/Composite) and Erection of new 9-tonne Insulator (Porcelain/Composite) at same location with adjustment of OHE parameters (height, stagger etc.) as per standards/instructions of Railway Engineer In-charge.

The price shall also cover erection of all the associated components/fittings and necessary modification or fabrication required in 9-tonne Tube etc. (New 9-tonne Tube will be provided by Railway if required)

The price shall also cover testing of 9-tonne insulator as per RDSO specification TI/SPC/OHE/INTEST/0091 or latest revision.

Dismantled insulators without any fracture/damage in existing condition along with other dismantled material shall be handed over to the Railway Engineer In-charge. The price shall include the transportation of dismantled material to the nearest depot as per the instructions of Railway Engineer In-charge.

Note: (1) Supply of 9-ton insulators is not included in this item.

(2) In case of operation of above item under Non Power blocks, half the rate is to be paid

Item 6(z)(i) - Re-rolling of Contact wire 107 / 150 sq.mm into Drums

Re-rolling: The 107 or 150 sq. mm Contact wire shall be wound on the drum provided by Railway and Paper shall be provided between each layer of conductor while winding on the drum and during course of winding the conductor should not deform, bulge or damage in any manner.

Item 6(z)(ii) - Re-rolling of Catenary wire 65 sq.mm into Drums

Re-rolling: The 65 sq. mm catenary wire shall be wound on the drum provided by Railway and Paper shall be provided between each layer of conductor while winding on the drum and during course of winding the conductor should not deform, bulge or damage in any manner.

Item 6(z)(iii) - Supply of reinforced Wooden Drums as per specification for re-rolling of Catenary & Contact wire

Supply: The price shall cover supply of reinforced Wooden Drums shall conform to specification IS: 1778-1980 for re-rolling of contact & catenary wire.

Item 16(z) - Disconnection & Reconnection of any type of bond

The price shall cover disconnection and reconnection of Structure Bond/Longitudinal Bond/Transverse & Special Bond as per the instructions of the Railway Engineer In-charge of work or authorized representative. Necessary tools and tackles required shall be arranged by contractor only. It is also ensured that no damage to TRD bonds during Engineering Track Renewal works.

The rate will be per bond. For dismantlement of existing bond alone half the rate will be paid.

Item 17(z)(i) – Transportation & Erection of 9 m / 13 m long 52 / 60 KG Released Rail from nominated place to work site

The price shall cover loading, unloading & transportation of released rail of 9 meters or 13 meters (Railway Supplied) from nearest available location (up to 200 km) to work site for execution. The price shall also cover arrangement of vehicle, manpower, tools & tackles for loading, unloading & transportation of released rails. The price shall cover erection of 13m long 52/60 kg buried rail. The buried rail erection will be followed as requirements vide Drg. No. ETI/PSI/0212-1 or latest and SMI 0032 (Rev-2).

Note: Earth electrodes are to be operated under item 17(a) of Schedule-A1

Item 17(z)(ii) – Supply & Erection of Galvanised Iron Flat 75 x 8 mm

Supply & Erection: The price shall cover supply and erection per meter length of 75x8mm size Galvanized Iron flat (Buried rail to each pit) buried at a depth of 60 cm below the ground level. The price shall also cover connections of the Galvanized Iron flats to the earth electrodes to constitute the main earth ring and to the earthed terminals at SSP/SP as per the site requirement decided by the Railway Engineer In-charge.

The price shall cover supply and installation per meter length of 75 x 8 mm size (Buried rail to track) Galvanized Iron flat, painted all around with two coats of paints to colour grass green shade-218 of IS:5 passing through cable trench of exposed above ground level. The price shall also cover connections of the Galvanized Iron flats to the earth electrodes to constitute the main earth ring and to the earthed terminals of the various equipment at SSP/SP as per the site requirement decided by the Railway Engineer In-charge.

Item 17(z)(iii) – Supply & Erection of High Productivity Fasteners (Rail Contact System) for fixing of Traction Bonds at Buried Rail Earthing Station.

Supply & Erection: The price shall cover supply, erection and installation of RDSO approved high productivity fasteners as per SMI No. TI/SMI/0032 Rev-2, to provide separate earthing stations at TSS/SP/SSPs. The work shall be executed including all fasteners for each buried rail in accordance with RDSO SMI No. TI/SMI/0032 Rev-2 and letter No. TI/PSI/Earthing/Policy/14DT: 26-02-20 or latest revision

Item 17(z)(iv) - Excavation & Refilling of Soil for Buried Rail

The price shall cover excavation to a depth of 1 m, width of 0.6m and length of 15 m for providing buried rail for earthing system and refilling of the same. The soil around buried rail will be treated by providing charcoal & salt. The work shall be executed in accordance with SMI No. TI/SMI/0032 Ref-1.

Item 18(z)(i) – Supply of Paint and Stencilling/Painting of mast location, RL, MRL, EC socket symbols, and implantations on OHE masts / portals using Enamel paint with a Yellow Background and Black Font.

Supply & Erection: The price shall be inclusive of the cost of yellow and black paint conforming to relevant

IS standard. The price shall cover stencilling of location number, implantation, rail level, and EMC socket direction etc on OHE structures as per the instructions of the Railway Engineer In-charge of work or his authorised representative. The existing painted portion on OHE structures earmarked for stencilling the parameters on OHE shall be cleaned with good quality sand paper before applying fresh paint. Two coats of yellow enamel paint shall be applied as background and the various parameters shall be stencilled using black enamel paint. ISI marked good quality enamel paint shall be used.

The font size of the various parameters to be stencilled on various types of OHE structures shall be approved by the Railway Engineer In-charge of work before commencing the work in a section. In this connection, a sample to be stencilled and approved by the Railway Engineer In-charge of work.

Item 18(z)(ii) - Supply of Paint and Painting of ATD Counter Weight including Temperature Marking of 'Y' value.

Supply & Erection: The price shall cover cost for Painting of Counter Weight of ATD including marking of 'Y' Value in terms of 10°C, 35°C & 55°C, Half Tension (HTL) length in meters over counter weight. Two coats of aluminium paint are to be painted on that as required by the Railway Engineer In-charge. Paint to be supplied by contractor. ISI marked good quality enamel paint shall be used. It also includes painting of bottom two pieces of counter weight with yellow colour paint.

The cost includes all material, tool & tackles, manpower etc. required for painting of counter weight of ATD with aluminium/yellow paint.

Item 18(z)(iii) - Supply of Paint and Painting of any type of Bond

Supply & Erection: The Price shall include the supply of ISI marked good quality black enamel paint and primary coat of red oxide for painting of Bonds i.e. Structure/ Longitudinal/Transverse & Special bond. Price shall also include the opening and re-fixing of bonds, cleaning / wiping of all the oil, corrosion, dust or dirt if any, a coat of primer i.e. red oxide shall also be applied. The primer coat or first coat of paint when dried, then only the 2nd finishing coat of black bituminous paint shall be applied.

Cost of Materials required for painting work such as brush, Stencil, Kerosene etc. to be incurred in contractor's scope.

Item 18(z)(iv) - White Washing for coping of mast / portal foundations

Supply & Erection: The price shall include cleaning of area around muff of OHE mast/portal by removing the vegetation and condition of structure muff are to be checked and recasting of damaged muff with 2 coats of white wash. The price also includes supply of white wash. Cost of Materials required for painting work such as brush, Stencil, Kerosene etc. to be incurred in contractor's scope.

Item 18(z)(v) - Supply of Paint and Painting of Fencing Panels

Supply & Erection: The price shall cover the cost of supply and painting of PSI assets i.e., fencing panels, fencing uprights, anti-climbing devices of ATs, barbed wire of TSS/SP/SSPs, tubular poles at TSS/SP/SSPs with aluminium paint from any of RDSO approved aluminium paint confirming to IS 2339 or latest.

Item 18(z)(vi) - Supply of Paint and Painting of PSI Equipments

Supply & Erection: The price shall cover the cost of supply & painting of PSI equipment like traction power transformers, CBs, PTs, ATs, & BMs etc., with water proof grey enamel paint from any of RDSO approved paint confirming to IS: 2932 or latest.

**Item 19(z) - Trimming/Cutting of Tree Branches including disposal of branches / bushes outside yard
(Note: Girth of more than 20 cm will only be considered as tree branch)**

The price shall cover cost for trimming/cutting of tree branches of circumference more than 20 cm (Per tree basis). The tree branches / tree in the vicinity of 06 metres shall be cleared off. Necessary men, tools and

tackles required shall be arranged by contractor only. Power Block will be arranged by Railway during trimming/cutting of critical tree/tree branches near to OHE / likely to fall near OHE.

SCHEDULE D – 2 x 25 kV Items

Item 7(c) – Supply and Erection of Aerial Earth Conductor (AEC) with necessary accessories, fittings and fasteners on OHE mast / Portals.

Supply & Erection: The price shall cover supply of Aerial Earth Conductor (AEC) with necessary accessories, fittings and fasteners on mast/ portals. The AEC scheme should be as per RDSO Technical Instruction No. TI/IN/0042 or any latest guidelines issued by Railway Board/RDSO for High Speed.

The price shall cover cost of supply and erection of 12.24 mm dia ACSR Raccoon with mast fitting as per RDSO Drg. No. TI/DRG/OHE/ ERBOND/ RDSO/00001/11/0. AEC of 12.24 mm dia. ACSR Raccoon conductor should be erected on the back side of the OHE masts/Portals. The cost for connecting the ACSR on back side of OHE/feeder mast is also included in this item. SPS required for ACSR will be paid under separate item.

The price of ACSR conductor jointing, if any, shall be covered under this item, but the anchoring/ termination arrangement as and where required shall be covered under separate item.

Item 7(d) - Supply and Erection of Buried Earth Conductor (BEC) with necessary accessories fittings and fasteners

Supply & Erection: The price shall cover cost of Supply and erection of 20 mm dia galvanized steel conductor as per RDSO drawing. BEC of 20 mm dia (cross section 238.64 sq mm), galvanized steel conductor should be laid underground along the UP and DN track separately, 300 mm below ground surface and approximately one meter away (or as per site conditions) from the OHE foundation towards opposite direction of track.

The BEC will be connected to each OHE mast/Portal and Feeder mast by same conductor having Tee Connector & Lug Connector as per Drawing No: TI / DRG / OHE / TC / RDSO / 00001 /20 /0 & TI / DRG / OHE / SC / RDSO / 00001 /20/0 for BEC end and Lug for connection with mast/portal. The cross bonding of the UP BEC – UP Mast / Portal - UP Traction Rail - DN Traction Rail-DN mast/Portal –DN BEC should be done by 50X6 mm GS flat (Galvanization shall be done as per RDSO specification ETI/OHE/13) at every 450m. The details of the AEC/BEC and cross bonding scheme are given in drawing No: TI/DRG/OHE/EARTHING/RDSO/00001/20/0.

At stations, BEC conductor should be laid underground for Loop lines & platform also. BEC can be run on the sidewall of Platform (platform coping) with suitable clamp & bolt grouted in the coping. BEC should be connected to Earth Pit as per Drawing No. ETI/OHE/P/7020 Rev. B or latest at every 450 m wherever it is exposed above the ground. At Bridges/Platform coping laying arrangement of BEC should be as per RDSO drawing. For three line and four line section, separate BEC should be provided for each line. The above recommendation is as per prevalent practice used in 2 x 25 kV system with 12 kA fault current adopted by other projects in country. However, the adequacy and efficacy of this earthing and bonding system should be verified by the simulation studies/measurements of the touch and step potential of the rail in normal load and short circuit condition for compliance with EN 50122-1 and IEC 62128-1 (2013).

The cost of erection of steel conductor below ground surface, at platform and bridges are inclusive in this item. The cost of supply and erection of suitable clamps and bolts for clamp BEC at Platform and bridges are payable under this item.

Item 7(d)(i) - Supply and Erection of Tee connector for BEC end and lug for connection

Supply & Erection: The price shall cover cost of Supply and Erection of Tee connector for BEC end and lug for connection. The BEC will be connected to each OHE mast/Portal and Feeder mast by same conductor having Tee Connector & Lug Connector as per Drawing No. TI / DRG / OHE / TC / RDSO / 00001 / 20 / 0 &

TI / DRG / OHE / SC / RDSO / 00001 /20/0 for BEC end and Lug for connection with mast/portal. The cross bonding of the UP BEC –UP Mast/Portal-UP Traction Rail-DN Traction Rail-DN mast/Portal –DN BEC should be done by 50 x 6 mm GS flat at every 450 m. The details of the AEC/BEC and cross bonding scheme are given in drawing no TI/DRG/OHE/EARTHING/RDSO/00001/20/0

Item 8(a)(i) - Supply and Erection of 3:1 type Modified ATD with counter weight assembly for Conventional OHE (regulated) 2400 kgf

Supply & Erection: The price shall cover Supply and Erection of Regulating equipment three-pulley as per RDSO specification no. TI/SPC/OHE/3PHTATD/0150 with A&C Slip No. 1 or latest with small parts steel work for 2400 kgf tension. The material to be procured from the RDSO/CORE approved sources. The price shall also cover supply all type of fasteners and fittings.

Item 13(h) – Supply and Erection of DP Isolator complete with SPS, insulators and jumpering arrangement etc suitable for 2x25 kV system.

Supply & Erection: The price shall cover supply and erection of complete 55/66 kV Double pole Isolator type II including insulators, SPS, connectors, Jumpers, bus bars, Integral locks and fasteners etc for its smooth & trouble-free operation. Double pole Isolator should be provided at Insulated Overlap of 1250 Amp rating as per Specification No. ETI/PSI/133. Mounting Arrangement should be as per Drawing No. ETI/OHE & FEEDER/G/06005 Sh-2 & ETI/OHE & FEEDER/G/06008 for mast and portals respectively. The price shall also include supply & erect the pad lock with three keys to protect the opening by miscreants and keys shall be handed over to depot in-charge or his authorized representative.

In the double pole isolator work, one pole will be for 25 kV OHE and another pole shall be connected with feeder wire. The connection work between feeder and double pole isolator work shall be done by Construction department and connectors, 9 tonne Insulators, jumpers, PG clamps etc. shall be arranged by the Construction department. The connectors supplied along with the double pole isolators for feeder portion terminal shall be supplied to Railway. Double pole isolators are to be erected on separate mast if required after approval of by Sr.DEE/TRD. However, in case, if there is shortage of space, Double pole isolators shall be erected on TTC/Portals after prior approval of Sr.DEE/TRD.

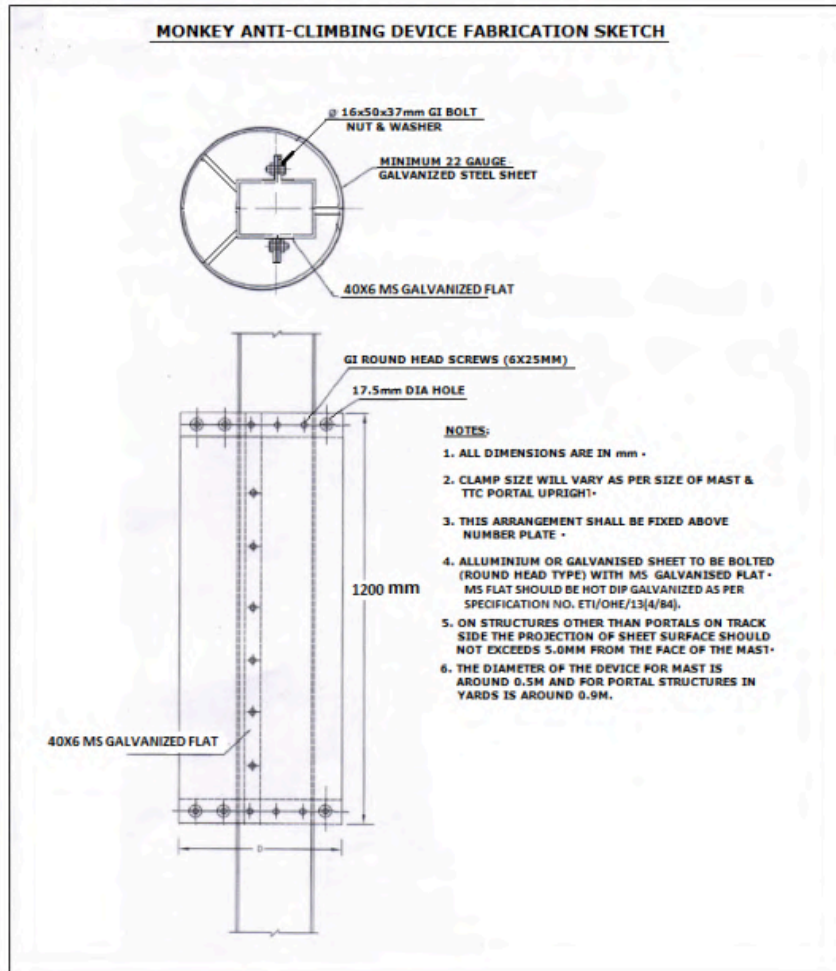
SCHEDULE-E – Provision of anti-climbing device in monkey prone area:

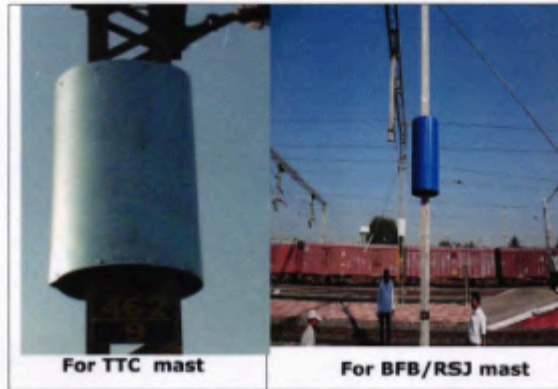
Item No.1 & 2 – Supply and erection of anticlimbing device etc., on OHE masts (BFB/RSJ/B-150 to B-250/K-150 to K-250) & Supply and erection of anticlimbing device etc., on OHE portals / TTCs N/O/R/BFB/GU /TTU):

The price shall includes complete transportation, loading, unloading, supply and erection of cylindrical type monkey guard at monkey prone areas in the subject section. The anticlimbing device skeleton frame shall be fabricated with MS galvanized flat and GI fasteners to prevent rusting. The external covering on the frame must be in cylindrical form and should be of Galvanized/Galvonium steel sheet not less than 0.75mm thick, i.e around 22guage. The sheet is to be bolted to GI flat. The top and bottom portion of the cylindrical device should be covered completely to prevent entry of monkeys. Locking solvent/liquid is to be applied to Bolts and nuts to avoid theft. On structures other than portals, on track side the projection of sheet surface should not be exceeds 5.0cm from the edge of the mast. The fixing clamp size should be changed accordingly to the size of the mast, TTC, portal upright etc. the proposed monkey guard should be fixed above the number plate. The height of monkey guard will be normally 1.20 mts which will be vary accordingly to the site condition. The diameter(D) of the device for mast is around 0.5mts (approx.) and for portal structures in yards is around 0.9mts. (approx.) One sample for each type of OHE mast/structure is to be fabricated and got approved by Dy.CEE/C/SC for before utilization at site.

Ref: TI/MI/0056, Rev-2

Annexure-II





Internal Construction of the device

SCHEDULE-F – Tools and Plants:

<p>Item No.1 – Supply of isolator OHE Key box along with locking arrangements: The price shall cover the Fabrication and Supply of Polished TEAK WOOD OHE/ISOLATOR KEY BOX with 4 MM Glass Frame Along with Locking arrangements (Provided at SM Room /SP/SSP). As per SCR Drawing No: E252/TrD/HQ/KB/OHE/2022-23 Dated : 28/12/2022.</p>
<p>Item No.2 - Supply of insulator box along with locking arrangements: The price shall cover the Fabrication and Supply of Water Proof Ply Wood Insulator Box Along with Locking arrangements.As per SCR Drawing No: E 252/TrD/Ha/WIB/2022-23, Dated : 28/12/2022.</p>
<p>Item No.3- Supply of Rail jumpers with both end clamps 3 mtrs 25Sq.mm High Insulated: The price shall cover supply of rail jumper extension with clamp at both ends with 3.0m copper cables as per RDSO Drg. No.RE/33/P-500.</p>
<p>Item No.4 - Supply of Rail jumpers with both end clamps 5 mtrs 25Sq.mm High Insulated: The price shall cover supply of rail jumper extension with clamp at both ends with 5.0m copper cables as per RDSO Drg. No.RE/33/P-500.</p>
<p>Item No.5- Supply of Rail jumpers with both end clamps 10 mtrs 25Sq.mm High Insulated: The price shall cover supply of rail jumper extension with clamp at both ends with 10.0m copper cables as per RDSO Drg. No.RE/33/P-500.</p>
<p>Item No.6- Supply of Rechargeable heavy duty LED torch: Technical description: - Purpose: Suitable for Railway Electrical / TrD & General Electrical maintenance. Specifications:</p> <ol style="list-style-type: none">Type & Construction<ol style="list-style-type: none">The torch shall be heavy-duty, industrial-grade, suitable for outdoor railway TRD field applications.Housing shall be made of robust impact-resistant ABS/Aluminium alloy body, suitable for rough handling.Design shall be water-resistant and weather-proof to minimum IP65 protection level.Light Source & Output<ol style="list-style-type: none">Torch shall use high-intensity LED chip technology with minimum brightness of 1500–2500 lumens.Beam range shall not be less than 800 metres in clear visibility.Light modes required: High-Focus, Medium, Low, SOS/Flasher mode.Optics & Beam Quality<ol style="list-style-type: none">Reflector/lens shall be optical-grade and focus-adjustable from spot to flood.Light output shall be uniform with no dark spots and suitable for night OHE inspection.Battery & Power Source<ol style="list-style-type: none">Rechargeable Li-ion battery or Ni-MH battery pack with minimum capacity 6000 mAh.Operating time per charge shall not be less than 5-6 hours in high mode and 10 hours in low mode.Battery shall be replaceable, with charging indicator and low-battery warning.Charging System<ol style="list-style-type: none">Torch shall be supplied with AC charger (230V AC) and vehicle charging adapter (12V DC).Charging time shall not exceed 5–7 hours from low-battery level to full charge.Over-charge and short-circuit protection must be built-in.Switching & Controls<ol style="list-style-type: none">Torch shall be equipped with heavy-duty power switches suitable for frequent use.Mode-selection switch must support multiple lighting outputs for operational flexibility.Switches shall be protected against dust and moisture ingress.Mechanical & Handling Features<ol style="list-style-type: none">Torch shall be lightweight and ergonomic for long-duration field usage.Anti-slip grip required for handling with gloves during OHE maintenance.Shoulder strap/hand strap/adjustable sling shall be provided.Accessories to be Supplied<ol style="list-style-type: none">1 Torch unit with rechargeable battery fitted.1 AC charger + 1 Car/utility DC charger + carrying pouch.

<p>3. Spare battery pack (optional but recommended for tender inclusion).</p> <p>9. Marking & Compliance</p> <ol style="list-style-type: none"> 1. Manufacturer's name, serial number, voltage rating, battery rating to be permanently engraved/printed. 2. Torch shall comply with relevant IS/IEC safety and optical performance standards. 3. OEM warranty shall not be less than 1 year from date of supply. <p>10. Documents to be Submitted by Supplier</p> <ol style="list-style-type: none"> 1. Product datasheet, warranty declaration, charging-cycle details. 2. Field test certificate for illumination range & runtime
<p>Item No.7- Supply of electrical hand gloves class-4 (36000V) insulation:</p> <p>The price shall cover supply of safety 36000volts electrical insulatedrubberhandgloves (class 4).Specification ofthe insulated rubberhandgloves (class 4) should be conforming to IEC 60903:2014.ACCEPTED MAKE:CRYSTAL OR SIMILAR</p>
<p>Item No. 8- Supply of Digital Screw gauge:</p> <p>ITEM NAME: Digital Screw Gauge</p> <p>DESCRIPTION: Item: Digital Screw Gauge</p> <p>Technical Description:</p> <p>Purpose: Suitable for precision measurement of small dimensions such as thickness, diameter and mechanical components in workshop, electrical and maintenance applications.</p> <p>Specifications:</p> <p>Type: Digital screw gauge/micrometer with LCD digital display for accurate measurement reading.</p> <p>Measurement Range: Suitable measuring range from 0–25 mm (or as specified by purchaser).</p> <p>Accuracy & Resolution:</p> <p>Resolution: 0.001 mm or better.</p> <p>Accuracy: ± 0.002 mm or as per manufacturer standard.</p> <p>Construction: Made from hardened stainless steel frame and spindle with corrosion-resistant finish.</p> <p>Measuring faces shall be precision ground and wear resistant.</p> <p>Display & Operation: Clear LCD display with zero setting, inch/mm conversion, and data hold function.</p> <p>Battery operated with low power consumption and auto shut-off facility.</p> <p>Compliance: Instrument shall conform to relevant IS/ISO standards for precision measuring instruments.</p> <p>Mechanical Features: Smooth ratchet/thimble mechanism for uniform measuring pressure and accurate readings.</p> <p>Marking & Identification: Each unit shall be marked with manufacturer's name, model number, serial number, measuring range and calibration status.</p> <p>Calibration & Certification: Supplier shall provide calibration certificate traceable to NABL accredited laboratory standards.</p> <p>Packing & Accessories: Supplied in protective storage case with battery, user manual and calibration certificate to prevent damage during transit and storage.</p>
<p>Item No.9- Supply of Digital vernier calipers:</p> <p>Technical description:</p> <p>- Purpose: Suitable for Railway Electrical / TrD & General Electrical maintenance.</p> <p>Specifications:</p> <ol style="list-style-type: none"> 1. Type & Application: Digital verniercaliper suitable for accurate measurement of internal, external, depth, and step dimensions of components used in railway electrical and mechanical maintenance works. 2. Measuring Range: Measuring range shall be 0 to 150 mm (or as specified in the Schedule of Quantities), suitable for general workshop and field measurements. 3. Resolution: The caliper shall have a minimum resolution of 0.01 mm, ensuring precise and reliable measurement. 4. Accuracy: Measurement accuracy shall be ± 0.02 mm or better over the full measuring range.D

5. **Material:** Manufactured from **hardened stainless steel**, providing strength, wear resistance, and dimensional stability.
6. **Display:** Provided with a **clear digital LCD display** for easy reading of measurements.
7. **Measurement Units:** Facility to select **mm / inch units**, with zero-setting at any position for comparative measurements.
8. **Measuring Faces:** Measuring jaws and depth rod shall be **precision-ground and lapped**, ensuring smooth movement and accurate contact.
9. **Construction & Finish:** Smooth sliding action with locking screw; surface shall be **rust-resistant and finely finished** for long service life.
10. **Power Supply:** Operated on **standard button cell battery**, with low-battery indication.
11. **Environmental Protection:** Caliper shall be suitable for **workshop and field conditions**; splash-resistant or dust-resistant construction preferred.
12. **Accessories:** Supplied complete with **protective case, battery, and operating instructions**.
13. **Standards & Compliance:** Manufactured in accordance with **relevant IS / ISO standards** applicable to precision measuring instruments.
14. **Marking:** The caliper shall be clearly marked with **manufacturer's name or trademark, model number, measuring range, and serial number**.
15. **Quality & Condition:** The digital verniercaliper shall be **brand new, unused**, and free from manufacturing defects at the time of supply.
16. **Suitability:** Suitable for **railway workshops, electrical and mechanical maintenance, inspection, and general service measurements**.
17. **Warranty:** The digital verniercaliper shall carry a **minimum warranty of 12 months** against manufacturing defects and performance failure under normal usage.

Item No.10- Supply of Glass-fibre reinforced polyester tube Non- Contact High Voltage Detector:
The price shall cover supply of Glass-fibre reinforced polyester tube Non-Contact High Voltage Detector, Nominal Voltage 240V-275kV. Product Specification is as tabulated below:

Specification	Sub-Specification	Value
Conformity & Standard	Compliance to IEC/EN61243-1	Yes
	Safety standards	EN 61326-1
	CE certification	Yes
Generic	Application	Over Head lines, Outdoor Switching unit, Switchgear Installations
	Indication	Acoustic, Visual
	Insulation stick material	Glass-fibre reinforced polyester tube
Technical Specification	Nominal Voltage	240V-275kV
	Minimum Safety Distance	102 millimeter
	Frequency	50 Hertz
	No. of Battery	1
	Type of Battery	Alkaline Battery
	Self Testing Element	Yes
	Battery included	Yes
	Type of voltage	AC
Dimension & size	Weight	1.2 kilogram
	Total Length	1000 millimeter
Environmental Condition	Humidity at 40 degree Celsius (percent)	0 to 95
	Storage Temperature, degree Celsius	-20 to 60
	Protection Class	IP65
	Operating Temperature, degree Celsius	-10 to +50
Additional parameter	Accessories	Carry case

	Features	Water-proof design, Non-contact work by proximity, Suitable for indoor and outdoor use, Lightweight, robust, compact
Warranty	Warranty	1 year
Test Report	Test Report To Be Submitted ToThe Buyer On Demand	Yes

Item No.11- Supply of digital megger:

The price shall cover supply of Digital Ground/ Earth tester suitable for 2, 3 & 4 point ground rod and soil resistivity testing having range 0.01Ω to 20KΩ, resistance accuracy 2%. The price shall also includes the cost of set of 4 stakes and wire kit(15m,10m,3m), terminal adaptor, re-chargeable cells, AC/DC charger, carry case, re-chargeable cells. Megger Make Model DET4TR2 or Fluke 1623 or similar.

Item No.12- Supply of hand driven megger:

Technical description:

- Purpose: Suitable for Railway Electrical / TrD & General Electrical maintenance.

Specifications:

1. **Type & Operation:**
 1. Manually operated **hand-driven insulation resistance tester** (Megger type), suitable for field testing without the need for external power supply.
 2. Robust mechanical generator to deliver stable test voltage through hand rotation.
2. **Test Voltage Rating:**
 1. Output test voltage **500 V DC ±10%**, suitable for insulation testing of OHE, switchgear, cables, and TRD installations.
 2. Designed to maintain output voltage at recommended rotational speed.
3. **Measurement Range & Accuracy:**
 1. Insulation resistance measurement range **0–1000 MΩ or higher**.
 2. Accuracy within **±5% of reading** or better across mid-range values.
 3. Clear graduation markings for easy reading in field environment.
4. **Construction & Build Quality:**
 1. Rugged, shock-resistant casing made of high-impact plastic or metal body for outdoor use.
 2. Dust- and moisture-resistant design suitable for railway TRD field conditions.
 3. Corrosion-resistant terminals and mechanical components for long service life.
5. **Scale & Display:**
 1. Analog pointer scale with mirror-type anti-parallax reading window for accuracy.
 2. Scale to include insulation resistance (MΩ) and generator voltage markings.
6. **Accessories & Test Leads:**
 1. Supplied with heavy-duty, flexible, insulated test leads (minimum 1.5 m length).
 2. Clips/probes shall be fully insulated and suitable for electrical field testing.
 3. Carrying strap/handle for portability.
7. **Safety Features:**
 1. Conforms to relevant IS/IEC standards for insulation testers.
 2. Protective discharge mechanism for automatically discharging the test object after testing.
 3. Terminals and cover designed to avoid accidental contact and ensure operator safety.
8. **Performance Requirements:**
 1. Smooth hand-crank mechanism capable of producing stable test voltage at standard speed (~160–180 rpm).
 2. Capable of reliable operation in temperatures from **0°C to 55°C** and humid environments.
 3. Suitable for use on equipment up to **500 V working voltage** in TRD installations.
9. **Certification & Warranty:**
 1. Manufacturer's calibration certificate to be supplied with each unit.
 2. Minimum **1-year warranty** covering manufacturing defects.
 3. Compliance certificate confirming adherence to relevant IS/IEC specifications.
10. **Packaging & Delivery:**
 1. Supplied in a padded protective carrying case for field handling.
 2. All documentation—user manual, calibration certificate, warranty—shall accompany the unit.

PART-I
CHAPTER-V:
SPECIAL CONDITIONS OF CONTRACT

1.5.1: The special conditions, supplement the conditions of tender and contracts, General conditions of contract and notes appearing under the relevant chapter should be considered as part of the tender papers. Where the provision of the special conditions are at variance with the General Conditions of the contract and other documents mentioned above, these special conditions shall prevail.

i) The provision of clause 63 and 64 of the general conditions of contract will be applicable only for settlement of claims /disputes of values less than or equal to 20% of the original value (excluding the cost of materials supplied free by railway) of the contractor or 20% of the actual value of the work done (excluding the value of the work rejected) under the contract, whichever is less. When claims/disputes are of value more than 20% of the value of the original contract or 20% of the value of the actual work done under the contract whichever is less. The contractor will not be entitled to seek such disputes/claims for reference to arbitration and the provisions of clause 63 and 64 of the G.C.C. of the contract will not be applicable for referring the disputed to be settled through arbitration.

ii) The contractor shall furnish his monthly statement of claims as per clause 43(1) of G.C.C. of the contract. But the contractor should seek reference to arbitration to settle the disputed only once, subject to the condition as per para-1.

iii) In case of failure of any agency to carry out work in time, Railway Reserves the right to get the work done through any other alternative agency with similar works in the section / railway .

1.5.2 : The completion period of contract for the present work is given at item no 9 of preamble . Date of entering into Agreement is not the criteria. **Penalty** for the delay -Refer general conditions of the contract-clause-17). General conditions of the contract of S.C. Railway is available in the office of the Chief Electrical Engineer, Rail Nilayam, Secunderabad (or) Dy Chief Electrical Engineer, Construction, OHE, S.C.Railway , Secunderabad for reference. The same can be obtained for study before participating in the present tender.

1.5.3 : **Preparation of designs for the subject work shall be done at the beginning so as to plan for procurement all materials and components etc.**

1.5.4 : The problems if any, are to be brought to the notice of Executive-in-Charge in time i.e., Dy Chief Electrical Engineer, Construction, OHE, S.C. Railway, Secunderabad OR Executive Electrical Engineer, Construction/TRD, so that the targeted period of completion is not bursted.

1.5.5 : Contractor should not wait for approval of designs for ordering of materials. Some percentage of materials shall be ordered immediately after issue of LOA based on experience except Interrupters, Circuit breakers which have to be ordered after approval of Quantity Assessment 1. The above Quantity Assessment 1 for Schedule 3 Items shall be submitted within 2 weeks after issuing of LOA for approval before placing orders on suppliers. Moreover, contractor to make wiring schedule tension length wise along with LOP for approval of competent authority.

1.5.6(a) All the materials/equipments/fittings/components, required for the work are to be procured by the Contractor from the latest approved manufacturers of RDSO/CORE. All the materials are to be got inspected by RITES at manufacturer's factory. The consignee will further check the material after receipt at Railway's/CONTRACTOR'S depot and issues material receipt certificate(MRC).No material shall be erected at site without inspection by consignee and without issue of MRC.MRC is must for all items irrespective of whether ONA payment is allowed/ claimed or not. If for any material, approved supplier is not available, contractor shall take prior approval from contract signing authority for such materials .

(a) All the insulators(whether supplied by contractor or by railway) are to be tested before erection even though inspected before dispatch at manufacturer's works. Testing to be done using contractor's jig.

1.5.7 No conditions are to be quoted along with offer. Conditional offer is not considered. If only one offer received against open tender, such lone offer will be considered even though conditions are specified.

1.5.8 : All payments shall be based on the extent of work actually done.

1.5.9 Electricity may be supplied on request when spare capacity is available for which contractor has to submit his requisition within 15 days from issue of L.O.A. So that the process will be made with other associated offices of the Railways.

1.5.10 Mobilization advance for this work is not permitted.

1.5.11 DIVERTED MATERIALS: If the contractor has surplus materials leftover on other projects, diversion of such materials to this work is permitted subject to the following conditions.

- i) RITES / RDSO inspection certificate copies for the materials to be submitted
- ii) Diversion certificate by the Railway executive officer not below the rank of J.A. Grade where these materials became surplus. Diversion from other contractors or other than railway agencies is not permitted.
- iii) The materials are received not more than two years before issue of LOA for this work.

1.5.12 : DISASTER MANAGEMENT: The vehicles and equipment of contractors can be drafted by Railway Administration in case of accident / natural calamities involving human lives. For purpose of payment the item may be operated as a Non – Schedule (N.S) item as per the existing norms and powers delegated to the railway.

1.5.13 : Consortium agreements and joint ventures: Please see Chapter Preamble:

1.5.14 : Specification of work: The execution of all works under this contract shall confirm to the specifications and codes of practice /manuals mentioned below as amended from time to time till date of opening the tender.

- i) A.C. Traction manual Vol. I, II and III
- ii) General and subsidiary rules of S.C. Railway
- iii) Standard schedule of dimensions
- iv) Special Maintenance Instructions issued by RDSO , Railway board and CEE/SC
- v) Amendments to Specifications issued by RDSO/CORE/ALD
- vi) Technical specifications as included in Part II and Part III of this tender document.
- vii) The specifications, guidelines issued by Railways.

A copy of above at Sl.No. (i) to (v) may be perused at the office of CEE/SC and DY.CEE/C/OHE/SC. A copy of the same may be obtained on payment from the office of CEE/SC

1.5.15 : The Railway will not supply from its own quota to the contractor, controlled or imported commodities. The Railway will, however, render assistance to the contractor by recommending to the appropriate authorities on the contractor's application for issue of import license or release of controlled commodities if the Engineer is satisfied that the materials are actually required by the contractor for carrying out the work and the materials proposed to be imported are not available indigenously.

When any materials for execution of contract are procured with the assistance of the Government either by issue from Government stocks or purchase under arrangements made or permit, or licence issued by the Government, the contractor shall hold the said materials as trustee and use such material economically and solely for the purpose of the contract against which they are issued, and shall not dispose them off without the permission of the Government and shall return if required by the Government all surplus or unserviceable materials that may be left with him after the completion of the contract or at its termination for any reason whatsoever, on his being paid such price as the Government may fix with due regard to the condition of the material.

The freight charges for the return of the materials according to the directions of the Railway shall be borne by the Contractor, in the event of the contract being cancelled for any default on his part. The

decision of the Government shall be final and conclusive. In the event of any breach of the aforesaid conditions, the contractor, shall in addition to throwing himself open to action for contravention of terms of the licence or the permits and/or for criminal breach of trust, be liable to account to Government for all monies, advantages or profits resulting or which in the usual would have resulted by reason of such breach.

1.5.16 : MODIFICATIONS TO CLAUSE 63 & 64 OF GCC [as per ES No. 30 Dt.11-06-2003]:

The provision of Clause 63 and 64 of the General Conditions of Contract will be applicable only for settlement of claims / disputes, for values less than or equal to 20% of the original value (excluding the cost of materials supplied free by Railway) of the contract or 20% of the actual value of the work done (excluding the value of the work rejected) under the contract, whichever is less. When Claims / disputes are of value more than 20% of the value of the original contract or 20% of the value of the actual work done under the contract whichever is less, the contractor will not be entitled to seek such disputes / claims for reference to arbitration and the provisions of Clause 63 and 64 of the General Conditions of Contract will not be applicable for referring the disputes to be settled through arbitration.

The contractor shall furnish his monthly statement of claims as per Clause 43 (1) of General Conditions of Contract. But, the contractor should seek reference to arbitration to settle the disputes only once, subject to the condition as mentioned as per above para.

These special conditions shall prevail over the existing Clause of 63 & 64 of General Conditions of Contract.

1.5.17 Deployment of Qualified Engineers at Work Sites by the Contractor

OHE/PSI work is a complex one and need 6 key personnel called pillars of OHE/PSI works given below. These personnel to be deployed by all works whose value more than 20Cr or more than 20Km of OHE.

- i) One Design Engineer –Experience of minimum 2 years in Electrical TRD drawings-
- ii) Material assessment planner/procurement with experience of 2years in Electrical TRD works.
- iii) One Project manager with experience of 2years in Electrical TRD works.
- iv) One Billing manager with experience of 2years.
- v) One store keeper with experience of 2years.
- vi(a)) Supervisors OHE (one per 10 Kms) with experience of 2years in Electrical OHE works.
- vi(b)) Supervisors PSI (one per SSP/SP/TSS) with experience of 2years in Electrical PSI works.

The above (i) to (v) to be deployed within 3 months of LOA. A penalty of Rs.50,000/- will be levied for failure to deploy (i) to (v).

1.5.18. Any ambiguity between the “GCC clauses rephrased in this agreement” and “original GCC with latest amendments & correction slips”, original GCC with latest amendments & correction slips will prevail over the GCC clauses rephrased in this agreement.

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PART-I
CHAPTER-VI

PARTICULAR SPECIFICATIONS

<u>Para No.</u>	<u>Subject</u>
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.
3.21	Railway supply materials

CHAPTER-VI

PARTICULAR-SPECIFICATION

3.0 :INTRODUCTION : (a) This part of the specification is complementary to part-II.

3.1: Brief Particulars of the work :

All existing BG tracks in the section between Bethampudi-Tadikalpudi of S.C.Railway are already equipped with 25 kV, 50 Hertz, Single Phase, A C. Traction Overhead Equipment with Conventional type using 65 Sq.mm catenary wire and 107 Sq.mm contact wire.

These Tender paper relate to the work of "Design, Supply, Erection, Testing & Commissioning of 25kV, 50Hz single phase a.c. traction overhead equipment with 65 sq.mm catenary and 107/150 sq.mm contact wire, LT supply transformer stations including modifications to the existing OHE in view of "Proposed doubling between Tadikalpudi - Bethampudi section with associated yard modifications on Dornakal - Bhadrachalam Road section in Secunderabad Division of SouthCentral Railway ".

3.2: Location of work:

Proposed doubling between Tadikalpudi - Bethampudi section with associated yard modifications on Dornakal - Bhadrachalam Road section in Secunderabad Division of South Central Railway.

However, contractor may have to execute same portion of work anywhere in South Central Railway due to exigencies of works, such work shall be limited to 25% of the agreement value.

3.3 :TRACKS TO BE EQUIPPED : (a) The route length of the sections to be electrified are as under :-

Proposed doubling between Tadikalpudi - Bethampudi section with associated yard modifications on Dornakal - Bhadrachalam Road section in Secunderabad Division of SouthCentral Railway.

3.4: GENERAL PARTICULARS :

(a). The soil characteristics of the entire area are generally consolidated.. The bearing capacity of the soil is likely to vary from 5500 to 22,000 kgf/sqm. The actual bearing capacity shall, however be determined in accordance with part-II. Soil test shall be done by the NABL approved laboratories.

(c)Foot over Bridges & Road over Bridges -

F.O.Bs_ As existing of the section

R.O.Bs_ As existing of the section

(d) STATIONS : All stations in the section between Tadikalpudi - Bethampudi section.

(e) BRIDGES: As existing of the section

(f)Remodelling works affecting the tracks to be wired will be intimated as and when the work is planned/ commences at the yard or in the mid section.

3.5 : CLIMATIC DATA TEMPERATURE :

(a) For the overhead equipment which will be in the open space a minimum temperature of 15⁰C and a maximum temperature of 50⁰C are to be considered. The mean temperature may be taken as 35⁰C.

(b) RAINFALL: Rains occur generally from June to October. The average rainfall during monsoon season is approximately 100 cm annually.

(c) HUMIDITY: The maximum relative humidity is nearly 80% to 84%.

(d) THUNDER STORMS: The region is subject to thunder storms and rain fall during the monsoon from August to September.

(e) WIND PRESSURE : 136 kgf/m²

3.6 : ROLLING STOCK: Electric locomotives with height not exceeding 4.165m with their pantographs in the locked down position and diesel locomotives 4.42m (14 ft.6 inch) high would run on this section.

3.7:OVER DIMENSIONAL CONSIGNMENTS : The maximum height of over dimensional consignment which will pass on this section is 4.80m (15'-9") with movement restricted to specified lines.

3.8 :POWERSUPPLY :

(a) In this scheme two Scott connected Transformers & four Auto-transformers are to be installed at a TSS along with associated switchgear for Control & protection. The two windings of a Scott transformer i.e. Main and Teaser windings are of equal power rating and feed either side of the TSS independently. The supply of both the windings is at a phase difference of 90 degree and separated by neutral section provided near TSS. Out of two Scott transformers, only one is in operation and the other is on standby.

(b) Scott Connected Transformer:

Scott- connected transformer of 60/84/100 MVA (ONAN/ONAF/OFAF) is used to feed power to the traction system. It has a voltage input of 220kV or 132kV, 3 phase, 50 Hz and two independent secondary winding for output at 50 kV. The Transformer has two secondary windings, known as the main winding and teaser winding. The two windings are identical in voltage and current rating but are in phase difference of 90 degree. These two windings of equal power rating i.e. Main & Teaser windings, feed power on either side of the TSS. The feed of different phase is separated by neutral section provided near TSS. The Scott Connected Transformer in ONAN Mode shall feed the 30MVA Power to each side of the TSS.

(c) Auto Transformers:

Auto- transformers are used at TSS, SP and SSP. The transformer winding of 50kV with Centre tapped neutral with both the terminals of the Autotransformer winding connected to feeder and contact /Catenary wire. The neutral terminal of the ATs is connected to rail.

Two adjacent ATs feeding on the network share train loads on the section between them and transfer the load current on 25 kV circuit to 50 kV circuit, consisting of contact wire and AT feeder. This reduces the voltage drop on feeding network remarkably. Furthermore, it minimizes the return current on the rail, which results in reducing induced voltage on nearby telecommunication lines. In the Scott connected arrangement for 2 Line section, 12.3 MVA Auto transformers are to be installed at the TSS and 8MVA Auto transformers to be used at the SP & SSP, as adopted by DFCCIL in Western Corridor. Further, the Scott connected arrangement for 3 Line and 4 line sections have been provided with 12.3 MVA auto transformers at TSS and 16.5 MVA auto transformers at SP/SSP. Moreover, no independent AT post has been proposed in any scheme.

d)The traction sub-stations, will normally be un-attended and all switching operations Will

be carried out by remote control from

3.10:TYPE OF OHE:

The overhead equipment used will normally be of regulated conventional type and tramway type:

All existing BG tracks in the section between Tadikalpudi - Bethampudi of S.C.Railway are already equipped with 25 kV, 50 Hertz, Single Phase, A C. Traction Overhead Equipment with Conventional type using 65 Sq.mm catenary wire and 107 Sq.mm contact wire and Tramway type using 107 Sq.mm contact wire

These Tender paper relate to the work of "Design, Supply, Erection, Testing & Commissioning of 25kV, 50Hz single phase a.c. traction overhead equipment with 65 sq.mm catenary and 107/150 sq.mm contact wire, LT supply transformer stations including modifications to the existing OHE in view of "Proposed doubling between Tadikalpudi - Bethampudi section with associated yard modifications on Dornakal - Bhadrachalam Road section in Secunderabad Division of SouthCentral Railway."

During the replacement work of existing 107 Sq.mm contact wire wherever necessary with higher section contact wire of 150 Sq.mm, the items required to be replaced are :

- i. Contact wire ending clamp (1110-2) of standard section contact wire of 107 Sq.mm needs to be replaced with higher section contact wire ending clamp (Clamp body 1791 + 1792 thimble).
- ii. If "G" jumper of 160 Sq.mm is used at UIOL, then PG clamp 1031-3 is to be used.

List of relevant RDSO/CORE drawings have been given at Table [D] of Annexure-1 of this tender schedule. If any other OR Latest RDSO/ CORE approved drawings and / OR Specification pertaining to Provision of "25kV single phase conventional OHE with 65 sqmm. cadmium copper catenary wire and 107/150sq. mm HDGC/Cu-Ag contact wire" not covered in the above table will also form part of this tender.

Implantation for Electrification works :

[a] Mast having Single OHE:

Standard implantation shall be followed as per the latest Railway Board guidelines and ACTM with all correction slips and amendments.

[b] Portal Upright, masts carrying more than one OHE & head span masts:

Standard implantation shall be followed as per the latest Railway Board guidelines and ACTM with all correction slips and amendments.

3.11:RETURN CONDUCTORS :

In a few stretches on the section return conductors and Booster transformers will be provided. The estimated number of booster transformers envisaged at present is shown in Annexure-2. Full particulars of the section and the actual number of booster transformer stations would be indicated at the time of placing of order or as soon thereafter as possible. If R.C. is decided to be supplied by Railways at the time of finalization of contract, the released R.C. wire available with the Railways will be supplied to the contractor.

3.12: Pegging Plans:

Preparation of Pegging plans for patch tripling work duly showing details of TRD assets & OHE arrangements on existing electrified line has been included in the tender schedule

Contractor shall carry foot by foot survey for Verification of existing OHE structures and shall prepare OHE pegging plans for the section between Tadikalpudi - Bethampudi in

auto cad duly covering existing OHE arrangement and the proposed upgradation with conventional OHE by using 65 Sq.mm catenary wire and 107/150 Sq.mm HDG copper/Cu-Ag contact wire on new BG line. The rate shall be per TKM. The drawings are to be in autocad and also to be supplied in DVD media also.

Contractor shall prepare the sectioning diagram in auto cad duly covering Elementary sections and the proposed Elementary sections on new BG line **for Tadikalpudi - Bethampudi section of S.C.Railway.**

The detailed scope of work required to be carried out by contractor are broadly categorized in Para **2.5.6.2 of Chapter V - Part II** of this tender document. The distribution copies as given in Para 2.5.10[m] along with the CD to be submitted to purchaser.

3.12.13; TRACTION SUBSTATION FEEDERS:

25KV cross feeders and along feeders from traction substations to feeding posts is required at TSS of the section.

13,3.14: TRACK CIRCUITS:

No double rail track circuits are envisaged at present.

3.15: LABOUR & MATERIALS :Unskilledlabour is available almost all over the section while skilled labour would be available generally at the main towns in the section.

3.16 :CONTRACTOR'SOFFICE : It is obligatory on the part of the contractor to establish an office nearer to the office of CEE/C/SC for expeditious finalization of particular designs and working drawings. The office should be headed by a qualified Engineer whose credentials shall be approved by the purchaser's Engineer. In addition, the contractor would have to establish field construction offices at convenient and approved locations for co-ordination and progressing of field works.

3.17 :CONTRACTOR'S DEPOT & WORK TRAINS :Suitable space shall be made available for the contractor to set up one main depot at the siding/station. The exact location will be advised later on. A work train would be provided to suit the need of work for erection of masts/portal components/TTC's and stringing of wire only. Additional work trains may, however, be made available (free of charge) at the request of the contractor, if considered necessary by the purchaser to suit the time schedule for completion of works. If work train is not provided for any reason, the work of erection of masts/portal components/ TTC's and stringing of wire has to be carried manually for which extra payment will be made as given in the schedule. (FORM 5 A)
Tower car will be provided by Railway for joint check of IOL/UIOL/Turnout/X-over and removal of twists etc. at free of cost.

3.18 :DURATION OF TRAFFIC/POWER BLOCKS :Track occupation 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. Work trains will normally be allowed to take advantage of block shadows. Normally the total durations of block on any station/section/siding will be max. of 1 to 2 hours in a day for all the tracks in the section taken together, the total of blocks on any track being limited to 1/2 or 1 hours in a day. Block provided may be utilized for one or more work trains or track lorries or ladder trolleys to suit convenience of work.

(b) Material train and blocks will not ordinarily be given for laying out the feeders except where crossing of track is involved which will have to be laid out manually generally. However, material train can be used to drop the feeder drums along side the track. The contractor shall however arrange to get the drums dropped to the maximum possible extent by road.

(c)For purpose of para 1.2.27(d) the work train block hours shall be taken as 6 per track km. For purpose of para 1.2.28(c) the total block hours for completion of works shall also

be taken as 5 per track km.

(d) Power blocks: If power block granted is more than 4 hours at a stretch continuously , then extra payment is not allowed.

3.19: ADDRESSES : The list of addresses, to which correspondence , documents and other matters relating to the contract, should be sent is as under :-

i) For all Policy, Contractual and Commercial matters :-

1) The Chief Electrical Engineer/Construction, S.C RAILWAY, Annex to Rail Nirman Nilayam, Secunderabad - 500 025

ii) For Security Deposit and performance guarantee:

The Chief Electrical Engineer/Construction, S.C RAILWAY, Annex to Rail Nirman Nilayam, Secunderabad - 500 025

iii) For matters relating to particular design and working drawing :-

The Chief Electrical Engineer/Construction, S.C RAILWAY, Annex to Rail Nirman Nilayam, Secunderabad - 500 025.

iv) For matters relating to basic design and drawings for fittings, components equipments and proto type tests :-

1) The Director General (TI),Research Designs & Standard Organization, Manak Nagar, Lucknow - 226001.

2) Chief Electrical Engineer, Indian Railways(CORE)/Allahabad.

v) Matters relating to progressing of field work ,scheduling of quantities and submission of bills :-

1) The Chief Electrical Engineer/Construction, S.C RAILWAY, Annex to Rail Nirman Nilayam, Secunderabad - 500 025

2) DeputyChief Electrical Engineer, Construction, Secunderabad

vi) CLARIFICATIONS :

Any clarification required by the Tenderer may be obtained from the "The Chief Electrical Engineer/Construction, S.C RAILWAY, Annex to Rail Nirman Nilayam, Secunderabad - 500 025"

vii) For matters pertaining to issue of materials on loan to contractor :

The Chief Electrical Engineer/Construction, S.C RAILWAY, Annex to Rail Nirman Nilayam, Secunderabad - 500 025

3.20 QUANTITIES APPROXIMATE : see FORM 5 (B)-PART V of PART A

3.21.RAILWAY SUPPLY MATERIALS

LIST OF ITEMS TO BE SUPPLIED BY PURCHASER TO THE CONTRACTOR

EQUIPMENTS, FITTINGS AND FINISHED MATERIAL.

Refer Annexure-4 of the Chapter-IX of Part-II of this tender document.

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 in gantries 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.
4. Transportation of the Railway supply items to the work spot from contractor's depot to be done by the contractor. No extra payment will be made for this.

PART-II

GENERAL SPECIFICATIONS
FOR OHE & PSI WORKS.

Chapter-I to VIII

TECHNICAL SPECIFICATIONS FOR CONSTRUCTION


**Standard Technical Specifications For Construction of Electrical works can be
downloaded from the following web link:**

<https://scr.indianrailways.gov.in/uploads/files/1717159382431-Sch-DC.pdf>

Important policy letters:

OHE span in view of changes in wind zones in country

(RDSO letter No. TI/OHE/GA/2013 dt.12.08.2013)

 भारत सरकार के रेलमंत्रालय
अनुसंधान अभिकल्प और मानक संगठनमान
कनगर, लखनऊ-226 011 Government
of India, Ministry of Railways
Research Designs & Standards
Organisation/Manak Nagar, Lucknow -
226 011

टेलीफोन 2465765, टेलीफैक्स 42805
(क) फैक्स 91-0522-2465763
Telephone : 2465765, 42805 (Off.)
Fax : 91-0522-2465765
E-mail : dti5@gmail.com

NO.TI/OHE/GA/2013

Dated, the 7th August 2013
12

✓ To,
The Chief Electrical Engineer,
South central Railway,
Railnilayam ,
Secunderabad-500371.

Sub: OHE Span in view of Changes in Wind Zones in Country.

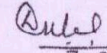
Ref: (i) CEDE, South Central Railway's letter No.
E.252/TRD/56/RVNL/850 dated 16.07.2013
(ii) This office letter No. TI/OHE/GA/2013 dated
25/30.04.2013
(iii) Railway Board's letter No. 2013/RE/161/3 (FTS-69861)
dated 22.02.2013

OHE Span for 1200/1200 kgf tension for 65/150 Sq. mm OHE
and 1000/1000 kgf tension for 65/107 sq. mm OHE & in view of the
variation in wind pressure as per the latest Indian Standard IS:875
(Part-3)-1987, Reaffirmed-1997, has been found out.

2. For new Electrification works as per letter referred (i) above, Basic
Wind Speed, Designed Wind Pressure and OHE Span for 65/107 OHE &
65/150 OHE are given at Table - I & II (enclosed hereby), for 800 mm
'Contact Wire Position Limit'. A factor of margin of 5% has been
considered while advising the new OHE spans as per Railway Board's
letter referred (iii) above.

3. CORE/RVNL may adopt this advised Span for existing 65/107 Sq.
mm OHE having 1000/1000 kgf tension following Table - I.

This is for kind information & adoption in future Railway
Electrification Project.


(J. N. Lal) 8.2013
Sr.Executive Director-OHE(TI)
For Director General(TI)

Encl: As stated above.

Copy to:

1. The Chief Electrical Engineer, Central Organisation for Railway
Electrification, 1, Nawab Yusuf Road, Allahabad- 211001 - For kind
information & necessary action.
2. The Executive Director (Electrical), M/s Rail Vikas Nigam Limited,
1st Floor, Agast Kranti Bhavan, Bhikaji Cama Palace, New Delhi
- 110 066 - For kind information & necessary action.

10
20/8/13

Research Designs & Standards Organization
(Traction Installation Directorate)

Table-II

OHE SPAN CHART OHE: 65/150 Sq. mm, Tension: 1200/1200 kgf, Permitted
Contact Wire Position Limit: 800 mm
(Calculated based on M/s RITES Manual, Volume-IV, Chapter - 1)

Sl. No.	Section	Basic Wind Speed	Designed Wind Pressure	Maximum permissible Span for 65/150 OHE (metres)
		(m/Sec)	(kg/m ²)	1200/1200 kgf Tension
1.	Nallapadu -Guntakal	50/44	178/136	54/63
2.	Wadi-Guntakal	39	105	67.5
3.	Gooty-Dharmavaram	39/33	105/73	67.5/72
4.	Guntur-Tenali doubling	50	178	54
5.	Vijayawada-Machilipatnam-Gudivada-Bhimavaram-Narsapur-Nidadavolu	50 50 50 50 50	178 178 178 178 178	54
6.	Guntakal-Bellary	39/33	105/73	67.5/72
7.	MMTS Phase II-HYB suburban section.	44	136	63
8.	Guntakal-Kalluru (under M.M.)	39	105	67.5
9.	Kazipet-Vijayawada Patch tripling	44/50	136/178	63/54
10.	Paddampet-Mancheri Patch tripling (Major section: KZJ - BPQ)	44	136	63

Note : (i) Displacement of OHE caused by mast deflection due to wind: 0 as reverse deflection of mast provided initially during erection.
(ii) Depression of track due to low joints : 0

Subi
7.8.2013

Research Designs & Standards Organization
(Traction Installation Directorate)

Table-I

OHE SPAN CHART
OHE: 65/107 Sq. mm, Tension: 1000/1000 kgf, Permitted
Contact Wire Position Limit: 800 mm
(Calculated based on M/s RITES Manual, Volume-IV, Chapter - 1)

Sl. No.	Section	Basic Wind Speed	Designed Wind Pressure	Maximum permissible Span for 65/107 OHE (metres)
		(m/Sec)	(kg/m ²)	1000/1000 kgf Tension
1.	Nallapadu -Guntakal	50/44	178/136	54/58.5
2.	Wadi-Guntakal	39	105	67.5
3.	Gooty-Dharmavaram	39/33	105/73	67.5/72
4.	Guntur-Tenali doubling	50	178	54
5.	Vijayawada-Machilipatnam-Gudivada-Bhimavaram-Narsapur-Nidadavolu	50 50 50 50 50	178 178 178 178 178	54
6.	Guntakal-Bellary	39/33	105/73	67.5/72
7.	MMTS Phase II-HYB suburban section.	44	136	58.5
8.	Guntakal-Kalluru (under M.M.)	39	105	67.5
9.	Kazipet-Vijayawada Patch tripling	44/50	136/178	58.5/54
10.	Paddampet-Mancherla Patch tripling (Major section: KZJ - BPQ)	44	136	58.5

Note : (i) Displacement of OHE caused by mast deflection due to wind:0
as reverse deflection of mast provided initially during erection.
(ii) Depression of track due to low joints :0

Amal
7.8.2013

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)

No. 2001/Elect(G)/170/1

dated 22.11.16

1. General Manager,
All Zonal Railways, CORE,
Metro Rail/Kolkata, Konkan Railway.

2. **Chairman and Managing Director,**
RVNL, IRCON, **PGCIL.**

Sub: Revision in OHE parameters for new electrification works undertaken by CORE, RVNL, IRCON or other agencies and undertaken by Railway through Construction organisation/ Open line.

Ref: ED/TI/RDSO letter no. TI/OHE/HS/10 dt. 11.08.2016.

To take care of changes made in IS:875-1964 (for wind pressures in different zones) in 1987, which were re-affirmed in 1997 and to address the issue of panto entanglement during rough weather conditions, RDSO has issued a report in August 2016 (referred above). RDSO has suggested changes in Employment schedule, tension, pre-sag, gradient etc. These changes suggested by RDSO has been considered by Board.

2. Accordingly, all new OHE laid by CORE, RVNL, IRCON or other agencies and the works undertaken by Railways through Construction organisation/Open line should be carried out with following revised OHE parameters as suggested by RDSO & approved by Board (MTR) :

- i) Reduction in the **maximum permissible span** for wind pressure zone of 73 kg/m^2 **from 72 m to 67.5 mtrs.** Similarly, for higher wind pressures, the spans shall be further reduced as per Table-I below:

Table -I

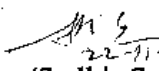
SN.	Design Wind Pressure	Basic Wind Speed	Existing Maximum permissible Span	Revised Maximum permissible Span (with 5% reduction as per Railway Board letter No. 2013/RE/161/3 (FTS-69861) dated 22.02.13)
	kgf/m ²	(m/sec)	(m)	(m)
1	73	33	67.5	67.5
2	105	39	67.5	63
3	136	44	58.5	54
4	155	47	54	49.5
5	178	50	54	40.5
6	216	55		36

Detailed Employment Schedule is provided in Annexure -V of RDSO Report referred above (copy enclosed).

- ii) Increase in **tension to 1.1 Tonne** in catenary and contact wire from the present value of 1.0 Tonne (For this purpose RDSO's specification TI/REPORT/OHE/2016/00117 (Rev-0) to be used). Sources for this three pulley high tension ATD as specification no. TI/SPC/OHE/3PHTATD/01.17 are under develop by RDSO.
- iii) Reduction in the **pre-sag to 50 mm** from present 100 mm.
- iv) Reduction in the **contact wire gradient and relative gradient to 2 mm/m and 1 mm/m** respectively.
- v) Retro-reflective Structure Number Plate, at each OHE Structure, shall be provided.

This issues with the approval of Board (Member Traction).

DA: As above.


22-11-16
(Sudhir Garg)
Executive Director (EEM)
Railway Board

- Copy to: 1. Adviser/RE, Railway Board.
2. DG/RDSO.
3. CAO (Electrical)/CORE, Allahabad.
4. Chief Electrical Engineers/All Zonal Railway, Konkan Railway, USBRCL, Metro Rail/Kolkata.
5. MD/DFCCIL, KRCL.



MISSION 1000 RKM ELECTRIFICATION OVER S.C. RAILWAY



भारत-सरकार/Government of India
रेलमंत्रालय/Ministry of Railways
दक्षिणमध्यरेलवे/South Central Railway



महाप्रबंधक(विद्युत)/ General Manager[E]

मुख्यालयकार्यालय/Headquarters office

सिकंदराबाद/Secunderabad-500 025

Lr.No.E.219/RE-RVNL-CON/Vol.V

Date:31.05.2022

**CPD/RE/SC, CEE/CON/SC,
GM/RVNL/Elect/SC,
GGM/E/RITES/GGN,GM/RITES/SC,
Sr.DEE/TRD/SC, BZA,
Sr.DEE/TR/HYB, GTL, GNT & NED.**

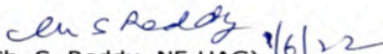
Sub: Measures / guidelines for getting good Quality of foundations in OHE work-Reg.

Ref: This Office Lt. No. E.219/TrD/Circulars/Vol.VII dated 31.3.21 & 17.9.2021.

The following 20 points guide lines are issued to get good quality of foundations in Electrification works.

1. Bund to be constructed on foundation top and Gunny bag is to be placed on top of foundation and water to be poured in core 1-2 times and on top of foundation 3-4 times daily for proper curing of foundation. Curing shall be done for 21 days such that the surface is always moist. The surface to be covered with canvass or such other materials so that the surface is wet. The curing regime helps in preventing the development of high temperature gradients within the foundation.
2. As per IS 456:2000 for plain & reinforced concrete, tolerances in dimensions of cross-section of foundation should be within the limit of -6 mm to +12 mm & depth to be within +50mm.
3. The test cube shall be cured keeping inside the core of the foundation from where the sample is taken for testing. Total 06 cubes shall be cast as per IS SPEC. Three cubes for 7 days testing and three cubes for 28 days testing. Test cubes to be got tested from approved labs as advised by CEDE earlier (copy enclosed).
4. SOD shall be measured by RE/ RVNL/ CON/ RITES/ Railway Supervisors before mast grouting or erection and ensure that it is minimum 2.575 m for curved track up to 2 degrees and 2.725 m for track curve above 2 degrees. Otherwise grouting shall not be done. SOD violations are likely at yards with 'P' type/NBC type foundations.
5. After foundation is cast the location number, type of foundation, type of mast, location number and Date of cast shall be engraved on the foundation.
6. Released engine oil shall be applied on scroll before inserting it in the pit and it shall be rotated frequently to avoid honey combs in foundation and possibility of scroll getting stuck up in the foundation.
7. Scroll metal thickness to be a minimum of 2.4mm to avoid honeycomb in pits. Foundation side and top to be finished properly.
8. Vibrator to be used for all foundations every 30cm.

9. Foundation hole to be covered with cement cover to avoid staff or passengers falling in to pits accidentally.
10. Miller or Ajax or RMC only to be used. Manual mixing of concrete is banned.
11. Sand sieve analysis and Metal sieve analysis shall be done for each quarry & report to be submitted to division & HQ. Concrete/Metal crushing strength test shall be carried out in accordance with IS:516-1959 or its latest version at least once.
12. Water chemical test shall be done for each source of supply at least once.
13. Muff: 20cm Height plus 5cm slope for all locations including ATD except on PF. On PF, 15cm plus 5cm muff to be adopted. To cast muffs, metal patterns shall be used.
14. Finishing of foundations to be done at the time of muff.
15. As cess is not 50cm and mostly more than 70cm & at times >1m, it shall be ensured that depth of excavated pit = $H - 10\text{cm}$, where H = Height of foundation as per volume chart. Blind digging up to 1.85m alone is to be stopped. All supervisors to be counselled accordingly. Super blocks up to 50cm can be provided to get step distance of 50cm. If cess is very high, special foundations like RCC foundation, pile foundation to be designed.
16. Cement used shall be certified by BIS & not confirming to BIS spec alone. Further age of cement shall be less than 3 months from date of manufacture.
17. Only River sand to be used. Filter sand shall be rejected. To use Robo sand - Test report is must from approved labs of NABL.
18. Extreme case to be taken while casting Feeder mast foundations. Depth of foundation = $H - 10\text{cm}$.
19. Before digging is done, SOD expected at site shall be calculated for the given implantation in LOA/CSD & if SOD is less than 2.57/2.72m, increased implantation to be adopted accordingly.
20. At the time of approval of portal/TTC locations for which 'P'-type foundations are generally used, implantation to be decided taking SOD into account. Similarly, for NBC & MG type foundations for normal locations anywhere in the section, care to be taken in deciding implantation at LOP stage itself.


 (Ch. S. Reddy, NF-HAG) 16/12
 Chief Electrical Distribution Engineer
 For Principal Chief Electrical Engineer

Chapter-IX

ANNEXURES & FORMS OF TENDERS ETC.

Chapter-IX

ANNEXURES AND ADDEDUMS

<u>ANNEXURE</u> <u>No.</u>	<u>SUBJECT</u>
1	List of Standard drawings and specification.
2	DELETED
3	Requirement of spares (Deleted).
4	List of materials to be supplied by the purchaser to the Contractor
5	List of purchaser's addresses
6	Unit quantities of finished wires and conductors for various items of work.
7	Declaration from the tenderer that he abides by G.C.C.

ANNEXURE – 1

2.9.0. 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 Drawings, charts, Schedules, specifications and other data given in the tender document is indicative only. Latest version of such drawings, charts and schedules of specifications as issued by the Railway Board/ RDSO/ CORE/RITES/Purchaser etc., from time to time shall be adopted.

For 2x25kV AT system, drawings and specifications as per RDSO instruction No. TI/IN/0042 for OHE works and TI/IN/0043 (REV.00) for PSI works with latest amendments/correction slips or latest and time to time instructions issued by Railway Board/ RDSO/ CORE/RITES/Purchaser etc., from time to time shall be adopted.

(A) LIST OF STANDARD DRAWINGS FOR CONVENTIONAL TYPE OHE (REGULATED)

Sl. No.	Brief Description	Drawing Series	Number	Mod.
1.	Extra allowance for settings of structures on curves (1676mm Broad gauge).	ETI/OHE/G	00111 Sh-1	C
2	Standard setting of structures in the vicinity of signals (broad gauge)	ETI/OHE/G	00112	D
3	Typical design of side bearing foundation.	ETI/OHE/G	00131	
4	-Deleted-			
5	Typical design cantilever mast.	R/E/33/G	00141 Sh.3	
6	Standard drilling schedule of OHE masts 9.5m long RSJ and BFB respectively.	ETI/OHE/G	00144 Sh.3	C
7	Span and stagger chart for (conventional OHE, Cd.Cu catenary & Cu.cont.wire) for wind pressure 75,112.5&150kgf/sq.m.	ETI/OHE/G	00202	
8	Employment schedule for Cantilever Mast Regulated OHE Cat. 65/ Cu and Cont 107/Cu, WP 112.5kgf.sq.m without EW&without RC.	ETI/OHE/G	00153 Sh.1	E
10	Employment schedule for Cantilever Mast Regulated OHE Cat. 65/Cu and Cont 107/ Cu, WP 112.5kgf.sq.m with EW & with RC	ETI/OHE/G	00153 Sh.3	
11	Employment schedule for Cantilever Mast Regulated OHE Cat. 65/Cu and Cont 107/ Cu, WP 112.5kgf.sq.m with EW & with RC	ETI/OHE/G	00153 Sh.4	
12	Employment schedule for Cantilever Mast unregulated OHE Cat.65/Cu and Cont 107/Cu, WP 112.5kgf.sq.m at 35xC& with 28 kgf/sq.m at 4xC without(EW&RC)	ETI/OHE/G	00154	
13	Employment schedule of bracket tubes regulated Conventional OHE (Cd Catenary & Cu contact wire 1000kgf tension Each)	ETI/OHE/G	00153 sh-1 to sh-3	
14	Dropper schedule for – uninsulated Overlap spans.	ETI/OHE/G	00169	A
15	Dropper schedule for insulated Overlap spans.	ETI/OHE/G	00170	A
16	Dropper schedule for conventional regulated OHE with zero presage (1400/1400)	ETI/OHE/G	00177	A
17	Adjustment chart of regulating equipment 3-Pulley type 3:1 ratio.	ETI/OHE/G	00195	A
18	Schematic arrangement of regulated OHE.	ETI/OHE/G	02101	A
19	Schematic arrangement of uninsulated overlaps (3&4 span overlaps).	ETI/OHE/G	02121 Sh.4	A
20	Schematic arrangement of insulated overlap.	ETI/OHE/G	02131 Sh.3	A
21	Termination arrangement of Tramway OHE with 3 pulley type regulating equipment (3:1 ratio).	ETI/OHE/G	04212	B
22	General distribution of droppers.	ETI/OHE/G	00161	-

Sl. No.	Brief Description	Drawing Series	Number	Mod.
23	Outline of Pantograph (Broad gauge and metre gauge).	R/E/33/G	00181	A
24	General formation of single track Embankments and cutting (Broad gauge).	R/E/33/G	01101-sh-1	A
25	General formation of double track Embankments and cutting (Broad gauge).	R/E/33/G	01102 Sh.1	A
26	General formation of multiple tracks (1675mm gauge).	R/E/33/G	01103 Sh.1	A
27	Standard anchor arrangement.	R/E/33/G	01401 Sh-1	E
28	Anchor arrangement with dwarf mast.	ETI/OHE/G	01402	B
29	Schedule of anchor block for B.G. track.	ETI/OHE/G	01403 Sh.1	D
30	Double guy rod arrangement with anchor block for B.G. track.	ETI/OHE/G	01403 Sh.2	C
31	Schedule of anchor block for B.G. track (Black cotton soil)	ETI/OHE/G	01403 Sh.3	B
32	Standard guide tube arrangement on a mast and structures.	ETI/OHE/G	01505	-
33	Trapezoidal counter weight arrangement on OHE structures.	ETI/OHE/G	01502	-
34	Arrangement of 3KV & 25KV Pedestal insulator supports on OHE masts and portals.	ETI/OHE/G	01601	
35	Standard arrangements for mounting of number plate on OHE Structures.	ETI/OHE/G	01701	A
36	Schematic arrangement of regulated overhead equipment.	ETI/OHE/G	02101	A
37	Typical arrangement of OHE on cantilever masts for double track section.	ETI/OHE/G	2102	-
38	Typical arrangement for fixing of bracket assembly on 9.5m mast and structure to suit raising of tracks in future.	ETI/OHE/G	02102 Sh.3	-
39	Mast on platforms (1676mm gauge).	ETI/OHE/G	02104 Sh.1	A
40	Details of bracket arrangement on tangent and curved tracks.	ETI/OHE/G	02106 Sh.1	A
41	Details of bracket arrangement for OHE (High Speed).	ETI/OHE/G	02106 Sh.3	C
42	Single bracket assembly on Structures and dropped arms.	R/E/33/G	02107	D
43	Box type cantilever Arrangement.	ETI/OHE/G	02108	A
44	Arrangement at anticreep.	ETI/OHE/G	02111	A
45	Standard cantilever arrangement for boom anchor anticreep location.	ETI/OHE/G	02113	-
46	Schematic arrangement of uninsulated over Lap (type-I) 3&4 Span overlaps.	R/E/33/G	02121 Sh.1	F
47	Schematic arrangement of insulated overlap.	ETI/OHE/G	02131 Sh.1	
48	General arrangement of regulated OHE at turn-outs (overlap& crossed type).	ETI/OHE/G	02141	C
49	General arrangement of regulated OHE at cross over (overlap &crossed type).	ETI/OHE/G	02151	
50	Arrangement of neutral section.	ETI/OHE/G	02161 Sh.1 of 2	C
51	Arrangement of neutral section assembly (PTFE Type) at SWS.	ETI/OHE/G	02162	-
53	Schematic arrangement of unregulated overhead equipment.	ETI/OHE/G	03101	-
54	Standard termination of OHE (Regulated &	ETI/OHE/G	03121	E

Sl. No.	Brief Description	Drawing Series	Number	Mod.
	un-regulated).			
55	General arrangement of Unregulated OHE at turnouts (crossed & overlap type).	ETI/OHE/G	03151	-
56	General arrangement of unregulated OHE crossovers and diamond crossings (overlap and crossed type).	ETI/OHE/G	03152 Sh.1	-
57	General arrangement of unregulated OHE at diamond crossing.	ETI/OHE/G	03152 Sh.2	-
58	General arrangement of head span.	ETI/OHE/G	03201	A
59	General arrangement of pull off.	ETI/OHE/G	03301	-
60	In span jumper connection between catenary& contact wire.	ETI/OHE/G	05101	-
61	Continuity jumper connection at uninsulated overlap.	ETI/OHE/G	05102	C
62	Arrangement of anti-theft jumper.	ETI/OHE/G	05107	A
63	Connection at turnouts.	ETI/OHE/G	05103	B
64	Potential equalizer connection at insulated overlap and neutral section.	ETI/OHE/G	05104	-
65	Connections at diamond crossing.	ETI/OHE/G	05106	A
66	General arrangement of connections to OHE by copper cross feeder (150)	ETI/OHE/G	05121 Sh.1	C
67	General arrangement of connections at switching station on double track section by copper cross feeder (150.	ETI/OHE/G	05122 Sh.1	C
68	General arrangement of connections at switching station on multiple track section by copper cross feeder (150.	ETI/OHE/G	05123 Sh.1	C
69	Suspension of 25kV feeder (Spider) on OHE masts.	ETI/OHE/G	05143	B
70	Termination of feeder, return conductor & return feeder (copper & aluminum).	70 RE/33/G	05145	A
71	Arrangement of suspension of double spider 25KV feeder and return feeder between sub-station and feeding station.	70 RE/33/G	05152	C
72	Assembly of section insulators.		05181	C
73	General arrangement of earth wire on OHE mast.	ETI/OHE/G	05201	A
74	General arrangement of earth wire on OHE mast.	ETI/OHE/G	05201-1	
75	Arrangement of transverse bonds.	ETI/OHE/G	05251	A
76	Connection of return conductor to track.	ETI/OHE/G	05306	F
77	Suspension arrangement of aluminum return conductor (spider) on traction Structures.	ETI/OHE/G	05307	B
78	Suspension of return conductor (spider) from boom of Structures (with clevis type disc insulators).	ETI/OHE/G	05312	A
79	Connections between OHE and aluminum return conductor at booster stations.	ETI/OHE/G	05413	B
80	Mounting of 25KV Isolators on OHE Structures (General arrangement).	ETI/OHE/G	05513 Sh.1	A
81	Details of small part steel work for supporting 25KV Isolator on new T.T.C. boom.	ETI/OHE/G	05513 Sh.2	A
82	Connection from isolator to OHE.	ETI/OHE/G	05516	A
83	Characteristics of conductors/bus-bar for 25KV AC traction.	ETI/OHE/G	05600	A
84	Arrangement of mounting 25KV/240, 10 KVA LT supply transformer.	ETI/OHE/G	05522	-
85	Employment Schedule for Cantilever Mast regulated OHE Caty 65 Cu, Cont.107/Cu (WP 75 kgf/sq.m.)	ETI/C	0702 sh-1 to 5	B
86	Employment Schedule for Tramway type regulated OHE (WP 75 kgf/sq.m.)	ETI/C	0704	B
87	Employment Schedule for 8"x8"x35 Ibs BFB (9.5M.long) (WP 112.5 kgf/sq.mm Cat.65/Cu&Cont.107/Cu.	ETI/C	0708	B
88	Employment schedule for OHE mast overlap central	ETI/C	0709	A

Sl. No.	Brief Description	Drawing Series	Number	Mod.
	location with 3.0m implantation. Cat.65/Cu&Cont.107/Cu.WP 75kgf/sq.m.			
89	Employment schedule for OHE mast overlap central location with 3.0m implantation. Cat.65/Cu&Cont.107/Cu.WP 112.5 kgf/sq.m.	ETI/C	0710	A
90	Employment schedule for OHE mast (9.5) overlap center location with 3.0m implantation. Cat.65/Cu&Cont.107/Cu.WP 75 kgf/sq.m.	ETI/C	0711	A
91	Employment schedule for OHE mast overlap inter location with 3.0M implantation. Cat.65/Cu&Cont.107/Cu.WP 112.5 kgf/sq.m.	ETI/C	0712	A
92	Employment Schedule for (9.5m) long 200x200x49.9kg mast - Caty. 65/Cu & Cont.107/Cu.WP 75 kgf/sq.m.	ETI/C	0713	B
93	Employment schedule for 9.5m long 200x200x49.9kg mast Cat.65/Cu and Cont.107/Cu WP 112.5 Kgf/sq.m.	ETI/C	0714	A
94	Employment schedule for OHE for 9.5 m mast overlap anchor location with 3.0M implantation. Cat.65/Cu&Cont.107/Cu.WP 75 kgf/sq.m.	ETI/C	0715	A
95	Employment schedule for OHE for 9.5 m mast overlap anchor location with 3.0M implantation. Cat.65/Cu&Cont.107/Cu.WP 112.5kgf/sq.m.	ETI/C	0716	A
96	Employment Schedule for regulated OHE mast (9.5m) wind pressure 75kgf/sq.m for composite OHE (1000<<1000) kgf tension.	ETI/C	0721 sh-1 to 4	
97	Employment Schedule for regulated OHE mast (9.5m) wind pressure 75kgf/sq.m. for composite OHE with extra setting distance. Overlap Anchor location.	ETI/C	0722	-
98	Employment Schedule for regulated OHE mast (9.5m) wind pressure 75kgf/sq.m. for composite OHE with extra setting distance. Overlap center location.	ETI/C	0723	-
99	Employment Schedule for regulated OHE mast (9.5m) wind pressure 75kgf/sq.m. for composite OHE with extra setting distance. Overlap inter location.	ETI/C	0724	-
100	Employment schedule for pre-stressed concrete mast (PC 42) 9.5m long, for conventional OHE, Normal Location (WP 150,112.5 & 75kgf/sq.m.	ETI/C	0725	A
101	Standard portal (N.O, P, R, G&Double BFB type).	ETI/C	0064	-
102	Volume chart and equivalent chart of foundation.	ETI/C	0058 Sh.1	E
103	-do-new pure gravity.	ETI/C	0058 Sh.2A	D
104	-d0- Dry black cotton soil (NBC type)	ETI/C	0058 Sh.3A	B
105	-do- New pure gravity (500m, exposed)	ETI/C	0058 Sh.4	B
106	-d0- Dry black cotton soil (NBC type) 2.5m depth.	ETI/C	0058 Sh.5	B
107	-do- (For a direct load of 4000Kg)	ETI/C	0058 Sh.6	B
108	Special BFB portal for 5 tracks (General arrangement)	ETI/C	0026 Sh.1	C
109	Protective screen at foot-over bridge and road over-bridge.	ETI/C	0068	G
110	Chart for portal foundation.	ETI/C	0005/68	
111	Muff for OHE Structures.	ETI/C	0007/68	E
112	Structures muff for sand core foundations.	ETI/C	0012/69	E
113	9.5m standard traction mast (fabricated 'K' series).	ETI/C	0018-2	D
114	Remote Control Cubicle at switching station, foundation, RCC slab Building plan & steel door.	ETI/C	0067	B
115	9.5m standard traction mast (fabricated with bottom plates 'B' series)	ETI/C	0071	E

Sl. No.	Brief Description	Drawing Series	Number	Mod.
116	Details of OHE foundation in soft rock (bearing capacity 45,000 Kgf/sq.m).	ETI/C	0059	B
117	Details of foundation for fencing upright.	ETI/C	0032	B
118	Employment schedule for switching and booster station main masts.	ETI/C	0185	B
119	Drilling schedule for S-1 mast	ETI/C	0030	F
120	-do- S-2 mast.	ETI/C	0031	D
121	-do- S-3 mast (length 11.4m)	ETI/C	0180	C
122	Drilling schedule for 8" x 6"x35 Ibs.RSJ mast 8.0m long for booster transformer station Type S-4.	ETI/C	0036	E
123	Drilling Schedule for S-5 mast (11.4m long)	ETI/C	0042	E
124	-do- S-6 mast (length 12.4m)	ETI/C	0181	C
125	-do- S-7 -do-	ETI/C	0182	C
126	-d- S-8 -d0-	ETI/C	0183	C
127	-do- S-9 mast (length 9.4m)	ETI/C	0184	C
128	General arrangement & details of fencing panels & gate for switching station.	ETI/C	0186 Sh.1	E
129	Details of fencing upright and anti-climbing device for switching station.	ETI/C	0186 Sh.2	E
130	S-100 fabricated mast for mounting LT supply transformer and drop out fuse switch at switching station.	ETI/C	0043	B
131	S-101 details of mast for supporting isolator inside switching station.	ETI/C	0044	A
132	Details of anchor beam or SP,SSP,&FP	ETI/C	0033	D
133	Details of small part steel for switching station.	ETI/C	0034 Sh.1	K
134	Details of bracing for switching & B.T. masts.	ETI/C	0034 Sh.2	B
135	Details of small parts steel of our rigger for switching stations and booster transformer stations.	ETI/C	0037	C
136	Details of small parts steel for booster transformer stations.	ETI/C	0040	E
137	Details pre-cast cable trench for switching station.	ETI/C	0038	E
138	Standard 'R' type portal (rod laced) general arrangement.	ETI/C	0011/69Sh .1	C
139	Standard 'G' type portal special upright and end piece.	ETI/C	0056	C
140	Short bored pile foundation for traction mast (permissible BM&volume)	ETI/C	0062	B
141	Chart for portal foundations in dry black cotton soil safe bearing capacity 16500 Kg/sq.m.	ETI/C	0063	B
142	Dwarf mast foundation on wet dry black cotton soil.	RE/ALD/OHE/SK/C	02	-
143	Typical design of new pure gravity foundation.	ETI/SK/C	131	A
144	Typical design of side gravity foundation.	ETI/SK/C	142	A
145	Rock Anchor for B.G.Track.	ETI/SK/C	208	-
146	Bracket fitting for PSC Masts capacity-4.200kgm.	ETI/SK/C	214 Sh.1	E
147	SPS details for Earth wire clamp on PSC mast.	ETI/SK/C	214 Sh.2 of 2	A
148	Special arrangement of OHE under overline structure.	ETI/OHE/SK	529	D
149	Earthing and bonding of PSC mast.	ETI/OHE/SK	537 Sh.1 of 2	D
150	Typical earthing arrangement in SPUN PSC Mast with 18mm dia rod.	ETI/OHE/SK	537 Sh.2	B
151	Arrangement of antitheft jumper at overlap.	ETI/OHE/SK	566	-
152	Catenary dropper assembly	ETI/OHE/P	1190	B
153	Parallel clamp (20/20)	ETI/OHE/P	1550	E
154	Standard guide tube assembly.	ETI/OHE/P	5060-2	C
155	Standard anti-wind clamp	ETI/OHE/P	2550-1/2	L
156	Multiple cantilever cross arm assembly	RE/33/P	3120	H

Sl. No.	Brief Description	Drawing Series	Number	Mod.
157	Anchor fitting assembly on rolled sections	ETI/OHE/P	3230	C
158	Anchor fitting assembly on 'K' series, TCC masts and 'P' type portal upright.	ETI/OHE/P	3240	D
159	Anchor assembly on 'N' and 'O' type portal upright	ETI/OHE/P	3250	D
160	Structure bonds	ETI/OHE/P	7000	E
161	Earthing stations	ETI/OHE/P	7020	B
162	Longitudinal rail bond	ETI/OHE/P	7030	F
163	Short super mast assembly	ETI/C/P	8010	G
164	Long super mast assembly	ETI/C/P	8020	C
165	Bracket attachment assembly on portal upright (N,O,R,P,G&BFB Type)	ETI/C/P	8030	B
166	Super mast assembly on portals	ETI/C/P	8050	C
167	Medium super mast assembly	ETI/OHE/P	8060	C
168	Compensating plate	ETI/OHE/P	5191-1/2	D
169	Suspension clamp	RE/33/P	1160	J
170	Double suspension clamp	RE/33/P	1170	K
171	Double suspension lock plate	RE/33/P	1172	C
172	Catenary splice (65)	ETI/OHE/P	1090	
173	Typical location & schematic connection diagram for a three interruptor switching station.	ETI/PSI	003	C
174	Typical general arrangement of a three interruptor switching station.	ETI/PSI	004	F
175	Typical location plan & general arrangement for sectioning & paralleling station.	ETI/PSI	005	F
176	Typical location plan and arrangement for a feeding station	ETI/PSI	006	E
177	Typical general arrangement at a Booster transformer station (with 4 cross feeder) type III	ETI/PSI	013	B
178	Typical general arrangement of 280 KVA Booster Transformer station (with 4 cross feeder) Type III	ETI/PSI	018	A
179	Typical general arrangement at a booster transformer station (without cross feeder) Type-I	ETI/PSI	011	C
180	Typical number plate for auxiliary transformer	ETI/PSI/P	7525	-
181	Typical fencing and anti-climbing arrangement at switching station	ETI/PSI	104	F
182	Typical earthing layout of sub-sectioning and paralleling station	ETI/PSI	201	B
183	Typical earthing layout of a sectioning and paralleling station.	ETI/PSI	202	B
184	Typical earthing layout of a feeding station.	ETI/PSI	203	B
185	Earthing details for interruptor L.T. supply transformer 25KV lightning arrestors P.T. Type-I (S-100 masts, S-101mast, fencing upright and main mast)	ETI/PSI	204	C
186	Typical earthing layout at a booster transformer stations (without cross feeder for Type-I and II	ETI/PSI	211-1	A
187	Typical cable run layout of a sub-sectioning & paralleling station.	ETI/PSI	301	C
188	Typical cable run layout of a sectioning and paralleling station	ETI/PSI	302	C
189	Typical cable run layout of a feeding station	ETI/PSI	303	B
190	Typical earthing layout at a booster transformer station (with 4 cross feeder for Type III, IV & V	ETI/PSI	212	B
191	Typical drawing for a terminal board	ETI/PSI	501	C
192	36mm Aluminum Bus terminal	ETI/PSI/P	6480	C
193	-do- splices	ETI/PSI/P	6490	B
194	-do- Tee connector	ETI/PSI/P	6500	C
195	36mm aluminum tee terminal	ETI/PSI/P	6510	D
196	36/15 Tap connector	ETI/PSI/P	6520	B
197	36mm Aluminum flexible bus splice	ETI/PSI/P	6550	B

Sl. No.	Brief Description	Drawing Series	Number	Mod.
198	36mm Aluminum bus splice cum tee connector	ETI/PSI/P	6560	B
199	Typical number plate for interruptor and double pole isolator	ETI/PSI/P	7520	B
200	Typical number plate for potential transformer Type	ETI/PSI/P	7521	B
201	Typical number plate for booster transformer	ETI/PSI/P	7522	B
202	Standard plan Remote Control cubicle at switching station	RE/Civil/BS-1 15/95		-
203	Typical details of pressed steel door, window and ventilator	RE/Civil/S-11 5/95	R1	
204	Bolted base connection for portals located in drains	ETI/C	0010	C
205	Details of base plate for mast on drains in station yards	ETI/C	0002/68	A
(B) LIST OF STANDARD DRAWINGS FOR TRAMWAY TYPE O.H.E. (REGULATED)				
206	Span and stagger chart for Tramway type OHE (Regulated)	ETI/OHE/G	04201	-
207	Drilling schedule of OHE mast 8.5m&9m ling RSJ and BFB for tramway OHE	ETI/OHE/G	04202 Sh.1 Sh.2	C
208	Schematic arrangement of (regulated) tramway type OHE.	ETI/OHE/G	04203	C
209	Arrangement of bracket assembly for Tramway Type OHE (regulated)	ETI/OHE/G	04204	B
210	Arrangement of anti-creep for Tramway Type OHE (regulated)	ETI/OHE/G	04205	B
211	Arrangement of anti-creep for Tramway Type OHE (Regulated alternative arrangement)	ETI/OHE/G	04206	B
212	Arrangement of section Insulator for Tramway Type OHE (Regulated)	ETI/OHE/G	04207 Sh.1	B
213	Small parts steel for supporting section insulator assembly for regulated Tramway Type OHE.	ETI/OHE/G	04207 Sh.2	B
214	General arrangement of turnouts for Tramway type OHE (Regulated)	ETI/OHE/G	04208	-
215	Adjustment chart for Tramway type OHE (Regulated)	ETI/OHE/G	04209	-
216	Bridle wire clamp (6mm) with two bolts	ETI/OHE/P	1070-1	B
217	Large suspension clamp 20mm (with armour rod)	ETI/OHE/P	1580 Sh.2	
218	Hook Bracket	ETI/OHE/P	2380	C
219	BFB Steady arm assembly for Tramway OHE (Regulated)	ETI/OHE/P	2540-1	
220	Anti wind clamp for tramway OHE (Regulated)	ETI/OHE/P	2550-3	E
221	Counter weight assembly (light)	ETI/OHE/P	5090-3	F
222	Counter weight assembly with pulley type regulating equipment (3:1 ratio)	ETI/OHE/P	5090-1	B
223	Employment schedule for tramway type regulated OHE without R.C. and E.W.(W.P.112.5 kgf/sq.m)	ETI/C	0705	B
224	Proctive screen at FOB/ROBs	ETI/C	0068	G
225	Proposed height gauges at level crossings upto 7.3m spans.	RE/Civil/92- 84	R2	-
(C) LIST OF STANDARD DRAWINGS FOR COMPOSITE OHE (REGULATED)				
226	DELETED			
227	Employment Schedule of bracket tube regulated conventional OHE (Cd-Cu catenary and Cu-contact wire (1000kgf tension each) for wind pressure 150kgf/m2 at 10 deg C.	ETI/OHE/G	00158 Sh.3	-
228	Employment schedule of bracket tubes unregulated conventional OHE (Cd.Cu-catenary) and Cu-contact wire.	ETI/OHE/G	00159 Sh.3	-
229	Schematic arrangement of uninsulated overlap (A1.Alloy Catenary and copper contact wire.	ETI/OHE/G	02121 Sh.3	-
230	Schematic arrangement of insulated overlap (A1.Alloy	ETI/OHE/G	02131 Sh.2	A

Sl. No.	Brief Description	Drawing Series	Number	Mod.
	Catenary and copper contact wire.			
231	General arrangement of regulated composite OHE at turnouts (overlap and crossed type)	ETI/OHE/G	02141 Sh.2	-
232	Standard terminations of Regulated composite OHE.	ETI/OHE/G	03121 Sh.2	B
233	In span jumper connection between Aluminum Alloy catenary&copper contact wire.	ETI/OHE/G	05101 Sh.2	B
234	Continuity jumper connection at un-insulated overlap (A1.Alloy catenary and copper contact wire)	ETI/OHE/G	05102 Sh.2	B
235	Connections at turnouts for composite OHE	ETI/OHE/G	05103 Sh.2	B
236	Potential equalizer connection at insulated overlap&neutral section (A1.Alloy catenary&copper contact wire)	ETI/OHE/G	05104 Sh.2	B
237	Connection at diamond crossing for composite OHE.	ETI/OHE/G	05106 Sh.2	C
238	General arrangement of connection to composite OHE by cross feeder (SPIDER)	ETI/OHE/G	05124 Sh.2	C
239	General arrangement of connection at switching station on double track section for composite OHE.	ETI/OHE/G	05125 Sh.2	C
240	General arrangement of connection at switching station on multiple track section (with composite OHE and spider cross feeder)	ETI/OHE/G	05126 Sh.2	C
241	Assembly of section insulator (with A1.alloy catenary and copper contact wire)	ETI/OHE/G	05181 Sh.2	B
242	Standard arrangement of supporting cantilevers on the BOOM of portals and TTC (to avoid Bird's nesting).	ETI/C	0076	C
Employment schedule for OHE mast (9.5m)wind pressure 112.5kgf/sq.m for composite OHE (1000+1000) kgf Tension.				
243	OHE only	ETI/C	0717 Sh.1	A
244	-do- OHE + EW		0717 Sh.2	-A
245	-do- OHE + RC	ETI/C	0717 Sh.3	-A
246	-do- OHE + EW + RC		0717 Sh.4	-A
Employment schedule for OHE mast (9.5m) wind pressure 112.5kgf/sq.m for composite OHE (1000+1000) kgf Tension.				
247	-do- Overlap anchor location	ETI/C	0718	-
248	-do- Overlap Central location	ETI/C	0719	-
249	-do- Overlap Inter location	ETI/C	0720	-
250	Employment schedule for OHE mast (9.5m) wind pressure 150 kgf/m2 Copper OHE	ETI/C	0726 Sh.1	-
251	Employment schedule for OHE mast (9.5m) wind pressure 150 kgf/m2 Copper OHE&EW	ETI/C	0726 Sh.2	-
252	Employment schedule for OHE mast (9.5m) wind pressure 150 kgf/m2 Copper OHE&RC	ETI/C	0726 Sh.3	-
253	Employment schedule for OHE mast (9.5m) wind pressure 150 kgf/m2 Copper OHE RC,&EW	ETI/C	0726 Sh.4	-
254	Employment schedule for OHE mast (9.5m) wind pressure 150 kgf/m2 Copper OHE, with higher implantation overlap anchor location.	ETI/C	0727	-
255	Employment schedule for OHE mast (9.5m) wind pressure 150 kgf/m2 Copper OHE, with higher implantation overlap central location.	ETI/C	0728	-
256	Employment schedule for OHE mast (9.5m) wind pressure 150 kgf/m2 Copper OHE, with higher implantation overlap inter location	ETI/C	0729	-
257	Implantation Schedule for Tramway type regulated OHE WP 150kgf/m2 without RC&EW	ETI/C	0706	B
258	Aluminum alloy catenary suspension clamp (MCI)	ETI/OHE/SK	176	D
259	Double suspensions lock plate. (galvanized MCI)	ETI/OHE/SK	205	B
260	Parallel grove clamp (14/9)	ETI/OHE/SK	123	D
261	Parallel grove clamp (18/14)	ETI/OHE/SK	231	D

Sl. No.	Brief Description	Drawing Series	Number	Mod.
262	Catenary dropper clip assembly with bimetallic washer.	ETI/OHE/SK	333	D
263	Envelope type end fitting assembly for all A1. Alloy standard Cat.wire (size 19/2.79mm)	ETI/OHE/SK	436	c
264	Crimp type repair sleeve for AAA stranded catenary wire.	ETI/OHE/SK	285	C
265	Catenary splice (cone type) AL. Alloy catenary.	ETI/OHE/SK	134	D
266	Aluminum catenary suspension clamp assembly (MCI).	ETI/OHE/SK	468	A
267	Double suspension clamp assembly (MCI for AI. Alloy catenary).	ETI/OHE/SK	469	A
268	Span and stagger chart for composite OHE.	ETI/OHE/SK	375	A
269	Double suspension clamp body for Aluminum alloy catenary.	ETI/OHE/P	1171-1	A

Sl. No.	Description	Drawing No.
[D] Design drawings of 25kV single phase conventional OHE by using 65 sqmm. Cadmium copper catenary wire and 150sq.mmHDGC contact wire		
270	Employment schedule for cantilever mast regulated OHE (150 sq.mm. contact wire) without EW and without RC (wind pressure 150 kgf/sq.m).	ETI/OHE/G/00120 Sh-1 (Rev 'B' or latest)
271	Employment schedule for cantilever mast regulated OHE (150 sq.mm. contact wire) without EW and without RC (wind pressure 110 kgf/sq.m).	ETI/OHE/G/00121 Sh-1 (Rev 'B' or latest)
272	Employment schedule for cantilever mast regulated OHE (150 sq.mm. contact wire) without EW and without RC (wind pressure 75 kgf/sq.m).	ETI/OHE/G/00122 Sh-1 (Rev 'A' or latest)
273	Employment schedule for cantilever mast regulated OHE (150 sq.mm. contact wire) for 31.5m and 27.0m spans.	ETI/OHE/G/00123 (Rev 'A' or latest)
274	Schematic arrangement of un-insulated overlap (Three span and four span) for higher section of OHE.	ETI/OHE/SK/607
275	Schematic arrangement of insulated overlap (Three span and four span) for higher section of OHE.	ETI/OHE/SK/608
276	Sag and tension chart (higher section of OHE).	ETI/OHE/SK/605
277	Dropper schedule of regulated OHE (for higher section of OHE).	ETI/OHE/SK/606
278	Span and stagger chart.	ETI/OHE/SK/124
279	Dropper schedule for insulated overlap span (for higher section of OHE).	ETI/OHE/SK/148
280	Dropper schedule for un-insulated overlap span (for higher section of OHE).	ETI/OHE/SK/149
281	Contact wire ending clamp (107/150).	ETI/OHE/P/1110-2
282	Contact wire dropper clip (107/150).	RE/33/P/1180
283	BFB steady arm assembly.	ETI/OHE/P/2390
284	BFB steady arm swivel.	ETI/OHE/P/2392
285	Catenary ending clamp (65).	ETI/OHE/P/1120
286	Catenary ending clamp (65) wedge type.	ETI/OHE/P/1120-1
287	Equalizing plate assembly.	ETI/OHE/P/5192-1/2
288	Compensating plate.	ETI/OHE/P/5191-1/2
289	Employment schedule for conventional OHE without RC and without Earth wire for upto 2.80m standard implantation and as per revised wind pressures	TI/DRG/CIV/ES/RDSO/00001/18/0 (Sheet 1 to 5)
290	Employment schedule for conventional OHE without RC and without Earth wire for upto 3.80m standard implantation and as per revised wind pressures	TI/DRG/CIV/ES/RDSO/00002/18/0 (Sheet 1 to 5)
291	Employment schedule for conventional OHE without	TI/DRG/CIV/ES/RDSO/00003/18/0

	RC and without Earth wire for 3.80m upto 4.85 m standard implantation and as per revised wind pressures	(Sheet 1 to 5)
292	Dropper schedule for conventional and high rise OHE	TI/DRG/OHE/DROP/00001/10/3 (1400mm/1400mm encumbrance)
293	Dropper schedule for conventional and high rise OHE	TI/DRG/OHE/DROP/00002/10/3 (1400mm/900mm encumbrance)
294	Cylindrical foundations for side bearing type (for conventional OHE SBC:1100 kg/sq.m	ETI/DRG/CIV/FND/RDSO/00002/17
295	Height gauge for level crossing (for clear span upto 7.30m) details for structure and foundation	TI/DRG/CIV/H GAUGE/RDSO/00001/05/0
296	Height gauge for level crossing (for clear span above 7.30m upto 12.20m) details for structure and foundation	TI/DRG/CIV/H GAUGE/RDSO/00002/05/0
297	Anchor bolt arrangement for mast erection in hard rock of SBC 90000 kg/sq.mm for conventional OHE (alternate arrangement to existing drawing of hard rock foundation to ETI/C/0060 Mod.D)	TI/DRG/CIV/ANCH-FND/00001/17/0 (Rev. - 0)
298	Counter weight assembly for 3-pulley modified ATD for 2200 kgf tension	TI/DRG/OHE/ATD-2400/RDSO/00003/18/0
299	OHE cantilever mounting plate and anchor bolt arrangement inside tunnel	ETI/DRG/CIV/TUNNEL ANCHOR BOLT/00001/18/0

(E) List of 2x25 kV drawings

SN	Description	Drawing No
1.	Instruction for checking Suitability of Mast and Foundation	-
2.	Latest employment schedules issued by RB vide letter no.TI/CIV/MS/20 Dated:19.05.2023	-
3.	25kV Feeder Arrangement on Separate mast	TI/DRG/OHE/FEEDER/RDSO /00001/19/0
4.	Feeder Termination Drawing	RE/33/G/05145-1, Rev. A
5.	General Arrangement of OHE with Feeder, Earth wire & BEC (1200+1200)	TI/DRG/OHE/FEEDER/RDSO /00002/19/0.
6.	General Arrangement of OHE with Feeder, Earth wire & BEC(1500+1500)	TI/DRG/OHE/FEEDER/RDSO /00002/20/0.
7.	Territorial limits of revised wind zones	-
8.	Counter Weight Eye Rod	ETI/OHE /SK/588 Rev. B.
9.	Counter Weight Assembly	ETI/OHE/SK/587 Rev. B
10.	X-Y adjustment Chart	TI/DRG/OHE/ATD/RDSO/00 003/99/0
11.	Dropper Schedule	TI/DRG/OHE/DROP/00001-00007/18/0 & TI/DRG/OHE /DROP/RDSO/0 0001/20/0
12.	CEDE/NCR letter no.EL/TRD/NCR /Gatimaan dated 19.11.2018	-
13.	25mm drop Bracket Assembly	ETI/OHE/P/2360- Rev. N
14.	BFB Steady Arm Assembly	ETI/OHE/P/2390-Rev. C
15.	Current Carrying Dropper Assembly	TI/DRG/OHE/CCD/RDSO/00 001/20/0

16.	Catenary wire Clamp for Current Carrying Dropper	TI/DRG/OHE/CCD/RDSO/00 002/20/0
17.	Contact wire clamp for Current Carrying Dropper	TI/DRG/OHE/CCD/RDSO/00 003/20/0
18.	Compression sleeve, thimble & cable lug for Current Carrying Dropper	TI/DRG/OHE/CCD/RDSO/00 004/20/0
19.	Mounting details of Double Pole Isolator on Mast (For 2X25kV)	ETI/OHE/G/06005-Sheet 2
20.	Mounting Details of Double Pole Isolator on Portals (For 2X25kV)	ETI/OHE/G/06008
21.	Railway Board letter No. 2001/Elect (G)/170/1 Pt dated 07.05.2012	-
22.	Railway Board letter No. 2001/Elect (G)/170/1 Pt dated 18.10.2012	-
23.	Tee Connector suitable for 20mm dia GS wire to 20mm dia GS wire	TI/DRG/OHE/TC/RDSO/000 01/20/0
24.	Straight Connector suitable for 20mm dia GS wire to 20mm dia GS wire	TI/DRG/OHE/SC/RDSO/000 01/20/0
25.	Cross Bonding Arrangement	TI/DRG/OHE/EARTHING/RD SO/00001/20/0.
26.	BEC Arrangement on Bridges and Platform Coping	-
27.	Railway Board letter No.2001/Elect(G)170/1Pt-III dated 07.08.2020	-
28.	Railway Board letter No.2001/Elect(G)170/1 Pt-II dated 16.10.2020	-

Details of the layouts of the Traction Sub Station

Traction Sub Station Layouts with Scott Connected Transformers

SN	Description	Drawing No.
1.	Typical layout of 132/2X25kV Traction Sub Station with Scott Connected Transformers (For Double Line section) with parallel to track.	TI/DRG/PSI/AT/RDSO/00009/20/1 Mod C
2.	Typical layout of 132/2X25kV Traction Sub Station with Scott Connected Transformers (For Double Line section) with perpendicular to track.	TI/DRG/PSI/AT/RDSO/00010/20/1 Mod C
3.	Typical layout of 132/2X25kV Traction Sub Station with Scott Connected Transformers (For Three Line section) with parallel to track.	TI/DRG/PSI/AT/RDSO/00030/20/1 Mod B
4.	Typical layout of 132/2X25kV Traction Sub Station with Scott Connected Transformers (For Three Line section) with perpendicular to track.	TI/DRG/PSI/AT/RDSO/00031/20/1 Mod B
5.	Typical layout of 132/2X25kV Traction Sub Station with Scott Connected Transformers (For Four Line section) with parallel to track.	TI/DRG/PSI/AT/RDSO/00032/20/1 Mod B
6.	Typical layout of 132/2X25kV Traction Sub Station with Scott Connected Transformers (For Four Line section) with perpendicular to track.	TI/DRG/PSI/AT/RDSO/00033/20/1 Mod B
7.	Typical layout of 220/2X25kV Traction Sub Station with Scott Connected Transformers (For Double Line section) with parallel to track	TI/DRG/PSI/AT/RDSO/00024/20/1Mod C
8.	Typical layout of 220/2X25kV Traction Sub Station with Scott Connected Transformers (For Double Line section) with perpendicular to track	TI/DRG/PSI/AT/RDSO/00025/20/1Mod C
9.	Typical layout of 220/2X25kV Traction Sub Station with Scott Connected Transformers (For Three Line section) with parallel to track.	TI/DRG/PSI/AT/RDSO/00038/20/1Mod B
10.	Typical layout of 220/2X25kV Traction Sub Station with Scott Connected Transformers (For Three Line section) with perpendicular to track	TI/DRG/PSI/AT/RDSO/00039/20/1 Mod B
11.	Typical layout of 220/2X25kV Traction Sub Station with Scott Connected Transformers (For Four Line section) with parallel to track.	TI/DRG/PSI/AT/RDSO/00040/20/1 Mod B
12.	Typical layout of 220/2X25kV Traction Sub Station with Scott Connected Transformers (For Four Line section) with perpendicular to track	TI/DRG/PSI/AT/RDSO/00041/20/1 Mod B

Traction Sub Station Layouts with V Connected Transformers

SN	Description	Drawing No.
1.	Typical layout of 132/2X25kV Traction Sub Station with V-Connected Transformers (For Double Line section) with parallel to track.	TI/DRG/PSI/AT/RDSO/00034/20/1 Mod B
2.	Typical layout of 132/2X25kV Traction Sub Station with V-Connected Transformers (For Double Line section) with perpendicular to track.	TI/DRG/PSI/AT/RDSO/00035/20/1 Mod B
3.	Typical layout of 132/2X25kV Traction Sub Station with V-Connected Transformers (For Three Line section) with parallel to track.	TI/DRG/PSI/AT/RDSO/00011/20/1 Mod B
4.	Typical layout of 132/2X25kV Traction Sub Station with V-Connected Transformers (For Three Line section) with perpendicular to track.	TI/DRG/PSI/AT/RDSO/00012/20/1 Mod B
5.	Typical layout of 132/2X25kV Traction Sub Station with V-Connected Transformers (For Four Line section) with parallel to track.	TI/DRG/PSI/AT/RDSO/00013/20/1 Mod B
6.	Typical layout of 132/2X25kV Traction Sub Station with V-Connected Transformers (For Four Line section) with perpendicular to track.	TI/DRG/PSI/AT/RDSO/00014/20/1 Mod B
7.	Typical layout of 220/2X25kV Traction Sub Station with V-Connected Transformers (For DoubleLine section) with parallel to track.	TI/DRG/PSI/AT/RDSO/00042/20/1 Mod B
8.	Typical layout of 220/2X25kV Traction Sub Station with V-Connected Transformers (For Double Line section) with perpendicular to track.	TI/DRG/PSI/AT/RDSO/00043/20/1 Mod B
9.	Typical layout of 220/2X25kV Traction Sub Station with V-Connected Transformers(For Three Line section) with parallel to track.	TI/DRG/PSI/AT/RDSO/00026/20/1 Mod B
10.	Typical layout of 220/2X25kV Traction Sub Station with V-Connected Transformers (For Three Line section) with perpendicular to track.	TI/DRG/PSI/AT/RDSO/00027/20/1 Mod B
11.	Typical layout of 220/2X25kV Traction Sub Station with V-Connected Transformers(For Four Line section) with parallel to track.	TI/DRG/PSI/AT/RDSO/00028/20/1 Mod B
12.	Typical layout of 220/2X25kV Traction Sub Station with V-Connected Transformers (For Four Line section) with perpendicular to track.	TI/DRG/PSI/AT/RDSO/00029/20/1 Mod B

Details of the layouts of the SP & SSP

SN	Description	Drawing No.
1.	General arrangement of Sub Sectioning and Paralleling section) for Scott Connected Transformer TSS	TI/DRG/PSI/AT/RDSO/00015/20/01 Mod A
2.	General arrangement of Sectioning and Paralleling Post (SP) in 2X25kV 'AT' System (on double line section) for Scott Connected Transformer TSS	TI/DRG/PSI/AT/RDSO/00016/20/01 Mod A
3.	General arrangement of Sub Sectioning and Paralleling Post (SSP) in 2X25kV 'AT' System (on double line section) for V- Connected Transformer TSS	TI/DRG/PSI/AT/RDSO/00036/20/01 Mod A
4.	General arrangement of Sectioning and Paralleling Post (SP) in 2X25kV 'AT' System (on double line section) for V- Connected Transformer TSS	TI/DRG/PSI/AT/RDSO/00037/20/01 Mod A
5.	General arrangement of Sub Sectioning and Paralleling Post (SSP) in 2X25kV 'AT' System (on three line section).	TI/DRG/PSI/AT/RDSO/00017/20/01 Mod A
6.	General arrangement of Sectioning and Paralleling Post (SP) in 2X25kV 'AT' System (on three line section).	TI/DRG/PSI/AT/RDSO/00018/20/01 Mod A
7.	General arrangement of Sub Sectioning and Paralleling Post (SSP) in 2X25kV 'AT' System (on four line section).	TI/DRG/PSI/AT/RDSO/00019/20/01 Mod A
8.	General arrangement of Sectioning and Paralleling Post (SP) in 2X25kV 'AT' System (on four line section).	TI/DRG/PSI/AT/RDSO/00020/20/01 Mod A
9.	General arrangement of Boundary Sectioning and Paralleling Post (SP) in 2X25kV 'AT' System for Scott Connected Transformer TSS (on double line section)	TI/DRG/PSI/AT/RDSO/00021/20/01 Mod A
10.	General arrangement of Boundary Sectioning & paralleling post (SP) in 2 x 25 kV 'AT' system (on 3 line section)	TI/DRG/PSI/AT/RDSO/00022/20/01 Mod A
11.	General arrangement of Boundary Sectioning & paralleling post (SP) in 2 x 25 kV 'AT' system (on 4 line section)	TI/DRG/PSI/AT/RDSO/00023/20/01 Mod A
12.	General arrangement of Boundary Sectioning & Paralleling post (SP) in 2 x 25 kV "V-connected" 'AT' system (on Double line section)	TI/DRG/PSI/AT/RDSO/00050/21/01 Mod A

Other Miscellaneous drawings

SN	Description	Drawing No.
1.	Typical schematic diagram of protection for 132/2x25kV Traction sub-station with Scott-connected transformers	TI/DRG/PSI/AT/RDSO/ 00051/21/0 Mod A
2.	Typical schematic diagram of protection for 220/2x25kV Traction sub-station with V-connected transformers	TI/DRG/PSI/AT/RDSO/ 00044/21/0
3.	General scheme of supply for 2x25 kV, 50 Hz Scott connected traction transformer traction system	TI/DRG/PSI/SLD/RDSO/ 00045/21/0
4.	General scheme of supply for 2x25 kV, 50 Hz V- connected traction transformer traction system	TI/DRG/PSI/SLD/RDSO/ 00046/21/0
5.	Typical layout of cable trench, foundation & cable schedule of 132/2x25 kV Traction Sub - Station with Scott connected transformers (for four line section) with parallel to track	TI/DRG/PSI/TRCSFD/RD SO/ 00047/21/0
6.	Typical layout of cable trench, foundation & cable schedule of 132/2x25 kV Traction Sub - Station with V connected transformers (for four line section) with perpendicular to track	TI/DRG/PSI/TRCSFD/RD SO/ 00048/21/0
7.	Typical layout of cable trench, foundation & cable schedule of	TI/DRG/PSI/AT/RDSO/ 00049/21/0
8.	Typical layout of cable trench, foundation & cable schedule of Sectioning and Paralleling Post (SP) in 2x25 kV AT System on Double line for Scott Connected Transformer TSS.	TI/DRG/PSI/AT/RDSO/ 00052/21/0
9.	Typical layout of Control room Building in 2X25kV Traction Sub-Station.	TI/DRG/PSI/CR2X25/RDSO/ 0210
10	Typical layout of Control room Building in 2X25kV SP/SSP/AT Post.	TI/DRG/PSI/CR2X25/ SPSSPATP/0210
11	Tee Connector to suit "BERSISMIS" 'AAAC' and "BERSISMIS" 'AAAC' in 2X25 kV system.	TI/DRG/PSI/CONECT/RDSO/ 00053/21/0
12	Tee Connector to suit BULL 'AAC' conductor and BULL 'AAC' conductor in 2X25 kV system	TI/DRG/PSI/CONECT/RDSO/ 00054/21/0
13	Rigid connector on S.I. to suit BERSISMIS (36mm Dia.)	TI/DRG/PSI/CONECT/RD SO/ 00055/21/0
14	Rigid connector on S.I. to suit BERSISMIS (36mm Dia.) "AAAC" conductor in 2X25 kV system.	TI/DRG/PSI/CONECT/RDSO/ 00056/21/0
15	Flexible connector to suit 50MM O/D Al. Tube Bus bar for Double Pole circuit breaker and LV side of Traction transformer in 2X25kV system.	TI/DRG/PSI/CONECT/RDSO/ 00057/21/0
16	Rigid through connector to suit BERSISMIS (36mm Dia) "AAAC" Conductor and SPIDER "AAC" conductor for 25 kV PT type II. (T-Type)	TI/DRG/PSI/CONECT/RDSO/ 00058/21/0

17	Rigid through connector to suit BULL (38.25mm Dia) "AAC" Conductor and SPIDER "AAC" conductor for 25 kV PT type II (T-type) -	TI/DRG/PSI/CONECT/RDSO/ 00059/21/0
18	Tee Connector to suit 50 O/D Al. Tube and "BERSISMIS" 'AAAC' conductor in 2X25 kV system.	TI/DRG/PSI/CONECT/RDSO/ 00060/21/0
19	Tee Connector to suit 50 O/D Al. Tube and BULL 'AAC' conductor in 2X25 kV system.	TI/DRG/PSI/CONECT/RDSO/ 00061/21/0
20	Typical Termination arrangement for strung bus "BERSISMIS" (AAAC) conductor in 2X25 kV system.	TI/DRG/PSI/CONECT/RDSO/ 00062/21/0
21	Typical Termination arrangement for strung bus "BULL" (AAC) conductor in 2X25 kV system.	TI/DRG/PSI/CONECT/RDSO/ 00063/21/0
22	Flexible connector to suit BULL (38.25mm Dia.) "AAC" Conductor for Double Pole circuit breaker and LV Side of traction transformer in 2X25kV System.	TI/DRG/PSI/CONECT/RDSO/ 00064/21/0
23	Bimetallic terminal Connector to suit ZEBRA (28.58mm Dia.) ACSR conductor & AL/CU Pad of isolator/CT/CB or 50mm O/D Al tube and AL/CU Pad of isolator/CT/CB.	ETI/PSI/P/11030 Mod. D

F) LIST OF STANDARD SPECIFICATIONS. (OHE, SSP, SP, FP)

Sl.No.	TITLE OF SPECIFICATION	SPECIFICATION No.	Rev.
1	Annealed copper stranded jumper wire conductor for jumper wire.	ETI/OHE/3(2/94)	1
2	Copper bus-bar	RE/30/OHE/5(11/60) and IS-613-2000	-
3	Steel tubes.	ETI/OHE/11 (5/89)	-
4	Hot dip zinc galvanization 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, 2 & 3	3
5	Indian Railway standard specification for sparing zinc coating on the OHE mast.	ETI/C/3(5/93), May.83	-
6	Stainless steel wire ropes	ETI/OHE/14(9/94)	5
7	25 CV Solid core porcelain insulators for 25 kV ac, 50 Hz. single phase Overhead Traction lines.	ETI/OHE/15(9/91)	6
8	25 KV single pole and double pole isolators for Railway Electrification	ETI/OHE/16(1/94)	2
9	Steel and Stainless steel Bolts nuts and washers	ETI/OHE/18(4/84) with A&C correction slip No.1, 2 and 3.	4
10	Aluminium alloy and section tubes for 25 kV Traction Overhead Equipment	ETI/OHE/21(9/74) IS-733-1983, IS- 1285-2002	
11	Standard for drawings for Traction Overhead equipment.	RE/OHE/25(3/66)	
12	Section Insulators assembly without sectioning insulator.	ETI/OHE/27(8/84) with A & C slip No. 1 of 10/92.	1
13	Enameled steel plates	ETI/OHE/33(7/88)	
14	Galvanized steel wire rope.	ETI/OHE/36(12/73)	1
15	Hard drawn joint less grooved copper contact	ETI/OHE/76(6/97) with A & C	

Sl.No.	TITLE OF SPECIFICATION	SPECIFICATION No.	Rev.
	wire for AC traction	slips 1 to 3	
16	Fitting for 25 KV 50 HZ AC Overhead Traction equipment.	ETI/OHE/49(9/95) with A&C correction slip No.1, 2, 3 and 4	1
17	Cadmium copper conductor for Overhead Rly. Traction.	ETI/OHE/50(6/97) with A&C correction slip No.1,2,3,4& 5.	1
18	Principles for OHE layout plans and sectioning diagrams for 25 KV AC traction.	ETI/OHE/53(6/88) Aug. 92.	4
19	Code of bonding and earthing for 25 KV AC 50 Hz single phase traction system.	ETI/OHE/71(11/90) Mar. 93	2
20	Technical specification for galvanized steel stranded wire for traction bonds for 25 KV AC electric traction system.	TI/SPC/OHE/GALSTB/0040, Aug.05	1
21	Control & relay board for railway traction sub station.	ETI/PSI/27(6/87) Sep.89	4
22	Control & distribution panel for colour light signaling supply in 25 KV AC traction system	TI/SPC/PSI/CLS/0021, Aug,03	-
23	Standards for electrical distribution system in stations & yards where 25 KV Ac traction is to be introduced.	ETI/PSI/44(12/73), Dec. 73	-
24	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 of 4/87.	1
25	25KV/240V Auxiliary Transformer (5 kVA, 10 KVA)	ETI/PSI/15 (08/2003) with A & C slip No.2 of 10/92	-
26	Regulating Equipment for 25 kv ac Traction 3 pulley Type (3:1)	ETI/PSI/48 A(9/85) with A&C slip No.1 of 11/87.	
27	Control and relay panel incorporating static type relays for 25 KV AC traction sub station on Indian Railways.	ETI/PSI/65 (1/97), April, 02	2
28	7.5 KV Lightning arrestors with A&C slip No.1 of (2/91).	ETI/PSI/3(8/75)	
29	25 KV Potential transformers.	ETI/PSI/8(10/92)Amend 2(9/93)	
30	25 KV Booster transformers. Oil filled type (100 kVA and 150 kVA (single phase, 50 Hz.)	ETI/PSI/92(8/93) ETI/PSI/98(8/92)Amend.2 (1/94)	
31	Control and Relay Panel incorporating static type relay for 25 kv ac Traction Sub-station and Switch stations.	ETI/PSI/65 (1/97)	2
32	110V, 40AH Lead Acid batteries.	ETI/PSI/21(6/81) with A&C slip No.1 of 7/81.	
33	Battery charger for 110 V battery 40 AH	ETI/PSI/1(6/81)	
34	25 KV dropout fuse switch.	ETI/PSI/14(01/86), Aug. 03	1
35	25 KV single pole, out door SF-6 Gas Interrupters.	ETI/PSI/160(12/94)	
36	25 KV single pole out door Vacuum interrupter	ETI/PSI/161(12/94)	
37	Out door circuit breaker for 25 KV AC traction sub station.	TI/SPC/PSI/CB/002, Jul. 03	-
38	Code of practice for earthing of power supply installation for 25 KV AC 50 Hz single phase traction system.	ETI/PSI/120(2/91), Oct.93	1
39	25KV Composite Type Bracket Insulator (Standarad)with silicon rubber as base material	TI/SPC/OHE/INSCOM/0991	-
40	25KV Composite Type Stay Insulator (Standarad)with silicon rubber as base material	TI/SPC/OHE/INSCOM/0991	-
41	25KV Composite Type 9 Tonne Insulator (Standarad)with silicon rubber as base material	TI/SPC/OHE/INSCOM/0991	-

NOTE:-

1. Please refer ACTM-Vol.II (Part-II) Chapter –II -Section-III for list of “Standard Drawings of Overhead equipment” Proposed site plan drawings for above TSS may be collected from CPM.
2. Above drawings can be purchased from the office of CEE/CORE/ALD on payment of their costs.
3. Any amendment in specification and drawings subsequent to LOA, if required to be carried out shall need approval of CEE/CORE duly considering the financial implication of the same either in upward or downward direction.

G) STANDARD TYPICAL AND PARTICULAR DRAWINGS FOR TSS, SHUNT CAPACITOR BANKS AND FEEDING POST.

Sl.No.	Title of Drawings	Drawing No.
1.	Typical layout of 220/27 kV Traction sub-station (Type-I)	ETI/PSI/0240-1
2.	Typical layout of 132/27 kV Traction sub-station- TYPE I	TI/DRG/PSI/TSSLO/RDSO/00001/01/0
3.	Typical layout of 132/25 kV Traction sub-stations (Type – II)	ETI/PSI/022-1 (Mod.B)
4.	Standard plan of control room of traction sub station (General arrangement and RCC details)	RE/Civil/317-93 (Mod.R-5)
5.	Typical layout of Remote Control cubicle at a switching station.	ETI/PSI/0010 (Mod.E)
6.	Control Room for Traction substation	ETI/C/0225 (Sheet 1 of 2)
7.	Control Room for Traction sub-station (RCC details)	ETI/C/0225 (Sheet 2 of 2)
8.	Typical schematic diagram of protection for double Transformer traction sub station	ETI/PSI/024-I
9.	Typical layout of 132/27kV traction sub station with single transformer (Type-IX)	TI/DRG/PSI/TSSLO/RDSO/00009/02/0 MOD-A
10.	Typical layout of 132/27 kV traction substation (Type-III)	TI/DRG/PSI/TSSLO/RDSO/00003/02/0
11.	Typical layout of 132/27 kV traction substation with out going feeders and metering facilities (Type-IV)	TI/DRG/PSI/TSSLO/RDSO/00004/02/0
12.	Typical layout of 132/27 kV traction substation (Type-V)	TI/DRG/PSI/TSSLO/RDSO/00005/02/0
13.	Typical return current connection to buried rail at 132/25 kV Traction substation.	ETI/PSI/0212-1
14.	Typical layout of 132/25kV traction sub station with 132 kV switching station (Type X)	TI/DRG/PSI/TSSLO/RDSO/00010/02/ Rev.G
15.	Typical general arrangement of earth screen wire termination at Traction substation	ETI/PSI/0225 (Mod.C)
16.	Typical layout of control room at traction sub-station.	TI/DRG/PSI/CPROOM/RDSO/00001/ 01/0
17.	Typical fencing layout at traction sub-station (details of fencing panel, door, anti climbing device etc.	ETI/PSI/121 (Mod.F)
18.	Typical arrangement of an earth electrode at TSS	ETI/PSI/222 (Mod.A)
19.	Typical earthing, cable trench & foundation layout of 132/25 kV TSS	ETI/PSI/224 (Mod.E)
20.	Typical earthing arrangement for equipment and structures at TSS	ETI/PSI/228 (Mod.A)
21.	Mounting arrangement of 100 KVA 25kV/240V LT supply transformer at TSS	ETI/PSI/0312 (Mod.B)
22.	25kV DO fuse switch assembly	ETI/PSI/032 (Mod.D)
23.	Typical details of cable run at a two transformer TSS	ETI/PSI/323 (Mod.E)
24.	- do – with Shunt Capacitor	ETI/PSI/325
25.	Structural layout of 132/25kV traction sub-station(TYPE I to V I)	ETI/C/0200 (Sh.1,Mod.H)
26.	Structural layouts of 132/25kV (TYPE VII to X) traction sub-stations	ETI/C/0200 (Sh.2,Mod.D)
27.	Typical cable trench and foundation layout of 132/25kV TSS (Trench cover improved)	ETI/C/0210 (Mod.F)
28.	Details of Beam B/1	ETI/C/0201 (Mod.D)
29.	Details of Tower T 1	ETI/C/0202 (Mod.H)
30.	Details of Tower T 2	ETI/C/0203 (Mod.G)

31.	Details of Beam B/2 & Column C/1 for 132/25 kV traction sub-station	ETI/C/0208 (Mod.E)
32.	Details of structure for 132 kV double pole isolator	ETI/C/0310 (Mod.G)
33.	Details of structure for 132 kV support insulator	ETI/C/0320 (Mod.E)
34.	Details of position of feeder bus coupling interrupter	ETI/PSI/SK/272
35.	Details of structure for 132 kV current transformer	ETI/C/0330 (Mod. F)
36.	- do – for 120 kv lightning arrestor	ETI/C/0340 (Mod. F)
37.	- do – for 25 kv CT	ETI/C/0360 (Mod. F)
38.	- do – for 42 kV ,10KA LA & 25 kV support insulator	ETI/C/0370 (Sh. 1 [Mod. J]) (Sh. 2 [Mod. NIL])
39.	- do – for 25 kV Single Pole isolator	ETI/C/0380 (Mod.F)
40.	- do – for 25 kV PT	ETI/C/0390 (Mod.E)
41.	S100 Fabricated Mast for mounting LT supply transformer and DO fuse switch at SWS	ETI/C/0043 (Mod.B)
42.	Details for structure and foundation for 25 kV DP Isolator at TSS	ETI/SK/C/180 (Mod.C)
43.	Rigid through connector to suit 50 dia Al. Tubular bus bar and spider AAC conductor for 25 kV PT Type-II	ETI/PSI/P/11110 (Mod.C)
44.	Expansion bus coupler on SI to suit 50 O/D Al tube for 25 kV system	ETI/PSI/11210 (Mod.D)
45.	Inter-connector suitable for 50 O/D Aluminium tube and 'SPIDER' AAC conductor (for 25 kV PT Type-I)	ETI/PSI/P/11130 (Mod.B)
46.	Details of Rigid terminal connector suitable for 20 dia Al. conductor to terminal pad of 25 kV PT type I & II.	ETI/PSI/P/11120 (Mod.C)
47.	Rigid connector on S.I to suit 50 mm O/D Al. bus bar for 25 kV system	ETI/PSI/P/11200 (Mod.C)
48.	Sliding clamp for 50 mm O/D Aluminium bus bar for 25 kV system	ETI/PSI/P/11190 (Mod.C)
49.	Details of rigid type bimetallic terminal connector suitable for 50 dia Al. Tubular bus bar to suit 30 dia copper stud of 25 kV CT.	ETI/PSI/11070 (Mod.B)
50.	Standard Post Insulator for clean area	ETI/OHE/P/6090-1 (Mod.C)
51.	Typical number plate for circuit breaker	ETI/PSI/P/7523
52.	Typical number plate for Auxiliary Transformer	ETI/PSI/P/7525
53.	Typical number plate for Power Transformer at TSS	ETI/PSI/P/7526
54.	Typical number plate for PT at TSS	ETI/PSI/P/7527 (Mod. A)
55.	- do – for CT at TSS	ETI/PSI/P/7528 (Mod. A)
56.	- do – for Isolator at TSS	ETI/PSI/P/7529 (Mod. A)
57.	Gillsons Letters and Figures	RE/33/527 (Mod. A)
58.	Details of baffle wall at TSS (WP-112.5 kgf/sq.m and WP 75 kgf/Sq.m)	ETI/C/0213 (Mod. D)
59.	Details of RCC baffle Wall at TSS (WP-150kgf/Sq.m)	ETI/C/0214 (Mod. B)
60.	Transformer oil drainage arrangement at sub-stations	ETI/C/0216 (Mod. B)
61.	High speed auto reclosing scheme for feeder circuit breaker at 25 kV TSS	ETI/PSI/0231-I (Mod. A)
62.	General Scheme of supply for 25 kV 50 Hz single phase AC traction system	ETI/PSI/702-1 (Mod. D)
63.	Typical layout for 25 kV Shunt capacitor unit to be installed at 132/25 kV, TSS Type-I)	ETI/PSI/0223 (Mod. E)
64.	Typical terminal arrangement for strung bus "SPIDER" (AAC) conductor at TSS	ETI/PSI/0226 (Mod. B)
65.	General arrangement & terminal connection for 25 kV PT Type-II at TSS	ETI/PSI/0227 (Mod. A)
66.	Typical earthing cable trench & foundation layout of 132/25 kV TSS with shunt capacitor bay	ETI/PSI/229
67.	Details of expansion type terminal connector to suit 50 dia Al.	ETI/PSI/P/11060 (Mod. E)

	tubular bus bar to terminal pad of 25 kV CT, Isolator, CB and Interrupter.	
68.	Details of Rigid type bimetallic terminal connector suitable for 50 dia Al. tubular bus bar to terminal pad of 25 kV Isolator/CT.	ETI/PSI/P/11090 (Mod. C)
69.	Details of TEE connector to suit 50 O/D Al. tubular bus bar for 25 KV system	ETI/PSI/P/11150 (Mod. B)
70.	Details of Rigid bus splice connector to suit 50 O/D Al. tube on both ways for 25KV system.	ETI/PSI/11180 (Mod. B)
71.	rigid connector on SI to suit ZEBRA (28.58 dia) ACSR conductor for 220 kV system	ETI/PSI/P/11050 (Mod. C)
72.	General supply diagram of the section	
73.	Typical return current connection to buried rail at 220/25 kV Traction sub station	ETI/PSI/0242 (Mod. A)
74.	General arrangement and terminal connection for 25 kV Potential Transformer- TYPE-II (Protection Type) at 220 kV Traction sub station)	ETI/PSI/0227-1
75.	Typical general arrangement of earth screen wire termination at 220 kV Traction sub station	ETI/PSI/0244
76.	Typical termination arrangement for strung bus (ZEBRA ACSR) conductor at 220 kV Traction sub station	ETI/PSI/0243 (Mod. A)
77.	Typical details of cable run at two transformers traction sub station with Shunt Capacitor (220 kV)	ETI/PSI/326
78.	Structural layout of 220/27 kV Traction sub-station(Type-I)	ETI/C/0222-1
79.	Terminal connector for 220 kV equipments (Typical drawing)	ETI/PSI/SK/324
80.	Bimetallic terminal connector to suit "ZEBRA" "ACSR" conductor and 30 dia copper stud of CT/CB/traction power transformer	ETI/PSI/P/11010 (Mod. C)
81.	Bimetallic terminal connector to suit "ZEBRA" (28.58 dia) "ACSR" conductor and Al./copper Pad of Isolator/CT/CB (for 220 kV system)	ETI/PSI/P/11030 (Mod. C)
82.	TEE connector to suit "ZEBRA" 28.58 dia ACSR conductor on both ways for 220 kV system	ETI/PSI/P/11040 (Mod. C)
83.	Typical schematic diagram of protection for double Transformer traction sub station	ETI/PSI/024-I
84.	Typical layout of 132/27 kV traction sub station (Type-I)	TI/DRG/PSI/TSSLO/RDSO/00001/01/0
85.	Typical layout of 132/27 kV traction sub-station (Type –II)	TI/DRG/PSI/TSSLO/RDSO/00002/01/0
86.	Typical layout for 25kV shunt capacitor unit to be installed at 132/25 kV traction sub-station Type-I	ETI/PSI/0223 (Mod. E)

(H) STANDARD TYPICAL AND PARTICULAR DRAWINGS FOR FEEDING STATION		
1.	Typical location plan and general arrangement for a feeding station	ETI/PSI/006 (Mod. E)
2.	Structural assembly for a feeding station	ETI/PSI/101 (Mod. B)
3.	Earthing details for Interrupter, LT supply transformer, 25 kV Lightning Arrestor PT Type-I, S-100 Mast, S 101 Mast, Fencing upright and main mast.	ETI/PSI/204 (Mod. C)
4.	Typical cable run layout of a feeding station	ETI/PSI/303 (Mod. B)
5.	36 mm Aluminium bus terminal	ETI/PSI/P/6480 (Mod. C)
6.	36 mm Aluminium bus splice	ETI/PSI/P/6490 (Mod. C)
7.	36 mm Aluminium bus tee connector	ETI/PSI/P/6500 (Mod. C)
8.	36 mm Aluminium tee terminal	ETI/PSI/P/6510 (Mod. D)
9.	36/15 mm Tap connector	ETI/PSI/P/6520 (Mod. B)

10.	36 mm aluminium Flexible bus splice	ETI/PSI/P/6550 (Mod. B)
11.	36 mm aluminium bus splice cum tee connector	ETI/PSI/P/6560 (Mod. B)
12.	Typical number plate for interrupter and double pole isolator	ETI/PSI/P/7520 (Mod. B)
13.	Typical number plate for potential transformer (Type-1)	ETI/PSI/P/7521 (Mod. B)
14.	Drilling schedule for S1 Mast	ETI/C/0030 (Mod. F)
15.	Drilling schedule for S2 Mast	ETI/C/0031 (Mod. D)
16.	Details of anchor beam for SP, SSP and FP	ETI/C/0033 (Mod. D)
17.	Details of small parts steel for switching stations	ETI/C/0034 Sheet-I (Mod. K)
18.	Details of small part steel of outrigger for switching stations and booster transformer stations.	ETI/C/0037 (Mod. C)
19.	Drilling schedule for S5 Mast	ETI/C/0042 (Mod. E)
20.	S-101, Details of mast for supporting isolator inside switching stations.	ETI/C/0044 (Mod. A)
21.	Drilling schedule for S3, Mast (11.4 m long)	ETI/C/0180 (Mod. C)
22.	Drilling schedule for S6 Mast (12.4 m long)	ETI/C/0181 (Mod. C)
23.	Drilling schedule for S7, Mast (12.4 m long)	ETI/C/0182 (Mod. C)
24.	Drilling schedule for S8, Mast (12.4 m long)	ETI/C/0183 (Mod. C)
25.	Drilling schedule for S9, Mast (9.4 m long)	ETI/C/0184 (Mod. C)
26.	Schedule for switching station main masts	ETI/C/0185 (Mod.C)
27.	General arrangement of connection to OHE by copper cross feeder (150)	ETI/OHE/G/05121, Sheet-1 (Mod. C)
28.	General arrangement of connection at switching station on multiple track section by copper cross feeder	ETI/OHE/G/05123 Sheet-1 (Mod. C)
29.	Termination of feeder and return feeder (Copper at AI)	RE/33/G/05145-1 (Mod. A)
30.	Arrangement of suspension of double spider 25 kV feeder and return feeder between sub station and feeding station.	RE/33/G/05152 (Mod. C)
31.	Characteristics of conductors/bus bar for 25 kV AC traction.	ETI/OHE/G/05600 (mod. A)

Note:-

- 1) Proposed site plan drawings for Proposed TSS may be collected from Railways
- 2) Above drawings can be purchased from the office of CEE/CORE/ALD on payment of their costs.
- 3) Any amendment in specification and drawings subsequent to LOA, if required to be carried out shall need approval of Dy.CEE/C/OHE/SC OR CEE/Con duly considering the financial implication of the same either in upward or downward direction.

(I) LIST OF STANDARD SPECIFICATIONS

1.	220kV or 132kV or 110kV or 66kV or 25 kV Potential transformers	TI/SPC/PSI/PTs/0990 with A&C Slip Nos. 1 to 5.
2.	25 kV Current Transformers	ETI/PSI/90(6/95) with A&C Slip Nos. 1 to 8
3.	25 kV Drop out fuse switch	ETI/PSI/14 (1/86) with A & C Slip No. 1 (April 87)
4.	25 kV /240 V Auxiliary supply Transformer, 5KVA, 10 KVA, 25KVA, 50KVA	ETI/PSI/15(8/2003)
5.	25 kV/240 V Auxiliary supply transformer 100 KVA	ETI/PSI/15 A (7/82) with A & C Slip No. 1(9/89)
6.	Two zone static relay for distance protection for 25 kV AC single phase 50 Hz traction.	ETI/PSI/101 (8/87) with A & C Slip No. 1(Sep.87)
7.	Battery charger for 110 V Battery, 200 AH	ETI/PSI/24 (6/81)
8.	Low maintenance Lead Acid Batteries of 110 V, 200 AH	RDSO/SPEC/TL/0040-2003 (Rev 0) with A & C Slip-1 (9/05)
9.	Control and Relay panel incorporating static type relays for 25 kV AC TSS	ETI/PSI/65 (1/97) with A & C Slip-2 (4/2002)
10.	Low tension distribution panels for Rly. traction sub stations	ETI/PSI/29 (12/79) with A & C Slip-1 (2/93)
11.	Standards for drawings for power supply installation	ETI/PSI/31 (5/76)
12.	Out door Circuit breaker for 25KV A.C Traction	TI/SPC/PSI/LVCB/N/0120 (12/2013)

	sub station (SP/DP)	
13.	25 kV,50Hz single pole outdoor interrupter for Railway Traction Switching station a) SF-6 b) Vacuum	ETI/PSI/167(9/97)
14.	Metal Oxide gapless type lightning arrestor for use on 25 kV side of Railway. Traction sub stations & switching stations.	TI/SPC/PSI/MOGTLA/0100 (07/10)
15.	Technical specification for 21.6 MVA (normal)single phase, 50 Hz a) 220/27 kV b) 132/27 kV c) 110/27 kV d) 66/27 kV Traction power transformer for Rly. AC traction sub station	ETI/PSI/118 (10/93) with A&C Slip Nos.1 to 10
16.	Technical specification for i) 245 kV ii) 145 kV iii) 123 kV iv) 72.5 kV Double pole and triple pole isolator for Rly traction sub station	ETI/PSI/122 (3/89) with A&C Slip No.1(4/90)
17.	Metal Oxide gapless type lightning Arrestors (combined)for use of 220/132/110/66KV side of Railway AC Traction substation.	ETI/PSI/137 (8/89) with A&C Slip no.1 to 7
18.	220 kV, 132 kV, 110 kV and 66 kV current transformer	ETI/PSI/117 (7/88) with A&C Slip no.1 to 9
19.	Solid Core cylindrical Post insulator for systems with normal voltages of 220 kV,132KV,110KV & 66KV .	ETI/OHE/64 (10/88) with A&C Slip No. 1(9/89)
20.	Hot dip zinc galvanisation of steel masts,tubes and fittings for 25KV ac OHE.	ETI/OHE/13(4/84) with A&C Slip No.1(5/86), No.2 of (4/90) & 3 of (4/90)
21.	Solid core -porcelain insulators For composite insulators	TI/SPC/OHE/INS/0070) OR latest. TI/SPC/ OHE/INSCOM/1070 OR latest.
22.	25 kV Single pole & double pole Isolator	ETI/OHE/16/(1/94) with A&C Slip No.1(6/2000) & 2(3/04)
23.	Code of practice for earthing of power supply installations for 25KV ,50Hz single phase traction system.	ETI/PSI/120(2/91) with A/c Slip No.1(10/93)
24.	Out door Circuit Breaker for Railway AC Traction sub stations.	TI/SPC/PSI/LVCB/N/0120 (12/2013)
25.	Delta I type High resistive fault selective relay for 25 kV AC Single Phase 50 Hz traction system	TI/SPEC/PSI/PROTCT/1982 (12/03)
26.	Panto Flashover protection relay for 25 kV AC traction system	TI/SPC/PSI/PROTCT/2983 (9/01)
27.	Technical specification for shunt capacitor equipment for Railway traction sub station	TI/SPC/PSI/EC&SR/0100 (01/10)
28.	Numerical Control & Relay panel suitable for double Transformer Sub Station for 132KV/25Kv ac traction with all accessories	<u>TI/SPC/PSI/ PROTCT/6070 [09/08]</u>
29.	Maintenance free earth kit	RDSO/PE/SPEC/0109 (Rev. 0[2008]) .

(J) List of 2x25 kV specifications.

SN	Equipment Description	Specification no.
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1.	220kV or 132kV , 1250A Triple Pole Isolator (with earth blade)	TI/SPC/PSI/ISOLTR/0210(06/21)
2.	220kV or 132kV , 1250A Triple Pole Isolator (For Bus Coupling)	TI/SPC/PSI/ISOLTR/0210(06/21)
3.	220kV or 132kV Potential Transformer (accuracy class 0.2) for ABT metering (Indication and Metering)	To be procured as per the specification/sources of DISCOMs/Power utilities
4.	220kV or 132kV Current Transformer (accuracy class 0.2s) for ABT metering (Metering)	To be procured as per the specification/ sources of DISCOMs/Power utilities
5.	220kV or 132kV , 1250A Triple Pole Isolator (without earth blade)	TI/SPC/PSI/ISOLTR/0210(06/21)
6.	220kV or 132kV Support Insulator	TI/SPC/OHE/POST/0100 (01/10) with A&C slip no.01.
7.	220kV (400-200/5A) or 132kV (800-400/5) Current transformer (For Transformer Protection)	TI/SPC/PSI/CT/0210(06/21)
8.	220kV or 132kV SF6 Circuit Breaker (Triple Pole)	TI/SPC/PSI/HVCB/0121 (05/21) with A&C slip no. 01
9.	198kV or 120kV Lightning arrester (HV Side)	ETI/PSI/137(08/89) with A&C slip no. 01 to 07
10.	60/84/100MVA, 220/2X25kV or 132/2X25kV Single Phase Traction Power Transformer with Bushing CTs	TI/SPC/PSI/TRNPWR/5200 (02/21) with A&C slip no. 01
11.	60kV Lightning arrester	ETI/PSI/137(08/89) with A&C slip no. 01 to 07.
12.	50kV Current Transformer (1500-750/5)	TI/SPC/PSI/CT/0210(06/21)
13.	50kV Double pole SF6 Breaker (2000A)	TI/SPC/PSI/HVCB/0121(05/21)
14.	50kV Double Pole Manual Isolator	TI/SPC/PSI/ISOLTR/0210(06/21)
15.	50kV Support Insulator or 66kV Support Insulator	TI/SPC/OHE/POST/0100 with A&C slip no. 01
16.	27.5kV/110V Potential Transformer (Type- II) (52kV Insulation Class)	TI/SPC/PSI/PT/0210(06/21)
17.	25kV Double Pole Manual Isolator (2000A)	TI/SPC/PSI/ISOLTR/0210(06/21)
18.	27.5kV/110V Potential Transformer (Type-I) (52kV Insulation Class)	TI/SPC/PSI/ PT/0210(06/21)
19.	12.3MVA Autotransformer (55/27.5kV) with Bushing CTs	TI/SPC/PSI/AUTOTR/1200 (02/21)
20.	25kV Double Pole Vacuum Interrupter	TI/SPC/PSI/LVCBIN/0120(12/13) with A&C slip no. 01
21.	50kVA, 25kV/240Volt LT supply transformer	ETI/PSI/15 (08/03)
22.	25kV Drop Out Fuse	ETI/PSI/14(01/86) with A&C slip no. 01

23.	42kV Lightening Arrester	TI/SPC/PSI/MOGTLA/0101 (02/15)
24.	Shunt capacitor 2400kVAR at 25kV	TI/SPC/PSI/FC&SR/0100 (01/10)
25.	Series Reactor for Low loss	TI/SPC/PSI/FC&SR/0100 (01/10)
26.	25kV Single Pole Manual Isolator	TI/SPC/PSI/ISOLTR/0210 (06/21)
27.	25kV Double Pole Vacuum Circuit Breaker (2000A)	TI/SPC/PSI/LVCBIN/0120(12/13) with A&C slip no. 01
28.	25kV Current Transformer (1500-750/5A)	TI/SPC/PSI/CT/0210(06/21)
29.	25kV Current Transformer (200-100/5A) (For compensation equipment)	TI/SPC/PSI/CT/0210(02/21)
30.	Low Tension Distribution Panel	TI/SPC/PSI/LTDPNL/0210 (10/21)
31.	25kV Support Insulator	TI/SPC/OHE/INS/0070 (04/07) with A&C slip no. 01 & 02
32.	25 kV Double Pole Motorised isolator (2000A)	TI/SPC/PSI/ISOLTR/0210(06/21)

Traction Sub Station with Transformers in V Connection

SN	Equipment Description	Specification no.
1.	220kV or 132kV , 1250A Triple Pole Isolator (with earth blade)	TI/SPC/PSI/ISOLTR/0210(06/21)
2.	220kV or 132kV , 1250A Triple Pole Isolator (For Bus Coupling)	TI/SPC/PSI/ISOLTR/0210(06/21)
3.	220kV or 132kV Potential Transformer (accuracy class 0.2) for ABT metering (Indication and Metering)	To be procured as per the specification /sources of DISCOMs/Power utilities
4.	220kV or 132kV Current Transformer (accuracy class 0.2s) for ABT metering (Metering)	To be procured as per the specification /sources of DISCOMs/Power utilities
5.	220kV or 132kV , 1250A Double Pole Isolator (without earth blade)	TI/SPC/PSI/ISOLTR/0210(06/21)
6.	220kV or 132kV Support Insulator	TI/SPC/OHE/POST/0100 (01/10) with A&C slip no.01.
7.	220kV (400-200/5A) or 132kV (800-400/5) Current transformer (For Transformer Protection)	TI/SPC/PSI/CT/0210(06/21)
8.	220kV or 132kV SF6 Circuit Breaker (Double Pole)	TI/SPC/PSI/HVCB/0121(05/21)
9.	198kV or 120kV Lightening arrester (HV Side)	ETI/PSI/137(08/89) with A&C slip no. 01 to 07
10	38/53/63MVA, 220/2X25kV or 132/2X25kV Single Phase Traction Power Transformer	TI/SPC/PSI/TRNPWR/4200 (02/21)
11.	42kV Lightening arrester	TI/SPC/PSI/MOGTLA/0101 (02/15)

12	25kV Current Transformer (1500-750/5A) (Including 03 as NCT)	TI/SPC/PSI/CT/0210(02/21)
13	25kV Current Transformer (200-100/5A) (For compensation equipment)	TI/SPC/PSI/CT/0210(02/21)
14	25kV Double pole Vacuum Circuit Breaker (2000A)	TI/SPC/PSI/LVCBIN/0120(12/13) with A&C slip no. 01
15	25kV Double Pole manual Isolator (2000A)	TI/SPC/PSI/ISOLTR/0210
16	25kV Support Insulator	TI/SPC/OHE/INS/0070 (04/07) with A&C slip no. 01 & 02
17	50kVA, 25kV/240Volt LT supply transformer	ETI/PSI/15 (08/03)
18	25kV Drop Out Fuse	ETI/PSI/14(01/86) with A&C slip no. 01
19	27.5kV/110V Potential Transformer (Type-II) (52kV Insulation Class)	TI/SPC/PSI/PT/0210(06/21)
20	27.5kV/110V Potential Transformer (Type-I)	TI/SPC/PSI/PT/0210(06/21)
21	25kV Double Pole Vacuum Interrupter (2000A)	TI/SPC/PSI/LVCBIN/0120(12/13) with A&C slip no. 01
22	Shunt capacitor (2400kVAR at 25kV)	TI/SPC/PSI/FC&SR/0100 (01/10)
23	Series Reactor for Low loss	TI/SPC/PSI/FC&SR/0100 (01/10)
24	25kV Double Pole Motorized Isolators (2000A)	TI/SPC/PSI/ ISOLTR/0210
25	Low Tension Distribution Panel	TI/SPC/PSI/LTDPNL/0210(10/21)

Sectioning and Paralleling post (SP) for two line

SN	Equipment Description	Specification no.
1.	8MVA Auto Transformer (55/27.5kV) with Bushing CTs	TI/SPC/PSI/AUTOTR/1200 (02/21)
	16.5MVA Auto Transformer (55/27.5kV) with Bushing CTs	TI/SPC/PSI/AUTOTR/1200 (02/21)
2.	25 kV Double Pole Vacuum Circuit Breaker (2000A)	TI/SPC/PSI/LVCBIN/0120(12/13) with A&C slip no. 01
3.	50kV Double Pole SF6 Circuit Breaker (2000A)	TI/SPC/PSI/HVCB/0121 (05/21)with A&C slip no. 01
4.	25 kV Double Pole Vacuum Interrupter (2000A)	TI/SPC/PSI/LVCBIN/0120(12/13) with A&C slip no. 01
5.	25 kV Double Pole Isolator (Manual) (2000A)	TI/SPC/PSI/ISOLTR/0210 (02/21)
6.	25 kV Double Pole Isolator (Motorised)	TI/SPC/PSI/ISOLTR/0210 (02/21)

	(2000A)	
7.	25kV Potential Transformer (Type-1)	TI/SPC/PSI/PT/0210 (06/21)
8.	25kV/240V LT Supply Transformer (10kVA)	ETI/PSI/15 (08/03)
9.	25kV Dropout Fuse Switch	ETI/PSI/14(01/86) with A&C slip no. 01
10.	42kV Lightning Arrester	TI/SPC/PSI/MOGTLA/0101 (02/15)
11.	Low Tension Distribution Panel	TI/SPC/PSI/LTDPNL/0210 (10/21)
12.	25kV Support Insulator	TI/SPC/OHE/INS/0070 (04/07) with A&C slip no. 01 & 02

Sub Sectioning and Paralleling Post (SSP) for Two line

SN	Equipment Description	Specification no.
1.	8MVA Auto Transformer (55/27.5kV) with Bushing CTs	TI/SPC/PSI/AUTOTR/1200 (02/21)
	16.5MVA Auto Transformer (55/27.5kV) with Bushing CTs	TI/SPC/PSI/AUTOTR/1200 (02/21)
2.	25 kV Double Pole Vacuum Circuit Breaker (2000A)	TI/SPC/PSI/LVCBIN/0120(12/13) with A&C slip no. 01
3.	25 kV Double Pole Vacuum Interrupter (2000A)	TI/SPC/PSI/LVCBIN/0120(12/13) with A&C slip no. 01
4.	25 kV Double Pole Isolator (Manual) (2000A)	TI/SPC/PSI/ISOLTR/0210 (06/21)
5.	25 kV Double Pole Isolator (Motorised) (2000A)	TI/SPC/PSI/ISOLTR/0210 (06/21)
6.	25kV Potential Transformer (Type-I)	TI/SPC/PSI/PT/0210 (06/21)
7.	25kV/240V LT Supply Transformer(10kVA)	ETI/PSI/15 (08/03)
8.	25kV Dropout Fuse Switch	ETI/PSI/14(01/86) with A&C slip no. 01
9.	42kV Lightning Arrester	TI/SPC/PSI/MOGTLA/0101 (02/15)
10.	Low Tension Distribution Panel	TI/SPC/PSI/LTDPNL/0210 (10/21)
11.	25kV Support Insulator	TI/SPC/OHE/INS/0070 (04/07) with A&C slip no. 01 & 02

Sectioning and Paralleling Post (SP) For three line and Four Line (for both Scott Connected and V connected Scheme)

SN	Equipment Description	Specification no.
1.	16.5MVA Auto Transformer (55/27.5kV) with Bushing CTs	TI/SPC/PSI/AUTOTR/1200 (02/21)
2.	25 kV Double Pole Vacuum Circuit Breaker (2000A)	TI/SPC/PSI/LVCBIN/0120 (12/13) with A&C slip no. 01
3.	50kV Double Pole SF6 Circuit Breaker (2000A)	TI/SPC/PSI/HVCB/0121 with A&C slip no. 01

4.	25 kV Double Pole Vacuum Interrupter (2000A)	TI/SPC/PSI/LVCBIN/0120(12/13) with A&C slip no. 01
5.	25 kV Double Pole Isolator (Manual) (2000A)	TI/SPC/PSI/ISOLTR/0210 (06/21)
6.	25 kV Double Pole Isolator (Motorised)(2000A)	TI/SPC/PSI/ISOLTR/0210 (06/21)
7.	25kV Potential Transformer (Type-1)	TI/SPC/PSI/PT/0210 (06/21)
8.	25kV/240V LT Supply Transformer(10kVA)	ETI/PSI/15 (08/03)
9.	25kV Dropout Fuse Switch (1A)	ETI/PSI/14(01/86) with A&C slip no. 01
10.	42kV Lightning Arrester	TI/SPC/PSI/MOGTLA/0101 (02/15)
11.	Low Tension Distribution Panel	TI/SPC/PSI/LTDPNL/0210 (10/21)
12.	25kV Support Insulator	TI/SPC/OHE/INS/0070 (04/07) with A&C slip no. 01 & 02

Sub Sectioning and Paralleling Post (SSP) For three line and Four Line (for both Scott Connected and V connected Scheme)

SN	Equipment Description	Specification no.
1.	16.5MVA Auto Transformer (55/27.5kV) with Bushing CTs	TI/SPC/PSI/AUTOTR/1200 (02/21)
2.	25 kV Double Pole Vacuum Circuit Breaker (2000A)	TI/SPC/PSI/LVCBIN/0120(12/13) with A&C slip no. 01
3.	25 kV Double Pole Vacuum Interrupter (2000A)	TI/SPC/PSI/LVCBIN/0120(12/13) with A&C slip no. 01
4.	25 kV Double Pole Isolator (Manual) (2000A)	TI/SPC/PSI/ISOLTR/0210 (06/21)
5.	25 kV Double Pole Isolator (Motorised) (2000A)	TI/SPC/PSI/ISOLTR/0210 (06/21)
6.	25kV Potential Transformer (Type-1)	TI/SPC/PSI/PT/0210 (06/21)
7.	25kV/240V LT Supply Transformer (10kVA)	ETI/PSI/15 (08/03)
8.	25kV Dropout Fuse Switch (1A)	ETI/PSI/14(01/86) with A&C slip no. 01
9.	42kV Lightning Arrester	TI/SPC/PSI/MOGTLA/0101 (02/15)
10.	Low Tension Distribution Panel	TI/SPC/PSI/LTDPNL/0210 (10/21)
11.	25kV Support Insulator	TI/SPC/OHE/INS/0070 (04/07) with A&C slip no. 01 & 02

Boundary Sectioning and Paralleling Post (SP) for Two line, three Line and Four Line

SN	Equipment Description	Specification no.
1.	12.3MVA Auto Transformer (55/27.5kV) with Bushing CTs	TI/SPC/PSI/AUTOTR/1200 (02/21)
	16.5MVA Auto Transformer (55/27.5kV) with Bushing CTs	TI/SPC/PSI/AUTOTR/1200 (02/21)
3.	50kV Double Pole SF6 Circuit Breaker (2000A)	TI/SPC/PSI/HVCB/0121 (05/21)with A&C slip no. 01

4.	25 kV Double Pole Vacuum Circuit Breaker (2000A)	TI/SPC/PSI/LVCBIN/0120(12 /13) with A&C slip no. 01
5	25 kV Double Pole Vacuum Interrupter (2000A)	TI/SPC/PSI/LVCBIN/0120(12 /13) with A&C slip no. 01
6.	25 kV Single Pole Vacuum	TI/SPC/PSI/LVCBIN/0120(12

NOTE:-

1. Above specifications can be purchased from the office of CEE/CORE/ALD on payment of their cost.
2. For Structural steel (standard quantity) please refer IS: 2062 – 1992.
3. Any amendment in specification and drawings subsequent to LOA, if required to be carried out shall need approval of Dy.CEE/C/OHE/SC or CEE/Con. duly considering the financial implication of the same either in upward or downward direction.

2.9.2 ANNEXURE – 2:

(D E L E T E D)

2.9.3 ANNEXURE-3 :
REQUIREMENT OF SPARES ---- (D E L E T E D)

2.9.4 ANNEXURE - 4

LIST OF ITEMS TO BE SUPPLIED BY PURCHASER TO THE CONTRACTOR EQUIPMENTS, FITTINGS AND FINISHED MATERIAL

2.9.5

Sl. No.	Material to be supplied by purchaser	Quantity
1.	Contact wire 107 Sq.mm-	Full quantity as required.
2.	Contact wire 150 Sq.mm	Full quantity as required.
3.	Catenary wire 65 Sq.mm	Full quantity as required.

ANNEXURE-5

LIST OF PURCHASER'S ADDRESSES

The Chief Electrical Engineer/Construction, S.C RAILWAY, Annex to Rail Nirman Nilayam, Secunderabad - 500 025

2.9.6 UNIT QUANTITIES OF FINISHED WIRES AND CONDUCTORS FOR VARIOUS WORKS

Wire/ Conductor	Applicable linear density Kg/m	No. Sch-1	Bare unit requirement per unit of work (Mtrs.)	Allowance for erection per unit of work returnable as scrap (Mtrs.)	Total requirement per unit of work (col.4&5)	Remarks
1	2	3	4	5	6	7
Contact wire (107 sq.mm)	0.951 2	6(a) 6(b) 6(c) 6(d) 10 12(a) 31(g) 12(c)	1005.0 1005.0 1005.0 1005.0 0.5 4.0 3.0 4.0	5 5 5 5 - - - -	1010.0 1010.0 1010.0 1010.0 0.5 4.0 3.0 4.0	
Cadmium copper catenary wire (65 sq.mm)	0.597 3	5(a)(ii) 6(a) 10 12(C) 15(a)* 31(g)	1.0 1005.0 0.5 0.65 0.5 3.0	- 5 - - - -	1.0 1010.0 0.5 0.65 0.5 3.0	
19/7/1.25 (160 sq.mm) copper CONDUCTOR (large jumper)	1.504	15(d)	As required	-	As required	
37/2.25 mm (150 sq.mm) copper conductor (feeder wire)	1.333 5	7(e)	1010	10	1020.0	
Cadmium copper wire (130)(tail feeder/large span)	1.169 2	4(b)(iv) 5(a)(ii)* 6(a)* 6(d) 6(a)(v)	4.5 1.0 As required As required	- - - - -	4.5 As required As required As required	
All aluminium conductor (spider)	0.652 0	7(a) 7(b)	1010.0 2020.0	10 20	1020.0 2040.0	
Large Jumper(105) (Conventional /Tramway) Large Jumper 105 sq.mm)	0.982	10 15(a)(i)*	4.0/1.25 6.0	- -	4.0/1.25 6.0	
Cadmium copper bridle wire	0.218 7	6(c)	8.5	-	8.5 per bracket	
Small jumper (50 sq.mm)	0.435 2	4(b)(i) 4(b)(ii) (iii) &(iv) 6(a) 10 +15(a)	4.5 4.5 6.0 1.6 1.6	- - - - -	4.5 4.5 6.0 1.6 1.6	
Dropper wire (5mm)	0.174 6	5(b) 5(c) 6(a)&(d) 12 (a)&(d) 12(b) 31(a) 31(g) 6(c)	1.5 1.5 180.0 5.0 6.0 10.0 10.0 As required	- - 20 - - 2 2 -	1.5 1.5 200.0 5.0 6.0 12.0 12.0	
Dropper wire (7mm)	0.341	4(a)(I) 4(a)(v) 12(c)	1.8 1.8 0.80	0.2 0.2 -	2.0 2.0 0.80	
19/2.1(65 sq.mm) PVC catenary wire	-	15(c) 15(e)	AS required	-	As required	

Wire/ Conductor	Applicable linear density Kg/m	No. Sch-1	Bare unit requirement per unit of work (Mtrs.)	Allowance for erection per unit of work returnable as scrap (Mtrs.)	Total requirement per unit of work (col.4&5)	Remarks
1	2	3	4	5	6	7
19/2.29mm al alloy catenary	0.320	6(d)	1005	10	1015	

* see note 4

NOTE :

- Col.4 of the above table indicates the bare unit requirement of the various types of wire and conductors for various items of schedule-1. This concludes allowance for sag wherever required.
- Col.5 of the above table indicates the permissible allowance for the erection which should be left over with the contractor and should be returned to the purchaser in the form of scrap on completion of work incase these items are supplied by the purchaser. Such working allowance has been indicated on the assumption that all wire and conductors shall be made available in tailor made lengths as shall be indicated by the contractor to suit individual employment and, further, that the actual supplies shall be made in the serial order as will be indicated by the contractor. Should the purchaser be unable to supply the conductor as per above on account of which drums of a length longer than the ones desired by the contractor shall have to be erected, then such, extra length as shall result from the difference of the length of the drums actually employed and length of the drums ordered by the contractor shall be considered over and above the quantities admitted as allowances for section under column 5. Such extra length shall, in addition, be considered and shall be returned to the purchaser in the form of scrap.
- Col.6 of the above table indicates the total quantities of wires and conductors to be supplied to the contractor by the purchaser, free of cost incase these items are made railway supply (annexure IV). Such quantities do not take into account extra quantities which may be used on account of note 2 above and quantities damaged which shall be allowed for over and above the quantities indicated in Cl.6.
- Whenever cadmium copper wire (130) is required against 5(a) (ii), the quantity of cadmium copper wire (65) against this will be correspondingly reduced whether the jumper wire is supplied by the purchaser or the contractor.
- When copper wire (130) is required against 6(a), the quantities of cadmium copper wire (65) and contact wire (107) against this will be correspondingly reduced whether the jumper wire is supplied by the purchaser or the contractor.
- Whenever antitheft jumper is provided against 15(a), the length of jumper used shall be calculated depending on the setting distance of the anchor structure.
- Whenever large jumper(105) is employed against 15(a), the requirement of cadmium copper wire (65) shown against this will not be permissible and vice-versa.
- Whenever anti-creep is of the boom anchor type, catenary (cadmium copper) wire against 15(a) shall be 2 meters instead of 0.5 meters.
- The above unit requirement of quantities is for preparing utilisation statement of SOR (Schedule-B) items payment to the extent of quantity used in SOR s (Schedule-A) as erection.

Annexure-7

2.9.7 Declaration from the tenderer that he abides by G.C.C.

Refer Annexure-V of Chapter-I of Part-I

FORMS OF TENDERS ETC

FORMS & FORMATS

Form No.	Description.
1	Offer letter – Refer Chapter-I, Section-1
2	Memorandum of the Tenderer - Deleted
3	Deviations from the Tender paper - Deleted
4	Alternative proposalsof the Tenderer
5-A	Schedule of rates – Refer tender schedule
5-B	Schedule of quantity – Refer tender schedule
5-C	Schedule of offer rate – Refer Chapter-VIII
5-D	Schedule of aggregate cost – Refer Chapter-V
6	List of imported special tools, plant equipment and materials for construction ---- Deleted
7	Schedule of material under supply for schedule A, SOR items – Refer Chapter-IX.
8	Deleted
9	Deleted
10	Tenderer’s scheme of work and time schedule: Refer Chapter-II.
11	Names of manufacturer(s), place(s) of manufacture and inspection of supplies.
12	Tenderer’s credentials
12(A)	Tenderer’s Credential For OHE and PSI Works
12(B)	Experience certificate
12(C)	Engineering organisation
12(D)	Plant and Machinery
12(E)	List of completed works by the tenderer
12(F)	List of works on hand with the tenderer
12(G)	Annual contractual turnover Certificate from Chartered Accountant in their letter head
13	Guarantee Bond for Bid Security
14	Agreement.
15	Performance Guarantee Bond
16	Standing Indemnity Bond for On-account payments and railway supply materials
16(A)	Guarantee Bond for indemnification of railway materials
16(B)	Indemnity bond for release of SD before defect liabilityperiod is over
17	Extension of period of completion of work on contractor’s account

Form No.	Description.
18	Extension of period of completion of work on purchaser's account.
19	Guarantee Bond for mobilization advance – Deleted
20	Guarantee Bond against provisional acceptance Payments --- Deleted
21	Guarantee Bond against on-account payment.
22	Memorandum of Understanding [MOU] by the Joint Venture Firms
23	Agreement for Joint Venture Firms
24	NEFT Mandate Form
25	Format for certificate to be submitted/ uploaded by tenderer along with the tender documents

FORM 1

Offer Letter
D E L E T E D -

FORM - 1

- D E L E T E D -

FORM - 2

MEMORANDUM OF THE TENDERER

- D E L E T E D -

FORM - 3

DEVIATIONS FROM THE TENDER PAPERS

- D E L E T E D -

FORM - 4

ALTERNATIVE PROPOSALS OF THE TENDERERS

Para No. of the Tender Papers	Alternative Proposals	Technical advantages and/or financial implication of the proposal.
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FORM – 5A

Schedule of rates –

As mentioned in the schedule

FORM – 5B

Schedule of quantity –
As mentioned in the schedule

FORM – 5C

Schedule of offer rate –
As mentioned in the schedule

FORM – 5D

Schedule of aggregate cost –
Refer Section-1 of Chapter-III

FORM - 6

Deleted

FORM – 7

Schedule of material under supply for schedule A, SOR items:

Refer Chapter-X of Part-II

FORM - 8

— D E L E T E D —

FORM -9

— D E L E T E D —

FORM – 10

Tenderer's scheme of work and time schedule:
Refer para 1.2.64 of Chapter-II of Part-I

FORM-11

NAMES OF MANUFACTURERS, PLACES OF MANUFACTURERS AND INSPECTION OF SUPPLIES

ITE M NO	DESCRIPTION OF ITEM	NAME & ADDRESS OF MANUFACTURERS	PLACE OF MANUFACTUR E	PLACE OF INSPECTION.
1	2	3	4	5

Declaration by the tenderer

We hereby confirm that all the equipments, components and materials which will be supplied by us would confirm to technical and other particulars as detailed in Part-II Chapter-IV and would comply with the RDSO's 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 CORE/RDSO.

- i)
- ii)
- iii)

Technical details conforming the SOGP of the concerned specification and the details of manufacturer for the above items are enclosed in FORM-11(B).

Signature of tenderer

FORM-12

TENDERER's CREDENTIALS

FORM 12(A)
Sheet1

TENDERER'S CREDENTIAL FOR OHE WORKS PREQUALIFICATION BID

1. Give the details of tenderer's past experience as per eligibility criteria for completed similar nature work in the Pro forma below:-

SN	Description	Work Details(To be filled up here)
(i)	Name of Contractor	
(ii)	Description of Work	
(iii)	Section of Work	
(iv)	LOA/Contract Agreement No. & Date	
(v)	Confirm that the work against LOA/Contract agreement is either OHE work or Composite work	
(vi)	LOA/Contract Agreement value of Work	
(vii)	LOA/Contract Agreement Value for OHE portion of work (In case of Composite work)	
(viii)	Total TKM of OHE work envisaged to be done as per LOA/contract	
(ix)	Stipulated date of completion of work as per contract	
(x)	Whether the work was executed by firm as a single entity or as a Joint venture or as a consortium.	
(xi)	Percentage share of the firm if the work was executed as Joint venture/consortium.	
(xii)	Whether ALL the work under the LOA/contract is complete in all respect?	
(xiii)	Date of completion of work in all respect under the LOA/contract	
(xiv)	Date of issue of last PAC/FAC/Completion Certificate for completed work under the LOA/contract	
(xv)	Completed cost of the work (Gross value including payment due to Price variation, taxes, duties etc.)	
(xvi)	Payment made against the completed work (Gross value including payment due to Price variation, taxes, duties etc.)	
(xvii)	Completed cost of the OHE portion of work (in case of composite contract) (Gross value including payment due to Price variation, taxes, duties etc.)	
(xviii)	Payment made against the OHE portion of work (in case of composite contract) (Gross value including payment due to Price variation, taxes, duties	

	etc.)	
(xix)	Total TKM of OHE work completed under the contract	
(xx)	Details of work yet to be completed under the contract, if any.	
(xxi)	Verifying Authority (Purchaser of the Work)	Name and Designation of Contact Person
		Office Address
		Phone No.
		Mobile No.
		Fax No.
		Email

- i) If the tenderer has completed more than one work, the form shall be numbered as Form-12A Sheet-1(i), Form- 12A Sheet-1(ii), and Form-12A Sheet-1 (iii) and so on.
- ii) Information given in above Form-12A, Sheet-1 shall be verified & countersigned by the Purchaser of the above said work and if it is not possible then supported by the purchaser's authentic documents.
- iii) In absence of above information i.e. Form-12A the tender offer of the tenderer are liable to be rejected and will not be considered further. In case any information & details as mentioned in above Pro forma is found incorrect or hidden or misrepresented or overwritten, then contract will be cancelled/terminated at any stage without prejudice.
- iv) If above work is on turnkey/composite basis the value of each work performed to be mentioned separately.

Signature of the Tenderer/Authorized Representative of the firm

FORM-12A, Sheet-2

WORK LOAD						
(Details of similar work in progress)						
S.N.	Description	Work No.1	Work No.2	Work No.3	Work No.4	Work No.5
I	Name of work					
ii	Purchaser					
iii	Section					
iv	TKM/ TSS					
v	Cost of work					
vi	Date of award					
vii	Stipulated date of completion					
viii	Date of actual start					

ix	Present Status of work					
----	------------------------	--	--	--	--	--

NOTE: For details given in Form - 12A, Sheet-2, supportive documents / certificate from the organisation with whom they are working should be enclosed.

Signature of
the Tenderer with
Seal

-Deleted-

FORM-12A, Sheet-4

Construction Machinery			
S.No.	Description	Qty in hand	Qty proposed to be hired
1	Tirfor 5 T		
2	Tirfor 3 T		
3	Tirfor 1.5 T		
4	Pull Lift 3 T		
5	Pull Lift 1.5 T		
6	Pull Lift 0.75 T		
7	Generator Set (kVA)		
8	Generator with welding Set (kVA)		
9	5/2.5 kVA Meggear		
10	500/1000V Meggar		
11	AVO Meter		
12	Earth Tester		
13	Dynamo Meter 2 T		
14	Dynamo Meter 3 T		
15	Dynamo Meter 5 T		
16	Survey Instrument		
17	Compressor m/c (cap.)		
18	Wire Slings 1m, 2m, 3m		
19	Wire Slings 10m, 15m, 70m		
20	Come along clamps		
21	Concrete Mixer		
22	Truck		
23	Jeep		
24	Tractor		
25	Centrifuging Plant		
26	Road Cane		
27	Drilling m/c		
28	Grinding m/c		
29	Screw Jack		
30	Chain pulley Block		
31	Winch M/c (Cap)		
32	Power Hacksaw		
33	Welding M/c		
34	Dropper Cutter		
35	Contact Wire Cuter		
36	Dropper Jig		
37	Al. Ladder Ext. Type 27 feet		
38	Al. Ladder Ext. Type 36 feet		
39	Pulley Block		
40	Ladder Trolley		

It may also be certified that the Tools & Plants listed above are sufficient to execute the work covered under tender and all the above Tools & Plants shall be readily available during execution of the contract.

Signature of
the Tenderer with
Seal

(On letterhead of Auditor of Firm)

Form-12A, Sheet-5

SN	Financial Year	Contractual Amount Received
1.		
2.		
3.		
4.		

Note: (i) In above format only Contractual Amount Received for the financial year to be filled by Auditor, if there is no Contractual Amount Received in the year, may be filled as Nil.
(ii) Certificate from chartered accountant should be duly supported by Audited Balance Sheets as mentioned in para 12.2 of the Preamble of the Tender Document.

Seal & Signature of Auditor

TENDERER'S CREDENTIAL FOR TSS WORKS PREQUALIFICATION BID

Give Details of tenderer's past experience as per eligibility criteria for completed similar nature of work

in the Performa below:-

SN	Description	Work Details(To be filled up here)
(i)	Name of Contractor	
(ii)	Description of Work	
(iii)	LOA/Contract Agreement No. & Date	
(iv)	Confirm that the work against LOA/Contract Agreement is either Sub-station work or Composite work	
(v)	LOA/Contract Agreement value	
(vi)	LOA/Contract Agreement Value for Sub-station portion of work (In case of Composite work)	
(vii)	Total number of sub-station(s) in a contract	
(viii)	Location of Sub-station(s)	
(ix)	Level of substation(s) (kV & MVA)	
(x)	Stipulated date of completion of work as per contract	
(xi)	Scope of works for construction of a new substation OR for augmentation work in the Existing substations as defined in similar works in eligibility criteria	
(xii)	Whether the work was executed by firm as a single entity or as a Joint venture or as a consortium.	
(xiii)	Percentage share of the firm if the work was executed as Joint venture/consortium.	
(xiv)	Whether ALL the work under the LOA/contract is complete in all respect?	
(xv)	Date of completion of work in all respect under the LOA/contract	
(xvi)	Date of issue of last PAC/FAC/Completion Certificate for completed work under the LOA/contract	
(xvii)	Completed cost of the work (Gross value including payment due to Price variation, taxes, duties etc.)	
(xviii)	Payment made against the completed work (Gross value including payment due to Price variation, taxes, duties etc.)	
(xix)	Completed cost of the Sub-station portion of work (in case of composite contract) (Gross value including payment due to Price variation, taxes, duties etc.)	
(xx)	Payment made against the Sub-station portion of work (in case of composite contract) (Gross value including payment due to Price variation, taxes, duties etc.)	
(xxi)	Details of work yet to be completed under the contract, if any.	
(xxii)	Details of Equipments commissioned by the firm successfully for the completed Sub-station portion of the work	
A)	Power Transformer (Number, MVA & KV)	
B)	Circuit Breaker (Number, Voltage level)	
C)	Control & Relay panel (Number)	
D)	Other information, if any	
	Verifying Authority (Purchaser of the Work)	Name and Designation of Contact Person
		Office Address
		Phone No.

		Mobile No.	
		Fax No.	
		Email	

Note:-

- If the tenderer has completed more than one work, the form shall be numbered as Form-12A Sheet- 6(i), Form-12A Sheet- 6 (ii), and Form-12A Sheet- 6 (iii) and so on.
- Information given in above form-12A Sheet- 6 shall be verified & countersigned by the Purchaser of the above said work and if it is not possible then supported by the purchaser's authentic documents.
- In absence of above information i.e. 12A Sheet- 6 the tender offer of the tenderer are liable to be rejected and will not be considered further. In case any information & details as mentioned in above Pro forma is found in correct or hidden or misrepresented or overwritten, then contract will be cancelled/terminated at any stage without prejudice.
- If above work is on turnkey/composite basis the value of each work performed to be mentioned separately.

Signature of the Tenderer/Authorized Representative
of the firm

FORM 12(B)

PROFORMA FOR FURNISHING EXPERIENCE CERTIFICATE

(Current year and Last 3 years preceding the date of opening of tender.)

EXPERIENCE CERTIFICATE

"Tenderer should submit a **self attested** copy of work experience certificate, signed by an officer not below the rank of JA Grade or bill passing officer in Railways and Bill passing officer/Executive in-charge of the work in other Government Department/Govt.bodies/public sectors under taking to establish his eligibility criteria. The certificate should contain the details regarding Name of work; Agreement No and Date; Name of Agency; Agreement value in Rupees (amount in words and figures); Due date and actual date of completion; value of Final Bill passed (amount in words and figures); Performance of the Contractor; Signature, Name, Designation and Seal of the issuing Officer, otherwise which the offer will be summarily rejected".

FORM 12 [c]

ENGINEERING ORGANIZATION

Engineering Organisation Required for the work (Own plus hired) [Refer Chapter-II, para 1.2.58]

ENGINEERING ORGANISATION AVAILABLE ON HAND

Sl.No.	Name & Designation of Employee.	Qualification	Previous Experience	Working From To
01	02	03	04	05
A				
B				

ENGINEERING ORGANISATION PROPOSED TO BE ENGAGED FOR THIS WORK FROM ABOVE

Sl.No.	Name & Designation of Employee.	Qualification	Previous Experience	Remarks
01	02	03	04	05
A				
B				

ENGINEERING ORGANISATION PROPOSED TO BE ENGAGED FOR THIS WORK FROM OUTSIDE

(A SUITABLY WORDED CONSENT LETTER FROM SUCH A PERSON SHOULD BE OBTAINED AND ENCLOSED)

Sl.No.	Name & Designation of Employee.	Qualification	Previous Experience	Remarks
01	02	03	04	05
A				
B				

SIGNATURE OF THE TENDERER (S):

NAME OF THE TENDERER (S):

FORM 12 [D]

1. PLANT AND MACHINERY AVAILABLE ON HAND

Sl. No.	Particulars of machinery, plant and equipment	No. of units	Kind and make	Capacity	Age and condition	Apprximate cost in Rs. In lakhs	Purchase-Bill No. & date and registration particulars
01	02	03	04	05	06	07	08
A							
B							
C							

2. PLANT AND MACHINERY PROPOSED TO BE INCUTED FROM ABOVE

Sl. No.	Particulars of machinery, plant and equipment	No. of units	Kind and make	Capacity	Age and condition	Apprximate cost in Rs. In lakhs	Purchase-Bill No. & date and registration particulars
01	02	03	04	05	06	07	08
A							
B							

3. PLANT AND MACHINERY PROPOSED TO BE INDUCTED FROM OUTSIDE

Sl. No.	Particulars of machinery, plant and equipment	No. of units	Kind and make	Capacity	Age and condition	Apprximate cost in Rs. In lakhs	If to be purchased give likely date of receipt and suppliers name
01	02	03	04	05	06	07	08
A							
B							

SIGNATURE OF THE TENDERER (S):

NAME OF THE TENDERER (S):

LIST OF COMPLETED WORKS BY THE TENDERER

Sl. No	Name of work	Agreement No. and date	Designation and address of agreement signing authority	Agreement value in lakhs of Rs.	Completed value of work (in lakhs of Rupees)	Date of completion	Remarks
Railway Works/Central Govt works							
A							
B							
State Govt. Works							
A							
B							
Public Sector Undertaking Works							
A							
B							

Signature of Tenderer:

Name of Tenderer

LIST OF WORKS ON HAND WITH THE TENDERER

Sl. No	Name of work	Agreement No. and date	Designation and address of agreement signing authority	Agreement value in lakhs of Rs.	Bill amount paid so far in lakhs of Rs.	Due date of completion	Number of extensions taken
Railway Works/Central Govt works							
A							
B							
State Govt. Works							
A							
B							
Public Sector Undertaking Works							
A							
B							

Signature of Tenderer:

Name of Tenderer

Note :

1. Have you entered into technical collaboration with any consultants to assist you in this work? If so, give full particulars. First timers to OHE work shall engage technical consultants.
2. Give Constitution of your firm. Attach certified copies of legal documents in support thereof.
3. The forms at 12 (A) to 12 (F) shall be filled precisely and with full details.

**CERTIFICATE FROM CHARTERED ACCOUNTANT IN THEIR LETTER HEAD
TO WHOM SO EVER CONCERNED**

We _____, are the auditors of the firm _____, since last _____ (many years). On the strength of the above association, we are issuing this certificate to the firm on the annual contractual turnover **during the last three audited financial years** as per audited balance sheets.

It is further certified that advances or loans taken by the firm in connection with execution of contracts are not reflected in the contractual receipts from Contract as indicated below.

Sl. No.	Financial year	Receipts from contracts executed for Govt./Govt.bodies/PSU/Pvt. Organisation reflected in Audited Balance Sheets in P&L account (Rs.)	Remarks (if any)
1.	2.	3.	4.

Signature:
Name of CA
Address:
Office seal:
Phone No.
e-mail:
Date:
Registration Number:
UDIN:

FORM-13

Annexure –VIA

Para 5 of the Instructions to Tenderers

GUARANTEE BOND FOR 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: 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.

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)

AGREEMENT

AN AGREEMENT made this _____ day of _____ 20 two thousand and _____ (year) between the President of India, acting in the premises through the General Manager or his successor in charge of this Railway (whose address will be intimated in due course) of the Ministry of Railways, Railway Board (hereinafter referred to as "The Purchaser") of the one part and Messrs..... (hereinafter referred to as "The Contractor") of the other part.

Whereas in response to a call for Tenders for _____ of South central Railway' _____ as per Tender papers at Annexure 'A' hereto, the Contractor has submitted a Tender as per Annexure 'B' hereto and whereas the said Tender of the Contractor has been accepted for Rs. _____ as per copy of Letter of Acceptance of Tender No _____ dated _____ complete with enclosures at the accepted rates _____ as per Annexure 'C' hereto and at an estimated contract value of Rs _____ (Rupees.....Only).

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

The total security deposit for the work is Rs. _____. Bid Security of Rs _____ is adjusted towards security deposit and the balance shall be recovered from ON ACCOUNT or progress bills at the rate of 10 % till total reaches 5 % of contract value including BID SECURITY. The contractor has submitted Bank Guarantee/ FDR for Rs. _____, Vide BG/FDR No. _____, issued by _____, _____ towards performance guarantee for 5% of contract value.

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

Signed and delivered at Secunderbad, by Shri..... for and on behalf of M/s..... the Contractor within-named in the presence of :-

Signature of contractor

1. Signature
Date
Name in Block Letters
Address
2. Signature
Date
Name in Block Letters
Address

*See Para 1.2.16

1. Indicate No. of the Tender Papers here.

Signed and delivered at.....for and on behalf of the President of India by Shri..... General Manager or his successor.....Railway.....Ministry of Railways (Railway Board) In the presence of :-

Signature of Railway officer

1. Signature
Date
Name in Block capitals
Address
2. Signature
Date
Name in Block capitals
Address

Annexure 'A': Tender Papers No.

Annexure 'B': Firm's Tender No.

Annexure 'C': Letter of Acceptance of Tender.....Datedcomplete
with enclosures.

FORM-15

(On stamp paper of requisite value)

PERFORMANCE GUARANTEE BOND

(TO BE USED BY APPROVED SCHEDULE BANKS)

In consideration of the President of India (herein after called "the Government") having agreed to exempt _____ (herein after called "the said Contractor(s)" from the demand under the terms and conditions of an agreement dated _____ made between _____ and _____ for _____ (herein after called "the said Agreement"), of PERFORMANCE GUARANTEE for the due fulfillment by the said Contractors) of the terms and conditions contained in the said Agreement, on production of a bank Guarantee for Rs. _____ (Rupees _____ only). We, _____ herein after referred to as "the Bank" (indicate the name of the bank) at the request of _____ (contractor (s)) do hereby undertaken to pay to the Government an amount not exceeding Rs. _____ against any loss or damage caused to 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) failure to perform the said Agreement. Any such demand made on the bank shall be conclusive as regards the amount due and payable by the bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. _____.

3. We 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 or proceedings pending before any court or Tribunal relating there to our liability under this present being absolute unequivocal.

The payment so made by us under this bond shall be 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 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 attend 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 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 _____ 202_

for _____
(Indicate the name of Bank)

Note: See para 4(B) of the Chapter Preamble.

FORM-16

INDEMNITY BOND FOR 'ON ACCOUNT' PAYMENTS AND FOR RAILWAY SUPPLY MATERIALS

We, M/s _____ here by undertake that we held at our stores Depot/ at _____ on behalf of the President of India, acting in the premises through Dy.Chief Electrical Engineer OHE/Con). (here in after referred to as "the purchaser) and his property in trust for him all materials listed in tender schedule fo which 'On Account' payment have been made to not exceeding Rs. _____. Against _____ , _____ , _____ of South Central Railway . Vide _____ and the materials handed over to us by the Purchaser as per Contract 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 respects of the said materials while on our possession and against disposal of surplus materials. The said materials shall at all tmes be open to inspection by any officer authorised by the Dy.Chief Electrical Engineer, in charge of the OHE (Construction) South Central Railway.

Should any loss, damage or deterioration of materials occur or surplus materials disposed off and a refund becomes due, and the Purchaser shall be entitled to recover from us the full cost as per prices included in Schedule B-SOR items or Schedule-3 items to the contract and in respect of other materials as indicated in Part-I, Chapter-IV, Section-1 and also compensation for such loss or damage, or deterioration, if any alongwith the amount to be refunded, without prejudice to any other remedies available to him by deduction from any sum which at any time here after becomes due to us under the said or any other Contracts.

In the event of any loss, damages or deterioration as above said, the assessment of

such loss or damages and the assessment of such compensation there fore would be made by the President of India or his authorized nominees and the said assessment shall be final and binding upon us.

Dated this _____ day of _____ 202_ _____

For and on behalf of Messers _____ (Contractor)

Signature of Witness:

Name of Witness IN BLOCK LETTERS

Address:

FORM 16 (A)

**GURANTEE BOND FOR INDEMNIFICATION OF RAILWAY MATERIALS
(FOR GIVING RAILWAY MATERIALS FOR POH, REPAIRS ETC., AT CONTRACTOR'S
FACTORY)**

Against General Manager/South Central Railway/Secunderabad's agreement No. _____ dated _____, a contract for _____ (Nature of work) _____ entered into between president of India acting through _____ (hereinafter called contractor), We _____ Bank are holding most in favour and on behalf of Government of India the amount of Rs. _____ (Rs. _____ only) being the security towards cost of raw materials namely _____ at the contractor's factory exclusively for the _____ under the said contract. We _____ Bank hereby undertake to indemnify and keep indemnified the President of India acting through _____ against any loss or damage that may be caused or suffered by the President of India (Government) by reason of any breach by the contractor of any of the terms and conditions of the said contract and performance thereof. We _____ bank agree that the decision of the president of the India whether any breach of the terms and conditions of the said contract or in the performance thereof has been committed by the contractor and the amount of loss/or damage that has been caused or suffered by the president of India (govt.of India) shall be final and binding on us and the amount of said loss or damage shall be paid by us forthwith on demand and without demur to the President of India.

We _____ bank further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for satisfactory performance and fulfillment in all respects of the said contract by the contractor till _____ (Date) _____ and that if any claim accrues or arises against us by virtue of this guarantee before the said date, the same shall be enforceable against us the _____ (Name of the Bank), notwithstanding the fact that the same is enforced within six months after the said date provided that notice of any such claim has been given to us _____ Bank) _____ by the President of India before the said date, payment under this letter of guarantee shall be made promptly upon receipt of notice to that effect from the President of India.

It is fully understand that the guarantee is effective from _____ and that we _____ Bank undertake not to revoke this guarantee during its currency without the consent of the President of India (Government) in writing.

We _____ Bank further agree that the President of India shall have fullest liberty without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said contract or to extend time of performance by the said contractor and to forebear or enforce any of the terms and conditions relating to the said contract and we _____ bank shall not be released from our liability under this guarantee by reason of any such variation or extension being granted to the said contractor for any forbearance and or omission on the part of the President of India or any indulgence by the President of India to the said contractors or by any other matter or thing whatsoever which under the law relating to sureties, would but for this provision, have the effect of so releasing us from our liability under this guarantee.

We _____ bank further agree that the guarantee herein contained shall not be affected by any change in the constitution of the Bank or the said contractor.

Dated:

Seal of the bank &

**Signature of the bank
Authority**

Witnesses (with address)

- 1).
- 2).

FORM 16 (B)

**FORMAT OF INDEMNITY BOND FOR RELEASE OF SD BEFORE DEFECT LIABILITY
PERIOD IS OVER (To be furnished in stamp paper as per Stamp Act) (Stamp Paper
should be purchased in the name of the Contractor)**

This deed of Indemnity executed on at " by M/s..... having its registered office at, through Mr. as the authorized representative of M/s , hereinafter referred to as 'Indemnifier' which expression shall, unless repugnant to the context or meaning thereof, include its successors, administrators, representative and assignees in favour of, South Central Railway having its registered office at, through Mr. " as the authorized representative, hereinafter referred to as the 'Indemnified', the expression which shall, unless repugnant to the context or meaning thereof, include its administrators. successors, representative, and assignees.

Whereas the Indemnified herein has awarded to the Indemnifier herein a contract for the work "....." on terms and conditions set out inter alia in the Contract Agreement No. " Dated valued at Rs. (Rupees only).

And

Whereas, Defect Liability Clause (Clause No.) of Special Conditions of the above mentioned contract agreement) provide for guarantee (i.e.) for the works executed under the contract to be free from defect due to faulty material or workmanship identified during Defect Liability Period (DLP) of 36 calendar months from the date of issue of Completion Certificate of the work.

The indemnifier hereby irrevocably agrees to indemnify the indemnified that the in the event of any specified liability during defect liability period, original or extended as per the terms of the contract, the indemnifier shall repair / replace the defective works at site or pay the amount on demand as debt due without any objection and in case of any non-compliance by the indemnifier, the indemnified may deduct the amount determined under the defect liability clause from any payment due to the indemnifier in any other contract anywhere in Indian Railways. The indemnifier also irrevocably agree that any determination of the indemnified under defect liability clause shall be final and binding upon indemnifier and treated as "Expected Matter" and shall be Arbitrable.

For

Station:

Dated:

(Signature with Name and Designation)

Company Seal

Witnesses: 1

Signature with Name, Designation & Address

Witnesses: 2

Signature with Name, Designation & Address

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

(Registered with Ack. Due)

To.

.....
.....**Sub:** (i)(Name of work)

(ii) Acceptance Letter No. date....

(ii) 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 5% of the contract value as recovery for delay 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

(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 in Group 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.

FORM-19

GUARANTEE BOND FOR MOBILISATION ADVANCE

DELETED

FORM-20

GUARANTEE BOND AGAINST PROVISIONAL ACCEPTANCE

DELETED

GURANTEE BOND AGAINST "ON ACCOUNT" PAYMENTS**(TO BE USED BY APPROVED SCHEDULE BANKS)**

1. In consideration of the President of India (herein after called "the Government ") having agreed to exempt _____ (herein after called "the said contractor(s)" from the demand under the terms and conditions of an agreement dated _____ made between _____ and _____ (for said Contractors) of the terms and conditions contained in the said agreement"), of security deposit for the fulfillment by the said Contractors) of the terms and conditions in the said agreement, on production of bank Gurantee for Rs. _____ (Rupees _____ only) We _____ herein after referred to as "the bank" (indicate the name of the bank) at the request of _____ (contractor(s) do here by under taken to pay to the Government an amount no exceeding Rs. _____ against any loss or damage caused to or would be caused to or suffered by the Government by reason of any breach by the said contractor(s) of any terms or conditions contained in the said Agreement.
2. We _____ do hereby undertake to pay the amount due and payable under this gurantee 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 suffered by the Government by reason of breach by the said contractor(s) of any terms and 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 gurantee shall be restricted to an amount not exceeding Rs. _____.
3. We undertake to pay to the Government any money so demanded notwithstanding any dispute or disputes raised by the contractor(s)/suppliers in any suit or proceedings pending before any court or Tribunal relating there to our liability under this present being absolute unequivocal.
The payment so made by us under this bond shall be valid discharge of our liability for payment there under the contractor(s) /suppliers shall have no claim against us for making such payment.
4. We, _____ further agree that the (indicate the name of the bank) the gurantee 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 gurantee. Unless a demand or claim under this gurantee is made on us in writing on or before the _____ (b) we shall be discharged from all liability under this gurantee thereafter.
 - a. We _____ further agree with the
(indicate the name of the bank)
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 attend time of performance by the said Contractor(s) from time to time or to postpone for any time or from time totime 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) for any forbearance, act of omission on the part of the

Government of any indulgence by the Government to the said contractor(s) or any such matter or thing what so ever which under the law relating to sureties would, but for this provision , have effect of so relieving us.

- b. This gurantee will not be discharged due to the change in the construction of the bank or the contractor(s)/Supplier(s)
- c. We _____ lastly undertake not to revoke not to revoke this gurantee during its currency except with the previous consent of the Government in writing.

Dated the _____ day of _____ 202_
_____ For _____ (indicate the name of Bank)

The gurantee shall be valid for period of two months after expiry of the gurantee period of the equipment.

FORM-22

MEMORANDUM OF UNDERSTANDING FORMAT FOR J.V. FIRMS

(Applicable for a tender value costing more than Rs. 10 .00 Crs. only)

(To be executed on non-judicial stamp paper of appropriate value in accordance with relevant stamp Act. The stamp paper is to be issued in the name of the Joint Venture Firm)

This MOU is made and executed on this _____ day of _____ 20...

Between

1. M/s. _____ represented by its _____ Sri _____ S/o. _____ aged _____ about _____ years, Occupation _____ R/o. _____ hereinafter called the, Lead Member, which term shall means and includes his heirs, successors, Legal representatives, assignees, etc.
 2. Sri _____ S/o. _____ aged about _____ years, Occupation _____ R/o. _____ hereinafter called the second member, which term shall means and includes his heirs, successors, Legal representatives, assignees, etc.
 3. Sri _____ S/o. _____ aged about _____ years, Occupation _____ R/o. _____ hereinafter called the third member which term shall means and includes his heirs, successors, Legal representatives, assignees, etc.
 4. Sri _____ S/o. _____ aged about _____ years, Occupation _____ R/o. _____ hereinafter called the fourth member, which term shall means and includes his heirs, successors, Legal representatives, assignees, etc.
- AND**
5. Sri _____ S/o. _____ aged about _____ years, Occupation _____ R/o. _____ hereinafter called the fifth member, which term shall means and includes his heirs, successors, Legal representatives, assignees, etc.

WHEREAS, the South Central Railway, through its Chief Administrative Officer (Construction)/ Chief Engineer (Construction)/ Dy. Chief Engineer (Construction), South Central Railway has invited tenders for the work of _____ vide their Tender Notice No. _____ dated _____.

WHEREAS, the members herein formed a Joint Venture in order to join their expertise to obtain best results from the combination of their individual resources of technical, financial, management and equipments for the benefit of project and in order to submit

a joint tender (herein after referred to as "Tender") for the work of _____ as notified by Chief Administrative Officer (Construction), South Central Railway _____ (herein after referred to as "Employer") under Tender Notice No. _____ dated _____.

NOW the members hereto have come to an understanding and agreed to execute the project/ work on the following terms and conditions:

1.0 FORMATION AND TERMINATION OF THE JOINT VENTURE FIRM:

- 1.1 The members herein, under this MOU, have formed a Joint Venture Firm to submit the tender for the above project and execute the contract with the Employer for the project if qualified and contract is awarded.
- 1.2 The members herein expressly agreed that any member of this Joint Venture Firm shall not participate either in individual capacity or as a member of another Joint Venture Firm to participate in this tender.
- 1.3 The name and style of the Joint Venture shall be _____ (with full address of office) hereinafter called the "Joint Venture" all communication regarding the project will be made in the name of the joint venture at the above address with Telephone No. _____.

2.0 SHARE OF PROFIT AND LOSS:

- 2.1(indicate the name of the Lead Member) shall be the **"Lead member"** of the JV Firm, for all intents and purposes having majority share (i.e 51% or more) in Joint Venture Firm and who have also satisfactorily completed in the last 3 previous financial years and the current financial year upto the date of opening of tender, one similar single work of a minimum value of 35% of advertised tender value or 35% of the largest component of the work in case of composite works, as per technical eligibility criteria of the "Guidelines for participation of Joint Venture Firms in works tender."
- 2.2 The 'Members' resolve that the distribution of share of Financial, Technical, and other responsibilities of the constituent members of JV Firm is as under:

- a) (Indicate name & Address of Lead Member) Share%
- b)(indicate name & Address of Constituen Meber) Share%
- c) (Indicate name & Address of Other Constituent Member) Sare%

- 2.3 The members of the Joint Venture hereby undertake not to modify the share percentage till the work under the tender is completed to the satisfaction of the Tendering Authority, if the tender submitted by the Joint Venture Firm is accepted.
- 2.4 It is agreed that a copy of the Memorandum of Understanding executed by the JV members shall be submitted by the JV Firm along with the tender.
- 2.5 It is agreed that once tender is submitted by the Joint Venture Firm, the MOU shall not be modified/ altered/ terminated during the validity of the tender. If the JV fails to observe/ comply with this stipulation, the full Bid Security shall be forfeited. It is also agreed that the constitution of the JV Firm shall not be modified after submission of the tender bid by the JV Firm, except when modification becomes inevitable due to succession laws etc and in any case the minimum eligibility criteria should not get vitiated. Approval for change of constitution of JV Firm shall be at the sole discretion of the Employer (Railways). However, the Lead Member shall continue to be the Lead Member of the JV Firm. Failure to observe this requirement would render the offer invalid.
- 2.6 The Joint Venture Firm shall be required to submit Bid Security along with tender, in cash or Banker's cheques / Demand Drafts/FDRs executed by the State Bank of India or any of the Nationalised Banks or by a Scheduled Bank in favour of "FA&CAO/Construction/ S.C.Railway / Secunderabad".
- 2.7 It is also agreed that on award of contract to this JV Firm, a single Performance Guarantee will be submitted by the Joint Venture Firm as per tender conditions. All the guarantees like Performance Guarantee, Bank Guarantee for Mobilization Advance, Machinery Advance etc., will be submitted only in the name of Joint Venture Firm. Splitting of guarantees amongst the members of the Joint Venture Firm shall not be permitted.
- 3.0 **Working capital:**
- 3.1 It is agreed that each member shall contribute working capital for equipment, manpower and material or any expenses to be incurred for execution of the project/work or any other investment required in connection with the execution of the project/work in proportionate to the share capital participation ratio.
- 3.2 It is agreed that each member shall be responsible for the due fulfillment of all conditions, stipulations, obligations expressly included and provided in the submitted tender work as clarified by the agreement between the members and shall hold harmless and indemnified against any damage arising from its default or non-fulfillment of such obligations etc.
- 3.3 It is agreed that if any member fails to perform its obligations described in the agreement during the execution of the project and to cure such breach within the stipulated period the other member shall have the right to take up the work, interest and responsibility of the defaulting member at the cost of the defaulting member.
- 4.0 **LIABILITY OF JOINT VENTURE MEMBERS:** It is agreed that the members of this Joint Venture Firm are jointly and severally liable to the Railways for execution of the project/work in accordance with General and Special conditions of the Contract. The Joint Venture members 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.
- 5.0 **AUTHORIZED MEMBER:** We, authorize _____ (Indicate Lead Member), as authorized member represented by their authorised signatory Shri_____ (Indicate the name) to act on behalf of the Joint Venture Firm 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.

AND

We do hereby specifically mention that the acts, deeds and things done or got to be done

by the authorized member be construed as acts, deeds and things done by the JV firm.

All notices/correspondences with respect to the tender/contract would be sent by Employer (Railways) **only to the authorized signatory of Authorized Member at the address of JV Firm**. All such notices/correspondences sent by Employer shall be legally binding on all the members of the JV Firm.

6.0 Technical and Financial Experience:

- 6.1 The Joint Venture Firm has executed works namely _____ and as such the firm is having experience of constructing/executing the work of _____

OR

The Lead Member of this Joint Venture Firm is having experience of constructing _____ work and in fact executed _____ work.

- 6.2 The Member of this Joint Venture is doing business _____ and having a turnover of Rs. _____ and thus having the capacity of required finance for the execution of the project/work.

(Note: The respective members may give the description of experience in the field required for the project.)

7.0 Miscellaneous:

- 7.1 Separate bank account or accounts shall be opened in the name of the Joint Venture in a scheduled or Nationalized Bank of India as decided by the members herein with mutual consent and shall be operated by the authorized member as agreed by the members herein.
- 7.2 It is agreed that all payments and receipts of the Joint Venture shall be in the name of the Joint Venture.
- 7.3 It is certified that all the members of the Joint Venture Firm collectively assert that the Firms/members are not black listed or debarred by any other Ministry / Department of Government of India / Public Sector Undertakings / State Government from participation in tenders/contracts on the date of tender opening of bids either in their individual capacity or Partnership Firm or JV Firm in which they were /are members/partners.
- 7.4 This Joint Venture Agreement shall in all respect be governed and interpreted in accordance with Indian Laws.
- 7.5 **Duration of the Joint Venture Agreement:** 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.
- 8.0 This Joint Venture agreement shall not be modified/altered/ terminated during the validity of the tender / contract period. In case the Joint Venture firm fails to observe/comply with this stipulation, the full Bid Security shall be forfeited.
- 9.0 It is agreed that constitution of the Joint Venture Firm will not be altered during the currency of the contract except when modifications become inevitable due to succession laws etc., and in any case the minimum eligibility criteria would not be affected. Failure to observe this stipulation will be deemed to be breach of contract and liable for all consequential penal action by the Railways against the Joint Venture Firm as per contract conditions.
- 10.0 It is agreed that on receipt of L.O.A, the members of Joint Venture Firm shall submit to Railways before signing of the contract, a copy of the JV agreement duly registered before the Registrar of the Companies under Companies Act or before the Registrar/ Sub-Registrar under the Registration Act, 1908. In case this firm fails to observe/comply with this stipulation, the Railways will have a right to forfeit the Bid Security besides taking the penal action against the members of the Joint Venture and the Joint Venture Firm.

11.0 No member of Joint Venture Firm will assign or transfer the interest, right or liability in the contract without the written consent of the other members and that of the South Central Railway in respect of this tender / contract.

Lead member.

Member -2

Member-3.

Member-4.

Member-5.

WITNESS:

(Name & Address)

1.

2.

N O T A R Y

AGREEMENT FORMAT FOR JV FIRMS

(Applicable for a tender value costing more than Rs.10.00 Crs.only)

This Agreement is made and executed on this _____ day of _____ 20____

Between

1. M/s. _____ represented by its _____ Sri _____ S/o. _____ aged about _____ years, Occupation _____ R/o. _____ hereinafter called the Lead Member, which term shall means and includes his heirs, successors, Legal representatives, assignees, etc.
2. Sri _____ S/o. _____ aged about _____ years, Occupation _____ R/o. _____ hereinafter called the second member, which term shall means and includes his heirs, successors, Legal representatives, assignees, etc.
3. Sri _____ S/o. _____ aged about _____ years, Occupation _____ R/o. _____ hereinafter called the third member, which term shall means and includes his heirs, successors Legal representatives, assignees, etc..
4. 4. Sri _____ S/o. _____ aged about _____ years, Occupation _____ R/o. _____ hereinafter called the fourth member, which term shall means and includes his heirs, successors Legal representatives, assignees, etc.

AND

5. Sri _____ S/o. _____ aged about _____ years, Occupation _____ R/o. _____ hereinafter called the fifth member, which term shall means and includes his heirs, successors Legal representatives, assignees, etc.

WHEREAS the members herein formed a JOINT VENTURE by the name of M/s _____ as per MOU dated _____ in order to join their individual expertise to obtain best results from the combination of their individual resources of technical, financial, management and equipments for the benefit of the project and submitted a joint tender (hereinafter referred to as "Tender") for the works of _____ as notified by the Chief Administrative Officer (Construction) / Chief Electrical Engineer (Construction) / Dy.Chief Electrical Engineer (Construction), OHE, South Central Railway, (hereinafter referred to as "Employer") under Tender Notice No. _____ Dated _____.

Whereas the above work has been awarded to the JV Fimr M/s _____ as per the conditions of MOU vide LOA No. _____ Dated _____.

Henceforth, the Joint Venture thus formed will be known and continued to be existing on the name of M/s. _____ of which the above mentioned members are the members of the joint venture. NOW THERFORE, the members herein, in consideration of mutual understanding contained hereunder agree as follows:-

1.0 FORMATION AND TERMINATION OF THE JOINT VENTURE FIRM

- 1.1 The members herein, under this agreement, have decided to form a Joint Venture Firm to submit the tender for the above project and execute the contract with the Employer for the project if qualified and contract is awarded.

- 1.2 The name and style of the joint venture shall be _____ (with full address of office) hereinafter called the "Joint Venture" all communication regarding the project will be made

in the name of the joint venture at the above address with Telephone No., _____

2.0 SHARE OF PROFIT AND LOSS

2.1 _____ (indicate the name of the Lead Member) shall be the "Lead member" of the JV firm, for all intents and purposes having majority share (i.e., 51% or more) in Joint Venture Firm.

1.2 The "Members" resolve that the distribution of share of Financial, Technical, and other responsibilities of the constituent members of JV Firm is as under:

a) _____ (Indicate name and address of Lead Member) Share ... %

Lead Member

b) _____ (Indicate name and address of Constituent Member) Share... %

Constituent Member

c) _____ (Indicate name and address of Other Constituent Member) Share... %

Other Constituent Member

1.3 The members of th Joint Venture hereby under take not to modify the share percentage till the work under the tender is completed to the satisfaction of the Tendering Authority, if the tender submitted by the Joint Venture Firm is accepted.

1.4 It is agreed that once tender is submitted by the Joint Venture firm, the MOU shall not be modified/altered/terminated during the validity of the tender. If the JV fails to observe/comply with this stipulation, the full Bid Security shall be forfeited. It is also agreed that the constitution of the JV Firm shall not be modified after submission of the tender bid by the JV Firm, except when modification becomes inevitable due to succession laws etc., and in any case the minimum eligibility critirea should not get vitiated. Approval for change of constitution of JV Firm shall be at the sole discretion of the Employer (Railways). However, the Lead Member shall continue to be the Lead Member of the JV Firm. Failure to observe this requirement would render the offer invalid.

1.5 It is also agreed that on award of contract to this JV firm, a single Performance Guarantee will be submitted by the Joint Venture Firm as per tender conditions. All the guarantees like Performance Guarantee, Bank guarantee for Mobilization Advance, Machinery advance etc., will be submitted only in the name of Joint Venture Firm and no splitting of guarantees amongst the members of the joint venture firm shall be permitted.

2.0 LEAD PARTNER

2.1 The lead partner for the joint venture shall be _____ represented by _____.

2.2 The joint venture authorizes the said lead partner to submit the tender for and on behalf of the joint venture.

2.3 The lead partner is hereby authorized to enter into negotiation if any and receive payments and instructions from the Employer, to send all letters, correspondence etc.

2.4 It is also agreed that BID SECURITY shall be submitted only in the name of Joint Venture and not in the name of constituent members. However, in exceptional cases BID SECURITY in the name of the lead partner will be submitted with specific request letter from lead partner stating the reasons for not submitting the BID SECURITY in the name of joint venture and giving written confirmation from the joint venture partners to the effect that the BID SECURITY submitted by the lead partner may be deemed as BID SECURITY submitted by joint venture firm.

3.0 Working capital

3.1 It is agreed that each member shall contribute working capital for equipment, manpower and material or any expenses to be incurred for execution of the project/work or any other investment required in connection with the execution of the project/work in proportionate 278

to the share capital participation ratio.

- 3.2 It is agreed that Each member shall be responsible in toto for the fulfillment of all conditions, stipulations, obligations expressly included and provided in the submitted tender work as clarified by the agreement between the members and shall hold harmless and indemnified against any damage arising from its default or non-fulfillment of such obligations etc.
- 3.3 It is agreed that if any member fails to perform its obligations described in the agreement during the execution of the project and to cure such breach within the stipulated period the other party shall have the right to take up the work, interest and responsibility of the defaulting member at the cost of the defaulting member.

4.0 LIABILITY OF JOINT VENTURE MEMBERS.

It is agreed that the members of this Joint Venture firm are jointly and severally liable to the Railways for execution of the project/work in accordance with General and Special Conditions of the Contract. The joint venture members 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.

- 5.0 AUTHORISED MEMBER:** We, authorize _____ (Indicate Lead Member), as authorized member represented by their authorised signatory Shri _____ (Indicate the name) to act on behalf of the Joint Venture Firm 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.

AND

We do hereby specifically mention that the acts, deeds and things done or got to be done by the authorised member by construed as acts, deeds and things done by the JV Firm.

All notices/ correspondences with respect to the tender/ contract would be sent by Employer (Railways) only to the authorised signatory of Authorised Member of the address of JV Firm. All such notices/correspondences sent by Employer shall be legally binding on all the member of the JV Firm.

6.0 Miscellaneous:-

- 6.1 Separate bank account or accounts shall be opened in the name of the joint venture in a scheduled or Nationalized Bank of India as decided by the members herein with mutual consent and shall be operated by the authorized member as agreed by the members herein.
- 6.2 It is agreed that all payment and receipts of the Joint Venture shall be in the name of the Joint Venture.
- 6.3 All the members of this joint venture firm collectively assert that none of the firms/members have not black listed or debarred by any other Ministry/Department of Government of India/State Government/ Public Sector undertakings from participation in tenders/contracts on the date of tender opening of bids either in their individual capacity or partnership firm or JV Firm in which they were/are members/partners.
- 6.4 This Joint Venture Agreement shall in all respect be governed and interpreted in accordance with Indian Laws.
- 6.5 **Duration of the Joint Venture Agreement:** 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.
- 7.0 This Joint Venture agreement shall not be modified/altered/terminated during the validity of the tender/ contract period. In case the Joint Venture Firm fails to observe/comply with this stipulation, the full Bid Security shall be forfeited.
- 8.0 Constitution of the Joint Venture Firm will not be altered during the currency of the

contract except when modifications become inevitable due to succession/ laws etc., and in any case the minimum eligibility criteria would not be affected. Failure to observe this stipulation will be deemed to be breach of contract and liable for all consequential penal action by the Railways against the Joint Venture Firm as per contract conditions.

- 9.0 It is agreed that on the receipt of L.O.A, the members of Joint Venture Firm shall submit to Railways before signing of the contract, a copy of the JV agreement duly registered before the Registrar for the Companies under Companies Act or before the Registrar/Sub-Registrar under the Registration Act, 1908(in case of Partnership Firm)/ 'The Companies Act-2013' (in case of Company)/ 'The LLP Act 2008' (in case of LLP). In case this firm fails to observe/comply with this stipulation, the Railways will have a right to forfeit the Bid Security besides taking the penal action against the member of the Joint Venture and Joint Venture Firm.
- 10.0 No member of Joint Venture Firm will assign or transfer the interest, right or liability in the contract without the written consent of the other members and that of the South Central Railway in respect of this tender/contract.

In witness whereof the members hereto have hereunder set their respective hands and seals on this the _____ day of _____, 20 .

Member No.1

Member No.2

Member No.3

Member No.4

Member No.5

WITNESS:

(Name & Address)

1.

2.

FORM-24

N.E.F.T. MANDATE FORM

To,

FA & CAO/C/SC

SOUTH CENTRAL RAILWAY

SECUNDERABAD

EFT Payments.

Sir,

We prefer to the National Electronic Fund Transfer (NEFT) being followed by South Central Railway (Con) for remittance of our payment using RBI's NEFT Scheme. In confirmation to this, I/We agree to receive our payment being made through the above scheme to our under noted bank account.

Sl. No.	Details to be provided by Tenderer.	Details to be filledup by the Tenderer.
1.	Name of the Tenderer	
2.	Full postal address with PIN code.	
3.	E.mail address of Tenderer.	
4.	PAN number of the Tenderer.	

5.	Bank's name and Branch.	
6.	Full address of the Bank.	
7.	Name of the City.	
8.	Bank Code number.	
9.	Bank Telephone/FAX number & E.mail.	
10.	Bank's IFSC Code for NEFT.	
11.	Bank's IFSC Code for RTGS.	
12.	Bank's MICR Code.	
13.	Tenderer Bank Account number.	
14.	Type of Bank Account.	
15.	Tenderer's Name as per Bank Account.	
16.	Telephone numbers of Tenderer	
	a. BSNL/Landline	
	b. Mobile/Cell phone	
	c. FAX number.	

(Tenderer should note that the above particulars are necessarily to be provided for return of EMD, SD & Other payments due, to the Tenderer during execution and on completion of work).

Certified that the above Bank particulars of Tenderer are correct as per Bank Records.

Name & Signature of Bank Official with stamp.

FORM-25

ANNEXURE.V

Reference -Para 6.1 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 the 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 or incorrect 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 years. 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 or incorrect 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 years.
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.

(This certificate is to be given by attorney/authorized signatory/each member of Partnership Firm/Joint venture (JV) / 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:

Chapter X

SCHEDULE OF MATERIAL

Schedule-1
SCHEDULE OF WORK
Schedule-A & B of NIT

Schedule-2
Deleted.

Schedule-3

Schedule of materials for payment against supply of sub components of Schedule-1 Part-A items

FORM – 7

SECTION-2: UNIT PRICES AT CONTRACTOR'S DEPOT

The rates given below against different items of this schedule are the standard schedule of rates. The rates at which payments are to be made shall be arrived at by multiplying the rates (Column No.9 i.e. UNIT PRICES at contractor depot (Rs.) after adding (+)70.92% escalation) uniformly with the percentage quoted by the Tenderer against Schedule-A : SOR Items.

Sl.	RAILWAY DRAWINGS			RAILWAY IDENTIFICATION No.	DESCRIPTION OF EQUIPMENTS, COMPONENTS AND MATERIALS	UNIT of measurement	UNIT PRICES at contractor depot (Rs.)	UNIT PRICES at contractor depot (Rs.) after adding (+)70.92% escalation
	SERIES	DRG No. & MOD	REF. No.					
1	2	3	4	5	6	7	8	9
	GENERAL							
1	CABLES				2.5 sq.mm copper cable 7 core PVC insulated.	Metre	51.00	87.17
2					2.5 sq.mm copper cable 2 core PVC insulated.	Metre	20.00	34.18
3					25 sq.mm Aluminium cable 2 core PVC insulated.	Metre	49.00	83.75
4					4.0 sq.mm Aluminium cable 2 core PVC insulated.	Metre	16.00	27.35
5					Metal Oxide gapless type Lightning Arrestor complete.	See Schedule 'B'		
6	EQUIPMENTS				7.5 kV Lightning Arrestor complete.	See Schedule 'B'		
7					Potential Transformer type-I complete.	See Schedule 'B'		
8					Integral locks complete	Each	529.00	904.17
9					Inter locks complete	Each	719.00	1228.91

10					Earth contact assembly complete	Each	1919.00	3279.95
11					25 KV single pole isolator assembly	Each	7003.00	11969.53
12					25 KV Double pole isolator assembly	Each	11217.00	19172.1
13					25 KV D.O. Fuse switch complete	Each	2067.00	3532.92
14					Regulating equipment (Winch type)	Each	4119.00	7040.19
15					Regulating equipment (3 pulley type)	Each	3188.00	5448.93
16	SWITCHING STATIONS BATTERIES components				Lead Acid Battery 110V (40Ah)	See Schedule 'B'		
17					Battery Stand		2289.00	3912.36
18					Tool Board		436.00	745.21
19					15A Iron clad fuse box two way	Each	109.00	186.3
20					250 V Iron clad fuse box four way		164.00	280.31
21					Battery acharger (complete) Fixing bolts and nuts etc.	See Schedule 'B'		
22					Terminal Board	Each	3488.00	5961.69
	FERROUS							
23	ETI/OHE/P	1030-2 (Mod.D)	2 & 3	16/3, N	S.S.Bolt M 16x50/38 with nut and spring washer	Each	40.00	68.37
24	ETI/OHE/P	1040-2 (MoD.E)	2 & 3	16/3, N	S.S.Bolt M 16x50/38 with nut and spring washer	Each	40.00	68.37
25	ETI/OHE/P	1070-1 (Mod. B)	3 TO 5	12/17, N	S.S.Bolt M 10x35/30 with nut punched washer and spring washer	Set	23.00	39.31
26	ETI/OHE/P	1080-1 (Mod. B)	2	Dec-14	S.S.Stud Bolt M 12x25/20	Set of 8Nos.	98.00	167.5
27	ETI/OHE/P	1110-2 (Mod.D)	1 & 2	1118 & 1119	Contact wire Ending Clamp (107)	Each	75.00	128.19

28	ETI/OHE/P		3, 4 & 5	263	G.S. pin Ø 20x50 (Snap head) with punched washer A 22 & Annealed copper split pin Ø4x40	Each	12.00	20.51
29	ETI/OHE/P	1120 (Mod.B)	4 to 6	261	G.S. pin Ø 20x55 (Snap head) with punched washer A 22 & Annealed copper split pin Ø4x40	Each	12.00	20.51
					(OR)		0.00	
30	ETI/OHE/P	1120-1 (Mod.A)	1 to 5	1122 & 1123	Catenary ending clamp	Set	167.00	285.44
31	ETI/OHE/P	1140 (Mod.B)	4 TO 6	261	G.S. pin Ø 20x55 (Snap head) with punched washer A 22 & Annealed copper split pin Ø4x40	Each	12.00	20.51
32	RE/33/P	1160 (Mod.J)	2 & 5	1162-S & 10N	S.S. Ø 10 'U' Bolt with nuts.	Each	38.00	64.95
33	RE/33/P		3, 6 & 7	161-S	S.S. pin Ø 10x35 mm with punched washer A 22 & Annealed copper split pin 2.5x20mm	Each	15.00	25.64
34	RE/33/P	1170 (Mod.K)	3 & 5	1173-S & 10N	S.S. Ø 10 'U' Bolt with nuts.	Each	44.00	75.2
35	RE/33/P		7 to 9	161-S	S.S. pin Ø 10x35 mm with punched washer A 12 & copper split pin 2.5x20mm	Each	15.00	25.64
36	ETI/OHE/P	1192 (Mod.C)	2, 3 & 4	10/16 N	S.S.Bolt M 10x35/30 with nut, spring washer B 10 and annealed copper split pin 2.5x20	Each	15.00	25.64
37	ETI/OHE/P	1194 (Mod.A)	2 TO 4	10/16 N	S.S.Bolt M 10x35/30 with nut, spring washer B 10 and annealed copper split pin 2.5x20	Each	12.00	20.51

38	ETI/OHE/P	1216 (Mod.D)	1 & 2	1214-2 & 2492-2	Knuckle tube clamp (MCI)	Each	57.00	97.42
39	ETI/OHE/P	1216 (Mod.D)	3	14/1 NL	G.S.Bolt M 14x75/34 with Nut and lock nut	Each	13.00	22.22
40	ETI/OHE/P	1263	1	1263	Strain clamp link	Each	38.00	64.95
41	RE/33/P	1270-1 (Mod.F)	2, 3 & 5	261	G.S. pin Ø 20x55 (Snap head) with punched washer A 22 & Annealed copper split pin 4x40	Each	12.00	20.51
42	RE/33/P	1270-1 (Mod.F)	3	Dec-18	S.S.Stud M 12x50/50	Set of 8Nos	115.00	196.56
43	ETI/OHE/P	1310	-	-	S.S.Bolt M 10x35/30 with nut, spring washer and annealed copper split pin Ø 2.5x20	Set of 2nos.	30.00	51.28
44	ETI/OHE/P	1320 (Mod.B)	2 TO 4	1322 & 10 N	S.S. 'U' bolt Ø 10mm with Nuts & spring washers B 10	Each	26.00	44.44
45	ETI/OHE/P	1330 (Mod.B)	2 & 4 TO 6	4032-S & 10 NL	S.S. 'U' bolt Ø 10mm with Nuts, lock nuts & annealed copper split pin 2.5x2.	Each	26.00	44.44
46	ETI/OHE/P	1360 (Mod.B)	4 TO 6	261	G.S. pin Ø 20x55 (Snap head) with punched washer A 22 & annealed copper split pin 4x40	Each	12.00	20.51
47	ETI/OHE/P	1370-1 (Mod.F)	1	1371-1	Raised Register Arm Clamp	1 Set	54.00	92.3
48	ETI/OHE/P		2 & 3	16/6 NL	G.S.Bolt M 16x60/38 with Nut, Lock nut and spring washer B 16	Set of 2nos.	18.00	30.77
49	ETI/OHE/P	1390-1 (Mod.D)	1	1391-1	Crossing clamp piece	Set of 4Nos.	76.00	129.9
50	ETI/OHE/P		2 TO 4	14/1 N	G.S.Bolt M 14x75/34 with Nut, punched washer A16 and annealed copper split pin 3.2x25	Set	28.00	47.86

51	ETI/OHE/P	1400(ModC)	1 & 4	1401, 1174	Short Dropper Assembly	Each	20.00	34.18
52	ETI/OHE/P	10/18N	5, 7 & 8	B 10, A 12	S.S.Bolt M 10x55/30 with nut, spring washer and punched washer	Each	20.00	34.18
54	ETI/OHE/P	1540 (Mod.D)	2 TO 4	12/19 N	S.S.Bolt M 12x60/30 with nut, punched washer A 14 and spring washer B 12.		31.00	52.99
55	ETI/OHE/P	1550 (ModE)	2 TO 4	12/19 N	S.S.Bolt M 12x60/30 with nut, punched washer A 14 and spring washer B 12.	Set of 3 No's	93.00	158.96
56	ETI/OHE/P	1560(ModD)	2 TO 4	12/19 N	S.S.Bolt M 12x60/30 with nut, punched washer A 14 and spring washer B 12.	Set of 3 No's	93.00	158.96
57	ETI/OHE/P	1580(ModF)	3 TO 9	1583 & 12 N	S.S.'U' bolt Ø 12 with nut, spring washer B 12, punched washer A 14, Ø 16 pin 70mm long, punched washer A 18 and annealed copper split pin 4x32	Set	129.00	220.49
58	ETI/OHE/P	1600 (ModC)	1 & 2	1601 & 1602	20mm Strain clamp	Each	279.00	476.87
59	ETI/OHE/P		3 TO 8	1603 & 12N	S.S.'U' Bolt Ø 12 nut, punched washer A 14, snap head pin Ø16x55, punched washer A 18 and annealed copper split pin 4x32.	Set	181.00	309.37
60	RE/33/P	2086(ModC)	1		Large bracket sleeve.	Each	20.00	34.18
61	ETI/OHE/P	2110 (Mod.B)	3 TO 5	2113 & 14N	G.S. 'U' bolt Ø 14mm with nuts & spring washers B 14.	Set	37.00	63.24

62	ETI/OHE/P	2120 (Mod.B)	5 & 6	2113 & 14 N	G.S. 'U' Bolt Ø 14mm with Nuts & spring washers B 14.	Set	37.00	63.24
63	ETI/OHE/P		4	2124-S & 12 NL	Direct catenary clamp stud with S.S.Nut lock nut.	Set of 2 no's	41.00	70.08
64	ETI/OHE/P	2130(Mod.B)	3 to 5	2133 & 14N	G.S. 'U' bolt Ø 14mm with Nuts & spring washers B 14.	Set	39.00	66.66
65	ETI/OHE/P	2140 (Mod.C)	4	2124-S 14 NL	Direct catenary clamp Stud with S.S. Nut and lock nut.	Set of 2 no's	41.00	70.08
66	ETI/OHE/P		5&6	2133 & 14 N	G.S. 'U' bolt Ø 14mm to with Nuts & spring washers B 14.	Set	39.00	66.66
67	ETI/OHE/P	2150-1(Mod. E)	1 & 2	2151-1 & 2152-1	Standard Register arm Hook.	Each	78.00	133.32
68	ETI/OHE/P	2150-1(Mod. E)	3	16/3 NL	G.S. bolt M 16x50/38 with nut & lock nut.	Set of 2 no's	15.00	25.64
69	ETI/OHE/P	2160-1 (Mod.E)	1 & 2	2161-1 & 2162-1	Large Register Arm hook	Each	84.00	143.57
70	ETI/OHE/P	2160-1 (Mod.E)	3	16/3 NL	G.S.Bolt M 16x50/38 with Nut, Lock nut.	Set of 2 no's	15.00	25.64
71	ETI/OHE/P	2274-1 (Mod.D)	1	2274-1	Dropper clip (38) for standard Bracket tube	Each	20.00	34.18
73	ETI/OHE/P	2277 (Mod.D)	1	2277	Dropper clip (49) for standard Bracket tube	Each	21.00	35.89
74	ETI/OHE/P	2277 (Mod.D)	2 to 5	16/2 & 16LN	G.S.Bolt M 16x40/32 with lock nut, spring washer B 16 & annealed copper split pin 4x32.	Each	9.00	15.38
75	ETI/OHE/P	2341 (Mod.B)	1	2341	Steady Rod piece of length 0.76m.	Each	103.00	176.05
76	ETI/OHE/P	2341 (Mod.B)	2	2342	Steady Rod piece of length 0.96m.	Each	119.00	203.39
77	ETI/OHE/P	2341 (Mod.B)	3	2343	Steady Rod piece of length 1.16m.	Each	142.00	242.71
78	ETI/OHE/P	2341 (Mod.B)	4	2344	Steady Rod piece of length 1.36m.	Each	167.00	285.44

79	ETI/OHE/P	2352 (Mod.A)	1	2352	Bent Steady Arm swivel	Each	38.00	64.95
80	ETI/OHE/P	2360 (Mod.L)	1	2361	25mm Drop bracket part.	Each	84.00	143.57
81	ETI/OHE/P	2360 (Mod.L)	2	10/14 LN	SS Bolt M 10x25/20 with lock nut	Each	10.00	17.09
82	ETI/OHE/P	2380 (Mod.C)	5 & 7	2113 & 14N	G.S.'U' bolt M 14 with nuts & spring washers B 14.	Set	37.00	63.24
83	ETI/OHE/P	2380 (Mod.C)	6 & 7	2133 & 14N	G.S.'U' bolt M 14 with nuts & spring washers B 14.	Set	39.00	66.66
84	ETI/OHE/P	2391 (Rev.G)	5	2391	Steady Arm hook (BFB)	Each	69.00	117.93
85	ETI/OHE/P	2391 (Rev.G)	6	2392	BFB Steady Arm Swivel (Steel Galv. To IS:226)	Each	21.00	35.89
86	ETI/OHE/P	2402 (Mod.A)	1	2402	Tabular stay adjuster (Steel Galv. To IS:226).	Each	67.00	114.52
87	ETI/OHE/P	2402-1 (Mod.B)	1	2402-1	Tabular stay adjuster (large) (Steel Galv. To IS:226).	Each	78.00	133.32
88	ETI/OHE/P	2403-1 (Mod. C)	1	2403-1	Tabular stay sleeve.	Each	57.00	97.42
89	ETI/OHE/P	2404 (Mod.C)	2 & 4	2404-1S & 109-S	S.S.Bolt with lock nut.	Each	11.00	18.8
90	RI/33/P	2422-1 (Rev.C)	1	2422-1	Register Arm Eye piece (25mm).	Each	5.00	8.55
91	RE/33/P	2432 (Mod.E)	1	2432	Raised Register Arm Adjuster (25 mm).	Each	60.00	102.55
92	ETI/OHE/P	2461-1 (Mod.F)	1	2461-1	Dropper clip (34mm) for register Arm tube.	Each	19.00	32.47
93	ETI/OHE/P	2461-1 (Mod.F)	2 to 4	16/2 LN	G.S.Bolt M 16x40/32 with lock nut, spring washer B 16 & annealed copper split pin 4x32.	Each	9.00	15.38
94	ETI/OHE/P	2471-1 (Mod.E)	1	2471-1	Dropper clip (25) for Raised Register Arm.	Each	19.00	32.47
96	ETI/OHE/P	2490-2 (Mod.E)	1 & 2	2491-1 & 2492-2	25 mm steady Arm clamp	Each	60.00	102.55

97	ETI/OHE/P	2490-2 (Mod.E)	3	14/1 LN	G.S.Bolt M 14x75/34 with nut&lock nut	Each	13.00	22.22
98	ETI/OHE/P	2520 (Mod.B)	2	2522	Normal Bent Steady arm eye piece	Each	48.00	82.04
99	ETI/OHE/P	2520 (Mod.B)	3	2523	Normal Bent Steady arm Hook	Each	45.00	76.91
10 0	ETI/OHE/P	2520 (Mod.B)	4	2352	Bent Steady Arm Swivel.	Each	38.00	64.95
10 1	ETI/OHE/P	2540 (Mod.B)	5	2541	BFB Steady Arm eye piece	Each	33.00	56.4
10 2	ETI/OHE/P	2540 (Mod.B)	6	2542	BFB Steady Arm Swivel (Steel Galv. To IS:226)	Each	23.00	39.31
10 3	ETI/OHE/P	2540 (Mod.B)	2	2541	BFB Steady Arm eye piece	Each	33.00	56.4
10 4	ETI/OHE/P	2540 (Mod.B)	3	2592	BFB Steady Arm Swivel (Steel Galv. To IS:226)	Each	23.00	39.31
10 5	ETI/OHE/P	2550-1/2 (Mod.L)	1 & 26	2551-1 & 2502	Standard anti-wind clamp and AL.Alloy snap head rivet M 4x35	Set	63.00	107.68
10 6	ETI/OHE/P	2550-1/2 (Mod.L)	do	1, 3, 2551-1 & 6 & 2503	Standard anti-wind clamp and AL.Alloy snap head rivet M 4x35	Set	64.00	109.39
10 7	ETI/OHE/P	2550-1/2 (Mod.L)	4 to 5	10/20 N	S.S.Bolt M 10x70/26 with nut & spring washer B 10	Each	17.00	29.06
10 8	ETI/OHE/P	2550-3 (Mod.E)	1, 2 & 5	2551-1 & 2504	Anti wind clamp for tram-way OHE (REG) with snap head rivet M 4x35	Set	63.00	107.68
10 9	ETI/OHE/P	2550-3 (Mod.E)	1, 2 & 5	3, 4 & 10/20 N	S.S.Bolt M 10x70/26 with nut & spring washer B 10	Each	17.00	29.06
11 0	ETI/OHE/P	2730 (Mod.A)	3 & 4	4032-S, 108-S & 109-S	S.S. 'U' Bolt M 10 mm with nuts, lock nut & Annealed copper split pin 2.5x20	Set	53.00	90.59
11 1	ETI/OHE/P	3010 (Mod.C)	1	3011	Double clevis (MCI)	Each	79.00	135.03

11 2	ETI/OHE/P	3021 (Rev.C)	2 to 4	262	G.S.Snap head pin M 20x60 punched washer A 22 and annealed copper split pin 4x40	Set of 2 no's	24.00	41.02
11 3	ETI/OHE/P	3021 (Rev.C)	1	3021	Mast fittings for hook insulator	Each	76.00	129.9
11 4	RE/33/P	3070-1 (Mod.H)	1 to 3	3070-1	Mast Bracet fitting assembly (150)	Each	257.00	439.26
11 5	RE/33/P	3070-1 (Mod.H)	4 to 7	261	G.S.pin M 20x55 (snap head), punched washer A 22, Annealed copper split pin 3.2x25 and Annealed copper split pin 4x40.	Each	13.00	22.22
11 6	RE/33/P	3070-2 (Mod.D)	1 to 3	3070-2	Mast Bracket fitting assembly (200)	Each	269.00	459.77
11 8	RE/33/P	3071(Mod.F)	1	3071	Mast Bracket clevis	Each	74.00	126.48
11 9	RE/33/P	3071-1 (Mod.B)	1	3071-1	Mast Bracket clevis(Forged)	Each	94.00	160.66
12 0	ETI/OHE/P	3072 (Mod.A)	1	3072	Mast Bracket clevis pin	Each	20.00	34.18
12 1	RE/33/P	3072 (Mod.A)	1	3072-1	Mast Bracket clevis pin	Each	18.00	30.77
12 2	RE/33/P	3073 (Mod.D)	1	3073	Mast Bracket swivel (150)	Each	173.00	295.69
12 3	RE/33/P	3074 (Mod.E)	1	3074	Mast Bracket swivel (200)	Each	185.00	316.2
12 4	ETI/OHE/P	3076 (Mod.C)	1 to 8	307	Standard Backing angle)	Kg.	27.00	46.15
12 5	ETI/OHE/P	3231 (Mod.C)	1	3231	Mast Anchor fitting (welded)	Each	130.00	222.2
12 6	ETI/OHE/P	3231-2 (Mod.C)	1	-	Mast anchor fitting welded (to be used with cement counter weight assembly)	Each	174.00	297.4
12 7	ETI/OHE/P	3232 (Mod.C)	1	3232	Mast guy rod fitting (welded)	Each	143.00	244.42
12 8	ETI/OHE/P	3233 (Mod.B)	1	-	Mast Anchor fitting (200)	Each	177.00	302.53
12 9	ETI/OHE/P	3234/5(Mod. B)	1	-	Mast guy rod fitting (200/150)	Each	159.00	271.76

13 0	ETI/OHE/P	3234/5(Mod. B)	2	-	Mast guy rod fitting (200/200)	Each	165.00	282.02
13 1	ETI/OHE/P	3240 (Mod.D)	X	-	Anchor fittings on 'K' series mast	Each	178.00	304.24
13 2	ETI/OHE/P	3240 (Mod.D)	Y	-	Guy rod fittings	Each	186.00	317.91
13 3	ETI/OHE/P	3240 (Mod.D)	Z	-	Backing angles	Each	35.00	59.82
13 4	ETI/OHE/P	3241-2 (Mod.B)	X	-	Anchor fittings on 'K' series mast	Each	186.00	317.91
13 5	ETI/OHE/P	3241-2 (Mod.B)	Y	-	Guy rod fittings	Each	193.00	329.88
13 6	ETI/OHE/P	4001(Mod.A)	2 to 4	102-S & 108-S	S.S.bolt M 10x35/30 with nut, spring washer and annealed copper split pin 2.5x25	Each	15.00	25.64
13 7	ETI/OHE/P	4002(Mod.A)	2 to 4	102-S & 108-S	S.S.bolt M 10x35/30 with nut, spring washer and annealed copper split pin 2.5x25	Each	15.00	25.64
13 8	ETI/OHE/P	5000 (Mod.B)	1	5001	Anchor bolt (length 1.6m)	Each	293.00	500.8
13 9	ETI/OHE/P	5000 (Mod.B)	2	5000-1	Anchor bolt (length 2.1m)	Each	364.00	622.15
14 0	ETI/OHE/P	5000 (Mod.B)	3	5001-3	Anchor bolt (length 0.85)	Each	96.00	164.08
14 1	ETI/OHE/P	5000 (Mod.B)	4	5002	Guy rod stirrup (Steel galv. To IS:226)	Each	107.00	182.88
14 2	ETI/OHE/P	5000 (Mod.B)	5	5004	Guy rod M 25mm (Steel galv. To IS:226) with nut, lock nut, plain washer and split pin (length 9.3m)	Each	896.00	1531.44
					(OR)		0.00	
14 3	ETI/OHE/P	9070/1 (Mod.B)	1 & 3 to 6	9070	Guy rod dia 20mm	Set	896.00	1531.44

14 5	ETI/OHE/P	5000 (Mod.B)	7	5006-1	Short Guy rod M 25mm (steel Galv.to IS:226) with nut, lock nut, plain washer and split pin (length 5.35m)	Each	642.00	1097.31
					(OR)			
14 6	ETI/OHE/P	9070/1 (Mod.B)	2 & 3 to 6	9071	Guy rod dia 20mm	Set.	642.00	1097.31
14 7	ETI/OHE/P	5000 (Mod.B)	8	5007-1	Anchor 'V' bolt	Each	90.00	153.83
14 8	ETI/OHE/P	5000 (Mod.B)	9	5008	B.C. Anchor loop	Each	299.00	511.05
14 9	ETI/OHE/P	5000 (Mod.B)	10	5220	Guy rod double strap assembly	Each	117.00	199.98
15 0	ETI/OHE/P	5020-1	1 to 4	5021, 5023 & 5024	9 Tonne adjuster complete (Eye & clevis type)	Each	287.00	490.54
15 1	ETI/OHE/P	5020-2	1 to 4	5021, 5024 & 5025	9 Tonne adjuster complete(Double clevis type)	Each	287.00	490.54
15 2	ETI/OHE/P	5030 (Mod.C)	1	5031	Anchor double strap	Set	31.00	52.99
15 3	ETI/OHE/P	5030 (Mod.C)	2 to 4	261	G.S.pin M 20x55 (snap head) with washer M 20 mm and copper split pin 4x36	Set of 2 no's	24.00	41.02
15 4	ETI/OHE/P	5040 (Mod.C)	1	5041	18mm single clevis	Each	84.00	143.57
15 5	ETI/OHE/P	5040 (Mod.C)	2 to 4	262	G.S.pin M 20x60mm with Annealed copper split pin 4x36 & G.S flat washer M 20mm	Each	12.00	20.51
15 6	ETI/OHE/P	5060-2 (Mod.C)	9 to 12 & 23	5063-1 & 5067	Standard guide tube assembly	Each	367.00	627.28
15 7	ETI/OHE/P	5090 (Mod.C)	1 to 3	5091,5092 & 5093	Counter weight assembly (Excl.counter weight eye rod) with nut and split pin	Set	4776.00	8163.14

15 8	ETI/OHE/P	5090 (Mod.C)		4, 5, 5094 & 238	Counter weight eye rod (steel galv. To IS:226), G.S. nut M 20, washer and Annealed copper split pin 4x40	Each	104.00	177.76
15 9	TI/OHE/ATD/ RDSO	00004/ 00/ 0	1 to 3	5091-1, 5092-1 & 5093-1	Trapezoidal counter weight assembly (Excl. eye rod)	Set	4716.00	8060.59
16 0	ETI/OHE/P	5090-1 (Mod.D)	4, 7 & 8	5095 & 238	Trapezoidal counter weight eye rod (Steel Galv. To IS:226) with G.S. nut, Punched washer A-22 and Annealed copper split pin 4x40	Each	137.00	234.16
16 1	ETI/OHE/P	5090-1 (Mod.D)	5, 9 & 10	-	G.S.bolt M 16x1150/100 both ends threaded, 2 nuts flat washer M 16 & spring washer	Set of 2Nos.	67.00	114.52
16 3	ETI/OHE/P	5090-3 (Mod.F)	1	5094-1	Counter weight eye rod (steel galv. To IS:226)	Each	78.00	133.32
16 4	ETI/OHE/P	5090-3 (Mod.F)	2	5098	Counter weight piece	Each	119.00	203.39
16 5	ETI/OHE/P	5090-3 (Mod.F)	2A to 4	5098, 5092 & 5091	Counter weights	Set	2985.00	5101.96
16 6	ETI/OHE/P	5090-3 (Mod.F)	5, 5A & 6	-	G.S.nut and punched washer A-22 and annealed copper split pin 4x40	Each	6.00	10.26
16 7	ETI/OHE/P	5090-4 (Mod.F)	4 & 5	-	Counter weight eye rod with nut, washer, split pin and bolt 12x850/49 with nut, flat washer and split pin 3.2x25	Set	157.00	268.34

16 8	ETI/OHE/P	5090-4 (Mod.F)	4A, 5A & 6	-	Counter weight eye rod 650mm long, nut, washer & split pin with bolt Ø 12x450/49 with nut, flat washer and split pin 3.2x20 & counter weight piece.	Set	256.00	437.56
16 9	ETI/OHE/P	5090-5 (Mod.B)	1 to 4	-	Counter weight assembly for 3 pulley type regulating equipment..	Set.	8101.00	13846.23
17 0	ETI/OHE/P	5090-5 (Mod.B)	5 to 8	-	Counter weight eye rod 1550mm long with nut, washer and split pin	Each	167.00	285.44
17 1	ETI/OHE/P	5090-6 (Mod.B)	1 to 4	5091, 9092, 5098-1 & 5098.	Counter weight assembly for 3 pulley type regulating equipment. (Tramway type)	Set.	4955.00	8469.09
17 2	ETI/OHE/P	5090-6 (Mod.B)	5 to 6	5094 & 20N	Counter weight eye rod with nut and split pin 4x40.	Each	103.00	176.05
17 3	ETI/OHE/P	5183 (Mod.C)	1	5183	Double Eye Distance Rod (Ø 20mm) (Steel Galvanised to IS:226)	Each	107.00	182.88
17 4	ETI/OHE/P	5190-1 (Mod.C)	1	5194	Compensating plate.	Set.	179.00	305.95
17 5	ETI/OHE/P	5190-1 (Mod.C)	2 to 4	261	G.S.Snap Head pin Ø 20x55, punched washer A-22 and Annealed copper split pin 4x40.	Set of 3Nos.	37.00	63.24
17 6	ETI/OHE/P	5190-2 (Mod.C)	1	5195	Equilising plate 8mm.	Set.	191.00	326.46
17 7	ETI/OHE/P	5190-2 (Mod.C)	2 to 4	261	G.S.Snap Head pin Ø 20x55, punched washer A-22 and Annealed copper split pin 4x40.	Set of 3Nos.	37.00	63.24
17 8	ETI/OHE/P	5191 (Mod.B)	1	5191	Compensating plate.	Each	90.00	153.83

17 9	ETI/OHE/P	5191-1/2 (Mod.D)	1	5191-1 or 5191-2	Compensating plate.	Each	97.00	165.79
18 0	ETI/OHE/P	5192 (Mod.B)	1	5192	Equilising plate	Each	160.00	273.47
18 2	ETI/OHE/P	5193 (Mod.B)	1	5193	Short Equilising plate	Each	72.00	123.06
18 3	ETI/OHE/P	5220 (Mod.F)	1	5221	Guy Rod Double strap assembly (100) (Steel Galvanised to IS:226)	Set	72.00	123.06
18 4	ETI/OHE/P	5220 (Mod.F)	2	5222	Guy Rod Double strap assembly (150/250) (Steel Galvanised to IS:226)	Set	117.00	199.98
18 5	ETI/OHE/P	5220 (Mod.F)	3 & 4	24/1 LN	Steel Galvanised Bolt M 24x70/54 with lock nut and Annealed copper split pin 5x40.	Set of 2Nos.	52.00	88.88
18 6	ETI/OHE/P	6000 (Mod.C)	5 & 6	105-S,108-S & 109-S	S.S. Bolt Ø 10x65/30 with nut, lock nut and washer.	Each	20.00	34.18
18 7	ETI/OHE/P	6030 (Mod.B)	4 & 5	6034-S, 108-S & 109-S	S.S. Bolt Ø 10 with nut, lock nut and washer.	Set of 2Nos.	67.00	114.52
18 8	ETI/OHE/P	6070-1	4, 6 & 8	-	11 kV Post insulator cap clamp (jumper), G.S. Hexoganal Bolt M12x40/30 with spring washer.	Set	104.00	177.76
18 9	ETI/OHE/P	6070-1	5, 7 & 8	-	11 kV Post insulator cap clamp (Bus bar), G.S. Hexoganal Bolt M12x55/30 with spring washer.	Set	104.00	177.76
19 0	ETI/OHE/P	6075/6076 (Mod.C)	1	6075	3 kV Pedestal insulator cap clamp (Bus bar).	Set of 2Nos.	45.00	76.91
19 1	ETI/OHE/P	6075/6076 (Mod.C)	2	6076	3 kV Pedestal insulator cap clamp (jumper).	Set of 2Nos.	45.00	76.91
19 2	ETI/OHE/P	6094 (Mod.B)	1	6094	Post insulator jumper clamp	Set of 2Nos.	64.00	109.39

19 3	ETI/OHE/P	6095 (Mod.B)	1	6095	Post insulator bus-bar clamp	Set of 2Nos.	64.00	109.39
19 4	ETI/OHE/P	6170 (Mod.C)	2 & 3	101-S & 108-S	S.S. Bolt Ø 10x35/30 with Nut and Phosphor Bronze spring washer Ø 10.	Each	14.00	23.93
19 5	ETI/OHE/P	6181-1 (Mod.D)	1	6181-1	Section Insulator double strap only.	Set	24.00	41.02
19 6	ETI/OHE/P	6181-1 (Mod.D)	2 to 4	-	S.S. Pivot pin with flat washer and Annealed copper split pin 2.5x25.	Set of 2Nos.	31.00	52.99
19 7	ETI/PSI/P	6480 (Mod.C)	3 & 4	-	S.S. Bolt M12x60/40 with Nut, flat washer and spring washer.	Set	274.00	468.32
19 8	ETI/PSI/P	6490 (Mod.B)	3 & 4	-	S.S. Bolt Ø 12x60/40 complete with Nut, flat washer and spring washer.	Set	274.00	468.32
19 9	ETI/PSI/P	6500 (Mod.C)	3 & 4	-	S.S. Bolt M12x60/30 complete with Nut, flat washer and spring washer.	Set	274.00	468.32
20 1	ETI/PSI/P	6510 (Mod.D)	4 & 5	-	S.S. Bolt Ø 12x60/40 complete with Nut, flat washer and spring washer.	Set	274.00	468.32
20 2	ETI/PSI/P	6530 (Mod.C)	4 & 5	-	S.S. Bolt Ø 12x60/40 complete with Nut, flat washer and spring washer.	Set	274.00	468.32
20 3	ETI/PSI/P	6550 (Mod.B)	6 & 7	-	S.S. Bolt Ø 12x70/40 complete with Nut, flat washer and spring washer.	Set	274.00	468.32
20 4	ETI/PSI/P	6550 (Mod.B)	8	-	G.S. Stud bolt Ø 16x30/20 with flat washer and spring washer.	Set	21.00	35.89

20 5	ETI/PSI/P	6560 (Mod.B)	3 & 4	-	S.S. Bolt Ø 12x60/30 complete with Nut, flat washer and spring washer.	Set of 12Nos.	440.00	752.05
20 6	ETI/PSI/P	6830-1 (Mod.D)	3 & 4	12/20 N	S.S. Bolt M12x50/30 with Nut, flat washer A14 and spring washer B 12.	Set	113.00	193.14
20 7	ETI/OHE/P	7021 (Mod.A)	1 & 2	7021	Earth electrode.	Each	478.00	817
20 8	RE/33/P	7040 (Mod.E)	1	7040	Earth wire mast clamp	Each	158.00	270.05
20 9	RE/33/P	7040 (Mod.E)	2 & 3	-	G.S. wire mast clamp hook with Ø 16 nut, lock nut, washer and bolt Ø 16x65/ 38 with nut, lock nut and washer.	Each	26.00	44.44
21 0	RE/33/P	7050 (Mod.D)	1 & 2	7050 or 7051-1	Earth wire strain clamp	Each	328.00	560.62
21 1	RE/33/P	7050 (Mod.D)	3 to 8	218, 262	G.S.'U' bolt Ø 16mm nut, spring washer, snap head pin Ø 20x60, plain washer Ø 20 & copper split pin Ø 4x36	Set	59.00	100.84
21 2	RE/33/P	7051 (Mod.f)	-	7501	Typical structural number plate (100mm size)	Each	54.00	92.3
21 3	RE/33/P	7511 (Mod.B)	-	-	Typical isolator number Plate	Each	30.00	51.28
21 4	ETI/PSI/P	7520 (Mod.B)	-	-	Typical number plate for Interrupter and D.P.isolator	Each	30.00	51.28
21 5	ETI/PSI/P	7521 (Mod.B)	-	-	Typical number plate for Potential Transformer type-1	Each	30.00	51.28
21 6	ETI/PSI/P	7522 (Mod.B)	-	-	Typical number plate for Booster Transformer	Each	30.00	51.28
21 7	ETI/PSI/P	7525	-	-	Typical number plate for Auxiliary Transformer	Each	30.00	51.28

21 8	ETI/OHE/SK	123 (Mod.D)	2 to 4	-	S.S.Bolt Ø 12x60/38 with nut, washer & spring washer	Set	64.00	109.39
22 0	ETI/OHE/SK	130 (Mod.D)	2 to 5	102-S & 108-S	S.S.bolt Ø 10x35/30 with nut, G.S.spring washer and dropper split pin Ø 2.5x25 and flat washer	Each	16.00	27.35
22 1	ETI/OHE/SK	176 (Mod.D)	1	1161-1	AL.Alloy catenary suspension clamp body (MCI)	Each	150.00	256.38
22 2	ETI/OHE/SK	176 (Mod.D)	4	-	M.S.sheet Galv. Suspension clamp lock plate	Each	7.00	11.96
22 3	ETI/OHE/SK	176 (Mod.D)	2, 3 & 5 to 7	-	S.S.'U'Bolt M 10mm, G.S.pin Ø16x50mm S.S.nut 10mm, copper split pin 2.5x25mm&G.S.flat washer Ø16mm	Each	41.00	70.08
22 4	ETI/OHE/SK	205 (Mod. B)	1	-	Double suspension Lock plate (Galvanised M.C.I.)	Each	4.00	6.84
22 5	ETI/OHE/SK	231 (Mod.C)	2 to 4	12/19 N	S.S.bolt M 12x60/30 with nut, flat washer and spring washer	Set	64.00	109.39
22 6	ETI/OHE/SK	231 (Mod.C)	2 to 4	16/6N	G.S.Bolt M 16x60/38 with nut, flat washer and spring washer	Set	16.00	27.35
22 7	ETI/OHE/SK	333 (Mod.D)	2 to 6	-	S.S.Bolt Ø 10x35/30 with nut spring washer, copper split pin Ø 2.5x25, Al-Cu.Bimetallic washer and flat washer	Each	24.00	41.02
22 8	ETI/OHE/SK	436 (Mod.B)	3 to 8	-	S.S.'U' bolt Ø 12 spring washer flat washer, nut, snaphead pin Ø16 and Split pin 2.5x25	Set	192.00	328.17

22 9	ETI/OHE/SK	468 (Mod.A)	2 & 5	-	S.S.'U' bolt Ø 10mm with nut	Set	31.00	52.99
23 0	ETI/OHE/SK	468 (Mod.A)	1 & 4	-	AL.catenary suspension clamp assembly & lock plate (MCI)	Set	158.00	270.05
23 1	ETI/OHE/SK	468 (Mod.A)	3, 6 & 7	-	Pin Ø 16/50mm split pin 2.5x25mm	Each	10.00	17.09
23 2	ETI/OHE/SK	469 (Mod.A)	1 & 2	1171-1	Double suspension clamp assembly body & lock plate (MCI)	Each	105.00	179.47
23 3	ETI/OHE/SK	469 (Mod.A)	3 & 5	-	S.S.'U' bolt Ø 10mm with nuts.	Set	44.00	75.2
23 4	ETI/OHE/SK	469 (Mod.A)	7 to 9	-	G.S.pin Ø 16x50 split pin Ø 2.5x25 and flat washer	Each	10.00	17.09
23 5	WIRES & FLATS				Galvanised steel wire (19/2.5mm)	Metre	27.00	46.15
23 6					G.I.wire 8 SWG	Metre	5.00	8.55
23 7					M.S.flats 40x6mm	Kg	13.00	22.22
23 8	SMALL PART STEEL				Small part steel work of shapes and sizes	See Schedule 'B'		
23 9	GALVANISED STEEL STRUCTURES				BFB (152mm X 152mm X 37.1Kg. & 200mm X 200mm X 50Kg.) Masts.	See Schedule 'B'		
24 0					RSJ (203mm X 152mm X 52Kg) Mast of various lengths.	See Schedule 'B'		
24 1					Portals of all types (O/N/R Type).	See Schedule 'B'		
24 2					B-Series masts B-150, B-175, B-200	See Schedule 'B'		

24 3					Fabricated and galvanised structures, other than masts (TTC/G type/BFB type portals/Bridge masts/emergency masts/S-series).			
								See Schedule 'B'
	TUBES							
24 4	RE/33/P	2041 (Mod.D)	-	-	Standard bracket tube (Ø 30/38mm)	Metre	113.00	193.14
24 5	RE/33/P	2081 (Mod.E)	-	-	Large bracket tube (Ø40/49mm)	Metre	125.00	213.65
24 6	RE/33/P	2401 (Mod.C) 2431 (Mod.D)	-	-	25mm Nominal bore steel tube for stay and Register arms	Metre	67.00	114.52
24 7	EQUIPMENTS				S.S.Wire ropes for winch type regulating equipment (10.5 mt. long)	Each	1799.00	3074.85
24 8					S.S. Wire ropes for 3 pulley type regulating equipment (7.0mt.long)	Each	1254.00	2143.34
	GALVANISED STEEL BOLTS & NUTS ETC							
24 9	ETI/C	0073 (Mod.A)	-	10-Jan	Bolt M 10x30/25mm	Each	3.00	5.13
25 0	ETI/C	0073 (Mod.A)	-	10-Feb	Bolt M 10x35/30mm	Each	3.00	5.13
25 1	ETI/C	0073 (Mod.A)	-	10-Mar	Bolt M 10x170/32mm	Each	4.00	6.84
25 2	ETI/C	0073 (Mod.A)	-	-	Nut for M 10 Bolt	Each	1.00	1.71
25 3	ETI/C	0073 (Mod.A)	-	-	Lock nut for M 10 bolt	Each	1.00	1.71
25 4	ETI/C	0073 (Mod.A)	-	12-Jan	Bolt M 12x40/30 mm	Each	3.00	5.13
25 5	ETI/C	0073 (Mod.A)	-	12-Feb	Bolt M 12x45/30 mm	Each	3.00	5.13

25 7	ETI/C	0073 (Mod.A)	-	12-Apr	Bolt M 12x60/30 mm with hole for split pin	Each	4.00	6.84
25 8	ETI/C	0073 (Mod.A)	-	12-May	Bolt M 12x120/36 mm	Each	5.00	8.55
25 9	ETI/C	0073 (Mod.A)	-	12-Jun	Bolt M 12x200/49 mm	Each	8.00	13.67
26 0	ETI/C	0073 (Mod.A)	-	12-Jul	Bolt M 12x240/49 mm	Each	10.00	17.09
26 1	ETI/C	0073 (Mod.A)	-	12-Aug	Bolt M 12x350/49 mm	Each	11.00	18.8
26 2	ETI/C	0073 (Mod.A)	-	12-Sep	Bolt M 12x450/49 mm	Each	13.00	22.22
26 3	ETI/C	0073 (Mod.A)	-	-	Nut for M 12 Bolt	Each	1.00	1.71
26 4	ETI/C	0073 (Mod.A)	-	-	Lock nut for M 12 bolt	Each	1.00	1.71
26 5	ETI/C	0073 (Mod.A)	-	14-Jan	Bolt M 14x75/34 mm	Each	10.00	17.09
26 6	ETI/C	0073 (Mod.A)	-	14-Feb	Bolt M 14x100/34 mm	Each	10.00	17.09
26 7	ETI/C	0073 (Mod.A)	-	-	Nut for M 14 Bolt	Each	2.00	3.42
26 8	ETI/C	0073 (Mod.A)	-	-	Lock nut for M 14 bolt	Each	2.00	3.42
26 9	ETI/C	0073 (Mod.A)	-	16-Jan	Bolt M 16x30/25 mm	Each	4.00	6.84
27 0	ETI/C	0073 (Mod.A)	-	16-Feb	Bolt M 16x40/32 mm	Each	4.00	6.84
27 1	ETI/C	0073 (Mod.A)	-	16-Mar	Bolt M 16x50/38 mm	Each	4.00	6.84
27 2	ETI/C	0073 (Mod.A)	-	16-Apr	Bolt M 16x50/40 mm	Each	4.00	6.84
27 3	ETI/C	0073 (Mod.A)	-	16/5 & 16/6	Bolt M 16x60/38 mm with/without hole for split pin	Each	5.00	8.55
27 4	ETI/C	0073 (Mod.A)	-	16-Jul	Bolt M 16x65/38 mm	Each	5.00	8.55
27 5	ETI/C	0073 (Mod.A)	-	16-Aug	Bolt M 16x65/60 mm	Each	6.00	10.26
27 6	ETI/C	0073 (Mod.A)	-	16-Sep	Bolt M 16x75/38 mm	Each	6.00	10.26
27 7	ETI/C	0073 (Mod.A)	-	16-Oct	Bolt M 16x100/38 mm	Each	7.00	11.96
27 8	ETI/C	0073 (Mod.A)	-	16-Nov	Bolt M 16x175/44 mm	Each	11.00	18.8

27 9	ETI/C	0073 (Mod.A)	-	16-Dec	Bolt M 16x210/57 mm	Each	16.00	27.35
28 0	ETI/C	0073 (Mod.A)	-	16/13	Bolt M 16x220/57 mm	Each	16.00	27.35
28 1	ETI/C	0073 (Mod.A)	-	16/14	Bolt M 16x240/57 mm	Each	19.00	32.47
28 2	ETI/C	0073 (Mod.A)	-	16/15	Bolt M 16x260/57 mm	Each	19.00	32.47
28 3	ETI/C	0073 (Mod.A)	-	16/16	Bolt M 16x270/57 mm	Each	19.00	32.47
28 4	ETI/C	0073 (Mod.A)	-	16/17	Bolt M 16x300/57 mm	Each	21.00	35.89
28 5	ETI/C	0073 (Mod.A)	-	16/18	Bolt M 16x320/57 mm	Each	21.00	35.89
28 6	ETI/C	0073 (Mod.A)	-	16/19	Bolt M 16x360/57 mm	Each	23.00	39.31
28 7	ETI/C	0073 (Mod.A)	-	16/20	Bolt M 16x370/57 mm	Each	23.00	39.31
28 9	ETI/C	0073 (Mod.A)	-	16/22	Bolt M 16x460/57 mm	Each	36.00	61.53
29 0	ETI/C	0073 (Mod.A)	-	16/23	Bolt M 16x500/57 mm	Each	37.00	63.24
29 1	ETI/C	0073 (Mod.A)	-	16/24	Bolt M 16x600/57 mm	Each	38.00	64.95
29 2	ETI/C	0073 (Mod.A)	-	16/25	Bolt M 16x650/57 mm	Each	41.00	70.08
29 3	ETI/C	0073 (Mod.A)	-	-	Nut for M 16 bolt	Each	2.00	3.42
29 4	ETI/C	0073 (Mod.A)	-	-	lock nut for M 16 bolt	Each	2.00	3.42
29 5	ETI/C	0073 (Mod.A)	-	18-Jan	Bolt M 18x75/42 mm with hole for split pin	Each	14.00	23.93
29 6	ETI/C	0073 (Mod.A)	-	18-Feb	Bolt M 18x80/42 mm with hole for split pin	Each	16.00	27.35
29 7	ETI/C	0073 (Mod.A)	-	-	Nut for M 18 bolt	Each	2.00	3.42
29 8	ETI/C	0073 (Mod.A)	-	-	lock nut for M 18 bolt	Each	2.00	3.42
29 9	ETI/C	0073 (Mod.A)	-	20-Jan	Bolt M 20 x 50/37 mm	Each	7.00	11.96
30 0	ETI/C	0073 (Mod.A)	-	20-Feb	Bolt M 20 x 50/46 mm	Each	7.00	11.96
30 1	ETI/C	0073 (Mod.A)	-	20-Mar	Bolt M 20 x 65/46 mm	Each	8.00	13.67

30 2	ETI/C	0073 (Mod.A)	-	20-Apr	Bolt M 20 x 85/46 mm	Each	10.00	17.09
	ETI/C	0073 (Mod.A)	-	20-May	Bolt M 20 x 100/46 mm	Each	11.00	18.8
30 3	ETI/C	0073 (Mod.A)	-	20-Jun	Bolt M 20 x 200/52 mm	Each	24.00	41.02
30 4	ETI/C	0073 (Mod.A)	-	20-Jul	Bolt M 20 x 230/65 mm	Each	24.00	41.02
30 5	ETI/C	0073 (Mod.A)	-	20-Aug	Bolt M 20 x 260/65 mm	Each	24.00	41.02
30 6	ETI/C	0073 (Mod.A)	-	20-Sep	Bolt M 20 x 280/65 mm	Each	30.00	51.28
30 7	ETI/C	0073 (Mod.A)	-	20-Oct	Bolt M 20 x 310/65 mm	Each	30.00	51.28
30 8	ETI/C	0073 (Mod.A)	-	20-Nov	Bolt M 20 x 330/65 mm	Each	30.00	51.28
30 9	ETI/C	0073 (Mod.A)	-	20-Dec	Bolt M 20 x 360/65 mm	Each	30.00	51.28
31 0	ETI/C	0073 (Mod.A)	-	20/13	Bolt M 20 x 380/65 mm	Each	30.00	51.28
31 1	ETI/C	0073 (Mod.A)	-	20/14	Bolt M 20 x 470/65 mm	Each	36.00	61.53
31 2	ETI/C	0073 (Mod.A)	-	20/15	Bolt M 20 x 550/65 mm	Each	60.00	102.55
31 3	ETI/C	0073 (Mod.A)	-	20/16	Bolt M 20 x 650/65 mm	Each	60.00	102.55
31 4	ETI/C	0073 (Mod.A)	-	20/17	Bolt M 20 x 700/65 mm	Each	60.00	102.55
31 5	ETI/C	0073 (Mod.A)	-	-	Nut for M 20 Bolt	Each	3.00	5.13
31 6	ETI/C	0073 (Mod.A)	-	-	Lock nut for M 20 Bolt	Each	3.00	5.13
31 7	ETI/C	0073 (Mod.A)	-	24-Jan	Bolt M 24x70/54 mm with hole for split pin	Each	18.00	30.77
31 8	ETI/C	0073 (Mod.A)	-	-	Nut for M 24 bolt	Each	5.00	8.55
32 0	ETI/C	0073 (Mod.A)	1	2113	'U' Bolt M 14 mm	Each	14.00	23.93
32 1	ETI/C	0073 (Mod.A)	2	2133	'U' Bolt M 14 mm	Each	15.00	25.64
32 2	ETI/C	0073 (Mod.A)	1	261	Pin Ø 20x55 mm	Each	10.00	17.09
32 3	ETI/C	0073 (Mod.A)	2	262	Pin Ø 20x60 mm	Each	10.00	17.09

32 4	ETI/C	0073 (Mod.A)	3	263	Pin Ø 20x50 mm	Each	10.00	17.09
STINLESS STEEL BOLTS & NUTS Etc.								
32 5	ETI/C	0073 (Mod.A)	-	Oct-14	Bolt M 10x25/20 mm	Each	7.00	11.96
32 6	ETI/C	0073 (Mod.A)	-	10/15 & 10/16	Bolt M 10x35/30 mm with & without hole for split pin	Each	8.00	13.67
32 7	ETI/C	0073 (Mod.A)	-	Oct-17	Bolt M 10x40/26 mm	Each	9.00	15.38
32 8	ETI/C	0073 (Mod.A)	-	Oct-18	Bolt M 10x55/30 mm	Each	10.00	17.09
32 9	ETI/C	0073 (Mod.A)	-	Oct-19	Bolt M 10x65/30 mm	Each	11.00	18.8
33 0	ETI/C	0073 (Mod.A)	-	Oct-20	Bolt M 10x75/26 mm	Each	11.00	18.8
33 1	ETI/C	0073 (Mod.A)	-	-	S.S.Nut for M 10 Bolt	Each	3.00	5.13
33 2	ETI/C	0073 (Mod.A)	-	-	S.S. lockNut for M 10 Bolt	Each	3.00	5.13
33 3	ETI/C	0073 (Mod.A)	-	Dec-14	Bolt M 12x25/20 mm	Each	12.00	20.51
33 4	ETI/C	0073 (Mod.A)	-	Dec-15	Bolt M 12x25/25 mm	Each	12.00	20.51
33 5	ETI/C	0073 (Mod.A)	-	Dec-16	Bolt M 12x30/30 mm	Each	12.00	20.51
33 6	ETI/C	0073 (Mod.A)	-	Dec-17	Bolt M 12x45/30 mm	Each	14.00	23.93
33 7	ETI/C	0073 (Mod.A)	-	Dec-18	Bolt M 12x50/50 mm	Each	14.00	23.93
33 8	ETI/C	0073 (Mod.A)	-	Dec-19	Bolt M 12x60/30 mm	Each	16.00	27.35
33 9	ETI/C	0073 (Mod.A)	-	-	S.S.Nut for M 12 Bolt	Each	6.00	10.26
34 0	ETI/C	0073 (Mod.A)	-	-	S.S.lock nut for M 12 Bolt	Each	6.00	10.26
34 1	ETI/C	0073 (Mod.A)	-	14/14	Bolt M 14x75/34 mm	Each	19.00	32.47
34 2	ETI/C	0073 (Mod.A)	-	-	S.S.Nut for M 14 Bolt	Each	7.00	11.96
34 3	ETI/C	0073 (Mod.A)	-	-	S.S.Lock nut for M 14 Bolt	Each	7.00	11.96
34 4	ETI/OHE/P	2124 (Mod.B)	1	2124-S	Direct catenary clamp stud	Each	8.00	13.67

34 5	ETI/OHE/P	1320 (Mod.B)	2	-	'U' bolt Ø10 mm	Each	13.00	22.22
34 6	ETI/OHE/P	150	6	4032-S	'U' Bolt Ø10mm	Each	13.00	22.22
34 7	ETI/OHE/P	160 (Mod.A)	-	161-S	Pin Ø10x35 mm	Each	9.00	15.38
34 9	ETI/OHE/P		-	-	Pin Ø16x60 mm	Each	18.00	30.77
35 0	ETI/OHE/P		-	-	Pin Ø18x75 mm	Each	21.00	35.89
G.S 'J' Bolts ETI/C/0074 (Mod.A)								
35 1	ETI/C	0074 (Mod.A)	-	-	J' Bolt Ø16x120/60	Each	9.00	15.38
35 2	ETI/C	0074 (Mod.A)	-	-	J' Bolt Ø16x175/60	Each	11.00	18.8
35 3	ETI/C	0074 (Mod.A)	-	-	J' Bolt Ø16x200/60	Each	12.00	20.51
35 4	ETI/C	0074 (Mod.A)	-	-	J' Bolt Ø16x220/60	Each	13.00	22.22
35 5	ETI/C	0074 (Mod.A)	-	-	J' Bolt Ø16x240/60	Each	14.00	23.93
35 6	ETI/C	0074 (Mod.A)	-	-	J' Bolt Ø16x250/60	Each	16.00	27.35
35 7	ETI/C	0074 (Mod.A)	-	-	J' Bolt Ø16x300/60	Each	17.00	29.06
35 8	ETI/C	0074 (Mod.A)	-	-	J' Bolt Ø16x340/60	Each	20.00	34.18
35 9	ETI/C	0074 (Mod.A)	-	-	J' Bolt Ø16x345/60	Each	20.00	34.18
36 0	ETI/C	0074 (Mod.A)	-	-	J' Bolt Ø16x400/60	Each	30.00	51.28
36 1	SPRING WASHERS				Galv.Steel spring washer Ø12 mm	Per 100 nos	42.00	71.79
36 2					Galv.Steel spring washer Ø14 mm	Per 100 nos	60.00	102.55
36 3					Galv.Steel spring washer Ø16 mm	Per 100 nos	78.00	133.32
36 4					Galv.Steel spring washer Ø20 mm	Per 100 nos	155.00	264.93
36 5	FLAT WASHERS				Rustless flat washer Ø10 mm	Per 100 nos	143.00	244.42
36 6					Rustless flat washer Ø12 mm	Per 100 nos	203.00	346.97
36 7					Rustless flat washer Ø16 mm	Per 100 nos	334.00	570.87

36 8					Galv. Steel flat washer Ø 14mm	Per 100 nos	69.00	117.93
36 9					Galv. Steel flat washer Ø 16mm	Per 100 nos	72.00	123.06
37 0					Galv. Steel flat washer Ø 20mm	Per 100 nos	78.00	133.32
37 1					Galv. Steel flat washer Ø 24mm	Per 100 nos	148.00	252.96
37 2	FLAT WASHERS(Co ntd.)				Galv. Steel tapered washer Ø16mm	Per 100 nos	269.00	459.77
	CONCRETE							
	NON-FERROUS							
37 4	ETI/OHE/P	1010 (Mod.A)	1	1010	Terminal connector (15 mm) multiple holes (Bolted type)	Each	201.00	343.55
37 5	ETI/OHE/P	1030-2 (Mod.D)	1	1031-2	Contact wire parallel clamp (Large)	Set	45.00	76.91
37 6	ETI/OHE/SK	534 (Mod.C)	1 & 2	SK-534/1 & SK-534/2	Parallel Clamp (Large) compression type.	Each	85.00	145.28
					(OR)			
37 7	ETI/OHE/SK	535 (Mod.B)	1 & 2	SK-535/1 & SK-535/2	Jumper Clamp (Large) compression type	Each	85.00	145.28
					(OR)			
37 8	ETI/OHE/P	1030-3 (Mod.A)	1 to 3	1031-3	Parallel Clamp	Set	85.00	145.28
37 9	ETI/OHE/P	1042-2 (Mod.E)	1	1041-2	Contact wire parallel clamp (Small)	Set	45.00	76.91
38 0	ETI/OHE/SK	575 (Mod.A)	1 & 2	SK-534/1 & SK-575/2	Parallel clamp (Small) compression type	Each	85.00	145.28
					(OR)			
38 1	ETI/OHE/SK	576 (Mod.B)	1 & 2	SK-576/1 & SK-535/2	Jumper Clamp (Small) compression type	Each	85.00	145.28
					(OR)			
38 2	ETI/OHE/P	1040-3 (Mod.B)	1 to 3	1041-3	Parallel Clamp (90/50)	Set	85.00	145.28
38 3	ETI/OHE/P	1070-1 (Mod.B)	1 & 2	-	Bridle wire clamp (6mm) with lock plate	Each	79.00	135.03
38 4	ETI/OHE/P	1080-1 (Mod.B)	1	1081-1	Contact wire splice (toothed type)	Set	216.00	369.19

38 5	ETI/OHE/P	1090	1 to 4	1091 to 1094	Catenary Splice (65)	Set	149.00	254.67
38 6	ETI/OHE/P	1120 (Mod.B)	1 to 3	1121, 1094 & 1092	Catenary Ending Clamp (65)	Each	155.00	264.93
38 7	ETI/OHE/P	1140 (Mod.B)	1 to 3	1131, 1143 & 1102	Large span wire ending clamp (130)	Each	281.00	480.29
38 8	RE/33/P	1160 (Mod.J)	1, 3, 4, 6 & 7	1161, 1163 & 161-S	Suspension clamp	Each	172.00	293.98
38 9	RE/33/P	1160 (Mod.J)	1	1161	Suspension clamp body	Each	151.00	258.09
39 0	RE/33/P	1160 (Mod.J)	4	1163	Suspension clamp lock plate	set of 2 No's	7.00	11.96
39 1	RE/33/P	1170 (Mod.K)	1, 2, 4 & 6 to 9	1171, 1172, 1174, 1163 & 161-S	Double suspension clamp	Each	255.00	435.85
39 2	RE/33/P	1170 (Mod.K)	1	1171	Double suspension clamp body	Each	195.00	333.29
39 3	RE/33/P	1170 (Mod.K)	2	1172	Double suspension clamp lock plate	Each	8.00	13.67
39 4	RE/33/P	1170 (Mod.K)	4	1174	Packing saddle	Each	30.00	51.28
39 5	RE/33/P	1170 (Mod.K)	6	1163	Suspension clamp lock plate	set of 2 No's	7.00	11.96
39 7	RE/33/P	1180 (Mod.F)	2	1182	Locking wire	Each	2.00	3.42
					(OR)			
39 8	ETI/OHE/SK	572 (Mod.B)	1 or 3	SK-572/1 & SK-572/2	Contact wire dropper clip	-	-	-
39 9	ETI/OHE/P	1192 (Mod.C)	1	1192	Catenary Dropper clip	Each	13.00	22.22
40 0	ETI/OHE/P	1194 (Mod.A)	1	1194	Bridle wire dropper clip	Each	13.00	22.22
40 1	RE/33/P	1220 (Mod.E)	1	1221	Contact wire swivel clip part	Set	47.00	80.33
40 2	RE/33/P	1220 (Mod.E)	2	1222	Contact wire swivel clip pin	Each	3.00	5.13
40 3	RE/33/P	1270-1 (Mod.F)	1	1272	Suspension clevis (18mm)	Each	67.00	114.52
40 4	RE/33/P	1280 (Mod.C)	1 & 2	1281 & 1282	Double contact wire splice	Each	1075.00	1837.39
40 5	ETI/OHE/P	1310	1	1311	Pull of clamp	Each	30.00	51.28

40 6	ETI/OHE/P	1310	2	1192	Catenary Dropper clip	Set of 2 No's	26.00	44.44
40 7	ETI/OHE/P	1320 (Mod.B)	1	1321	U' clamp (50/50) body	Each	90.00	153.83
40 8	ETI/OHE/P	1330 (Mod.B)	1	1331	Distance piece 'U' clamp saddle	Each	19.00	32.47
40 9	ETI/OHE/P	1330 (Mod.B)	3	4036	U' Bolt saddle	Each	15.00	25.64
41 0	ETI/OHE/P	1350	1	1351	Thimble (10mm)	Each	30.00	51.28
41 1	ETI/OHE/P	1360 (Mod.B)	1 to 3	1131, 1362 & 1361	Steel wire ending clamp (90)	Each	263.00	449.52
41 2	ETI/OHE/P	1400 (Mod.C)	1 & 4	1401, 1174	Short Dropper assembly	Each	20.00	34.18
41 3	ETI/OHE/P	1400 (Mod.C)	2	1402	Variable short dropper clip (Cont.wire)	Each	20.00	34.18
41 4	ETI/OHE/P	1540 (Mod.D)	1	1541	Parallel clamp part(10/20)	Each	81.00	138.45
41 5	ETI/OHE/P	1540 (Mod.D)	5	-	Bimetallic strip (90x35x1mm)	Each	23.00	39.31
41 6	ETI/OHE/P	1550 (Mod.E)	1	1551	Parallel clamp (20/20)	Each	107.00	182.88
41 7	ETI/OHE/P	1560 (Mod.D)	1	1561	Parallel clamp (15/20)	Each	75.00	128.19
41 8	ETI/OHE/P	1560 (Mod.D)	5	-	Bimetallic strip (160x50x1 mm)	Each	53.00	90.59
41 9	ETI/OHE/P	1580 Sh.1 (Mod.F)	1 & 2	1581 & 1582	Large suspension clamp 20mm	Each	106.00	181.18
42 0	ETI/OHE/P	1580 Sh.1 (Mod.F)	10	-	Flat Armour tape	Kg.	143.00	244.42
42 1	ETI/OHE/P	1580-1 (Mod.F)	10	-	Armour tape ferrule	Set of 2 No's	18.00	30.77
42 2	ETI/OHE/P	1600 (Mod.C)	1 & 2	1602	20 mm Strain clamp	Each	279.00	476.87
42 3	ETI/OHE/P	1610-1	1	1610-1	Compression joint	Each	209.00	357.22
42 4	ETI/OHE/P	1640	1	1640	Repair sleeve (Compression type)	Each	191.00	326.46
42 5	ETI/OHE/P	2064-1 (Mod.A)	2	2064-1	Tube cap 30 mm	Each	12.00	20.51
42 6	ETI/OHE/P	2104-1 (Mod.A)	2	2104-1	Tube cap 40 mm	Each	13.00	22.22
42 7	ETI/OHE/P	2110 (Mod.B)	1 & 2	2111 & 2112	Standard Catenary suspension Bracket	Each	210.00	358.93

42 9	ETI/OHE/P	2120 (Mod.B)	3	2123	Direct Catenary clamp Grip	Each	21.00	35.89
43 0	ETI/OHE/P	2125 (Mod.B)	1	2125	Bridle wire sleeve	Each	16.00	27.35
43 1	ETI/OHE/P	2130 (Mod.B)	1 & 2	2131 & 2132	Large catenary suspension Bracket	Each	222.00	379.44
43 2	ETI/OHE/P	2140 (Mod.C)	1 & 2	2141 & 2142	Catenary direct clamp (Large)	Each	208.00	355.51
43 3	ETI/OHE/P	2140 (Mod.C)	3	2123	Direct Catenary clamp Grip	Each	21.00	35.89
43 4	ETI/OHE/P	2345	1	2345	Steady Rod Eye piece	Each	35.00	59.82
43 5	ETI/OHE/P	2380 (Mod.C)	1 & 3	2112 & 2122	Standard Catenary suspension bracket top and bottom	Set	215.00	367.48
43 6	ETI/OHE/P	2380 (Mod.C)	2 & 4	2131 & 2142	Large Catenary suspension bracket top and bottom	Set	263.00	449.52
43 7	ETI/OHE/P	2390 (Mod.B)	1	2544-5	BFB Steady Arm only L = 0.69m	Each	41.00	70.08
43 8	ETI/OHE/P	2390 (Mod.B)	2	2544-6	BFB Steady Arm only L = 0.89m	Each	53.00	90.59
43 9	ETI/OHE/P	2390 (Mod.B)	3	2544-7	BFB Steady Arm only L = 1.09m	Each	65.00	111.1
44 0	ETI/OHE/P	2390 (Mod.B)	4	2544-8	BFB Steady Arm only L = 1.29m	Each	77.00	131.61
44 1	ETI/OHE/P	2390 (Mod.B)	7	-	AL.Alloy Rivet Ø 6x35	Set of 4 No's	6.00	10.26
44 2	ETI/OHE/P	2423-1 (Mod.A)	1	2423-1	Tube cap 25mm	Each	12.00	20.51
44 3	ETI/OHE/P	2520 (Mod.B)	1	2521	Normal Bent Steady arm	Each	112.00	191.43
44 4	ETI/OHE/P	2520 (Mod.B)	5	-	Al.Alloy Rivert Ø 6x50	Set of 4 No's	10.00	17.09
44 5	ETI/OHE/P	2540 (Mod.B)	1	2544-1	BFB Steady arm only L=0.72 m	Each	43.00	73.5
44 6	ETI/OHE/P	2540 (Mod.B)	2	2544-2	-do- L=0.92 m	Each	55.00	94.01
44 7	ETI/OHE/P	2540 (Mod.B)	3	2544-3	-do- L=1.12 m	Each	67.00	114.52
44 8	ETI/OHE/P	2540 (Mod.B)	4	2544-4	-do- L=1.32 m	Each	79.00	135.03
44 9	ETI/OHE/P	2540 (Mod.B)	7	-	AL.Alloy Rivet Ø 6x35	Set of 4 No's	6.00	10.26

45 0	ETI/OHE/P	2540-1	1	2544-9/1	BFB Steady arm only for tramway OHE (Regulated) L = 0.92m	Each	55.00	94.01
45 1	ETI/OHE/P	2540-1	1	2544-9/2	-Do-L=1.12 m	Each	67.00	114.52
45 2	ETI/OHE/P	2540-1	1	2544-9/3	-Do-L=1.32 m	Each	79.00	135.03
45 3	ETI/OHE/P	2540-1	4	1221	Contact wire swivel clip	Each	47.00	80.33
45 4	ETI/OHE/P	2540-1	6	-	AL.Alloy Rivet Ø 6x33	Set of 4 No's	6.00	10.26
45 5	ETI/OHE/P	2540-1	5	1222	Contact wire swivel clip pin	Each	3.00	5.13
45 6	RE/33/P	2700 (Mod.E)	1&3	2701 & 4036	Vee suspensioun assembly (Excl. 'U' Bolt of 10mm with nut. Lock nut and split pin)	Set	389.00	664.88
45 8	RE/33/P	2721 (Mod.C)	1	2721	Double vee suspension top	Each	328.00	560.62
45 9	ETI/OHE/P	2730 (Mod.A)	1	2731	Section Insulator support clamp part	Each	358.00	611.89
46 0	ETI/OHE/P		1	4036	AL.Bronze 'U' bolt saddle	Set fo 2 No's	30.00	51.28
46 1	ETI/OHE/P	4001 (Mod.A)	1	4001	Span wire clip (65)	Each	14.00	23.93
46 2	ETI/OHE/P	4002 (Mod.A)	1	4002	Span wire clip (130)	Each	14.00	23.93
46 3	ETI/OHE/P	6170 (Mod.C)	1	6171	Double Contact wire parallel clamp piece	Set	25.00	42.73
46 4	ETI/OHE/P		1 to 4	6310-1	18 mm Bus Terminal (Multiple Bolt)	Each	537.00	917.84
46 5	ETI/OHE/P	6320 (mod.A)	1 to 4	6320	18 mm Bus Splice	Each	567.00	969.12
46 6	RE/33/P	6330 (Mod.C)	1 to 4	6330	18 mm Bus Tee joint	Each	657.00	1122.94
46 7	RE/33/P	6350 (Mod.B)	1 to 4	-	18 mm Bus Terminating Tee	Each	913.00	1560.5
46 8	ETI/PSI/P	6480 (Mod.C)	1,2,5&6	6481 & 6482	36mm aluminium Bus Terminal for 25 KV Isolator (Rigid type)	Each	156.00	266.64

46 9	ETI/PSI/P	6490 (Mod.B)	1 & 2	6491 & 6482	36mm Aluminium Bus splice	Each	323.00	552.07
47 0	ETI/PSI/P	6500 (Mod.C)	1 & 2	6501 & 6482	36mm Aluminium Bus Tee connector	Each	335.00	572.58
47 1	ETI/PSI/P	6510 (Mod.D)	1 & 2	6511 & 6482	36mm Aluminium Bus Tee Terminal	Each	388.00	663.17
47 2	ETI/PSI/P	6520 (Mod.B)	1 & 3	6521, 6482 & 6523	36/15 mm Tap Connector	Each	287.00	490.54
47 3	ETI/PSI/P	6530 (Mod.C)	1 & 3	6531, 6482 & 6592	36/20mm Terminal Connector	Each	287.00	490.54
47 4	ETI/PSI/P	6550 (Mod.B)	1 & 4	6551, 6482-1, 6552 & 6553	36mm Aluminium Flexible Bus splice	Each	982.00	1678.43
47 5	ETI/PSI/P	6550 (Mod.B)	5	-	Bimetallic strip	Set	96.00	164.08
47 6	ETI/PSI/P	6560 (Mod.B)	1 & 2	6561& 6582	36mm AL Bus Splice Cum Tee Connector	Each	360.00	615.31
47 7	ETI/PSI/P	6830-1 (Mod.D)	1 & 2	6831& 6592	Terminal Connector for AL.coductors (Bolted type)	Each	347.00	593.09
47 8	ETI/OHE/P	1009 (Mod.A)	1 to 4	1009 & 1009-1	Terminal connector (19mm) multiple hole (bolted type)	Set	460.00	786.23
47 9	ETI/OHE/P	1009 (Mod.A)	4	-	AL. flat armour tape (1.27x7.62)	Kg.	143.00	244.42
48 0	ETI/OHE/SK	123 (Mod.D)	1 to 5	AL-123	Bimetallic PG clamp (14/19)	Set	143.00	244.42
48 1	ETI/OHE/SK	130 (Mod.D)	1	AL-130	AL.Alloy catenary dropper clip	Each	5.00	8.55
48 2	ETI/OHE/SK	134 (Mod.D)	1 to 4	AL-134	Catenary splice (cone type) Al. Alloy Catenary	Each	113.00	193.14
48 3	ETI/OHE/SK	231 (Mod.C)	1	AL-231	Parallel groove clamp (18/14)	Each	98.00	167.5
48 4	ETI/OHE/SK	231 (Mod.C)	5	-	Bimetallic ALCU strip 1 mm thick	Each	24.00	41.02
48 6	ETI/OHE/SK	333 (Mod.D)	1	-	Catenary Dropper clip	Each	5.00	8.55
48 7	ETI/OHE/SK	436 (Mod.B)	1 & 2	AL-436	Envelope type end fitting assembly size 19/2.79mm	Each	173.00	295.69

48 8	ETI/OHE/SK	436 (Mod.B)	8	-	Soft Annealed AL.tape 1.25x7.7mm	Kg.	143.00	244.42
48 9	ETI/OHE/SK	469 (Mod.A)	4 & 6	-	Packing saddle and suspension clamp lock plate	Set	36.00	61.53
49 0	ETI/OHE/SK	469 (Mod.A)	10	-	Soft Annealed Al.tape 1.25x7.7mm	Kg.	143.00	244.42
49 1	BUS BAR				Tabular aluminium bus bar 36x28mm	Metre	98.00	167.5
49 2					Solid copper bus bar 18mm	Metre	249.00	425.59
49 3	WIRES & FLATS				19/7/1.4mm all aluminium jumper	Metre	60.00	102.55
49 4	EQUIPMENTS				Section insulator assembly	Each	7932.00	13557.37
49 5	RIVETS				Copper rivets Ø 6x50mm	Per 100 No's	566.00	967.41
49 6	RIVETS(Contd)				Copper rivets Ø 6x55mm	Per 100 No's	603.00	1030.65
49 7					Al.Alloy snap head rivets Ø 4x35mm	Per 100 No's	111.00	189.72
49 8					Al.Alloy rivets Ø 6x45 mm	Per 100 No's	198.00	338.42
49 9					Al.Alloy rivets Ø 6x50 mm	Per 100 No's	241.00	411.92
50 0					Al.Alloy rivets Ø 6x35 mm	Per 100 No's	159.00	271.76
50 1					Al.Alloy rivets Ø 6x33 mm	Per 100 No's	155.00	264.93
50 2	SPRING WASHERS				Phosphor bronze spring washer Ø 10mm	Per 100 No's	251.00	429.01
50 3					Phosphor bronze spring washer Ø 16 mm	Per 100 No's	478.00	817
50 4					Phosphor Bronze spring washer Ø 12 mm	Per 100 No's	261.00	446.1
50 5	INSULATORS				Stay arm Insulator Assembly.	See Schedule 'B'		
50 6					9 Tonne Insulator Assembly.	See Schedule 'B'		

50 7	-	-	-	-	Bracket Insulator Assembly.	See Schedule 'B'		
50 8	-	-	-	-	Solid Core 25kV.Post Insulator Assembly.	See Schedule 'B'		
50 9	-	-	-	-	Sectioning Insulator Assembly.	See Schedule 'B'		
51 0					Operating Rod Insulator Assembly.	See Schedule 'B'		
51 1	ETI/OHE/P	6061-3(Mod. A)	1 to 3		Disc Insulator (255mm) clevis type	Each	167.00	285.44
51 2	ETI/OHE/P	6070-1	1 to 3		11 kV post Insulator Assembly	Set	245.00	418.75

NOTES:

- 1) All prices in Form-7, Section-1, Column-8 are inclusive of all taxes & duties.
- 2) Nuts and lock nuts should be procured from the approved firms and from the same manufacturer who manufactures corresponding bolts, screws etc. The prices for bolts shall include the cost of providing a hole for split pin, wherever required.
- 3) The prices are inclusive of bolts, nuts, locknuts washer and split pins wherever included in the drawings, unless otherwise specified.
- 4) All bolts and nuts below 14 mm dia shall be stainless Steel only which are to be used in live or current carrying parts even if bolts of other material are shown in the concerned drawings.
- 5) The reference can be taken from the actual dimensions of the fasteners as per RDSO drawing No. ETI/C/0073 (Mod.A or latest) for dimension of bolts, nuts and locknuts for 25kV a.c. traction; ETI/C/0074 (Mod.A or latest) for 16 dia J-bolt for 25kV a.c. traction and ETI/C/0075 (latest) for washers and split pins for 25kV a.c. traction.
- 6) Wherever IS:226 is referred for materials in Form-7 it should confirm to IS:2062.
- 7) Incase of any discrepancy in rate of any item, the rate adopted in CORE tenders shall be taken as final.
- 8) Incase any item is leftout in the above form, rate adopted in CORE tenders will be taken as the reference.
