

**ELECTRICAL (CONSTRUCTION)****TENDER DOCUMENT****TWO PACKET SYSTEM ON NON-EPC MODE**

TENDER NO : TR-C-04-2026-27-T

NAME OF WORK : Design, Supply, Erection, Testing & Commissioning of 25 KV AC OHE between Samlaya to Timba in Connection with GC Work, Vishwamitri Y connection in Connection with doubling of VS to Dabhoi section & Lakodhra to Miyagaam Karjan in Connection with Lakodhra Flyover on Vadodara Division of Western Railway.

DATE OF CLOSING OF TENDER : 14.07.2026 at 15.00 hrs.

APPROXIMATE COST OF WORK : Rs. 28,91,84,032.40/-

TENDER DOCUMENT COST : NIL

DY. CHIEF ELEC. ENGINEER (CONST.) VADODARA – 3900004

Signature of tenderer

*Dy. Chief Electrical Engineer
(Const.) W. Rly. Vadodara.*

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CHAPTER - I**TENDER DOCUMENTS**

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*Signature of tenderer**Dy. Chief Electrical Engineer
(Const.) W. Rly. Vadodara.*

TENDER ENQUIRY

NAME OF WORK : Design, Supply, Erection, Testing & Commissioning of 25 KV AC OHE between Samlaya to Timba in Connection with GC Work, Vishwamitri Y connection in Connection With doubling of VS to Dabhoi section & Lakodhra to Miyagaam Karjan in Connection with Lakodhra Flyover on Vadodara Division of Western Railway.

1. APPROXIMATE COST OF WORK : Rs. 28,91,84,032.40/-
2. Bid Security : Rs. 57,83,700 /-
3. COMPLETION PERIOD : 24 (Twenty-Four) Months
4. LAST DATE AND TIME FOR SUBMISSION OF TENDER : 14.07.2026 upto 15.00 hrs.
5. ADDRESS FOR SUBMISSION OF TENDER : E-Tendering on ireps website
6. IMPORTANT NOTE :
 1. **“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 Tax authority”.**
 2. **Tenderers shall be complying Railway Board’s letters No. 2017/CE-I/CT/4/GST/Main/Vol-III & Vol-IV dated 05.07.2022, 22.7.2022, 23.09.2022 and latest and GST shall be applicable as per latest guidelines issued time to time.**

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INSTRUCTIONS TO THE TENDERERS

1. The following components forms a part of tender:

- I. NIT header
- II. Schedule
- III. Item break up
- IV. Eligibility condition
- V. Compliance
- VI. Document attached

1. **GCC April 2022 with latest Correction slip No. 11 or latest amendment shall be applicable.**
2. It is responsibility of the tenderer to check any correction or any modifications published subsequently in website and the same shall be taken into account while submitting the tender on website.
3. Your digital signature on the E-Tender form will be considered as your confirmation that you have read and accepted all the conditions laid down in the documents as well as schedule of tender consisting of technical bid form (including special conditions attached to E- Tender) and financial offer form, unless specific deviation is quoted in the technical bid.
4. Tenderer/s are free to download tender document at their own risk and cost, for the purpose of perusal as well as for using the same as tender document for submitting the offer. Master copy of the tender document is available in the office of The Deputy Chief Electrical Engineer (construction) Vadodara-390004. After award of work an agreement will be prepared based on the master copy of tender available in the above-mentioned office. In case, any discrepancy between the tender documents downloaded from the Internet and master copy later shall prevail and will be binding on the tenderer/s no claim on this account will be entertained.
5. If any change/addition/deletion is made by the Tenderer/Contractor and the same is detected at any stage even after the award of the tender, full Bid security deposit will be forfeited and the contract will be terminated at his/their risk and cost. The tenderer is also liable to be banned from doing business with Railways and/or prosecuted.
6. **Error/omission and discrepancies-** The tenderer shall not take advantage of any error due to typing or otherwise, if there is any doubt, that shall be brought to notice of Dy.CEE/C/BRC without delay and same shall be dealt as per Railway's requirement only and to Railway's advantage only.
7. Tenderers are advised to quote their rates on www.ireps.gov. site through e-offer. Other modes for submitting offer are not allowed and same will be summarily rejected.

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8. Payment of Bid Security in respect of E- Tendering shall be applicable as per GCC April 2022 with ACS 1 to 11 or latest correction slip/amendment.
9. **The prospective tenderers are advised to revisit the website frequently before the date of closing of tender to note any changes/corrigendum issued for this tender. Website: www.ireps.gov.in.**
10. A declaration should be given by the tenderer that I/We have downloaded the tender from the Internet site <http://ireps.gov.in> and I/We have not tampered/ modified the tender forms in any manner. In case, if the same is found to be tampered/modified, I/We understand that my/our tender will be summarily rejected and full Bid Security will be forfeited and I/We am/are liable to be banned from doing business with Railways and/or prosecuted.
11. In case of Two packet system of bidding, after scrutinizing the technical bid and short listing the tenderers, the Financial Bid shall be opened on a subsequent date only for those tenderers who will be qualifying Technical Bid as per eligibility/qualifying criteria laid down. The date of opening of financial bid will be advised online. The Railway's decision in this regard will be final.
12. An option for the contractor to take payment from Railways through a letter of credit (LC) arrangement shall be considered as per guidelines conveyed vide Railway board letter No. 2018/CE-I/CT/9 dated 04.06.18 in reference (i) Railway Board's letter No. 2017/AC-II/9/10 Pt 3 dated 09.05.18 (ii) Railway Board Letter No. 2017/AC II/9/10 Pt I, dated 20.02.18 or GCC April 2022 or latest.
13. **Performance guarantee is applicable as per GCC April 2022 with latest ACS 11 or latest correction slip.**
- 14.0 **Eligibility Criteria as per GCC April 2022 with ACS 1 to 11 or latest correction slip:**
- 14.1 **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.

Similar nature of work shall mean: "Execution of any 1500 V DC or 25 KV AC OHE work"

- (b) (1) In case of tenders for composite works (e.g. works involving more than one distinct component, such as Civil Engineering works, S&T works, Electrical works, OHE works etc. and in the case of major bridges – substructure, superstructure etc.), tenderer must have successfully completed or substantially completed any one of the following

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

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

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

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

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

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

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

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

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

Note for Item 10.1:

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

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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.

14.2. Financial Eligibility Criteria: The tenderer must have minimum average annual contractual turnover of V/N or V whichever is less; were

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.

14.3 Bid Capacity: The tender/technical bid will be evaluated based on bid capacity formula detailed as Annexure-VI. **For Tender having advertised value more than Rs. 10 Crores wherein eligibility criteria include Bid capacity also, the tenderer will be qualified only if its available bid capacity is equal to or more than the total bid capacity is equal to or more than the total bid value of the present tender.**

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

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

The conversion rate of US Dollars into Rupees shall be the daily representative exchange rates published by the Reserve Bank of India or entity authorized by RBI to do so for the relevant date or immediately previous date for which rates have been published. Where, relevant date shall be as on the last day of month previous to the one in which tender is invited. In case of any other currency, the same shall first be converted to US Dollars as on the last day of month previous to the one in which tender is invited, and the amount so derived in US Dollars shall be converted

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into Rupees at the aforesaid rate. The conversion rate of such currencies shall be the daily representative exchange rates published by the International Monetary Fund for the relevant date or immediately previous date for which rates have been published.

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

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

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

5. If a bidder has successfully completed a work as subcontractor and the work experience certificate has been issued for such work to the subcontractor by a Govt. Organization or public listed company as defined in Note for Item 10.1 Para 10 of the Tender Form (Second Sheet), the same shall be considered for the purpose of fulfillment of credentials.
6. In case a work is considered similar in nature for fulfillment of technical credentials, the overall cost including the PVC amount (if paid) of that completed work or substantially completed work, shall be considered and no separate evaluation for each component of that work shall be made to decide eligibility.
7. In case of newly formed partnership firm, the credentials of individual partners from previous propriety firm(s) or dissolved previous partnership firm(s) or split previous partnership firm(s), shall be considered only to the extent of their share in previous entity on the date of dissolution / split and their share in newly formed partnership firm. For example, a partner A had 30% share in previous entity and his share in present partnership firm is 20%. In the present tender under consideration, the credentials of partner A will be considered to the extent of 0.3×0.2 * 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

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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 10crore; 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.]

15. Tenderer Credentials:

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

Tenderer(s) who is / are not borne on the approved list of the Contractors of _____ Railway

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shall submit along with his / their tender:

- (i) Certificates and testimonials regarding contracting experience for the type of job for which tender is invited with list of works carried out in the past.
- (ii) Audited Balance Sheet duly certified by the Chartered Accountant regarding contractual payments received in the past.
- (iii) The list of personnel / organization on hand and proposed to be engaged for the tendered work. Similarly list of Plant & Machinery available on hand and proposed to be inducted and hired for the tendered work.
- (iv) A copy of certificate stating that they are not liable to be disqualified and all their statements/documents submitted along with bid are true and factual. Standard format of the certificate to be submitted by the bidder is enclosed as Annexure-V. In addition to Annexure-V, in case of other Company/Proprietary firm, Annexure-V(A) shall also be submitted by each member of a partnership Firm / Joint Venture (JV)/Hindu Undivided Family (HUF)/ Limited Liability Partnership (LLP) etc. as they 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 there under.
- (vi) (a) In case of any information submitted by tenderer is found to be false, forged or incorrect at any time during process for evaluation of tenders, it shall lead to forfeiture of the tender Bid Security besides banning of business for a period of upto five years.
(b) In case of any information submitted by tenderer is found to be false, forged or incorrect after the award of contract, the contract shall be terminated. Bid Security, Performance Guarantee and Security Deposit available with the railway shall be forfeited. In addition, other dues of the contractor, if any, under this contract shall be forfeited and agency shall be banned for doing business for a period of upto five years.

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

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17. Electrical Contractor License:

For participating in tenders for a work in any state the Contractors shall have to possess electrical license of appropriate voltage issued by any State Govt. under Clause 45 of compilation of rule of Indian Electricity Rules 1956 or as amended from time to time and a copy of the same should be submitted along with the offer. They shall keep valid license throughout the period of execution of work by getting it renewed at suitable intervals and submit an attested copy of the same to the Railways after each renewal. In the event of any discontinuity in validity of electrical license of the contractor, its authority to work with Railways will also automatically cease to be valid.

CHAPTER - II**PREAMBLE**

2.01.00	GENERAL
2.04.00	TENDER DOCUMENTS
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2.07.00	DISSOLUTION OF FIRM
2.08.00	SCHEDULE OF WORK
2.09.00	RLY. ADMINISTRATION RESERVES THE RIGHTS
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2.12.00	TENDERER'S ADDRESS
2.13.00	SUBMISSION OF TENDER
2.14.00	SIGNING OF TENDERS
2.15.00	GUARANTEE CLAUSE
2.16.00	SPECIAL CONDITION

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2.01.00 GENERAL

The intending Tenderer is advised to study the tender papers carefully. The Tenderer shall also acquaint himself with the nature of work and all other matters pertaining there to. The submission of a 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. Tender documents to be returned duly signed on each page. All the quantities and prices shall also be expressed in words wherever indicated.

Dimensions, weights, etc. shall be quoted only in metric system. The terms Tonne=1000 Kg. shall be used to indicate a metric tonne. If any other systems of units are quoted the equivalent metric measures shall be given invariably.

2.04.01 TENDER DOCUMENTS

Original copy of the tender papers duly E-signed by the Tenderer, on each and every page in token of having studied the Tender papers carefully. The original copy of the guarantee bond or deposit receipt for Bid Security and income tax clearance certificate shall be incorporated in the Tender.

2.06.0 DEVIATIONS FROM TENDER PAPERS

- a. Deviations from Tender papers will not normally be agreed to. Should the Tenderer be unable for good and sufficient reasons to comply entirely with the Tender papers, he shall indicate the deviations desired by him in his Tender. Such deviations, if any, shall be kept down to the absolute minimum and reasons for the deviations shall be indicated.
- b. The Tenderer, in all cases shall indicate clearly the specific addition or amendment desired by him to the relevant Para of the Tender papers.
- c. The Railway Administration, however, reserves the right to reject the offer, if any deviation is not acceptable and if the Tenderer is unwilling to modify such deviations in the manner acceptable to the Railway Administration.

2.07.0 DISSOLUTION OF FIRM

1. If Tenderer expires after the submission of his tender, or after the acceptance of his tender, the Railway shall deem such tender as cancelled. If a partner of firm expires after the submission of their tender or after the acceptance of their tender, the Railway shall deem such tender as cancelled, unless the firm retains its character.
2. If the contractors firm is dissolved on account of death or retirement of any partner of any reason what so ever before duly completing the Principal amendment the partner shall be the principal amendment, the partner shall remain jointly, severally and personally liable to complete the whole work to the satisfaction of the Railways and pay compensation for loss sustained if any, by Railway due to such dissolution. The amount of such compensation shall be decided by the General Manager or his accredited officer and his decision in the matter shall be final and binding on the contractor.

2.08.00 SCHEDULE OF WORK

The tenderer shall complete the work as per “Period of completion” indicated in Chapter 3.15.00. In case it is not possible, the tenderer shall indicate his/their own delivery schedule in their offer. In case the suggested time schedule by tenderer is not acceptable to Railway. The tenderer has to followed the Railway schedule if contract is awarded to them.

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2.9.00 RLY. ADMINISTRATION RESERVES THE RIGHTS

The Railway Administration reserves the right to change or amend the drawings as and when necessary, at any stage of the work. No claim of any kind what so ever will be entertained by the railway. In case the execution of any item of the work is held up for want of approved design or later supply of such material as are to be arranged by the railway then such failure or delay shall in no way affect or vitiate the contract or alter the character thereof or entitle the contractor for damages or compensation therefore but in any such case, the Rly may grant such extension of the completion date as may be considered reasonable.

2.10.00 COMMUNICATION OF CHANGE IN DOCUMENTS

The cancellation of any documents such as power of attorney, partnership deed, etc. should be forth with communicated by the contractor to the Railway Administration in writing, failing which the Railway Administration shall have no reasonability or liability for an action taken on the strength of the said documents.

2.11.00 NEGOTIATION

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

2.12.00 TENDERER'S ADDRESS

Every tenderer shall state in the tender his postal address fully and clearly. Any communication sent in time to the tenderer by post at his said address shall be deemed to have reached the tenderer duly and in time 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.

2.13.00 SUBMISSION OF TENDER

The tender shall be submitting through e-tender Only No other mode allowed.

2.14.00 SIGNING OF TENDERS

Any individual or individuals signing the Tender or other documents connected therewith should specify whether he is signing: -

As sole proprietor of the concerned of his Attorney or, as a partner or partners of the firm or consortium or, for the firm per procurator, or as a Director, Manager or Secretary duly authorized in the case of a company registered under Company Act.

In the case of partnership firm all the partners or 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 individual to sign should also be enclosed with the Tender. In any case the Tenderer should disclose his contribution fully and copies of all necessary legal documents in support thereof should be produced as and when called for should the tenderer be a partnership firm and in the event of the contract becoming inoperative due to the death of its partners, the Railway Administration shall have the right to enter into a separate agreement with the surviving partners of the firm to continue the execution of the work under the terms and conditions of this agreement.

2.15.00 GUARANTEE CLAUSE

(a) The work done by the contractor shall be guaranteed for satisfactory working of all the

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equipment and the installations provided by him, for a minimum period of **ONE YEAR** from the date of completion of entire work unless it is mentioned in the chapter 'Technical Specification'. The guarantee for the spare parts should be coincident with the guarantee for entire work.

- (b) During this period of guarantee, the contractor shall keep available an experienced engineer and necessary equipments to attend to any defective installations. The contractor shall bear the cost of all modifications, additions or substitutions that may be considered necessary due to faulty material, design or workmanship for the satisfactory working of the equipments. The final decision shall rest with the Chief Electrical Engineer (construction) or his (their) successor(s).
- (c) During the period of guarantee the contractor shall be liable for the replacement of any equipment & any parts which may be found defective whether such equipments be of his own manufacture or those of his sub contract, whether arising from faulty design, material, workmanship or negligence in any manner on the part of the contractor at his (contractor's) own expenses. In case of type defect in the contractor's equipment and components detected during the guarantee period, the contractor should replace all such items irrespective of the fact that whether all such items have failed or not. The contractor shall bear the cost of the 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 proposed to be carried out by the purchaser.
- (d) It becomes necessary for the contractor to replace or renew any defective portions of the installation under the Para aforesaid then the provisions of the said Para shall also apply to the portion of the installation so replaced or renewed until the expiration of six months from the date of such replacement or renewal or until the end of above-mentioned period (see sub-Para (a) above whichever is later. If any defect be not remedied within a reasonable time during the aforesaid period, the purchaser may proceed to do the work at the contractor's risk and expense, but without prejudice to any other rights and remedies which the purchaser may have against the contract in respect of such defects or faults.
- (e) The contractor will be responsible for any damage / theft for part of the work completed & paid in running bills till entire work is taken over by the Railway.
- (f) The repaired or renewed parts shall be delivered and erected on site free of charge to the purchaser.

The contractor guarantees that the stores which he supplies will be fully in accordance with specifications and will be operate properly. In all cases, the contractor guarantees that his designs would strictly follow the 'as made' detailed drawings with such modification as are modified in respect of each type. The contractor further guarantees that the store will be free from defects in materials and workmanship provided that the contractor's liability in this respect shall be limited to furnishing and installation of replacement parts free of any charge or the repair of defective parts only to the extent that such replacements or repairs are attributable to or arise from faulty workmanship or material or design in the manufacture of stores.

It shall be a condition of the guarantee hereunder that any defects complaint of shall be brought to the contractor's attention within a reasonable time of their being first discovered. The guarantee therein contains shall not apply to any material which shall have been repaired or altered by the purchaser or on behalf in any way to misuse, negligence or incidents.

All replacement and repairs that the purchaser shall take up on the contractor to delivery

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Signature of tenderer

of the firm under this guarantee shall be delivered and perform by the contractor promptly and satisfactorily.

Any approval or acceptance by the purchaser of the stores or of the materials incorporated therein shall not in any way limit the contractor's liabilities hereunder-

The decision of the purchaser in regard the contractor's liability under guarantee shall be final and conclusive.

2.16.00 **SPECIAL CONDITIONS**

2.16.01 For other Railway Stores If any material other than specified material is supplied by the purchaser either at the contractors request or sue moto in order to prevent any possible delay in the execution of the work likely to occur due to the contractors inability to make adequate arrangement for supply thereof or otherwise, recovery will be made from contractor's bill at the book rate or last purchase rate 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, freight between the punchers source of supply and the contractors depot or rail head shall be to the contractors account. If, however, the material required by the contractor is not available in purchaser's stock or the purchaser decide not to 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 any other cost nor will this fact be accepted as an excuse for delay in execution of works.

Signature of tenderer

*Dy. Chief Electrical Engineer
(Const.) W. Rly. Vadodara.*

CHAPTER - III
SPECIAL CONDITION OF CONTRACTS

3.01.00	TENDER IN AGREEMENT
3.02.00	TENDER CONFIDENTIAL
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3.19.00	CABLE LAYING
3.20.00	LIQUIDITY DAMAGE
3.21.00	PROVISION OF CONTRACT LABOUR ACT/RULES

Signature of tenderer

*Dy. Chief Electrical Engineer
(Const.) W. Rly. Vadodara.*

3.01.00 TENDER IN AGREEMENT

The fact of the submission to the Railway Administration of a tender shall be deemed to constitute in agreement between the Tenderer and the Railway administration whereby such tender shall remain open for acceptance either in part or in full, or as may be modified by negotiation, by the purchaser for a period of 90 days from the date on which Tenders are opened, during which period the Tenderer shall not withdraw his offer nor amend, impair or derogate there from the Bid Security deposited in accordance with Para 3.02.00 above shall be forfeited if the Tenderer unilaterally, withdraw, amends, impairs or derogates from the Tender in any respect within the said period of 90 days. The Tenderer shall be deemed to have agreed as aforesaid in consideration of his tender being considered by the Railway Administration in terms thereof 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 papers within the said period of three months that his Tender has been accepted by the Railway Administration either in whole or in part, he shall be bound by the terms of Agreement constituted by his tender and such acceptance thereof form a contract has been executed between the Rly. Administration and the tenderer.

3.02.00 TENDER CONFIDENTIAL

The tenderer (whether his tender be accepted or not) shall treat the contents of his tender as private and strictly confidential till Tenders are opened. He is advised in his own interest not to send copies of his tender to anybody other than: -

Deputy Chief Electrical Engineer, Construction, Western Railway, Vadodara – 390004.

3.03.00 CANVASSING AND BRIBERY

No Tenderer shall canvass any Government official or any Railway Employees in respect of this or any other tender. Contravention of this condition will involve rejection of tender. This clause shall not be deemed to prevent the Tenderer from supplying the Railways Administration information asked for by them. Any bribe, commission, gift or advantage given, promised or offered by the Tenderer, or his partner, agent or servant or any one of his or their behalf to any officer, servant, representative or agent of the Railway Administration or any person on his or their behalf, in relation to the obtaining of this or any other contract with the Railway Administration shall in addition to the criminal liability he may incur under the prevention of Corruption Act.(1988) subject to the Tenderer to the Cancellation or dispute as to the commission of any offence under the present clause shall be decided by the Railway Administration, 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 Should a Tenderer be a retired Engineer of the Gazette rank or any other Gazette officer working before his retirement whether in the executive or administrative capacity, or whether holding a pension able post or not, in any Deptt. of any of the Railway owned and administered by the President of India for the time being or should a Tenderer being a partnership firm have as one of its partners a retired Engineer or a retired Gazetted officer aforesaid or should a tenderer being an incorporated company have any such retired Engineer or retired Gazetted officer as aforesaid, the full information as to the date of retirement of such Engineer or Gazetted officer from the said service and in cases where such Engineer or officer had not retired from Government service at

Signature of tenderer

*Dy. Chief Electrical Engineer
(Const.) W. Rly. Vadodara.*

least two years prior to the date of submission of the tender should a tenderer be a retired Engineer of the Gazette rank or any other Gazette officer working before his retirement whether in the executive or administrative capacity, or whether holding a pension able post or not, in any Deptt. of any of the Railway owned and administered by the President of India for the time being or should a Tenderer being a partnership firm have as one of its partners a retired Engineer or a retired Gazetted officer aforesaid or should a tenderer being an incorporated company have any such retired Engineer or retired Gazetted officer as aforesaid, the full information as to the date of retirement of such Engineer or Gazetted officer from the said service and in cases where such Engineer or officer had not retired from Government service at least two years prior to the date of submission of the Tender 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 or take employment under the Contractor, has been obtained by the Tenderer or the Engineer or the Officer as the case may be, from the President of India or any officer duly authorized by him in his behalf shall be clearly stated in writing at the time of submitting the tender. Tenders without the information above referred to or a statement of to the effect that no such retired Engineer or retired Gazetted officer is so associated with the Tenderer, as the case may be rejected.

3.04.00 INSPECTION OF SITE BEFORE TENDERING

The tenderer(s) shall inspect the proposed site of work and acquaint himself/themselves with the site conditions.

3.05.00 COMPLETION PERIOD SUBMISSION OF TENDER

The entire work shall be completed by the contractor within a period of **24 Months** from the date of issue of letter of acceptance. In case it is not possible the tenderer shall indicate his/their own delivery schedule.

3.06.0 TERMS OF PAYMENT

- a. 70% of price of supply of material on receipt and acceptance of material at site.
 - b. Balance 20% of price of supply and 90% of price of erection after erection of equipment and material at site.
 - i. Balance 10% of price of supply & 10% price of erection after commissioning and completion of entire work (**for General Service work**).
- OR
- ii. Balance 10% of price of supply & 10% price of erection after the portion of OHE charged, goods/passenger train operation has started on regular basis (**for TRD work**).
 - iii. All payment shall be made on certificate of Dy. Chief Electrical Engineer (Construction), Western Railway or his authorized representative.\

3.08.00 SUPPLY OF ELECTRICITY

The Contractor/s shall be responsible for obtaining electrical supply required for the works from concerned local agency, Electricity Board; BEST as the case may be at his/their own cost. However, if required by the Contractor the Railway administration may give necessary assistance in recommending to the local electricity authorities for giving necessary electric connection to the contractor for execution of works. In case the Railway electricity is available connection can be given on usual terms through concerned Sr. DEE.

Signature of tenderer

*Dy. Chief Electrical Engineer
(Const.) W. Rly. Vadodara.*

3.09.00 CARE OF STAFF

No quarters will be provided by the Railway for the accommodation of the Contractor or any of his staff employed on the work. The contractor may be allowed to erect any labour camps for housing the labour at or near the site of work on available Railway land subject to payment of cess and water charges. The Contractor shall at his own cost make all necessary and adequate arrangement for the importation, feeding and preservation of the hygiene of his staff. The Contractor shall permit inspection at all times of all sanitary arrangements made by him, by the Engineer or his assistant or medical staff of the railway. If the Contractor fails to make adequate medical, sanitary arrangements, these will be provided by the Railway, the cost thereof being recovered from the Contractor. In case some accommodation is available, it can be given on licence fee.

3.10.00 DAMAGE BY ACCIDENT, FLOODS OR TIDES

- a The Contractor shall take all precautions against damage from accident, floods or tides. No compensation will be allowed to the contractor for his plant or part or material lost or damaged by any cause whatsoever. The contractor shall be liable to make good the damages to any structure or part of structure, plant or material of every description belonging to the administration lost or damaged by any cause during the course of the Contractor's work.
- b The administration will not be liable to pay to the contractor any charges for rectification or repairs to any damage which may have occurred from any cause, whatsoever, to any part of the new/existing structure, during construction.

3.11.00 FIRST AID

The Contractor shall maintain in a readily accessible place first aid appliances including an adequate supply of sterilized + cotton wool. The appliance shall be placed under the charge of a responsible person who shall be readily available during working hours.

3.12.00 INSPECTION REGISTER AND RECORDS

The Contractor/s shall maintain accurate records, plans and charts showing the dates and progress of all main operations and the Engineer shall have access to this information at all reasonable times. Records of tests made shall be handed over to the Engineer's representative after carrying out the tests. The following registers will be maintained at site by the Contractor/s.

- 1. Bar chart & Drawings
- 2. Insulation Resistance Register
- 3. Earth Resistance & Earth continuity Register
- 4. Material Receipt from Railway & used at site Register.

3.13.00 ENGAGEMENT OF QUALIFIED ENGINEER

3.13.01 In terms of provisions of new Clause 26A.1 to the General Conditions of Contract (GCC), contractor shall also employ following Qualified Engineers during execution of the allotted work:

- a. One Qualified Graduate Engineer when cost of work to be executed is Rs.200 lakhs and above, and
- b. One Qualified Diploma Holder Engineer when cost of work to be executed is more than Rs.25 lakhs, but less than Rs.200 lakhs.

Signature of tenderer

*Dy. Chief Electrical Engineer
(Const.) W. Rly. Vadodara.*

3.13.02

(a) The tenderer/s shall also give a declaration along with his/their tender to the effect that he/they shall engage and continue in service for the period of the contract, One Electrical Engineer Degree Holder and also one Electrical Engineers Diploma Holder. If they are without experience of any kind, they will be given training by the contractor on stipend basis at the rate of not less than Rs.1000/- per month for a period of six months. Those who have gained experience and have completed the period of six months will thereafter be paid as under:

Electrical Degree Holder	Engineering:	Not less than Rs.10000/- per month for the duration of the contract.
Electrical Diploma Holder	Engineering:	Not less than Rs.6000/- per month for the duration of the contract.

If, the tenderer(s) fails/fail to comply the above declaration, his/their tender will be ignored. In case it is subsequently discovered that the declaration as aforesaid is in any way incorrect or the information furnished therein is wrong, the administration reserves the right to rescind the contract and to take action in accordance with clause 60 of the General Conditions of Contract.

(b) Declaration Form

I/We hereby declare that I/We shall engage and continue in service for the particular work for which tender is submitted one Civil Engineering Degree holder and one Civil Engineering Diploma holder. If they are without any experience of any kind they will be taken under training by us on stipend basis at the rate of not less than Rs.1000/-per month for a period of 6 months. Those who have gained experience and have completed the period of 6 months will thereafter to paid as under:

- i. Electrical Engg. Degree Holders: Not less than Rs.10000/- p.m. for the duration of contract.
- ii. Electrical Engg. Diploma Holders: Not less than Rs.6000/-p.m. for the duration of contract.

None of the Engineers will be related to me/us.

Date:

Signature of Tenderer/s

3.13.03

Further, in case the contractor fails to employ the Qualified Engineer, as aforesaid in Para 3.25.01 above, he, in terms of provisions of Clause 26A.2 to the General conditions of Contract, shall be liable to pay an amount of Rs. 40,000 & Rs. 25,000 for each month or part thereof for the default period for the provisions, as contained in Para 3.25.01 (a) & (b) above respectively.

3.13.04

Provision for deployment of Qualified Engineers (Graduate Engineer or Diploma Holder Engineer) shall be for the values as prescribed above. However, for the works contract tenders, if it is considered appropriate by the tender inviting authority, not to have the services of qualified engineer, the same shall be mentioned in the tender documents by the concerned Executive with the approval of Officer not below the level of SAG Officer, for reasons to be recorded in writing.

Signature of tenderer

*Dy. Chief Electrical Engineer
(Const.) W. Rly. Vadodara.*

3.15.00 FOREIGN EXCHANGE REQUIREMENT

Any demand of foreign exchange for importing of equipment's and materials shall not be accepted.

3.16.0 EMERGENCY WORKS

- i. In the event of any accident or failure occurring in, on or about the work or arising out of or in connection with the construction, completion or maintenance of the works, which in the opinion of the Engineer requires immediate attention, the Railway may bring its own workmen or other agency to execute or partly execute the necessary work or carry out repairs if the Engineer considers that the contractor/s is/are not in a position to do so in time and charge the cost thereof, which will be determined by the Chief Electrical Engineer (C)/Chief Administrative Officer (C), Western Railway, to the contractor.
- ii. Vehicle and equipment of contractors can be drafted by Railway administration in case of accident/ natural calamities involving human lives and market rate as mutually agreed will be paid.

3.17.00 SAFETY PRECAUTIONS

1. The Contractor/s shall at all times adopt such safe methods of work as will ensure safety of structure, equipment and labour. If at any time the Rly. finds the safety arrangements unsafe, the contractor/s shall take immediate corrective action as directed by the Railway's in the matter shall in no way absolve the contractor/s of his/their sole responsibility to adopt safe working methods.
2. The Contractor/s shall design and execute temporary works such as form work and supports, so as to ensure absolute safety of contractor/s personnel as well as Railway staff and personnel engaged on the work. The Contractor/s should indemnify the Railway against damages and injury to workmen. Railway reserves the right to enforce safety regulations on the contractor/s and recover any cost which may be incurred for the purpose.

3.18.00 SAFETY PRECAUTION TO BE TAKEN WHILE PERMITTING PLYING OF VEHICLES ADJACENT TO RUNNING LINES TO PREVENT ACCIDENT TO TRAINS:**3.18.01**

Whenever a lorry or any other form of road transport is required to ply along, or in the vicinity of a running line or any other railway track where Railway Engines or trains are scheduled to move, the contractor shall inform the Engineer, in writing, of such requirement specifying the locations and the duration of the time over which such specified road vehicles have to operate in the area (for loading, loading or unloading of earth, ballast or any other material, plant or equipment) without any obstruction or dislocation to the running of trains. The contractor shall also furnish the particulars of vehicles and the names and photographs of driver and attendant retained for each vehicle to enable the Engineer to issue necessary permits allowing the holder to operate the vehicles, with such restrictions regarding the duration and/or location as are considered necessary. Such permits shall be returned to the Engineer as soon as the work for which it is issued is over.

Signature of tenderer

*Dy. Chief Electrical Engineer
(Const.) W. Rly. Vadodara.*

3.18.02

The contractor shall execute a Bond undertaking to ply the road vehicles in a safe and satisfactory manner and strictly in accordance with the stipulations and other conditions specified by the Engineer and to engage and retain only the permit holder to be the contractor's agent in-charge of the vehicle, while driving or at rest. The person in charges of the vehicle and the attendants shall at all times be vigilant and on the lookout for signals from the lookout men, flagmen or other personnel available at site with a view to stop or regulate the road movement so as to ensure adequate margin of safety for the timely passage of an approaching train or a Railway engine, without any delay or detention.

3.18.03

The contractor shall also be bound by the provisions of this agreement, to ply the road vehicles only with adequate margin of safety, well clear of the fixed structure profile of infringements, as stipulated in the rules made under the Indian Railway Act and to seek and be guided by the signals and other directions of any lookout men or other personnel retained for the purpose of ensuring safety, and to ensure care and vigilance while turning, reversing or moving the road vehicle in any other manner, at an inclination to the running Railway track or the siding, as the case may be.

3.18.04

The contractor also undertakes to make good at his own cost any inconvenience, loss, damage or other expenses caused to or incurred by the Railway Administration and to pay such amounts as determined by the Engineer to be recoverable from the contractor as penalty or damage for any omission, negligence, careless, oversight or accident on the part of any of the contractor's agent, drivers or attendants or any other person to whom the services of the holder of the permit (issued by the Engineer) has been lent or otherwise made accessible or available).

3.18.05

Any breach of these conditions by the contractor and/or his agent affecting the safety of movements of trains, engines or other rolling stock of the Railway shall constitute a breach of contract by the contractor entailing liability for termination of contract for default on the part of the contractor.

3.18.06

The tenderer/s will be permitted to make use of the level crossing for crossing the track after observing the standard railway safety precaution. If such precautions are not taken, these will be enforced by the railway by adequate arrangements and the cost thereof shall be recovered from the contractor.

The contractor/s shall inspect the proposed site of work and acquaint himself/themselves with site conditions working hours storing space for materials, approach road/pathways available etc. and all relevant items connected with the execution of work. No claim shall be entertained from contractor making his own arrangements for approach/approach roads from outside Railway land and contractor will bear entire expenses such as road taxes payment on right of way etc. to outsiders.

Signature of tenderer

*Dy. Chief Electrical Engineer
(Const.) W. Rly. Vadodara.*

3.19.00 SAFETY MEASURES

- a. The contractor shall take all precautionary measures and confirm to rules and regulations of the Railway in force for the time being in order to ensure the protection of his own personnel moving about or working on the Railway premises.
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 whether or not, the purchaser decides to post flagmen at any particular site of work. The flagmen will be appointed by the purchaser and no expenses on this account will be charged from the contractor.
- b. Blasting of rock for foundation work shall be done only after due notice is given to the purchaser and time/s and date/s for blasting operations agreed to, by the purchaser. Blasting, if required to be done in the vicinity of the track, shall not be undertaken until the purchaser's flagmen on duty take necessary steps to protect train and the track is adequately protected by the contractor against damage by blasting rock. The contractor shall follow detailed instructions applicable in this regard.
- c. Ladder trolleys / ladders shall be used with caution. They shall not be on the track/s. and the until the purchaser's flagmen are on duty to protect the trolleys and the purchaser's representative authorize in writing for the trolleys to be put on the track/s. Ladder trolleys / Ladders shall be promptly removed on instructions from the purchaser's representative and well in advance of trains. No claim shall rest on the purchaser in the event of a ladder trolley / ladder being run over by a train.
- d. While working within station limit, especially on passenger platforms, the contractor shall ensure that at all time sufficient space is left for free movement of passenger traffic. He must cover and / or barricade the excavation 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.
- e. If safety of track or track drainage etc. is affected, as a consequence of works undertaken by the contractor, the contractor shall take immediate steps to restore normal conditions. In case of delay, the purchaser shall take necessary steps and recover the costs from the contractor.
- f. Moreover, if at 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 authorized Railway staff. The contractor's employees and workers may for no reason operate any installation concerning train safety or train movement. They shall notify the authorized representative, of the purchaser who will take all necessary steps in this regard.
- g. The contractor shall be responsible for safe custody of all equipment's till its commissioning.
- h. The contractor liability to meet third party claims or the type of outline above will be applicable only in case where accident have been caused by the bad workmanship material or negligence on the part of the contractor and further the liability of the contractor will be limited to Rs.25 lakhs for any one accident.
- i. The contractor shall ensure that unauthorized careless or inadvertent operation of switchgear, which may result in accident to staff and or damage to equipment doesn't occur.
- j. The contractor shall not allow any road vehicle belonging to him or his suppliers etc, to ply in Railway land next to the running line. If for execution of certain works viz. supply

Signature of tenderer

*Dy. Chief Electrical Engineer
(Const.) W. Rly. Vadodara.*

& cement concrete for foundation work & transportation of electric poles/OHE mast, the contractor shall apply to the engineer in-charge for permission giving the type and number of individual vehicles, name and license particulars of the drivers, location, duration and timings for such works / movement. The engineer in-charge or his authorized representative will personally counsel examine and certify the road vehicle drivers, contractor's flagmen and supervisor and will give written permission giving name road vehicles drives, contractor's flagmen and supervisor to be deployed on the work, location, period of the work. This permission will be subject to the following obligatory conditions—

- i. The road vehicle will apply only between sunrise and sunset.
- ii. Nominated vehicles and drivers will be utilized for the work in presence of at least one flagman and one supervisor certified for such work.
- iii. The vehicles shall ply six meters clear of the track. Any movement/work at less than in the six meters and up to minimum of 3.5 mtrs clear of the track center shall be done only in presence of Railway employee authorized by Engineer-in-charge. No part of road vehicle will be allowed at less than 3.5 mtrs from track center. Cost of such Railway employee shall be borne by the Railway.
- iv. The contractor shall remain fully responsible for ensuring safety and in case of any accident shall bear cost of all damages to this equipment and men and also damages to Railway and its passenger. Engineer in-charge may impose any other condition necessary for a particular work in site.

3.20.00 LIQUIDITY DAMAGE

Liquidity Damage shall be applicable as per GCC April 2022 and latest amendment.

Signature of tenderer

*Dy. Chief Electrical Engineer
(Const.) W. Rly. Vadodara.*

CHAPTER – IV

TECHNICAL SPECIFICATION

1. GENERAL

The chapter deals with the details and specifications of the equipment, components and materials to works. **Design, Supply, Erection, Testing & Commissioning of 25 KV AC OHE between Samlaya to Timba in Connection with GC Work, Vishwamitri Y connection in Connection with doubling of VS to Dabhoi section & Lakodhra to Miyagaam Karjan in Connection with Lakodhra Flyover on Vadodara Division of Western Railway.** In general, based on the specifications issued by various bodies, such as Bureau of Indian Standards, British Standard Institution etc. Specifications have been issued by the Purchaser. Such specification may be brought separately from the office of the Purchaser. All these specifications are included in the set of drawings and specifications.

SPECIAL CONDITION OF CONTRACT

- (1) The tenderer should inspect the site of various locations before quoting the rates and should acquaint himself with the scope of work, method of execution and approach roads which are leading to the locations so that no difficulty is experienced at the time of execution of the work.
- (2) Tenderer should have his own permanent establishment/ independent office and should have experience in executing similar type of works, in any of the Government organization, for which he should submit his credentials, certificate of completion of work.
- (3) During the execution of the work, the contractor shall have to observe utmost safety while carrying out digging and laying work of the cable, all the work shall be executed in the presence of Railway Representative. If any damages are done by the contractor's labour during digging, then the loss shall be borne by the contractor.
- (4) The contractor should ensure that during the execution of work, either he himself is present at the site or his responsible engineer should always remain present at site Co-ordination shall be maintained with this office for day-to-day planning and execution of the work, which is to be completed within the targeted period.
- (5) The tenderer should fully understand that the this work is a targeted work. This work is to be completed well before the target as such every care shall have to be taken to maintain the completion period.
- (6) The contractor shall have to make his own arrangement for transportation of materials and keep all materials safely at his own depot at site, tools, labour etc at site for the execution of the work.
- (7) Contractor shall have to execute all works in accordance with latest RDSO/IE rules and Track crossing regulations.
- (8) All materials should be complying with latest RDSO/CORE specifications and SMI/MI&TCs. All material should also be purchase from RDSO/CORE approved vendors and shall be supply with dully inspected by Rites stage inspection as well as final inspection.

Signature of tenderer

*Dy. Chief Electrical Engineer
(Const.) W. Rly. Vadodara.*

2. COMPLIANCE WITH STANDARD SPECIFICATION

In the technical specifications of equipment's, components and materials, reference is made to the following standard specifications:

- (i) International electro Technical Commission (abbreviated as IEC) publications.
- (ii) British Standards (abbreviated as BS)
- (iii) Bureau of Indian Standards (abbreviated as IS)

Tenderers may, however, offer equipment in accordance with the appropriate national standard specifications of the country of manufacture, but such offers will be treated as deviations and should be quoted for in the manner specified in Para 1.1.7 (d) English rendering of the text and illustrations of the national standard specifications and explanatory notes on the specific deviations from IEC, British Bureau of Indian Standard in question, shall also be submitted in form-3. In case of doubt, the Purchaser shall decide the clause and specification applicable and the contents of the specification and standard mentioned above shall guide such decisions.

3. TECHNICAL SPECIFICATIONS

The following specifications/RDSO drawings/Guide lines & latest (as per version available as on date issue of LOA) will govern the supply and testing of important materials, components and equipment's: -

Structural Steel	IS: 2062-2011 or latest IS: 800-2007 or latest. IS: 808-2021 or latest IS: 1608-2022 (Part-1) & (Part-3)
Tensile Testing	IS:1731-1989 IS:2004-1991 IS:1608-2022 (Part-I) & Part 3)
Welding	IS:816-1969
Dropper Wire	IS:282-1982
Annealed Copper jumper Wire	IS:9968 (PT.I):1981 or latest
Al. jumper wire	IS:694-2010 or latest
Aluminum conductor	IS:398 (PT.I)-1976
Material for Aluminum tubular busbar	IS:5082-1998 or latest
Dimensions for Aluminum Tubular Busbar	IS:2673-2002 or latest

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Galvannised stay strand	IS:2141-2000 or latest
PVC insulated cables	IS:1554(Part-I)1988
Tin bronze castings	IS:306-1983
Aluminum bronze castings	IS:3091-1999 or latest
Gray iron castings	IS:210-2009 or latest
Aluminum castings	IS:617-2024 or latest
Copper strip for formed fittings	IS:1897-2008 or latest.
Cadmium copper conductor for overhead Rly. Traction	TI/SPC/OHE/CAT Cu-Cd /0971
Copper Busbar	RE/30/OHE/5(11/60).
Hot dip galvanisation of steel masts (Rolled and fabricated) tubes and fittings used on (05/2018) 25 KV A.C. OHE.	ETI/OHE/13(4/84) with upto correction slip No.4
Stainless steel wire ropes	TI/SPC/OHE/WR/1060 or latest
25 KV Porcelain insulator.	TI/SPC/OHE/INS/0071
25 KV single and double pole isolator.	TI/SPC/PSI/ISOLTR/0210 with A C Slip No 1
Steel and stainless-steel Bolts, Nuts /13). and washer.	TI/SPC/OHE/FASTNERS/0120(03
Aluminium Alloy Section and tube.	ETI/OHE/21
(9/74) Enamelled steel plates	ETI/OHE/33
(8/85)	
Tubes for Cantilever	ETI-OHE-11(5-89) Rev.-1 (17.05.2018), ETI-OHE-13 (4-84) May 2018
Fittings for 25 KV 50 Hz AC traction equipment. 1& 3	ETI/OHE/49 (9/95) with A&C slip No.1 of (6/97) & 2 of (4/2000)-CORE-

Signature of tenderer

*Dy. Chief Electrical Engineer
(Const.) W. Rly. Vadodara.*

of (10/2010)

25 KV AC 50 Hz Single pole outdoor Vacuum Interrupter.

TI/SPC/PSI/LVCBIN/0121 (May, 2023) With latest ACS.

25 KV Potential Transformer

TI/SPC/PSI/PT/0210 (06/2021)

25 KV drop out fuse switch & operating

ETI/PSI/14 (1/86) with A&C slip No. pole for use with 10 KVA 1 of (4/87).

25 KV/240 V, 10 KVA LT supply Transformer

ETI/PSI/15(8/2003)

Metal Oxide Gapless Type Lightning Arrestor use on 25 KV side or latest

TI/SPC/PSI/MOGTLA/0101 (02/ 2015)

3-pulley type Regulating equipment (3:1) ACS

TI/SPC/OHE/ATD/0060(Rev. 2) with latest ACS

110 V 40 AH battery charger ACS

TI/SPC/PSI/40-150/CHGR/1210 with latest ACS

Bimetallic (Al-Cu) strip

ETI/OHE/55 (4/90)

4. Railway board letter No. 2021/CE-I/CT/SI/1 dtd 04.03.2021 for improvement of quality in construction works shall be applicable and compliance of this letter shall be done strictly and to be submitted before CRS inspection. Details of checklist and letters shall be received from Dy.CEE/C

5. In this tender, following section works have been involved. Deputation of Gangs/ man power and planning of supply and execution of work shall be done separately each section wise. Work must be executed as per section wise target and separate Gangs/ man power must be deployed in each section.

Schedule-1:- Design, Supply, Erection, Testing & Commissioning of 25 KV AC OHE between Samlaya to Timba in Connection with GC Work.

Schedule2:- Design, Supply, Erection, Testing & Commissioning of 25 KV AC OHE between Lakodhra to Miyagaam Karjan in Connection with Lakodhra Flyover.

Schedule-3:- Design, Supply, Erection, Testing & Commissioning of 25 KV AC OHE Vishwamitri Y connection in Connection With doubling of VS to Dabhoi section in Vadodara division of Western Railway.

Summary of OHE Schedule 1, 2 & 3				
Sr. No.	Schedule	Cost of		Total
		Material	Erection	
1	Total of Schedule-1	212498451	42565861.6	255064312.6
2	Total of Schedule-2	32107826	6170333.4	38278159.4

Signature of tenderer

Dy. Chief Electrical Engineer
(Const.) W. Rly. Vadodara.

3	Total of Schedule-3	13371239.5	2205166.9	15576406.4
	Total cost of Tender	257977516.50	50941361.90	308918878.40

6. Procedure for handing over released serviceable and un-serviceable/scrap materials to Railway shall be adopted, Procedure as per given HQ letter W.722/O/EL/C/HQ Vol. XX (E-513216) dtd 20.01.2025. Procedure for all dismantling materials on site, attached annexure A as under:-

ANNEXURE-I

Procedure for handing over released serviceable and un-serviceable/scrap materials to Railway generated under Doubling, GC, New Line projects with Electrification & other miscellaneous Electrical TRD/General Services works

A lot of alterations/modification/replacement activities are being done in various Construction works viz Electrification in connection with Doubling, New line, GC, OHE modification in connection with ROB/FOB works, New loop lines, Augmentation /Alterations at TSS & Switching stations. A number of OHE, PSI and Elect (G) components viz. Structures, SPS, Insulators, Cantilevers, Conductors, Jumpers, PSI equipments, Cables, Overhead wires and other minor items are released during execution. These items shall be returned to Railways at nominated Construction Stores within reasonable time from commissioning of concerned section/Sub-section. To ensure this, following para shall be added in Scope of work and explanatory notes

The procedure for accountal and handing over of released materials:

The procedure for accountal and handing over of released materials shall be as under:
Whenever any modification work is carried out, resulting into release of OHE/PSI/Elect (G) materials, the details of released materials shall be prepared by the Site Engineer appointed by Railway and Contractor's Engineer, in the format given below:-

Joint Certificate of Released material

Name of work:-----

LOA no.:-----

Contractor.: -----

Date of
release:

Sr. No	Km/Location from where released.	Item released	Unit	Qty.	Whether scrap/unservicetje or released serviceable

.

Signature of tenderer

*Dy. Chief Electrical Engineer
(Const.) W. Rly. Vadodara.*

Signature of Authorised Engineer
Railway
of Contractor

Signature of Authorised Engineer of

- The above Report shall be jointly signed by the Railway and Contractor's Representatives in 3 copies. One copy shall be retained by Contractor's Representative and second by Authorized site Engineer of Railway (Construction unit) and 3rd copy shall be submitted to Dy.CEE/C's office.
- The released materials shall be transported to Contractor's depot within a reasonable time and kept under his custody in good condition duly protected with required security arrangement. The released material shall be stored in fenced store yard or inside a covered shed as per type of material. The contractor shall maintain a separate tally book for such released materials, duly verified by his Stores In charge. The released materials received through various Joint certificates of released materials shall be verified in tally book. Verified Joint certificates shall be kept in a Folder under Contractor's safe custody.
- Similarly, the Copy of Joint certificate of released materials shall be kept in a Folder at the office of Authorised Engineer of Railway (Construction unit) and Dy.CEE/C's office.
- Within a month of commissioning of the section or as earlier as possible, the released materials shall be handed over at nominated Stores of Construction dept. or Scrap yard or TRD depot, as directed by Railway for further disposal. Quantity of handed over materials shall match with the materials released from Site. In case of any shortage, suitable recovery will be made from Contractor's bill.
- The Contractor shall hand over the material through challan with copies of all Joint certificates of released materials. Transportation from site to the Contractor's depot and further to Construction dept. Stores or Scrap yard or TRD depot shall be carried out by the Contractor for which price will be payable under the Standard TRD SOR OHE-Schedule.
- Above process shall be completed at the earliest from the date of releasing and one month shall be the limit
- The Contractor shall not normally utilize any released serviceable material. In case of exceptional circumstances prior permission shall be obtained from Dy CEE/C in writing the material shall be taken under joint certification with Authorised site Engineer of Railway and due entries shall be made in tally book of such material. No supply payments shall be payable for utilizing such released materials.

Name of Tender:- Design, Supply, Erection, Testing & Commissioning of 25 KV AC OHE between Samlaya to Timba in Connection with GC Work									
Schedule of Prices (Schedule-1, Section-1)									
SN	Item No.	Description	UOM	Qty	SOR/Unit Rate		Cost of		Total
					Materials (₹)	Erection (₹)	Material	Erection	

Signature of tenderer

Dy. Chief Electrical Engineer
(Const.) W. Rly. Vadodara.

1	1(a)	Preparation of designs and drawings for overhead equipment and verification of purchaser's pegging plan, SED,CSD.	Track km	57	0	23562	0	134303 ₄	1343034
2	1(b)	Preparation of designs and drawings for switching stations (FP/SP/SSP)	Each	4	0	46283	0	185132	185132
3	5(a)(i)	Supply without insulator and erection of mounting arrangements for span wire	Each	10	7083	1559	70830	15590	86420
4	8(a)(xii)	Marking/Painting of temperature & 'Y'-Measurement of OHE mast at BWA locations	Each	114	0	180	0	20520	20520
5	8(b)(i)	Supply without insulator and erection of material for termination of Single conductor of Over Head Equipment or terminating wire	Each	114	5234	1445	596676	164730	761406
6	8(b)(ix)	Supply without insulator and erection of materials for termination of copper cross feeder with gantries	Set	16	6996	1445	111936	23120	135056
7	9(dz)	Supply without insulator and erection of anti-creep with Cadmium copper catenary wire in polluted area	Each	86	6091	4788	523826	411768	935594
8	11(a)(i)	Supply without Insulator and erection of cut-in (9 Tonne) Insulator	Each	40	1627	1017	65080	40680	105760
9	11(a)(ii)	Supply without Insulator and erection of a suspension (9 Tonne) Insulator	Each	40	1572	622	62880	24880	87760
10	11(b)	Supply without Insulator and erection of 25 kV Post Insulator	Each	110	831	414	91410	45540	136950
12	17(h)	Supply and erection of earthing station at Switching Posts (SP & SSP) with conventional earthing system	Each	28	14223	1016	398244	28448	426692
13	18(b)	Supply & Erection of 25kV Vacuum type Interrupter	Each	4	43212 ₈	6464	172851 ₂	25856	1754368
14	19	Supply and Erection of 25kV Potential Transformers Type-I	Each	6	85174	1076	511044	6456	517500
15	20(a)	Supply and Erection of 42kV Lightning Arrestors (station class)	Each	8	43858	999	350864	7992	358856
16	21	Supply & Erection of Terminal Boards in Control Cubicles	Each	4	14817	761	59268	3044	62312
17	22(a)	Supply & Erection of Iron Clad 110 V DC Fuse Box	Each	4	5013	162	20052	648	20700
18	22(b)	Supply & Erection of Iron Clad 250 V AC Fuse Box	Each	4	5504	162	22016	648	22664
19	23	Supply and Erection of Lead Acid Batteries	Each	4	129917	10730	519668	42920	562588
20	24	Supply of Battery chargers	Each	4	111383	1387	445532	5548	451080
21	25(a)	Supply and Installation of cables for Control and indication circuit	Metre	320	517	26	165440	8320	173760
22	25(b)	Supply and Installation of cables for	Metre	160	165	26	26400	4160	30560

Signature of tenderer

Dy. Chief Electrical Engineer
(Const.) W. Rly. Vadodara.

		Heater supply							
23	25(c)	Supply and Installation of cables for Catenary Indication	Metre	320	340	26	108800	8320	117120
24	25(d)	Supply and Installation of cables for L.T. Power supply	Metre	5000	352	38	176000 0	190000	1950000
25	25(e)	Supply and Installation of cables for 110 V D.C. supply	Metre	160	340	38	54400	6080	60480
26	27(a)	Supply, Erection, oil-filtration, testing and commissioning of L.T. supply transformers (10 kVA)	Each	8	81415	12228	651320	97824	749144
27	27(c)	Supply, Erection, oil-filtration, testing and commissioning of L.T. supply transformers (25 KVA)	Each	2	182451	12228	364902	24456	389358
28	28	Supply without Insulator of 25 kV D.O. fuse switch	Each	16	11625	835	186000	13360	199360
29	31(a)	Transfer of equipment from one mast or support to another	Each	50	2302	4319	115100	215950	331050
30	31(b)	Provision of an additional bracket assembly/assemblies on a mast or support	Each	0	0	3834	0	0	0
31	31(d)	Dismantling of Over Head Equipment	Km	4	0	20202	0	80808	80808
32	31(f)	Splicing & extension of an anchored overhead equipment	Each	40	0	4269	0	170760	170760
33	31(gz)	Dismantling of a Section Insulator Assembly	Each	6	1919	4269	11514	25614	37128
34	31(h)	Slewing and Putting Back of OHE in Original Shape	Span	12	0	3398	0	40776	40776
35	31(i)	Dismantling of an Isolator	Each	2	0	2393	0	4786	4786
36	31(j)	Dismantling of a Post / Pedestal Insulator	Each	12	0	761	0	9132	9132
37	31(m)(i)	Manning of Switching Stations (SP/SSP)	Each per month	12	0	63134	0	757608	757608
38	31(m)(ii)	Manning of Traction Sub-stations	Each per month	0	0	105964	0	0	0
39	35	Supply and Erection of material for internal and external lighting of Switching Station Building (SP/SSP)	Each	4	0	38170	0	152680	152680
	Total of Schedule of Prices (Schedule-1, Section-1)						902171 4	420718 8	13228902

Name of Tender:- Design, Supply, Erection, Testing & Commissioning of 25 KV AC OHE between Samlaya to Timba in Connection with GC Work

Schedule of Prices (Schedule-1, Section-2) Concrete

Signature of tenderer

Dy. Chief Electrical Engineer
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SN	Item No.	Description	UOM	Qty	Materials	Erection	Material Cost	Erection Cost	Total
	2(a)	Concrete for foundation and plinth							
5	2(b)	In other than hard soil and rock	Cum	5500	5641	2339	31025500	12864500	43890000
3	2(c)(i)	Reinforced concrete for foundation & trench	Cum	30	5676	2438	170280	73140	243420
4	2(c)(ii)	Cable trench covers	Sqm	15	1911	821	28665	12315	40980
5	28	Supply & spreading of Ballast/Gravel in the switch yard	Cum	50	1594	17	79700	850	80550
Total of Schedule of Prices (Schedule-1, Section-2) Concrete							31304145	12950805	44254950

Schedule of Prices (Schedule-1 , Section-3) Ferrous									
SN	Item No.	Description	UOM	Qty	Materials (₹)	Erection (₹)	Cost of Material	Cost of Erection	Total
1	3(b)(i)	Supply & erection of fabricated and galvanised structures (O, N & R type portals) with all necessary components other than masts	MT	109	107505	9853	11718045	1073977	12792022
2	3(b)(ii)	Supply and erection of structure steel (traction masts) fabricated and galvanised of all type: B-Series Mast	MT	640	97468	3393	62379520	2171520	64551040
3	3(b)(iii)	Supply and erection of special fabricated and galvanised steel structures other than portals & traction masts not covered under items 3(b)(i) & 3(b)(ii)	MT	39	105197	9853	4102683	384267	4486950
4	3(c)	Supply only of fabricated steel other than masts	MT	30	122247	0	3667410	0	3667410
5	3(e)(i)	Supply and erection of a Guy Rod Assembly	Each	240	8497	1731	2039280	415440	2454720
6	3(i)	Supply and erection of 25kV Caution Board	Each	700	374	139	261800	97300	359100

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Dy. Chief Electrical Engineer
(Const.) W. Rly. Vadodara.

7	4(a)(i)	Supply without insulator and erection of Single bracket assembly	Each	1260	10927	1389	13768020	1750140	15518160
9	4(b)(i)	Supply without insulator and erection of a pull off arrangement for one OHE	Each	10	11043	911	110430	9110	119540
11	8(b)(ii)	Supply without Insulator and erection of materials for termination of Double conductor	Each	114	7755	1619	884070	184566	1068636
31	14	Supply & erection of a connection between return conductor and rail	Each	0	7524	5712	0	0	0
12	16(a)(i)	Supply and erection of a structure bond	Each	1258	812	424	1021496	533392	1554888
13	16(b)	Supply and erection of a longitudinal bond	Each	300	477	382	143100	114600	257700
14	16(c)	Supply & erection of a transverse and special bond	Each	300	1041	455	312300	136500	448800
15	17(a)	Supply & erection of a single earth electrode	Each	60	2514	1718	150840	103080	253920
16	17(E)	Supply and erection of 8 SWG G.I. wire for earthing	Metre	114	36	31	4104	3534	7638
17	30(a) (i)	Supply and erection of fencing panels at switching Station	Metre	210	3131	123	657510	25830	683340
18	30(a) (ii)	Supply and erection of fencing uprights	MT	4	94247	5866	376988	23464	400452
19	30(b)(i)	Supply and erection of anticlimbing device for Switching stations	Metre	105	264	13	27720	1365	29085
20	30(b)(iii)	Supply and erection of anti-climbing device for L.T. Supply Transformer Stations.	Each	50	1009	458	50450	22900	73350
21	30(b)(iv)	Supply and erection of anti-monkey menace.	Each	858	3808	458	3267264	392964	3660228
22	3(g)	Supply of steel reinforcement for RCC	MT	1	69261	0	69261	0	69261
23	3(j)	Supply & Erection of protective screens on ROB/FOB	Set (2 nos.)	10	18648	7992	186480	79920	266400
		Total of Schedule of Prices (Schedule-1 , Section-3) Ferrous					105198771	7523869	112722640

Signature of tenderer

Dy. Chief Electrical Engineer
(Const.) W. Rly. Vadodara.

Name of Tender:- Design, Supply, Erection, Testing & Commissioning of 25 KV AC OHE between Samlaya to Timba in Connection With GC Work

(Schedule of Prices-1, Section-4)

	Item No.	Description	UOM	Qty	SOR/Unit Rate		Cost of		Total
					Materials (₹)	Erection (₹)	Material	Erection	
1	5(az)(ii)	Supply and erection of span wire.	Metre	200	1532	90	306400	18000	324400.00
2	6(az)	Supply and erection of Over Head Equipment only	Km	75	135075	53615	10130625	4021125	14151750.00
3	6(bz)	Supply & Erection of contact wire only	Km	0	7257	23379	0	0	0.00
4	6(cz)	Supply and Erection of contact wire only (Regulated with bridle wire)	Km	0	74762	31095	0	0	0.00
5	7(e)	Supply and Erection of copper cross feeder wires (37/2.25 mm HDBC) across the track at SP/SSP/FP/BT locations	Km	2.8	1802160	4972	5046048	13921.6	5059969.60
6	12(az)	Supply without Insulator & erection of a section insulator assembly	Each	15	50580	5339	758700	80085	838785.00
7	12(d)	Supply and Erection of a Ceramic/beaded Glass Fibre type (PTFE) Short Neutral section assembly	Each	2	1129336	8222	2258672	16444	2275116.00
8	13(a)	Supply without Insulator and erection of a 25 kV single pole isolator without earth contact assembly	Each	14	44261	4867	619654	68138	687792.00
9	13(c)	Supply without Insulators & erection of 25kV Double Pole Isolator	Each	4	78000	5284	312000	21136	333136.00
10	13(d)	Extra for supply & erection of an earth contact assembly in an	Each	3	14846	578	44538	1734	46272.00

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Dy. Chief Electrical Engineer
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		isolator							
11	15(a)(i)	Supply & erection of large copper jumpers	Each	150	7801	589	1170150	88350	1258500.00
12	15(a)(ii)	Supply & erection of small copper jumpers	Each	70	911	589	63770	41230	105000.00
13	15(a)(iv)	Supply & erection of a copper jumper (5 mm dia dropper wire).	Each	150	2580	589	387000	88350	475350.00
27	15(d)	Supply of materials and erection of large copper jumper 160 Sq. mm between Aluminium bus and cross feeders	Each	20	9155	589	183100	11780	194880.00
14	15(e)	Supply of materials and erection of large copper jumper 160 Sq. mm between cross feeder and OHE	Each	16	14260	589	228160	9424	237584.00
15	17(d)	Supply and erection of copper strips for equipment earthing.	Metre	150	933	121	139950	18150	158100.00
16	26(a)(ii)	Supply & erection of Solid copper bus-bars 18mm.	Metre	150	2894	169	434100	25350	459450.00
17	17(a)	Supply & Erection of Tubular Aluminium Bushars 50x39mm Dia	Metre	320	1100	105	352000	33600	385600.00
18	17(c)(i)	Supply & Erection of Rigid Bimetallic Terminal Connector Suitable for 50 Dia Aluminium Tubular Busbar to Terminal Pad of 25kV Isolator/CT (RI-11090)	Each	10	3680	62	36800	620	37420.00
19	17(c)(ii)	Supply & Erection of Expansion Type Terminal Connector to Suit 50 Dia Aluminium Tubular Busbar, Terminal Pad of 25kV CT/Isolator (RI-11060)	Each	10	6555	62	65550	620	66170.00
20	17(c)(iii)	Supply & Erection of 25kV System Rigid Bus Splice Connector to Suit 50 O/D Aluminium Tube on Both Ways (RI-11180)	Each	10	3497	62	34970	620	35590.00

Signature of tenderer

Dy. Chief Electrical Engineer
(Const.) W. Rly. Vadodara.

21	17(c)(iv)	Supply & Erection of 25kV System TEE Connector to Suit 50 O/D Aluminium Tubular Busbar (RI-11150)	Each	10	3498	62	34980	620	35600.00
22	17(c)(v)	Supply & Erection of Rigid Through Connector to Suit 50 Dia Aluminium Tubular Busbar & SPIDER AAC Conductor for 25kV P.T Type-II (RI-11110)	Each	10	3167	62	31670	620	32290.00
23	17(c)(vi)	Supply & Erection of 25kV System Expansion Bus Coupler on SI to Suit 50 O/D Al. Tube (RI-11120)	Each	10	7787	62	77870	620	78490.00
24	17(c)(vii)	Supply & Erection of 25kV System Tee Connector to Suit 50 O/D Aluminium Tubular Spider AAC Conductor (RI-11140)	Each	10	3191	62	31910	620	32530.00
25	17(c)(viii)	Supply & Erection of 25kV System Tee to Suit ZEBRA (28.58 Dia) ACSR Conductor on Both Ways (RI-11040)	Each	10	3412	62	34120	620	34740.00
26	17(c)(ix)	Supply & Erection of Rigid Terminal Conductor Suitable for 20 Dia Al. Conductor To Terminal Pad of 132/66 kV CB, Isolator & 25kV PT Type I & II (RI-11120)	Each	10	2809	62	28090	620	28710.00
27	17(c)(x)	Supply & Erection of Rigid Connector On SI To Suit 50 Mm O/D Al. Bus Bar (RI-11200)	Each	10	1375	62	13750	620	14370.00
28	17(c)(xi)	Supply & Erection of Sliding Clamp for 50mm O/D Al. Bus Bar (RI-11190)	Each	10	2028	62	20280	620	20900.00
Total of Schedule of Prices-1, Section-4: Non Ferrous							22844857	4563637.6	27408494.60

Name of Tender:- Design, Supply, Erection, Testing & Commissioning of 25 KV AC OHE between Samlaya to Timba in Connection with GC Work

Schedule of Prices (Schedule -1, Section-5)

Signature of tenderer

Dy. Chief Electrical Engineer
(Const.) W. Rly. Vadodara.

SN	Item No.	Description	UOM	Qty	Materials (₹)	Erection (₹)	Total cost of Material	Total cost of Erection	Total
	4(ax)	Supply of Insulators for items 4(a)(i) & 4(a)(iii)							
1	4(ax)(i)	Stay Arm Porcelain (CD-1050 mm)	Each	1260	4311	0	5431860	0	5431860
2	4(ax)(ii)	Stay Arm Composite (CD-1050 mm)	Each	0	2620	0	0	0	0
3	4(ax)(iii)	Stay Arm Composite (CD-1600 mm)	Each	0	3511	0	0	0	0
4	4(ax)(iv)	Bracket Porcelain (CD-1050 mm)	Each	1260	4136	0	5211360	0	5211360
5	4(ax)(v)	Bracket Composite (CD-1050 mm)	Each	0	2096	0	0	0	0
6	4(ax)(vi)	Bracket Composite (CD-1600 mm)	Each	0	3527	0	0	0	0
	4(bx)	Supply of 9-Tonne insulators for items 4(b)(i) & 4(b)(iii)		0			0	0	0
7	4(bx)(i)	Porcelain (CD-1050 mm)	Each	6	5673	0	34038	0	34038
8	4(bx)(ii)	Composite (CD-1050 mm)	Each	0	2395	0	0	0	0
9	4(bx)(iii)	Composite (CD-1600 mm)	Each	0	3520	0	0	0	0
	8(bx)	Supply of 9-Tonne insulators for items 8(b)(i), (ii), (iii), (vi), (vii),(vii)&(ix)		0			0	0	0
10	8(bx)(i)	Porcelain (CD-1050 mm)	Each	230	5673	0	1304790	0	1304790
11	8(bx)(ii)	Composite (CD-1050 mm)	Each	100	2395	0	239500	0	239500
12	8(bx)(iii)	Composite (CD-1600 mm)	Each	50	3520	0	176000	0	176000
	9(ax)	Supply of 9-Tonne insulators for items 9(a), (b), (c), (d)& (e)		0			0	0	0
13	9(ax)(i)	Porcelain (CD-1050 mm)	Set	50	11345	0	567250	0	567250
14	9(ax)(ii)	Composite (CD-1050 mm)	Set	0	4790	0	0	0	0
15	9(ax)(iii)	Composite (CD-1600 mm)	Set	0	7040	0	0	0	0
	11(ax)	supply of 9-Tonne insulator for items 11(a)(i), & 11 (a)(ii)		0			0	0	0
16	11(ax)(i)	Porcelain (CD-1050 mm)	Each	120	5673	0	680760	0	680760
17	11(ax)(ii)	Composite (CD-1050 mm)	Each	0	2395	0	0	0	0
18	11(ax)(iii)	Composite (CD-1600 mm)	Each	0	3520	0	0	0	0

Signature of tenderer

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(Const.) W. Rly. Vadodara.

19	11(bx)	Supply of 25 kV Post Insulator for Item 11(b)	Each	0	7398	0	0	0	0
20	11(cx)	Supply of 3 kV Disc Insulator for Item 11(c)	Each	0	764	0	0	0	0
21	11(dx)	Supply of 11 kV Post Insulator for Item 11(d)	Each	0	736	0	0	0	0
	12(ax)	supply of 9-Tonne insulator for items No. 12(a)		0			0	0	0
22	12(ax)(i)	Porcelain 9-Tonne (CD-1050 mm) & Sectioning Insulator	Set	20	14006	0	280120	0	280120
23	12(ax)(ii)	Composite 9-Tonne (CD-1050 mm) & Sectioning Insulator	Set	0	10728	0	0	0	0
24	12(ax)(iii)	Composite 9-Tonne (CD-1600 mm) & Sectioning Insulator	Set	0	11853	0	0	0	0
25	12(cx)	Supply of Sectioning Insulators for 12(c) and 12(cx)	Each	8	8333	0	66664	0	66664
26	13(ax)	Supply of Post & Operating rod insulators for item 13(a)	Set	15	19231	0	288465	0	288465
27	13(bx)	Supply of Post & Operating rod insulators for item 13(b)	Set	0	38462	0	0	0	0
28	13(cx)	Supply of Post & Operating rod insulators for item 13(c)	Set	15	38462	0	576930	0	576930
	Total Schedule of Prices (Schedule -1, Section-5)						14857737	0	14857737

Schedule -1, Section-6 (Providing , fixing of supporting arrangements for holding of OHE Mast in the Bridge Pier/ Viaduct)								
Sr. No.	Description of items	Unit	Qty	Unit Rate for		Cost of		Total Cost
				Material	Erection	Material	Erection	
1	Preparation of design and drawing of Bridge Mast Fixing arrangement for holding of OHE.	Each	1		5459	0	5459	5459
2	Scanning of RCC piar capes of Bridges with approved scanner detector /Rebar locator to find out the correct locations of reinforcement in piar caps of bridge up to depth of 900mm at various location marking on safe properly and submit the sketch of each location to avoid any damage to reinforcement of piar caps (work will be done under traffic condition with contractor ladder staging protection team and all safety	Each	2	2059	0	4118	0	4118

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	arrangement with contractor tools plants equipments etc.)							
3	Drilling horizontal/ vertical holes of up to 50 mm dia. in the existing stone masonry of RCC slab/CC/ Stone / Brick etc. work in pier cap of bridge pair to a depth varying from 500 to 1100 mm under line block using pneumatic driller, compressor etc and cleaning the holes using compressor for pressure grouting and removing the rock/ soil/ concrete fallen due to cavity formation and disposal of surplus spoils at locations and also as directed by the engineer – in charge with all lead and lift (all labour and materials by the contractor. the rate is inclusive of providing lighting arrangements.)	Each	24	0	1592	0	38208	38208
4	Supply of TGT bolts 25x1350x250 mm dia. Corrugated surface with hex nut, lock nut, Flat washer and spring washer as per RDSO Specification no. TI / SPC / OHE / Fasteners/0120 or latest.	KG	240	200	0	48000	0	48000
5	Fixing of bolts of 25mm dia 1250mm long up to 1100mm with pressure grouting the existing drilled holes in the existing stone masonry of RCC slab/CC/ Stone / Brick etc. work in pier cap of bridge pair by epoxy groutings UNDER LINE BLOCK conditions at a minimum pressure of 7/kg/cm ² consists of approved quality of epoxy resin harder and thinner (Araldite, Aradur, Fosroc, & similar make) by suitable proportions including filler, such as silicon flour etc.	Each	24	0	1837	0	44088	44088
Total of Schedule -1, Section-6						52118	87755	139873

Name of Tender:- Design, Supply, Erection, Testing & Commissioning of 25 KV AC OHE between Samlaya to Timba in Connection With GC Work

Schedule -1, Section-7 (Other than SOR Item)

Sr. No.	Description of items	Unit	Qty	Unit Rate of		Cost of		Total Cost
				Material	Erection	Material	Erection	
1	Supply of Antibird disc on insulator end fitting	Each	2520	573.00	113	1443960.00	284760.00	1728720

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2	Supply of Nylon/plastic Net- High density polyethelene (HDPE) monofilament netting type-III, UV stabilized s per IS 16008(Part-2)-2016/PVC Virgin HDPE Net Preferably in black colour.	Sq mtr	1200	94.00	37	112800.00	44400.00	157200
3	Supply of 10 KVA Change over panel as per RDSO spec. suitable for 10 KVA AT supply	Each	6	32538	3220	195228.00	19320.00	214548
4	Supply of Station Equipments at SP/SSP as per RDSO Spec. No. TI/RCC/SCADA/0134 with latest A&C slip with amendments	Each	4	94008 4	59146	3760336.00	236584.00	3996920
5	Providing (Supply & erection) of layout board for switching posts	Each	4	3674		14696.00	0.00	14696
6	Providing (Supply & erection) of SWR/Sectioning diagram board at stations	Each	6	10518		63108.00	0.00	63108
7	Digging of Trench size 450x1000 mm	Meter	5000	0	26	0.00	130000.00	130000
8	Supply & laying of sand and 2nd class bricks in trenches.	Meter	5000	51		255000.00	0.00	255000
9	Tree Trimming / cutting	Each	50	0	501	0.00	25050.00	25050
10	Supply & Erection of Fire Bucket with Stand for Switching Post	Set	4	4402		17608.00	0.00	17608
11	Supply & erection of desk for Switching station	Each	4	2331		9324.00	0.00	9324
12	Supply & Erection of Name board of switching Post	Each	4	2486		9944.00	0.00	9944
13	Supply & Erection of Standarad Wooden Isolator Key Box with glass for SSP & Station	Each	7	562		3934.00	0.00	3934
14	Drilling of horizontal bore below track by pushing method for laying of HDDE pipe of various size upto 450 mm dia.	Mtrs	100	0	2647	0.00	264700.00	264700
15	Modification, Upgradation, testing, wiring & commissioning in existing RTU at Site in the section and standard SCADA software at RCC equipments for configuration, integration/ hooking up of additional RTUs of section & adjacent section with master station as per RDSO Spec. No. TI/RCC/SCADA/ 0130/Rev-2) with latest A&C slip with amendments or latest	LS	1	0	406283	0.00	406283.00	406283

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16	Providing utility van for tower wagon crew, shifting of man and material for the work, supervision of work and other misc work.	Month	24	0	56133	0.00	1347192.00	1347192
17	Supply & erection of fire fighting equipment	Each	8		4976	39808.00	0.00	39808
18	Supply of First aid Box with Strecher etc.	Each	4		1024	4096.00	0.00	4096
19	Erection of Additional contact wire piece across RRA clamp with supply & erection of 02 nos. of PG Clamps on either side (contact wire piece shall be supplied by Railway).	Each	140		2700	378000.00	0.00	378000
20	Provision of Buried Rail	Each	2		38000	76000.00	0.00	76000
21	Transportation of Railway supply materials/Released material from Railway depots/work site to Work site/Scrap depot	MT	50		5200	260000.00	0.00	260000
22	Supply of regulating equipment 5 pulley type complete with all accessories including SS wire rope and counter weight assembly for 2400kgf tension as per RDSO Spec. TI/SPC/OHE/ATD/0060(Rev. 2) or latest for conventional OHE	Each	114	10756 6	8404	12262524.00	958056.00	13220580
23	Supply & Erection of fittings for provision of false catenary (Catenary ending cone , double strap, contact ending clamp)	set	5	1406		7030.00	0.00	7030
24	Erection of fittings for provision of false catenary	Set	5	281		1405.00	0.00	1405
25	Provision of jumpering arrangement (160 sq.mm copper jumper wire) with PG clamp and related fittings for false catenary	Set	5	1707		8535.00	0.00	8535
26	Provision of Large-size modified double bolted PG clamps at all G-jumper connections to ensure better electrical continuity and mechanical strength.	Each	700	513.3		359310.00	0.00	359310
27	Work under Power Block: Any erection work as per schedule done under power and /or Traffic block is subject to have extra rate.	LS	1	0	317137	0.00	317137.00	317137
	Total of Schedule -1, Section-7 (Other than SOR Item)					19282646.00	4033482.00	23316128

Name of Tender:- Design, Supply, Erection, Testing & Commissioning of 25 KV AC OHE between Samlaya to Timba in Connection With GC Work

Signature of tenderer

*Dy. Chief Electrical Engineer
(Const.) W. Rly. Vadodara.*

Summary of OHE Schedule				
Sr. No.	Schedule	Cost of		Total
		Material	Erection	
1	Total of Schedule of Prices (Schedule-1 , Section-1)	9021714	4207188	13228902
2	Total of Schedule of Prices (Schedule-1 , Section-2) Concrete	31304145	12950805	44254950
3	Total of Schedule of Prices (Schedule-1 , Section-3) Ferrous	105198771	7523869	112722640
4	Total of Schedule of Prices-1, Section-4: Non Ferrous	22844857	4563637.6	27408494.6
5	Total Schedule of Prices (Schedule -1, Section-5)	14857737	0	14857737
6	Total of Schedule -1, Section-6	52118	87755	139873
7	Total of Schedule -1, Section-7 (Other than SOR Item)	19282646.00	4033482.00	23316128
	Total	202561988	33366736.6	235928724.6

Name of Tender:- Design, Supply, Erection, Testing & Commissioning of 25 KV AC OHE Vishwamitri Y connection in Connection With doubling of VS to Dabhoi section in Vadodara division of Western Railway.									
Schedule of Prices (Schedule-1 , Section-1)									
SN	Item No.	Description	UOM	Qty	SOR/Unit Rate		Cost of		Total
					Materials (₹)	Erection (₹)	Material	Erection	
1	1(a)	Preparation of designs and drawings for overhead equipment and verification of purchaser's pegging plan, SED,CSD.	Track km	3	0	23562	0	70686	70686
2	1(b)	Preparation of designs and drawings for switching stations (FP/SP/SSP)	Each	0	0	46283	0	0	0
3	5(a)(i)	Supply without insulator and erection of mounting arrangements for span wire	Each	0	7083	1559	0	0	0
4	8(a)(xii)	Marking/Painting of temperature & 'Y'-Measurement of OHE mast at BWA locations	Each	7	0	180	0	1260	1260
5	8(b)(i)	Supply without insulator and erection of material for termination of Single conductor of Over Head Equipment or terminating wire	Each	7	5234	1445	36638	10115	46753
6	8(b)(ix)	Supply without insulator and erection of materials for termination of copper cross feeder with gantries	Set	0	6996	1445	0	0	0

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7	9(dz)	Supply without insulator and erection of anti-creep with Cadmium copper catenary wire in polluted area	Each	3	6091	4788	18273	14364	32637
8	11(a)(i)	Supply without Insulator and erection of cut-in (9 Tonne) Insulator	Each	8	1627	1017	13016	8136	21152
9	11(a)(ii)	Supply without Insulator and erection of a suspension (9 Tonne) Insulator	Each	10	1572	622	15720	6220	21940
10	11(b)	Supply without Insulator and erection of 25 kV Post Insulator	Each	16	831	414	13296	6624	19920
11	17(b)	Extra for special embedment of Earth Electrode	Each	0	0	1310	0	0	0
12	17(h)	Supply and erection of earthing station at Switching Posts (SP & SSP) with conventional earthing system	Each	0	14223	1016	0	0	0
13	18(b)	Supply & Erection of 25kV Vacuum type Interrupter	Each	0	432128	6464	0	0	0
14	19	Supply and Erection of 25kV Potential Transformers Type-I	Each	0	85174	1076	0	0	0
15	20(a)	Supply and Erection of 42kV Lightning Arrestors (station class)	Each	0	43858	999	0	0	0
16	21	Supply & Erection of Terminal Boards in Control Cubicles	Each	0	14817	761	0	0	0
17	22(a)	Supply & Erection of Iron Clad 110 V DC Fuse Box	Each	0	5013	162	0	0	0
18	22(b)	Supply & Erection of Iron Clad 250 V AC Fuse Box	Each	0	5504	162	0	0	0
19	23	Supply and Erection of Lead Acid Batteries	Each	0	129917	10730	0	0	0
20	24	Supply of Battery chargers	Each	0	111383	1387	0	0	0
21	25(a)	Supply and Installation of cables for Control and indication circuit	Metre	0	517	26	0	0	0
22	25(b)	Supply and Installation of cables for Heater supply	Metre	0	165	26	0	0	0
23	25(c)	Supply and Installation of cables for Catenary Indication	Metre	0	340	26	0	0	0
24	25(d)	Supply and Installation of cables for L.T. Power supply	Metre	3000	352	38	105600 0	114000	1170000
25	25(e)	Supply and Installation of cables for 110 V D.C. supply	Metre	0	340	38	0	0	0

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26	27(a)	Supply, Erection, oil-filtration, testing and commissioning of L.T. supply transformers (10 kVA)	Each	2	81415	12228	162830	24456	187286
27	27(c)	Supply, Erection, oil-filtration, testing and commissioning of L.T. supply transformers (25 KVA)	Each	1	182451	12228	182451	12228	194679
28	28	Supply without Insulator of 25 kV D.O. fuse switch	Each	3	11625	835	34875	2505	37380
29	31(a)	Transfer of equipment from one mast or support to another	Each	15	2302	4319	34530	64785	99315
30	31(b)	Provision of an additional bracket assembly/assemblies on a mast or support	Each	0	0	3834	0	0	0
31	31(d)	Dismantling of Over Head Equipment	Km	0.5	0	20202	0	10101	10101
32	31(f)	Splicing & extension of an anchored overhead equipment	Each	8	0	4269	0	34152	34152
33	31(gz)	Dismantling of a Section Insulator Assembly	Each	2	1919	4269	3838	8538	12376
34	31(h)	Slewing and Putting Back of OHE in Original Shape	Span	5	0	3398	0	16990	16990
35	31(i)	Dismantling of an Isolator	Each	2	0	2393	0	4786	4786
36	31(j)	Dismantling of a Post / Pedestal Insulator	Each	12	0	761	0	9132	9132
37	31(m)(i)	Manning of Switching Stations (SP/SSP)	Each per month	0	0	63134	0	0	0
38	31(m)(ii)	Manning of Traction Sub-stations	Each per month	0	0	105964	0	0	0
39	35	Supply and Erection of material for internal and external lighting of Switching Station Building (SP/SSP)	Each	0	0	38170	0	0	0
Total of Schedule of Prices (Schedule-1 , Section-1)							15714 67	41907 8	199054 5

Name of Tender:- Design, Supply, Erection, Testing & Commissioning of 25 KV AC OHE Vishwamitri Y connection in Connection With doubling of VS to Dabhoi section in Vadodara division of Western Railway.

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Schedule of Prices (Schedule-1 , Section-2) Concrete									
SN	Item No.	Description	UOM	Qty	Materials	Erection	Material Cost	Erection Cost	Total
	2(a)	Concrete for foundation and plinth							
5	2(b)	In other than hard soil and rock	Cum	300	5641	2339	1692300	701700	2394000
	Total of Schedule of Prices (Schedule-1 , Section-2) Concrete						1692300	701700	2394000

Name of Tender:- Design, Supply, Erection, Testing & Commissioning of 25 KV AC OHE Vishwamitri Y connection in Connection With doubling of VS to Dabhoi section in Vadodara division of Western Railway.

Schedule of Prices (Schedule-1 , Section-3) Ferrous									
SN	Item No.	Description	UOM	Qty	Materials (₹)	Erection (₹)	Cost of Material	Cost of Erection	Total
1	3(b)(i)	Supply & erection of fabricated and galvanised structures (O, N & R type portals) with all necessary components other than masts	MT	8	107505	9853	860040	78824	938864
2	3(b)(ii)	Supply and erection of structure steel (traction masts) fabricated and galvanised of all type: B-Series Mast	MT	25	97468	3393	2436700	84825	2521525
3	3(b)(iii)	Supply and erection of special fabricated and galvanised steel structures other than portals & traction masts not covered under items 3(b)(i) & 3(b)(ii)	MT	9	105197	9853	946773	88677	1035450
4	3(c)	Supply only of fabricated steel other than masts	MT	5	122247	0	611235	0	611235
5	3(e)(i)	Supply and erection of a Guy Rod Assembly	Each	12	8497	1731	101964	20772	122736
6	3(i)	Supply and erection of 25kV Caution Board / Plate	Each	60	374	139	22440	8340	30780
7	4(a)(i)	Supply without insulator and erection of Single bracket assembly	Each	80	10927	1389	874160	111120	985280
8	4(a)(ii)	Extra on 4(a)(i) for supporting two OHEs	Each	0	3356	417	0	0	0
9	4(b)(i)	Supply without insulator and erection of a pull off arrangement for one OHE	Each	2	11043	911	22086	1822	23908
10	8(a)(v)	Supply and erection of Regulating Equipment (3-Pulley type) with counter	Each	7	72017	5815	504119	40705	544824

Signature of tenderer

Dy. Chief Electrical Engineer
(Const.) W. Rly. Vadodara.

		weight assembly for conventional/composite OHE							
11	8(b)(ii)	Supply without Insulator and erection of materials for termination of Double conductor	Each	7	7755	1619	54285	11333	65618
31	14	Supply & erection of a connection between return conductor and rail	Each	0	7524	5712	0	0	0
12	16(a)(i)	Supply and erection of a structure bond	Each	120	812	424	97440	50880	148320
13	16(b)	Supply and erection of a longitudinal bond	Each	50	477	382	23850	19100	42950
14	16(c)	Supply & erection of a transverse and special bond	Each	30	1041	455	31230	13650	44880
15	17(a)	Supply & erection of a single earth electrode	Each	8	2514	1718	20112	13744	33856
16	17(E)	Supply and erection of 8 SWG G.I. wire for earthing	Metre	50	36	31	1800	1550	3350
17	30(a) (i)	Supply and erection of fencing panels at switching Station	Metre	0	3131	123	0	0	0
18	30(a) (ii)	Supply and erection of fencing uprights	MT	0	94247	5866	0	0	0
19	30(b)(i)	Supply and erection of anticlimbing device for Switching stations	Metre	0	264	13	0	0	0
20	30(b)(iii)	Supply and erection of anti-climbing device for L.T. Supply Transformer Stations.	Each	20	1009	458	20180	9160	29340
21	30(b)(iv)	Supply and erection of anti-monkey menace.	Each	30	3808	458	114240	13740	127980
22	3(g)	Supply of steel reinforcement for RCC	MT	0	69261	0	0	0	0
23	3(j)	Supply & Erection of protective screens on ROB/FOB	Set (2 nos.)	6	18648	7992	111888	47952	159840
24	3(m)	Supply of 36 mm dia MS bolts, Nuts, Lock Nuts and washers	Each	0	758	0	0	0	0
		Total of Schedule of Prices (Schedule-1 , Section-3) Ferrous					6854542	616194	7470736

Name of Tender:- Design, Supply, Erection, Testing & Commissioning of 25 KV AC OHE Vishwamitri Y connection in Connection With doubling of VS to Dabhoi section in Vadodara division of Western Railway.

(Schedule of Prices-1, Section-4)

Signature of tenderer

*Dy. Chief Electrical Engineer
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	Item No.	Description	UOM	Qty	SOR/Unit Rate		Cost of		Total
					Materials (₹)	Erection (₹)	Material	Erection	
1	5(az)(ii)	Supply and erection of span wire.	Metre	250	1532	90	383000	22500	405500.00
2	6(az)	Supply and erection of Over Head Equipment only	Km	3	135075	53615	405225	160845	566070.00
3	6(bz)	Supply & Erection of contact wire only	Km	0	7257	23379	0	0	0.00
4	6(cz)	Supply and Erection of contact wire only (Regulated with bridle wire)	Km	0	74762	31095	0	0	0.00
5	7(e)	Supply and Erection of copper cross feeder wires (37/2.25 mm HDBC) across the track at SP/SSP/FP/BT locations	Km	0.2	1802160	4972	360432	994.4	361426.40
6	12(az)	Supply without Insulator & erection of a section insulator assembly	Each	4	50580	5339	202320	21356	223676.00
7	12(d)	Supply and Erection of a Ceramic/beaded Glass Fibre type (PTFE) Short Neutral section assembly	Each	0	1129336	8222	0	0	0.00
8	13(a)	Supply without Insulator and erection of a 25 kV single pole isolator without earth contact assembly	Each	4	44261	4867	177044	19468	196512.00
9	13(c)	Supply without Insulators & erection of 25kV Double Pole Isolator	Each	1	78000	5284	78000	5284	83284.00
10	13(d)	Extra for supply & erection of an earth contact assembly in an isolator	Each	0	14846	578	0	0	0.00
11	15(a)(i)	Supply & erection of large copper jumpers	Each	10	7801	589	78010	5890	83900.00
12	15(a)(ii)	Supply & erection of small copper jumpers	Each	10	911	589	9110	5890	15000.00
13	15(a)(iv)	Supply & erection of a copper jumper (5 mm dia dropper wire).	Each	20	2580	589	51600	11780	63380.00
14	15(e)	Supply of materials and erection of large copper jumper 160 Sq. mm between cross feeder and OHE	Each	0	14260	589	0	0	0.00
15	17(d)	Supply and erection of copper strips for equipment earthing.	Metre	50	933	121	46650	6050	52700.00
16	26(a)(ii)	Supply & erection of Solid copper bus-bars 18mm.	Metre	30	2894	169	86820	5070	91890.00

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(Const.) W. Rly. Vadodara.

17	17(a)	Supply & Erection of Tubular Aluminium Bushars 50x39mm Dia	Metre	0	1100	105	0	0	0.00
18	17(c)(i)	Supply & Erection of Rigid Bimetallic Terminal Connector Suitable for 50 Dia Aluminium Tubular Busbar to Terminal Pad of 25kV Isolator/CT (RI-11090)	Each	0	3680	62	0	0	0.00
19	17(c)(ii)	Supply & Erection of Expansion Type Terminal Connector to Suit 50 Dia Aluminium Tubular Busbar, Terminal Pad of 25kV CT/Isolator (RI-11060)	Each	0	6555	62	0	0	0.00
20	17(c)(iii)	Supply & Erection of 25kV System Rigid Bus Splice Connector to Suit 50 O/D Aluminium Tube on Both Ways (RI-11180)	Each	0	3497	62	0	0	0.00
21	17(c)(iv)	Supply & Erection of 25kV System TEE Connector to Suit 50 O/D Aluminium Tubular Busbar (RI-11150)	Each	0	3498	62	0	0	0.00
22	17(c)(v)	Supply & Erection of Rigid Through Connector to Suit 50 Dia Aluminium Tubular Busbar & SPIDER AAC Conductor for 25kV P.T Type-II (RI-11110)	Each	0	3167	62	0	0	0.00
23	17(c)(vi)	Supply & Erection of 25kV System Expansion Bus Coupler on SI to Suit 50 O/D Al. Tube (RI-11120)	Each	0	7787	62	0	0	0.00
24	17(c)(vii)	Supply & Erection of 25kV System Tee Connector to Suit 50 O/D Aluminium Tubular Spider AAC Conductor (RI-11140)	Each	0	3191	62	0	0	0.00
25	17(c)(viii)	Supply & Erection of 25kV System Tee to Suit ZEBRA (28.58 Dia) ACSR Conductor on Both Ways (RI-11040)	Each	0	3412	62	0	0	0.00
26	17(c)(ix)	Supply & Erection of Rigid Terminal Conductor Suitable for 20 Dia Al. Conductor To Terminal Pad of 132/66 kV CB, Isolator & 25kV PT Type I & II (RI-11120)	Each	0	2809	62	0	0	0.00
27	17(c)(x)	Supply & Erection of Rigid Connector On SI To Suit 50 Mm O/D Al. Bus Bar (RI-11200)	Each	0	1375	62	0	0	0.00
28	17(c)(xi)	Supply & Erection of Sliding Clamp for 50mm O/D Al. Bus Bar (RI-11190)	Each	0	2028	62	0	0	0.00
Total of Schedule of Prices-1, Section-4: Non Ferrous							1878211	265127.4	2143338.40

Signature of tenderer

Dy. Chief Electrical Engineer
(Const.) W. Rly. Vadodara.

Name of Tender:- Design, Supply, Erection, Testing & Commissioning of 25 KV AC OHE Vishwamitri Y connection in Connection With doubling of VS to Dabhoi section in Vadodara division of Western Railway.

Schedule of Prices (Schedule -1, Section-5)

SN	Item No.	Description	UOM	Qty	Materials (₹)	Erection (₹)	Total cost of Material	Total cost of Erection	Total
	4(ax)	Supply of Insulators for items 4(a)(i) & 4(a)(iii)							
1	4(ax)(i)	Stay Arm Porcelain (CD-1050 mm)	Each	80	4311	0	344880	0	344880
2	4(ax)(ii)	Stay Arm Composite (CD-1050 mm)	Each	0	2620	0	0	0	0
3	4(ax)(iii)	Stay Arm Composite (CD-1600 mm)	Each	0	3511	0	0	0	0
4	4(ax)(iv)	Bracket Porcelain (CD-1050 mm)	Each	80	4136	0	330880	0	330880
5	4(ax)(v)	Bracket Composite (CD-1050 mm)	Each	0	2096	0	0	0	0
6	4(ax)(vi)	Bracket Composite (CD-1600 mm)	Each	0	3527	0	0	0	0
	4(bx)	Supply of 9-Tonne insulators for items 4(b)(i) & 4(b)(iii)		0			0	0	0
7	4(bx)(i)	Porcelain (CD-1050 mm)	Each	6	5673	0	34038	0	34038
8	4(bx)(ii)	Composite (CD-1050 mm)	Each	0	2395	0	0	0	0
9	4(bx)(iii)	Composite (CD-1600 mm)	Each	0	3520	0	0	0	0
	8(bx)	Supply of 9-Tonne insulators for items 8(b)(i), (ii), (iii), (vi), (vii),(vii)&(ix)		0			0	0	0
10	8(bx)(i)	Porcelain (CD-1050 mm)	Each	10	5673	0	56730	0	56730
11	8(bx)(ii)	Composite (CD-1050 mm)	Each	20	2395	0	47900	0	47900
12	8(bx)(iii)	Composite (CD-1600 mm)	Each	10	3520	0	35200	0	35200
	9(ax)	Supply of 9-Tonne insulators for items 9(a), (b), (c), (d)& (e)		0			0	0	0

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(Const.) W. Rly. Vadodara.

13	9(ax)(i)	Porcelain (CD-1050 mm)	Set	5	11345	0	56725	0	56725
14	9(ax)(ii)	Composite (CD-1050 mm)	Set	0	4790	0	0	0	0
15	9(ax)(iii)	Composite (CD-1600 mm)	Set	0	7040	0	0	0	0
	11(ax)	supply of 9-Tonne insulator for items 11(a)(i), & 11 (a)(ii)		0			0	0	0
16	11(ax)(i)	Porcelain (CD-1050 mm)	Each	18	5673	0	102114	0	102114
17	11(ax)(ii)	Composite (CD-1050 mm)	Each	0	2395	0	0	0	0
18	11(ax)(iii)	Composite (CD-1600 mm)	Each	0	3520	0	0	0	0
19	11(bx)	Supply of 25 kV Post Insulator for Item 11(b)	Each	0	7398	0	0	0	0
20	11(cx)	Supply of 3 kV Disc Insulator for Item 11(c)	Each	0	764	0	0	0	0
21	11(dx)	Supply of 11 kV Post Insulator for Item 11(d)	Each	0	736	0	0	0	0
	12(ax)	supply of 9-Tonne insulator for items No. 12(a)		0			0	0	0
22	12(ax)(i)	Porcelain 9-Tonne (CD-1050 mm) & Sectioning Insulator	Set	2	14006	0	28012	0	28012
23	12(ax)(ii)	Composite 9-Tonne (CD-1050 mm) & Sectioning Insulator	Set	0	10728	0	0	0	0
24	12(ax)(iii)	Composite 9-Tonne (CD-1600 mm) & Sectioning Insulator	Set	0	11853	0	0	0	0
25	12(cx)	Supply of Sectioning Insulators for 12(c) and 12(cx)	Each	4	8333	0	33332	0	33332
26	13(ax)	Supply of Post & Operating rod insulators for item 13(a)	Set	6	19231	0	115386	0	115386
27	13(bx)	Supply of Post & Operating rod insulators for item	Set	0	38462	0	0	0	0

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(Const.) W. Rly. Vadodara.

		13(b)							
28	13(cx)	Supply of Post & Operating rod insulators for item 13(c)	Set	2	38462	0	76924	0	76924
Total Schedule of Prices (Schedule -1, Section-5)							1262121	0	1262121

Name of Tender:- Design, Supply, Erection, Testing & Commissioning of 25 KV AC OHE Vishwamitri Y connection in Connection With doubling of VS to Dabhoi section in Vadodara division of Western Railway.

Schedule -1, Section-7 (Other than SOR Item)

Sr. No.	Description of items	Unit	Qty	Unit Rate of		Cost of		Total Cost
				Material	Erection	Material	Erection	
1	Supply of Antibird disc on insulator end fitting	Each	160	573.00	113	91680.00	18080.00	109760
2	Supply of Nylon/plastic Net-High density polyethelene (HDPE) monofilament netting type-III, UV stabilized s per IS 16008(Part-2)-2016/PVC Virgin HDPE Net Preferably in black colour.	Sq mtr	300	94.00	37	28200.00	11100.00	39300
3	Supply of 10 KVA Change over panel as per RDSO spec. suitable for 10 KVA AT supply	Each	2	32538	3220	65076.00	6440.00	71516
4	Supply of Station Equipments at SP/SSP as per RDSO Spec. No. TI/RCC/ SCADA/0134 with latest A&C slip with amendments	Each	0	940084	59146	0.00	0.00	0
5	Providing (Supply & erection) of layout board for switching posts	Each	0	3674		0.00	0.00	0
6	Providing (Supply & erection) of SWR/Sectioning diagram board at stations	Each	4	10518		42072.00	0.00	42072
7	Digging of Trench size 450x1000 mm	Meter	1500	0	26	0.00	39000.00	39000
8	Supply & laying of sand and 2nd class bricks in trenches.	Meter	1500	51		76500.00	0.00	76500
9	Tree Trimming / cutting	Each	5	0	501	0.00	2505.00	2505

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10	Supply & Erection of Fire Bucket with Stand for Switching Post	Set	0	4402		0.00	0.00	0
11	Supply & erection of desk for Switching station	Each	0	2331		0.00	0.00	0
12	Supply & Erection of Name board of switching Post	Each	0	2486		0.00	0.00	0
13	Supply & Erection of Standarad Wooden Isolator Key Box with glass for SSP & Station	Each	2	562		1124.00	0.00	1124
14	Drilling of horizontal bore below track by pushing method for laying of HDDE pipe of various size upto 450 mm dia.	Mtrs	100	0	2647	0.00	264700.00	264700
15	Modification, Upgradation, testing, wiring & commissioning in existing RTU at Site in the section and standard SCADA software at RCC equipments for configuration, integration/ hooking up of additional RTUs of section & adjacent section with master station as per RDSO Spec. No. TI/RCC/SCADA/ 0130/Rev-2) with latest A&C slip with amendments or latest	LS	0	0	406283	0.00	0.00	0
16	Providing utility van for tower wagon crew, shifting of man and material for the work, supervision of work and other misc work.	Month	6	0	56133	0.00	336798.00	336798
17	Supply & erection of fire fighting equipment	Each	0	4976		0.00	0.00	0
18	Supply of First aid Box with Strecher etc.	Each	0	1024		0.00	0.00	0
19	Erection of Additional contact wire piece across RRA clamp with supply & erection of 02 nos. of PG Clamps on either side (contact wire piece shall be supplied by Railway).	Each	12	2700		32400.00	0.00	32400
20	Provision of Buried Rail	Each	0	38000		0.00	0.00	0
21	Transportation of Railway supply materials/Released material from Railway depots/work site to Work site/Scrap depot	MT	20	5200		104000.00	0.00	104000

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22	Supply of regulating equipment 5 pulley type complete with all accessories including SS wire rope and counter weight assembly for 2400kgf tension as per RDSO Spec. TI/SPC/OHE/ATD/0060(Rev. 2) or latest for conventional OHE	Each	0	107566	8404	0.00	0.00	0
23	Supply & Erection of fittings for provision of false catenary (Catenary ending cone , double strap, contact ending clamp) : Details of work with schedule and explanatory note is attached as ANNEXURE C	set	5	1406		7030.00	0.00	7030
24	Erection of fittings for provision of false catenary : Details of work with schedule and explanatory note is attached as ANNEXURE C	Set	5	281		1405.00	0.00	1405
25	Provision of jumpering arrangement (160 sq.mm copper jumper wire) with PG clamp and related fittings for false catenary : Details of work with schedule and explanatory note is attached as ANNEXURE C	Set	5	1707		8535.00	0.00	8535
26	Provision of Large-size modified double bolted PG clamps at all G-jumper connections to ensure better electrical continuity and mechanical strength.	Each	200	513.3		102660.00	0.00	102660
27	Work under Power Block: Any erection work as per schedule done under power and /or Traffic block is subject to have extra rate.	LS	1	0	168688	0.00	168688.00	168688
Total of Schedule -1, Section-7 (Other than SOR Item)						560682.00	847311.00	1407993

Name of Tender:- Design, Supply, Erection, Testing & Commissioning of 25 KV AC OHE Vishwamitri Y connection in Connection With doubling of VS to Dabhoi section in Vadodara division of Western Railway.

Summary of OHE Schedule

Sr. No.	Schedule	Cost of		Total
		Material	Erection	
1	Total of Schedule of Prices (Schedule-1 , Section-1)	1571467	419078	1990545
2	Total of Schedule of Prices (Schedule-1 , Section-2) Concrete	1692300	701700	2394000

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3	Total of Schedule of Prices (Schedule-1 , Section-3) Ferrous	6854542	616194	7470736
4	Total of Schedule of Prices-1, Section-4: Non Ferrous	1878211	265127.4	2143338.4
5	Total Schedule of Prices (Schedule -1, Section-5)	1262121	0	1262121
6	Total of Schedule -1, Section-6	0	0	0
7	Total of Schedule -1, Section-7 (Other than SOR Item)	560682.00	847311.00	1407993
	Total	13819323	2849410.4	16668733.4

Name of Tender:- Design, Supply, Erection, Testing & Commissioning of 25 KV AC OHE between Lakodhra to Miyagaam Karjan in Connection With Lakodhra Flyover.

Schedule of Prices (Schedule-1 , Section-1)									
SN	Item No.	Description	UO M	Qty	SOR/Unit Rate		Cost of		Total
					Materials (₹)	Erection (₹)	Material	Erection	
1	1(a)	Preparation of designs and drawings for overhead equipment and verification of purchaser's pegging plan, SED,CSD.	Track km	6	0	23562	0	141372	141372
2	1(b)	Preparation of designs and drawings for switching stations (FP/SP/SSP)	Each	0	0	46283	0	0	0
3	5(a)(i)	Supply without insulator and erection of mounting arrangements for span wire	Each	0	7083	1559	0	0	0
4	8(a)(xii)	Marking/Painting of temperature & 'Y'- Measurement of OHE mast at BWA locations	Each	13	0	180	0	2340	2340
5	8(b)(i)	Supply without insulator and erection of material for termination of Single conductor of Over Head Equipment or terminating wire	Each	12	5234	1445	62808	17340	80148
6	8(b)(ix)	Supply without insulator and erection of materials for termination of copper cross feeder with gantries	Set	0	6996	1445	0	0	0
7	9(dz)	Supply without insulator and erection of anti-creep with Cadmium copper catenary wire in polluted area	Each	9	6091	4788	54819	43092	97911

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8	11(a)(i)	Supply without Insulator and erection of cut-in (9 Tonne) Insulator	Each	20	1627	1017	32540	20340	52880
9	11(a)(ii)	Supply without Insulator and erection of a suspension (9 Tonne) Insulator	Each	40	1572	622	62880	24880	87760
10	11(b)	Supply without Insulator and erection of 25 kV Post Insulator	Each	40	831	414	33240	16560	49800
11	17(b)	Extra for special embedment of Earth Electrode	Each	0	0	1310	0	0	0
12	17(h)	Supply and erection of earthing station at Switching Posts (SP & SSP) with conventional earthing system	Each	0	14223	1016	0	0	0
13	18(b)	Supply & Erection of 25kV Vacuum type Interrupter	Each	0	432128	6464	0	0	0
14	19	Supply and Erection of 25kV Potential Transformers Type-I	Each	0	85174	1076	0	0	0
15	20(a)	Supply and Erection of 42kV Lightning Arrestors (station class)	Each	0	43858	999	0	0	0
16	21	Supply & Erection of Terminal Boards in Control Cubicles	Each	0	14817	761	0	0	0
17	22(a)	Supply & Erection of Iron Clad 110 V DC Fuse Box	Each	0	5013	162	0	0	0
18	22(b)	Supply & Erection of Iron Clad 250 V AC Fuse Box	Each	0	5504	162	0	0	0
19	23	Supply and Erection of Lead Acid Batteries	Each	0	129917	10730	0	0	0
20	24	Supply of Battery chargers	Each	0	111383	1387	0	0	0
21	25(a)	Supply and Installation of cables for Control and indication circuit	Metre	0	517	26	0	0	0
22	25(b)	Supply and Installation of cables for Heater supply	Metre	0	165	26	0	0	0
23	25(c)	Supply and Installation of cables for Catenary Indication	Metre	0	340	26	0	0	0
24	25(d)	Supply and Installation of cables for L.T. Power supply	Metre	3000	352	38	105600	114000	1170000

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25	25(e)	Supply and Installation of cables for 110 V D.C. supply	Metre	0	340	38	0	0	0
26	27(a)	Supply, Erection, oil-filtration, testing and commissioning of L.T. supply transformers (10 kVA)	Each	2	81415	12228	16283 0	24456	187286
27	27(c)	Supply, Erection, oil-filtration, testing and commissioning of L.T. supply transformers (25 KVA)	Each	1	182451	12228	18245 1	12228	194679
28	28	Supply without Insulator of 25 kV D.O. fuse switch	Each	3	11625	835	34875	2505	37380
29	31(a)	Transfer of equipment from one mast or support to another	Each	35	2302	4319	80570	151165	231735
30	31(b)	Provision of an additional bracket assembly/assemblies on a mast or support	Each	0	0	3834	0	0	0
31	31(d)	Dismantling of Over Head Equipment	Km	2	0	20202	0	40404	40404
32	31(f)	Splicing & extension of an anchored overhead equipment	Each	20	0	4269	0	85380	85380
33	31(gz)	Dismantling of a Section Insulator Assembly	Each	2	1919	4269	3838	8538	12376
34	31(h)	Slewing and Putting Back of OHE in Original Shape	Span	5	0	3398	0	16990	16990
35	31(i)	Dismantling of an Isolator	Each	4	0	2393	0	9572	9572
36	31(j)	Dismantling of a Post / Pedestal Insulator	Each	16	0	761	0	12176	12176
37	31(m)(i)	Manning of Switching Stations (SP/SSP)	Each per month	0	0	63134	0	0	0
38	31(m)(ii)	Manning of Traction Sub-stations	Each per month	0	0	105964	0	0	0
39	35	Supply and Erection of material for internal and external lighting of Switching Station Building (SP/SSP)	Each	0	0	38170	0	0	0
40	36(a)	Unloading of all types of Steel Structures	MT	0	0	235	0	0	0

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41	36(b)	Loading of all types of Steel Structures	MT	0	0	372	0	0	0
42	37(a)	Unloading of all types of Copper & Aluminium conductors	MT	0	0	179	0	0	0
43	37(b)	Loading of all types of Copper & Aluminium conductors	MT	0	0	179	0	0	0
Total of Schedule of Prices (Schedule-1 , Section-1)							17668 51	743338	251018 9

Name of Tender:- Design, Supply, Erection, Testing & Commissioning of 25 KV AC OHE between Lakodhra to Miyagaam Karjan in Connection With Lakodhra Flyover.

Schedule of Prices (Schedule-1 , Section-2) Concrete

SN	Item No.	Description	UOM	Qty	Materials	Erection	Material Cost	Erection Cost	Total
	2(a)	Concrete for foundation and plinth							
5	2(b)	In other than hard soil and rock	Cum	650	5641	2339	3666650	1520350	5187000
Total of Schedule of Prices (Schedule-1 , Section-2) Concrete							3666650	1520350	5187000

Name of Tender:- Design, Supply, Erection, Testing & Commissioning of 25 KV AC OHE between Lakodhra to Miyagaam Karjan in Connection With Lakodhra Flyover.

Schedule of Prices (Schedule-1 , Section-3) Ferrous

SN	Item No.	Description	UOM	Qty	Materials (₹)	Erection (₹)	Cost of Material	Cost of Erection	Total
1	3(b)(i)	Supply & erection of fabricated and galvanised structures (O, N & R type portals) with all necessary components other than masts	MT	29	107505	9853	3117645	285737	3403382
2	3(b)(ii)	Supply and erection of structure steel (traction masts) fabricated and galvanised of all type: B-Series Mast	MT	62	97468	3393	6043016	210366	6253382
3	3(b)(iii)	Supply and erection of special fabricated and galvanised steel structures other than portals & traction masts not covered under items 3(b)(i) & 3(b)(ii)	MT	20	105197	9853	2103940	197060	2301000

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4	3(c)	Supply only of fabricated steel other than masts	MT	10	122247	0	1222470	0	1222470
5	3(e)(i)	Supply and erection of a Guy Rod Assembly	Each	24	8497	1731	203928	41544	245472
6	3(i)	Supply and erection of 25kV Caution Board / Plate	Each	180	374	139	67320	25020	92340
7	4(a)(i)	Supply without insulator and erection of Single bracket assembly	Each	200	10927	1389	2185400	277800	2463200
8	4(a)(ii)	Extra on 4(a)(i) for supporting two OHEs	Each	0	3356	417	0	0	0
9	4(b)(i)	Supply without insulator and erection of a pull off arrangement for one OHE	Each	5	11043	911	55215	4555	59770
10	8(a)(v)	Supply and erection of Regulating Equipment (3-Pulley type) with counter weight assembly for conventional/composite OHE	Each	12	72017	5815	864204	69780	933984
11	8(b)(ii)	Supply without Insulator and erection of materials for termination of Double conductor	Each	12	7755	1619	93060	19428	112488
31	14	Supply & erection of a connection between return conductor and rail	Each	0	7524	5712	0	0	0
12	16(a)(i)	Supply and erection of a structure bond	Each	150	812	424	121800	63600	185400
13	16(b)	Supply and erection of a longitudinal bond	Each	100	477	382	47700	38200	85900
14	16(c)	Supply & erection of a transverse and special bond	Each	100	1041	455	104100	45500	149600
15	17(a)	Supply & erection of a single earth electrode	Each	20	2514	1718	50280	34360	84640
16	17(E)	Supply and erection of 8 SWG G.I. wire for earthing	Metre	50	36	31	1800	1550	3350
17	30(a) (i)	Supply and erection of fencing panels at switching Station	Metre	0	3131	123	0	0	0
18	30(a) (ii)	Supply and erection of fencing uprights	MT	0	94247	5866	0	0	0
19	30(b)(i)	Supply and erection of anticlimbing device for Switching stations	Metre	0	264	13	0	0	0
20	30(b)(iii)	Supply and erection of anti-climbing device for L.T. Supply Transformer Stations.	Each	30	1009	458	30270	13740	44010

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21	30(b)(iv)	Supply and erection of anti-monkey menace.	Each	50	3808	458	190400	22900	213300
22	3(g)	Supply of steel reinforcement for RCC	MT	0	69261	0	0	0	0
23	3(j)	Supply & Erection of protective screens on ROB/FOB	Set (2 nos.)	6	18648	7992	111888	47952	159840
Total of Schedule of Prices (Schedule-1 , Section-3) Ferrous							16614436	1399092	18013528

(Schedule of Prices-1, Section-4)									
	Item No.	Description	UOM	Qty	SOR/Unit Rate		Cost of		Total
					Materials (₹)	Erection (₹)	Material	Erection	
1	5(az)(ii)	Supply and erection of span wire.	Metre	200	1532	90	306400	18000	324400.00
2	6(az)	Supply and erection of Over Head Equipment only	Km	9	135075	53615	1215675	482535	1698210.00
3	6(bz)	Supply & Erection of contact wire only	Km	0	7257	23379	0	0	0.00
4	6(cz)	Supply and Erection of contact wire only (Regulated with bridle wire)	Km	0	74762	31095	0	0	0.00
5	7(e)	Supply and Erection of copper cross feeder wires (37/2.25 mm HDBC) across the track at SP/SSP/FP/BT locations	Km	0.2	1802160	4972	360432	994.4	361426.40
6	12(az)	Supply without Insulator & erection of a section insulator assembly	Each	4	50580	5339	202320	21356	223676.00
7	12(d)	Supply and Erection of a Ceramic/beaded Glass Fibre type (PTFE) Short Neutral section assembly	Each	2	1129336	8222	2258672	16444	2275116.00
8	13(a)	Supply without Insulator and erection of a 25 kV single pole isolator without earth contact assembly	Each	4	44261	4867	177044	19468	196512.00
9	13(c)	Supply without Insulators & erection of 25kV Double Pole Isolator	Each	2	78000	5284	156000	10568	166568.00
10	13(d)	Extra for supply & erection of an earth contact assembly in an isolator	Each	1	14846	578	14846	578	15424.00
11	15(a)(i)	Supply & erection of large copper jumpers	Each	15	7801	589	117015	8835	125850.00
12	15(a)(ii)	Supply & erection of small	Each	20	911	589	18220	11780	30000.00

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		copper jumpers							
13	15(a)(iv)	Supply & erection of a copper jumper (5 mm dia dropper wire).	Each	20	2580	589	51600	11780	63380.00
14	15(e)	Supply of materials and erection of large copper jumper 160 Sq. mm between cross feeder and OHE	Each	2	14260	589	28520	1178	29698.00
15	17(d)	Supply and erection of copper strips for equipment earthing.	Metre	50	933	121	46650	6050	52700.00
16	26(a)(ii)	Supply & erection of Solid copper bus-bars 18mm.	Metre	50	2894	169	144700	8450	153150.00
17	17(a)	Supply & Erection of Tubular Aluminium Bushars 50x39mm Dia	Metre	0	1100	105	0	0	0.00
18	17(c)(i)	Supply & Erection of Rigid Bimetallic Terminal Connector Suitable for 50 Dia Aluminium Tubular Busbar to Terminal Pad of 25kV Isolator/CT (RI-11090)	Each	0	3680	62	0	0	0.00
19	17(c)(ii)	Supply & Erection of Expansion Type Terminal Connector to Suit 50 Dia Aluminium Tubular Busbar, Terminal Pad of 25kV CT/Isolator (RI-11060)	Each	0	6555	62	0	0	0.00
20	17(c)(iii)	Supply & Erection of 25kV System Rigid Bus Splice Connector to Suit 50 O/D Aluminium Tube on Both Ways (RI-11180)	Each	0	3497	62	0	0	0.00
21	17(c)(iv)	Supply & Erection of 25kV System TEE Connector to Suit 50 O/D Aluminium Tubular Busbar (RI-11150)	Each	0	3498	62	0	0	0.00
22	17(c)(v)	Supply & Erection of Rigid Through Connector to Suit 50 Dia Aluminium Tubular Busbar & SPIDER AAC Conductor for 25kV P.T Type-II (RI-11110)	Each	0	3167	62	0	0	0.00
23	17(c)(vi)	Supply & Erection of 25kV System Expansion Bus Coupler on SI to Suit 50 O/D Al. Tube (RI-11120)	Each	0	7787	62	0	0	0.00
24	17(c)(vii)	Supply & Erection of 25kV System Tee Connector to Suit 50 O/D Aluminium Tubular Spider AAC Conductor (RI-11140)	Each	0	3191	62	0	0	0.00

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25	17(c)(viii)	Supply & Erection of 25kV System Tee to Suit ZEBRA (28.58 Dia) ACSR Conductor on Both Ways (RI-11040)	Each	0	3412	62	0	0	0.00
26	17(c)(ix)	Supply & Erection of Rigid Terminal Conductor Suitable for 20 Dia Al. Conductor To Terminal Pad of 132/66 kV CB, Isolator & 25kV PT Type I & II (RI-11120)	Each	0	2809	62	0	0	0.00
27	17(c)(x)	Supply & Erection of Rigid Connector On SI To Suit 50 Mm O/D Al. Bus Bar (RI-11200)	Each	0	1375	62	0	0	0.00
28	17(c)(xi)	Supply & Erection of Sliding Clamp for 50mm O/D Al. Bus Bar (RI-11190)	Each	0	2028	62	0	0	0.00
Total of Schedule of Prices-1, Section-4: Non Ferrous							5098094	618016.4	5716110.40

Name of Tender:- Design, Supply, Erection, Testing & Commissioning of 25 KV AC OHE between Lakodhra to Miyagaam Karjan in Connection With Lakodhra Flyover.

Schedule of Prices (Schedule -1, Section-5)

SN	Item No.	Description	UOM	Qty	Materials (₹)	Erection (₹)	Total cost of Material	Total cost of Erection	Total
	4(ax)	Supply of Insulators for items 4(a)(i) & 4(a)(iii)							
1	4(ax)(i)	Stay Arm Porcelain (CD-1050 mm)	Each	200	4311	0	862200	0	862200
2	4(ax)(ii)	Stay Arm Composite (CD-1050 mm)	Each	0	2620	0	0	0	0
3	4(ax)(iii)	Stay Arm Composite (CD-1600 mm)	Each	0	3511	0	0	0	0
4	4(ax)(iv)	Bracket Porcelain (CD-1050 mm)	Each	200	4136	0	827200	0	827200
5	4(ax)(v)	Bracket Composite (CD-1050 mm)	Each	0	2096	0	0	0	0
6	4(ax)(vi)	Bracket Composite (CD-1600 mm)	Each	0	3527	0	0	0	0
	4(bx)	Supply of 9-Tonne insulators for items 4(b)(i) & 4(b)(iii)		0			0	0	0
7	4(bx)(i)	Porcelain (CD-1050	Each	6	5673	0	34038	0	34038

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		mm)							
8	4(bx)(ii)	Composite (CD-1050 mm)	Each	0	2395	0	0	0	0
9	4(bx)(iii)	Composite (CD-1600 mm)	Each	0	3520	0	0	0	0
	8(bx)	Supply of 9-Tonne insulators for items 8(b)(i), (ii), (iii), (vi), (vii),(vii)&(ix)		0			0	0	0
10	8(bx)(i)	Porcelain (CD-1050 mm)	Each	25	5673	0	141825	0	141825
11	8(bx)(ii)	Composite (CD-1050 mm)	Each	50	2395	0	119750	0	119750
12	8(bx)(iii)	Composite (CD-1600 mm)	Each	30	3520	0	105600	0	105600
	9(ax)	Supply of 9-Tonne insulators for items 9(a), (b), (c), (d)& (e)		0			0	0	0
13	9(ax)(i)	Porcelain (CD-1050 mm)	Set	25	11345	0	283625	0	283625
14	9(ax)(ii)	Composite (CD-1050 mm)	Set	0	4790	0	0	0	0
15	9(ax)(iii)	Composite (CD-1600 mm)	Set	0	7040	0	0	0	0
	11(ax)	supply of 9-Tonne insulator for items 11(a)(i), &11 (a)(ii)		0			0	0	0
16	11(ax)(i)	Porcelain (CD-1050 mm)	Each	50	5673	0	283650	0	283650
17	11(ax)(ii)	Composite (CD-1050 mm)	Each	0	2395	0	0	0	0
18	11(ax)(iii)	Composite (CD-1600 mm)	Each	0	3520	0	0	0	0
19	11(bx)	Supply of 25 kV Post Insulator for Item 11(b)	Each	0	7398	0	0	0	0
20	11(cx)	Supply of 3 kV Disc Insulator for Item 11(c)	Each	0	764	0	0	0	0
21	11(dx)	Supply of 11 kV Post Insulator for Item 11(d)	Each	0	736	0	0	0	0
	12(ax)	supply of 9-Tonne insulator for items No. 12(a)		0			0	0	0

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22	12(ax)(i)	Porcelain 9-Tonne (CD-1050 mm) & Sectioning Insulator	Set	4	14006	0	56024	0	56024
23	12(ax)(ii)	Composite 9-Tonne (CD-1050 mm) & Sectioning Insulator	Set	0	10728	0	0	0	0
24	12(ax)(iii)	Composite 9-Tonne (CD-1600 mm) & Sectioning Insulator	Set	0	11853	0	0	0	0
25	12(cx)	Supply of Sectioning Insulators for 12(c) and 12(cx)	Each	4	8333	0	33332	0	33332
26	13(ax)	Supply of Post & Operating rod insulators for item 13(a)	Set	16	19231	0	307696	0	307696
27	13(bx)	Supply of Post & Operating rod insulators for item 13(b)	Set	0	38462	0	0	0	0
28	13(cx)	Supply of Post & Operating rod insulators for item 13(c)	Set	10	38462	0	384620	0	384620
Total Schedule of Prices (Schedule -1, Section-5)							3439560	0	3439560

Name of Tender:- Design, Supply, Erection, Testing & Commissioning of 25 KV AC OHE between Lakodhra to Miyagaam Karjan in Connection With Lakodhra Flyover.

Schedule -1, Section-6 (Providing , fixing of supporting arrangements for holding of OHE Mast in the Bridge Pier/ Viaduct)

Sr. No.	Description of items	Unit	Qty	Unit Rate for		Cost of		Total Cost
				Material	Erection	Material	Erection	
1	Preparation of design and drawing of Bridge Mast Fixing arrangement for holding of OHE.	Each	1	0	5459	0	5459	5459

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2	Scanning of RCC pier caps of Bridges with approved scanner detector /Rebar locator to find out the correct locations of reinforcement in pier caps of bridge up to depth of 900mm at various location marking on safe properly and submit the sketch of each location to avoid any damage to reinforcement of pier caps (work will be done under traffic condition with contractor ladder staging protection team and all safety arrangement with contractor tools plants equipments etc.)	Each	5	2059	0	10295	0	10295
3	Drilling horizontal/ vertical holes of up to 50 mm dia. in the existing stone masonry of RCC slab/CC/ Stone / Brick etc. work in pier cap of bridge pair to a depth varying from 500 to 1100 mm under line block using pneumatic driller, compressor etc and cleaning the holes using compressor for pressure grouting and removing the rock/ soil/ concrete fallen due to cavity formation and disposal of surplus spoils at locations and also as directed by the engineer –in charge with all lead and lift (all labour and materials by the contractor. the rate is inclusive of providing lighting arrangements.)	Each	8	0	1592	0	12736	12736
4	Supply of TGT bolts 25x1350x250 mm dia. Corrugated surface with hex nut, lock nut, Flat washer and spring washer as per	KG	80	200	0	16000	0	16000

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	RDSO Specification no. TI / SPC / OHE / Fasteners/0120 or latest.							
5	Fixing of bolts of 25mm dia 1250mm long up to 1100mm with pressure grouting the existing drilled holes in the existing stone masonry of RCC slab/CC/ Stone / Brick etc. work in pier cap of bridge pier by epoxy groutings UNDER LINE BLOCK conditions at a minimum pressure of 7/kg/cm ² consists of approved quality of epoxy resin harder and thinner (Araldite, Aradur, Fosroc, & similar make)) by suitable proportions including filler, such as silicon flour etc.	Each	8	0	1837	0	14696	14696
Total of Schedule -1, Section-6						26295	32891	59186

Name of Tender:- Design, Supply, Erection, Testing & Commissioning of 25 KV AC OHE between Lakodhra to Miyagaam Karjan in Connection With Lakodhra Flyover.

Schedule -1, Section-7 (Other than SOR Item)

Sr. No.	Description of items	Unit	Qty	Unit Rate of		Cost of		Total Cost
				Material	Erection	Material	Erection	
1	Supply of Antibird disc on insulator end fitting	Each	400	573.00	113	229200.00	45200.00	274400
2	Supply of Nylon/plastic Net-High density polyethelene (HDPE) monofilament netting type-III, UV stabilized as per IS 16008(Part-2)-2016/PVC Virgin HDPE Net Preferably in black colour.	Sq mtr	300	94.00	37	28200.00	11100.00	39300
3	Supply of 10 KVA Change over panel as per RDSO spec. suitable for 10 KVA AT supply	Each	2	32538	3220	65076.00	6440.00	71516

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4	Supply of Station Equipments at SP/SSP as per RDSO Spec. No. TI/RCC/ SCADA/0134 with latest A&C slip with amendments	Each	0	940084	59146	0.00	0.00	0
5	Providing (Supply & erection) of layout board for switching posts	Each	0	3674		0.00	0.00	0
6	Providing (Supply & erection) of SWR/Sectioning diagram board at stations	Each	4	10518		42072.00	0.00	42072
7	Digging of Trench size 450x1000 mm	Meter	1500	0	26	0.00	39000.00	39000
8	Supply & laying of sand and 2nd class bricks in trenches.	Meter	1500	51		76500.00	0.00	76500
9	Tree Trimming / cutting	Each	15	0	501	0.00	7515.00	7515
10	Supply & Erection of Fire Bucket with Stand for Switching Post	Set	0	4402		0.00	0.00	0
11	Supply & erection of desk for Switching station	Each	0	2331		0.00	0.00	0
12	Supply & Erection of Name board of switching Post	Each	0	2486		0.00	0.00	0
13	Supply & Erection of Standard Wooden Isolator Key Box with glass for SSP & Station	Each	2	562		1124.00	0.00	1124
14	Drilling of horizontal bore below track by pushing method for laying of HDDE pipe of various size upto 450 mm dia.	Mtrs	100	0	2647	0.00	264700.00	264700
15	Modification, Upgradation, testing, wiring & commissioning in existing RTU at Site in the section and standard SCADA software at RCC equipments for configuration, integration/ hooking up of additional RTUs of section & adjacent section with master station as per RDSO Spec. No. TI/RCC/SCADA/ 0130/Rev-2) with latest A&C slip with amendments or latest	LS	0	0	406283	0.00	0.00	0
16	Providing utility van for tower wagon crew, shifting of man and material for the work, supervision of work	Month	6	0	56133	0.00	336798.00	336798

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	and other misc work.							
17	Supply & erection of fire fighting equipment	Each	0	4976		0.00	0.00	0
18	Supply of First aid Box with Strecher etc.	Each	0	1024		0.00	0.00	0
19	Erection of Additional contact wire piece across RRA clamp with supply & erection of 02 nos. of PG Clamps on either side (contact wire piece shall be supplied by Railway).	Each	20	2700		54000.00	0.00	54000
20	Provision of Buried Rail	Each	1	38000		38000.00	0.00	38000
21	Transportation of Railway supply materials/Released material from Railway depots/work site to Work site/Scrap depot	MT	20	5200		104000.00	0.00	104000
22	Supply of regulating equipment 5 pulley type complete with all accessories including SS wire rope and counter weight assembly for 2400kgf tension as per RDSO Spec. TI/SPC/OHE/ATD/0060(Rev. 2) or latest for conventional OHE	Each	0	107566	8404	0.00	0.00	0
23	Supply & Erection of fittings for provision of false catenary (Catenary ending cone , double strap, contact ending clamp)	set	12	1406		16872.00	0.00	16872
24	Erection of fittings for provision of false catenary	Set	12	281		3372.00	0.00	3372
25	Provision of jumpering arrangement (160 sq.mm copper jumper wire) with PG clamp and related fittings for false catenary	Set	12	1707		20484.00	0.00	20484
26	Provision of Large-size modified double bolted PG clamps at all G-jumper connections to ensure better electrical continuity and mechanical strength.	Each	200	513.3		102660.00	0.00	102660

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27	Work under Power Block: Any erection work as per schedule done under power and /or Traffic block is subject to have extra rate.	LS	1		168688		168688.00	168688
Total of Schedule -1, Section-7 (Other than SOR Item)						781560.00	879441.00	1661001

Name of Tender:- Design, Supply, Erection, Testing & Commissioning of 25 KV AC OHE between Lakodhra to Miyagaam Karjan in Connection With Lakodhra Flyover.

Summary of OHE Schedule

Sr. No.	Schedule	Cost of		Total
		Material	Erection	
1	Total of Schedule of Prices (Schedule-1 , Section-1)	1766851	743338	2510189
2	Total of Schedule of Prices (Schedule-1 , Section-2) Concrete	3666650	1520350	5187000
3	Total of Schedule of Prices (Schedule-1 , Section-3) Ferrous	16614436	1399092	18013528
4	Total of Schedule of Prices-1, Section-4: Non Ferrous	5098094	618016.4	5716110.4
5	Total Schedule of Prices (Schedule -1, Section-5)	3439560	0	3439560
6	Total of Schedule -1, Section-6	26295	32891	59186
7	Total of Schedule -1, Section-7 (Other than SOR Item)	781560.00	879441.00	1661001
	Total	31393446	5193128.4	36586574.4

Design, Supply, Erection, Testing & Commissioning of 25 KV AC OHE between Samlaya to Timba in Connection with GC Work, Vishwamitri Y connection in Connection with doubling of VS to Dabhoi section & Lakodhra to Miyagaam Karjan in Connection with Lakodhra Flyover on Vadodara Division of Western Railway.

Summary of OHE Schedule

Sr. No.	Schedule	Cost of		Total
		Material	Erection	
1	SMLA-TBA	202561988.00	33366736.60	235928724.60
2	Fly over	31552281.00	5034293.40	36586574.40
3	Y connection	13978158.00	2690575.40	16668733.40
	Total	248092427.00	41091605.40	289184032.40

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EXPLANATORY NOTES**Section-1:- General****Item No. 1(a): Preparation of designs and drawings for overhead equipment and verification of purchaser's pegging plan, SED, CSD.**

The price shall cover verification of Purchaser's overhead equipment pegging plans indicating location of structures which will be furnished by the purchaser, in stages, and preparation of all drawings and designs required to be finalised by the Contractor. The price shall include the following: -

- (i) Making minor modifications with the approval of the Purchaser to the layout of the structures and overhead equipment, if necessary, and submission of overhead equipment layout plans, including stagger, location of cut in insulators etc:
- (ii) Preparation of cross section drawings and structure erection drawings for each structure location [see para I(f) and 2.5.6. I(h) respectively of **Annexure-2**.
- (iii) Choice of type and size of foundations to suit soil and loading conditions, except for the ones which are considered as 'Works under other Agencies' (see para 1.237 of **Annexure-2**).
- (iv) Preparation of long section drawings of overhead equipment where such drawings are required including detailed study of overline structures such as foot over bridges, road over bridges etc. for maintaining the specified height of contact wire and requisite clearance.
- (v) Preparation of Other designs and drawings including drawings of small parts steel work (other than those for which RDSO standard drawings are available) and detailed designs for booster transformer stations and LT Supply Transformer stations (see para 12.23 of Annexure-2).
- (vi) Supply of requisite no. of copies of all drawings, including completion drawings -specified by the Purchaser.

(vii) Preparation, design, development of Bonding Plans based on Track Circuit plans supplied by the purchaser, clearly specifying the location of various bonds, +Ve, -Ve rails and other relevant details as required for bonding plan and supply of requisite number of copies of Bonding Plans drawings.

In case preparation of the overhead equipment pegging plans by the Purchaser for any part of the section is delayed, the Contractor may be asked to prepare pegging plans for the section. No extra payment will be made for the preparation of such pegging plans. The total length of track for which the Contractor may be asked to prepare such pegging plans will not exceed 2% of the final total quantity against this Item. This price shall also cover soil investigation and testing in an approved manner.

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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. 5.Dead ends and tops of loops: The lengths for payment under this Item shall be upto the chainage of anchor mast of the terminating OHE.
6. Feeders and return feeders from grid sub-station to feeding station.
7. Provision of Copper feeder wire of 150 sq mm and to run on separate mast.
8. Crossing of 150 sqmm copper feeder wire through gantry mast only.
9. This Item will also be applicable independently in case of feeders/return feeders/ conductors from grid substation to overhead equipment feeding stations or in a case of feeders/conductors running on independent structures (not supporting ORE) along or across tracks.
10. In such a case the length of line to be Considered for purpose of Item 'a' shall be measured by the distance between the center of gantries of the grid sub-station and feeding stations in case of feeder/return feeders/conductors line from grid sub-station, or by the distance between the center line of the two structures to which the feeders/return feeders/conductors are anchored in case of feeders running along the track if such feeder/return feeders/conductors are running completely on independent structures or by the distance between the center of the two structures supporting the OHE on either side of the first and last independent structure in case of feeders/return feeders/conductors running along the track supporting OHE.

Item No. 1(b): Preparation of designs and drawings for switching stations (FP/SP/SSP)

The price shall cover on a flat rate basis per switching station, survey, Investigation of soil bearing pressure, preparation of cross section drawings, preparation of general arrangement drawings, detailed layout of equipment; bus-bar connections and insulators, layout of earthing system and earth connections, cable run layout, detailed designs and drawings for steel work and structural support, excluding the ones for which supply is made by the Purchaser, suitable concrete plinths for equipment and drawings for equipment's, components, fitting and materials supplied by the Contractor The price shall include supply of requisite number of copies of all drawings, including completion drawings as specified. (see para 12.23 of Annexure-2).

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Item No. 5(a)(i): Supply without insulator and erection of mounting arrangements for span wire

The price shall cover Supply without insulator and erection of mounting arrangements for span wire. Materials shall be procured from RDSO/CORE approved vendors. Materials shall be as per latest RDSO drawing/specification or latest.

Item No. 8(a)(xii): Marking/Painting of temperature & 'Y'-Measurement of OHE mast at BWA locations

The price shall cover for **Marking/Painting of temperature & 'Y'-Measurement of OHE mast at BWA locations**. The contractor is responsible for recording the precise physical measurements of the OHE at the time of final adjustment and painting these values onto the relevant masts. This is specifically required at all BWA (regulated OHE) where tensioning weights are used. The markings must be clear and durable: The mast surface must be cleaned of rust, scale, or grease before painting. Use high-quality enamel paint. Typically, the background is painted with a white/yellow patch, and the letters/numbers are in black or signal red. Measurements must be taken using a calibrated thermometer and a standard measuring tape after the OHE has been "final-tuned" (final tensioning and staggering completed). Markings are usually placed on the face of the mast (the side facing the track) at a height of approximately 1.5 to 2 metres from the rail level for easy visibility from the ground or a motor trolley.

Item No. 8(b)(i): Supply without insulator and erection of material for termination of Single conductor of Over Head Equipment or terminating wire

The price shall cover **Supply without insulator and erection** of all material necessary for the termination of Single conductor of overhead equipment terminating wire on a traction mast or structure including clevis assembly, with fitting and porcelain 9 tonne insulator assembly (for polluted zone) but excluding terminating wire if any, wherever double termination if required. Materials like equalizing /compensating double strap assembly. It includes the all fasteners required for termination. The price shall also cover Supply without Insulator and erection of materials for Provision of Double composite insulators at termination locations in platform areas to enhance reliability and safety, Anti-Creep, FTAs, etc.

The ending clamp shall be installed correctly duly following instruction given in RDSO SMI No. TI/MI/0051 dt. 08.12.2017 (latest). The price shall cover supply & erection (Provision) of fluorescent red tape before ending cone. (As per RDSO SMI No. TI/MI/0037 Rev-3 and TI/MI/0051).

Hot dip zinc galvanization of SPS shall be 1000 gram/sqmt as per A&C correction slip no.4 of ETI/OHE/13(4/84) or latest.

Item No. 8(b)(ix): Supply without insulator and erection of materials for termination of copper cross feeder with gantries.

The price shall cover supply & erection of all material necessary for the termination of Copper Cross feeder with gantry or structure including clevis assembly, with fitting and porcelain 9 tonne insulator assembly (for polluted zone) but excluding terminating wire if any, it includes the all fasteners required for termination. The price shall cover supply & erection for Provision of anti-falling arrangement for along feeder jumper connected to OHE.

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The ending clamp shall be installed correctly duly following instruction given in RDSO SMI No. TI/MI/0051 dt. 08.12.2017 (latest). The price shall cover supply & erection (Provision) of fluorescent red tape before ending cone. (As per RDSO SMI No. TI/MI/0037 Rev-3 and TI/MI/0051). Hot dip zinc galvanization of SPS shall be 1000 gram/sqmtr as per A&C correction slip no.4 of ETI/OHE/13(4/84) or latest.

Item No. 9(dz): Supply without insulator and erection of anti-creep with Cadmium copper catenary wire in polluted area.

The price shall cover cost for Supply & erection of complete Anti-creep assembly including 9T insulators, Terminations, copper anti creep wire etc. over and above as included in item no. E39. The copper wire will be supplied by railway from concern SSE's store. The ending clamp shall be installed correctly duly following instruction given in RDSO SMI No. TI/MI/0051 dt. 08.12.2017 (latest). The price shall cover supply & erection (Provision) of fluorescent red tape before ending cone. (As per RDSO SMI No. TI/MI/0037 Rev-3 and TI/MI/0051).

Item No. 11(a)(i): Supply without Insulator and erection of cut-in (9 Tonne) Insulator.

The price shall cover cost for supply & erection of complete 25 KV solid core long creepage Porcelain cut-in- insulator including Double strap, Catenary wire or contact wire ending cone etc. as per latest RDSO/CORE specification. The price shall cover supply & erection (Provision) of fluorescent red tape before ending cone. (As per RDSO SMI No. TI/MI/0037 Rev-3 and TI/MI/0051).

Item No. 11(a)(ii): Supply without Insulator and erection of a suspension (9 Tonne) Insulator.

The price shall cover cost for supply & erection of complete 25 KV solid core long creepage Porcelain suspension insulator assembly including Double strap, single eye clevis, suspension clamp etc. as per latest RDSO/CORE specification and drawings.

Item No. 11(b): Supply without Insulator and erection of 25 kV Post Insulator.

The price shall cover cost for supply & erection of 25KV Post Insulator with fasteners and saddles as per RDSO specification No. TI/SPC/OHE/INS/0071 or latest.

Item No. 17(h): Supply and erection of earthing station at Switching Posts (SP & SSP) with conventional earthing system.

The price shall cover supply & erection of an earthing station as per RDSO Drawing No.ETI/PSI/222 Rev-A & ETI/OHE/P/7021 or latest & RDSO specification No. TI/SPC/OHE/Fittings/0130 with A&C Slip No1, ETI-OHE-13 (4-84) may 2018, TI/SPC/OHE/Fittings/0130-10/13-Rev-1 with all accessories & fasteners for switching station of 4.00 mtrs length. The price also covers the provision of a protective concrete box with removable cover. Hot dip zinc galvanization of earth electrode tube shall be 800 gram/sqmtr as per A&C correction slip no.4 of ETI/OHE/13(4/84) or latest.

Item No. 18(b): Supply & Erection of 25kV Vacuum type Interrupter.

The price shall cover supply & erection of 25kV Vacuum interrupter, complete with operating mechanism, all fittings, and accessories including terminal connectors as per RDSO Spec. No. TI/SPC/PSI/LVCBIN/0121 (May, 2023) with latest A&C Slip. The price

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shall also cover the supply of an enameled number plate and required quantity of Long shackle brass Pad lock (Make - Godrej, Link). The price also covers cost of interlocking arrangement between VCB and concern DPI (as per RDSO guidelines). Price shall also cover the supply of different size of GI/PVC pipe for dressing of all type of cable provide at SP/SSP building cubic. Price shall also cover the supply of different size of MS chequered plate use for cable trench at SSP/SP control building cubical.

Item No. 19: Supply and Erection of 25kV Potential Transformers Type-I.

The price shall cover cost for supply & erection of 27.5 kV/100V potential transformer Type-I as per RDSO specification no. TI/SPC/PSI/PT/0210 (06/2021) or latest correction slip complete with all fittings and accessories including terminal connectors. The price also cover cost for supply of an enameled number plate and material for any Modification required for comply Latest TC, SMI/MI or local arrangement by open line. The price shall also cover for supply and modification of PT DO Fuse in SSP/SP post.

Item No. 20(a): Supply and Erection of 42kV Lightning Arrestors (station class)

The Price shall cover cost for supply & erection of 42 KV Metal oxide gapless type Lightening Arrestor as per RDSO specification No. TI/SPC/PSI/MOGTLA/0101 (02/2015) or latest including surge monitor (including suitable length of 35 sqmm cu. cable & clamps) and dis-connector assembly and an enameled number plate with fasteners and clamps. The disconnector shall be confirming to RDSO MI No. TI/MI/0048 Rev-2. After putting in service THRC (Third Harmonic Resistive Current) measurement shall be carried out on each arrestor as per RDSO MI No. TI/MF/0041 Rev-1 dtd 08.04.2010 (or latest).

Item No. 21: Supply & Erection of Terminal Boards in Control Cubicles

The price shall cover cost for supply of terminal board for 230V AC supply to Interrupters in switching post control cubicle as per RDSO/CORE latest drawings and specifications.

Item No. 22(a): Supply & Erection of Iron Clad 110 V DC Fuse Box

The price shall cover cost for supply of 110V DC distribution board in switching post control cubicle suitable for respective section and as per RDSO/CORE latest drawings and specifications.

Item No. 22(b): Supply & Erection of Iron Clad 250 V AC Fuse Box

The price shall cover cost for supply & erection of Iron clad 250V AC distribution board in switching post control cubicle suitable for respective section and as per RDSO/CORE latest drawings and specifications.

Item No. 23: Supply and Erection of Lead Acid Batteries

The price shall cover supply & erection of a 110V, 40Ah low maintenance lead acid battery complete with stand and accessories as per RDSO specification No. RDSO/PE/SPEC/TL/0040-2003 (Rev.-0) with amendment No.-1 or latest, and a tool board. The price shall also cover for cost of a tool board for keeping all accessories like Hydro Meter, thermometer etc. The price shall also cover for cost of white board and specific gravity chart board for showing of pilot shell and standard value of specific gravity.

Item No. 24: Supply of Battery chargers

The price shall cover supply & erection of a battery charger for 110V, 40Ah low maintenance lead acid battery complete with stand and accessories as per RDSO specification No. TI/SPC/PSI/40-150/CHGR/1210 with latest ACS or latest. The price shall also cover for cost of suitable size of cable to connect between battery charger and battery

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including lugs and connectors. The price shall also cover for cost of Tools for battery like thermometer, hydrometer, voltmeter etc. with proper tool stand (hydrometer stand), White board for marking of pilot cell and its voltage and specific gravity, Board showing specific gravity.

Item No. 25(a): Supply and Installation of cables for Control and indication circuit

The price shall cover cost for supply and Installation of 10 core x 2.5 sq mm PVC insulated, PVC sheathed, Copper conductor, Un armoured Electric Control cable for working voltage up to and including 1100 volts as per specification No. IS:1554/ Pt-1/ 1988 or latest and shall be packed in corrugated steel drums and procured at concern SSE's store or as desired by railway administration.

Item No. 25(b): Supply and Installation of cables for Heater supply

The price shall cover cost for supply and Installation of 2 core x 4.0 sq mm PVC insulated, PVC sheathed, Copper conductor, Un armoured Electric Control cable for working voltage up to and including 1100 volts as per specification No. IS:1554/ Pt-1/ 1988 or latest and shall be packed in corrugated steel drums and procured at concern SSE's store or as desired by railway administration.

Item No. 25(c): Supply and Installation of cables for Catenary Indication

The price shall cover cost for supply and Installation of 2 core x 2.5 sq mm PVC insulated, PVC sheathed, Copper conductor, Un armoured Electric Control cable for working voltage up to and including 1100 volts as per specification No. IS:1554/ Pt-1/ 1988 or latest and shall be packed in corrugated steel drums and procured at concern SSE's store or as desired by railway administration.

Item No. 25(d): Supply and Installation of cables for L.T. Power supply

Supply and Installation of cables for L.T. Power supply of PVC insulated 2 core, 70 Sqmm, heat resisting insulation cable, ISI marked PVC outer sheeted (FRLSH) of type ST-2 cable (FR-LSH) armoured with aluminium conductor having insulation of PVC Type C suitable for rated voltage at 1100 Volts & confirming to IS:1554 (Part1)/1988 (Reaffirmed 2005) or latest and the cable will be used for fixed/stable wiring with Stranded & Shaped conductor, Aluminium grade H2 or H4 for better Thermal stability i.e. ST-2 and tensile strength of conductor. The price shall also cover cost for supply and Installation of cable route marker at every 25mtrs. For whole length.

Item No. 25(e): Supply and Installation of cables for 110 V D.C. supply

The price shall cover cost for supply and Installation of 2 core x 4.0 sq mm PVC insulated, PVC sheathed, Copper conductor, Un armoured Electric Control cable for working voltage up to and including 1100 volts as per specification No. IS:1554/ Pt-1/ 1988 or latest and shall be packed in corrugated steel drums and procured at concern SSE's store or as desired by railway administration.

Item No. 27(a): Supply, Erection, oil-filtration, testing and commissioning of L.T. supply transformers (10 kVA)

The price shall cover cost for supply, Erection, oil-filtration, testing and commissioning of Auxiliary Transformer 25 kV/230 V, 10 KVA as per RDSO specification No. ETI/PSI/15(8-2003) or latest, with 25 KV DO fuse complete assembly including insulators as per RDSO Specification No. ETI/ PSI/14(1/86) Rev 1 (Apr-87), LV box (including MCB) for AT &

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Anti climbing device complete including barbed wires etc. the price also cover cost for Clamps, lugs, Name Plate, split arcing horn etc.

Item No. 27(c): Supply, Erection, oil-filtration, testing and commissioning of L.T. supply transformers (25 KVA)

The price shall cover cost for supply, Erection, oil-filtration, testing and commissioning of Auxiliary Transformer 25 kV/230 V, 25 KVA as per RDSO specification No. ETI/PSI/15(8/03) or latest, with 25 KV DO fuse complete assembly including insulators as per RDSO Specification No. ETI/ PSI/14 (1/86) Rev 1 (Apr•87), LV box (including MCB) for AT & Anti climbing device complete including barbed wires etc. the price also cover cost for Clamps, lugs, Name Plate, split arcing horn etc.

Item No. 28: Supply without Insulator of 25 kV D.O. fuse switch

The price shall cover cost for supply, Erection, testing and commissioning of 25 KV DO fuse complete assembly excluding insulators as per RDSO Specification No. ETI/ PSI/14(1/86) Rev 1 (Apr•87).

Item No. 31(a): Transfer of equipment from one mast or support to another

The price shall cover transfer of overhead equipment to a bracket assembly on a new mast or support and dismantling of the erected bracket assembly from the old mast of support and consequent adjustment to overhead equipment required such as re-spacing of droppers (including cost of dropper wire), levelling etc. the foundation and steel work and bracket assembly for the new mast or structure will be paid for under appropriate Items and 4 respectively.

Item No. 31(d): Dismantling of Over Head Equipment

The price shall cover cost of dismantling of equipment including Terminations, tensioning devices, guy rod assemblies bracket assemblies and associated small parts steel work (excluding components embedded in concrete). The price also cover cost for cutting of catenary wire, contact wire and other materials for DS-8 purpose (if required) and same will be handed over to concern SSE/C, Railways scrap depot for DS-8 or as desired by SSE/TRD/C. Transportation charges will be given relevant item of transportation.

Item No. 31(f): Splicing & extension of an anchored overhead equipment

The price shall cover splicing of terminated overhead equipment for extension and consequent adjustment of the affected equipment The dismantled equipment (excluding portions embedded in concrete) shall be returned to the Purchaser's Engineer The cost of dismantling of overhead equipment would be paid for under Item 31(d) for the whole length of the anchoring span Irrespective of the physical position of the splices. The extended overhead equipment shall be deemed as starting from the center line of the structure preceding the old terminating structure and the extended overhead equipment shall be paid for under Item 6(az) or 6(bz) or 6(cz) as applicable.

Item No. 31(gz): Dismantling of a Section Insulator Assembly

The price shall cover cost of dismantling 107 sq mm contact wire, 65 sq mm catenary wire, dropper wire and a section insulator, splicing of catenary and contact wires and the necessary adjustments to droppers. The price shall exclude the supply of required copper conductors for the adjustment. The dismantled equipment shall be handed over to the Purchaser's Engineer at the spot of dismantling or at the contactor's Depot's.

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Item No. 31(h): Slewing and Putting Back of OHE in Original Shape

The price shall cover for temporary slewing or lowering of erected OHE adjusted and /or unadjusted to ground for special works, at the request of the Purchaser and restoration and re-adjustment of the equipment after completion of special works. The price shall be per span or part thereof, including anchoring spans.

Additional components or materials used during such restoration or re-adjustment will be paid for at rates included in schedule 3 plus handling charges of provided such use has, in the opinion of the Purchaser, become necessary due to reasons beyond the control of the Contractor.

Item No. 31(i): Dismantling of an Isolator

The price shall cover cost for dismantle of complete isolator including terminal connectors, jumper wire, PG clamps operating rod and support insulators, operating handle and SPS. Transportation charges will be given relevant item of transportation.

Item No. 31(j): Dismantling of a Post / Pedestal Insulator

The price shall cover cost of dismantling of an isolator, single or gang-operated, including dismantling of connections to the over-head equipment and associated small parts steel work.

Item No. 31(m)(i): Manning of Switching Stations (SP/SSP)

The prices shall cover the payment/wages to the staff to be deployed at each switching station and traction sub-station as directed by purchaser's Engineer Manning shall be done round the clock The staff to be deployed must be skilled and fully Conversant with operation of various equipment's installed in switching station and traction sub-stations. The staff shall be deployed after test and trial by purchaser and on Issue of competency certificate. The staff deployed shall act in accordance with instructions/ directions given by the Traction Power Controller/representative of the purchaser The staff shall not leave the working place (Switching station and Traction Sub-station) in any case without prior permission of the purchaser's representative The price shall cover conveyance charges to the staff for going and coming to the working place. The period of manning shall be decided by the purchaser during execution of contract and manning shall commence on receipt of intimation in writing from the purchaser one month in advance.

Note: In case Feeding Post is situated adjacent to TSS same will also be included for manning along with TSS.

Item No. 35: Supply and Erection of material for internal and external lighting of Switching Station Building (SP/SSP)**1. GENERAL**

Details and specifications of the equipment, components and materials to works:-

Standards of latest/Revision edition and Indian Electricity Rules/Fire Insurance Regulations and rules shall be applicable:

IS:1646/1997

Code of practice for fire safety of buildings

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	(General) Electrical installation
IS:9537(Part-3)/1983	Rigid non-metallic conduits for electrical wiring.
IS:4648/1968	Guide for electrical layout in residential buildings.
IS 4615/1968	Switch socket out lets
IS 3419/1988	PVC Conduit accessories
IS 694:1990	Cables-LT PVC insulated multi-stranded single & multi-core
IS 3854/1997	Switches
IS 1293/2005	Plugs & sockets
IS 371/1999	ceiling rose
IS 1258/2005	Pendent holder, batten holder

1. GENERAL REMARKS FOR WIRING.

- i. Relevant code of practice for electrical wiring as per IS: 732/1989 or latest to be followed along with the following.
- ii. All lamps shall be hung at a height of not less than 2.5 m above the floor level.
- iii. Switch boards shall be provided at 1.5 mtr above the ground level.
- iv. Live wires of the points (half/phase) must be controlled by switches.
- v. Wiring shall be done by looping system. Phase/live conductors shall be looped at the switch box. For point wiring neutral/earth first looping shall be done in switchboard and subsequent loop shall be made at each point outlet. No joints shall be allowed in the wiring inside the PVC conduit/casing.
- vi. The contractor shall have to maintain the standard colour code for circuit such as phase– Red, Neutral- Black and Earth - Green /Gray. For 3-phase colour coding shall be Red, Yellow & Blue for Phases, Black for neutral and green/grey for earth.
- vii. Wiring shall be suitable for 240V AC between phase & neutral and 415 V AC between two phases.
- viii. All wiring shall be free from short - circuit/earth fault and shall be tested for these defects prior to being connected to the circuit.
- ix. There shall be a spacing of at least 125 mm between live parts and the mounting plane of the fixture.
- x. The clearance between the bottom most point of the ceiling fan and the floor shall be not less than 2.4 m. The minimum clearance between the ceiling and the plane of the blades shall be not less than 300 mm.
- xi. Light & Fan may be wired on common circuit. Such sub circuit shall not have more than a total of ten points of light, fan and 5A socket

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- outlets. The load of such circuit shall be restricted to 800 watts.
- xii. 6/16Amp socket outlets shall be installed at the following positions, unless otherwise specified.
 - xiii. a) Kitchen-23cm above working platform and away from the likely position of stove and sink.
 - xiv. b) Bathroom - no socket outlet is permitted for connecting portable appliances, thereto. MCB/IC switch may be provided 2m from fixed appliances, and at least 1m away from shower.
 - xv. xiii.Connection for electrical fitting shall be done with 3 core flexible copper wire ISI mark to from ceiling rose. Provided Chrome plated screw, nut, bolts, washer shall be used for electrical connection.
 - xvi. xiv.Wires used for wiring shall be multi-strand single core FRLS-PVC insulated 1.1kv grade Copper conductor with ISI mark. If any manufacturer discontinued FRLS wires, in such circumstances higher version FRLSH wires can be accepted. Make- As per List enclosed and shall be got approved from Dy. CEE (C) BRC before supply. All wires should be of one make.
 - xvii. xv.PVC casing capping and accessories shall be as per IS14927 of minimum thickness of 1.2 mm, Casing capping/PVC conduit pipe shall be of MMS IS: 9537 (Part - 3)/1983 and of Ivory/white colour only, wall crossing of wiring should be done through PVC Conduit pipe, make- As per List enclosed and shall be got approved from Dy. CEE (C) BRC before supply.
 - xviii. xvi.Hardware, nut, bolts, washers, clamps etc. used for fixing shall be of G.I.
 - xix. xvii. As far as possible modular Switch, modular Socket and other accessories shall be of ISI mark.

APPROVED MAKE OF VARIOUS ELECTRICAL ITEMS (POWER/ GENERAL SERVICE)

01	All types of Fans	Crompton, Usha, GEC, Almonard, Khaitan, Bajaj, Havells, Orient, Anchor, Polar, Alfa, Inova, Unique.
02	Electrical Switch gear & Relays	L&T, GE, Siemens, Indo Asian, Havells, ABB, Crompton, Schneider, C&S, HPL, Beicco Lawrie, Voltas, BHEL, AREVA, Legrand, BCH, Standard, Bentec, MEI, Jyoti
03	LED Luminaries	As per CEE/WR spec. WR/CCG/SPECIFICATION/P/001 (REV-01) – 2018 or latest
04	Modular Switches/Fan regulators/socket and accessories	Anchor/Roma, Cona, Leader, Crabtree, Legrand, C&S, HPL, Indo Asian, Havells, Standard, Bentec, Elleys, Precision, Vihan Electric.

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05	Copper wire/PVC casing capping/ PVC Conduit	ISI Mark confirming to relevant IS with approval of officer in charge
06	For all other items not included specifically in above list, contractor shall supply material as per relevant Standard as indicated in the tender with approval of Officer-in-charge.	

Guarantee: The complete system of LED lights (including Driver etc.) shall be guaranteed for satisfactory performance and manufacturing defects for a period of 60 months from date of commissioning or 72 months from the date of supply whichever is earlier.

Concealed wiring of light, fan/ex fan and call bell point & 6A plug point with Modular switch by 3 nos. 1.5 sqmm FRLS PVC insulated copper conductor multi-strand single core in PVC conduit pipe & Conduit pipe accessories of standard size concealed metal box, front plate required for multi-point modular switches / single switches with all accessories as specified, lamp holders / ceiling rose, adopter / lamps etc. with matching colour. The contractor shall supply the material and carry out wiring from switch board to load/ ceiling rose point in PVC conduit pipe of minimum 25 mm size or more size wherever required in concealed manner. For light, fan, call bell point & 6 A plug point 1.5 sqmm multi-strand single core FRLS-PVC insulated 1.1 kV grade Copper conductor wire for phase & neutral and 1.5 sqmm multi-strand single core FRLS -PVC copper conductor insulated wire of 1100Volt grade, ISI marked, conforming to IS: 694/1990 for internal earthing in the same conduit pipe. The contractor shall have to supply and provide concealed MS metal box duly GI/chromium-plated for points and plug-socket etc. The concealed switchboard of modular type to be provided by the contractor with suitable front plates and all required modular accessories.

There shall be sufficient space on switchboard to provide fan regulator & 3 pin (1 phase 1 neutral & 1 earth) plug socket. The switches, sockets & bell switch:

General Points for wiring in PVC Concealed: -

- I. Switch boards shall be provided at 1.5 mtr above the ground level.
- II. Live wires of the points (half/phase) must be controlled by switches.
- III. No joints shall be allowed in the wiring inside the PVC Concealed.
- IV. The contractor shall have to maintain the standard colour code for circuit such as phase - Red, neutral- black, and earth- green /Gray. For 3-phase colour coding shall be Red, Yellow & Blue for Phases, Blacks for neutral and green/Gray for earth.
- V. Generally, there should not be more than eight points per circuit.
- VI. Wiring shall be suitable for 250V AC between phase & neutral and 440 V AC between two phases.

Concealed wiring of plug point 16 Amps 5/6 pin with Modular switch by 3 nos. 4.0 sqmm FRLS PVC insulated copper conductor multi-strand single core in PVC conduit pipe & Conduit pipe accessories with suitable metal box, front plate with accessories in concealed

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manner with 4.0 sqmm FRLS-PVC insulated multi strand copper wire of 1100Volt grade, ISI marked, conforming to IS: 694/1990 for phase and neutral and internal earthing in 25 mm size PVC conduit pipe.

Concealed wiring for the main of 4.0 sqmm circuit for phase, neutral and 2.5 sqmm internal earthing of 2.5 sq. mm PVC insulated FRLHS from SDB to switch board & switch board to switch board & of sub-main circuit for 2.5 sqmm phase, neutral and 1.5 sqmm internal earthing from SDB to switch board & switch board to switch board shall be carried out in concealed manner with two wire sub-main with 2.5 sq. mm PVC insulated, unsheathed, multi-stranded, FRLS copper conductor of 1100 Volt grade, ISI marked, conforming to IS: 694/2010 in medium grade in minimum 25 mm or more size PVC conduit pipe.

BEE 5 Star rate brushless DC ceiling fan of 1200/1400 mm ISI Marked ceiling fan conformity of the specification as per IS 374 having facilitates of high airflow with low power consumption in addition to remote-controlled operation makes it convenient to control from a distance with decorative type of three blades suitable for colour scheme of building. Suitable suspension clamp made from G.I. flat of 40 x 6 mm with MS 'S' shaped hook of diameter not less than 10 mm shall be provided as per site requirement if fan hook is not available and this is included in the scope of work.

Concealed 100 W modular fan regulator, hum-free fan regulators on concealed metal box switchboard with plates and accessories.

Ex. fan 300 mm sweep, heavy duty with bird guard/250 mm plastic body confirming to IS 2312-The price shall cover for supply of heavy duty, industrial Exhaust Fan of metal body, 300 mm sweep with bird guard operating on 230 Volt, 50Hz AC supply complete with all accessories with three-core, 24/0.20 mm size, FRPVC insulated, flexible copper wire of 1100 Volt grade exhaust fan complete with all accessories.

20W linear 4ft LED integrated batten made of Epoxy powder coated white extruded aluminium channel housing for efficient heat dissipation. Milky white, polycarbonate diffuser, for glare free efficient light distribution and elegantly designed white coloured ABS end caps. High efficiency long life LED chips with lumen. Efficiency of 125 Lm/W with a viewing angle of 120° to ensure better lumen output. Powered by an integral electronic led driver (SMPS based constant current supply) with output short circuit protection, surge protection. Can be fixed directly into the wall/ ceiling by means of mounting SS clips provided with the fixture. Lumen output of 2250lm with system efficacy > 100lm/w CRI >80, colour temperature 6500k, THD <10% and PF> 0.95, IP20. Life class of 50,000 hrs @ 170, operating temperature: -10 to +45 °c; input supply voltage range: 140-270 V, frequency: 50-60 Hz; internal surge protection: 3 kV; protection: reverse polarity, open & short circuit. Driver safety requirement standards: is 15885-2-13, test report to be submitted; photo biological safety norms: is 16108, test certificate to be submitted; certification: Lm 79 for luminaire Lm 80 for led source The LED fitting shall be as per as per WR/CCG/Specification/P/ 001 (Rev 1) 2018 or latest.

Supply & erection of energy efficient LED Area light/flood light luminary 70 W capacity with luminous efficacy of 100. The luminary shall be made from pressure diecast aluminium housing, toughened front glass cover, fitted with secondary optics, heat sink and integrated electronic driver for long life with IP 65 protections suitable for working on 240

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Volt, 50 Hz AC supply as per Western Railways' Specification No. WR/CCG/Specification/P/001 (Rev. 01)- 2018 or latest. The driver card shall with stand 1.5 KV +/-3 % Surge protection, THD<10 %, Burning Hours 50,000. The fitting shall be of reputed quality and make. The price shall also cover for fixing, testing and commissioning of LED street light fitting on existing pole/wall by supply of 'B' class G.I. pipe of suitable size and length duly fixed with M.S. fabricated clamps made from 40 x 6 mm M.S. flat with G.I. nuts-bolts as per site condition. The supply connection shall be done through FRPVC insulated; three-core flexible copper wire of 24/0.2 mm, 1100 Volt grade, ISI marked conforming to IS: 694/1990 or latest from the existing overhead catenaries/pole mounted junction box or as per site condition in medium grade PVC conduit.

Schedule-1, Section-2 (Concrete & Foundation)

Item No. 2(a)(i) : Concrete for foundation and plinth in hard soil (including excavation and supply of all materials viz., sand, cement, and ballast etc.): and

Item No. 2(a)(ii) : Concrete for foundation and plinth in Rocky Soil (including excavation and supply of all materials viz., sand, cement, and ballast etc.):

The price shall cover excavation, supply and handling of all materials and accessories, temporary arrangements for excavation in hard soil and concrete/masonry drains/walls requiring use of chisel and hammer 2(a)(i) or requiring blasting 2(a)(ii), Shoring where necessary, casting Concrete including frame work where necessary, tamping of concrete, grouting of masts and finishing the top of concrete foundation or anchor blocks The price also includes dismantling of all connected temporary arrangements, back filling with earth and compacting the same to the required height and width as per drawing to ensure safety of foundation, confining exposed height of foundation block to within 10 cm, and removal of spoil.

The Purchaser's Engineer shall certify where use of chisel and hammer or blasting has been necessary The contractor shall arrange for supply of explosives and all tools and plants for blasting operations at his own cost If half or more of the depth or width of excavation is in hard soil/concrete/masonry drains/walls or in rock, the entire foundations shall be paid for under Item 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.

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.

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Item No. 2(b) : In other than hard soil and rock.

The price shall include all works mentioned in Item 2(a) in all classes of soil except hard soil, concrete or masonry drains and walls and rock.

Item No. 2(c)(i) : Reinforced concrete for foundation & trench.

The price shall cover excavation and all reinforced concrete work for foundation including supply of steel for reinforcement and other materials Including bending/binding laying of reinforcement shoring and shuttering where necessary, costing concrete including frame work where necessary, grouting and finishing the tops of foundation blocks with the required slope/muff. The price shall include dismantling of all connected temporary arrangement back filling as required and removal of soil. The price shall also cover all concrete work for cost in situ piles and pedestals /columns for mounting equipment. The volume of cast-in-situ piles and pedestals columns shall be added of the volume of foundation block for purposes of payment, Dowel bars will not be considered as reinforcement for the purpose of this item. The price shall include the cost of cement also. Cement will not be supplied by Rlys. The price shall include cost for paint with distemper on of foundation. The price also covers cost of smooth plastering on exposed portion of foundation. Cement shall be used of 53 grade and of popular brand.

Item No. 2(c)(ii) : Reinforced concrete for Cable trench covers.

The price shall cover costing of cable trench covers in reinforced concrete as per drawing The cable trench covers will be cashed in on angle iron frame of angle size 40x40x5. The price shall include the supply of steel for reinforcement angle iron for the frame work fabrication of angle iron frame etc. The price shall include Positioning and dressing up of the trench

Item No. 28 : Supply & spreading of Ballast/Gravel in the switch yard.

The price shall be per cum rate and shall cover supply and spreading of uniformly graded grovel/ballast of size 20 mm, in the outdoor switch yard after completing all the works and levelling the switch yard area, but before commissioning of the sub-station. The gravel/ballast shall be of good quality and free from any dust and dirt. Prior approval of ballast shall be taken from the Purchaser for the gravel samples. The gravel/ballast shall be spread out uniformly to a depth of 15cm. over the area indicated by the Purchaser's Engineer.

Note for Schedule-1, Section-2 (Concrete & Foundation)

The prices under item shall be same for any shape of size of Concrete blocks, cable trenches & brick wall. In calculating the individual volume of concrete and brick wall fraction of a cubic meter beyond the third decimal shall be rounded off to the nearest third decimal.

1. The prices under Item shall apply for concreting at all pedestals plinths and foundations for gantries/portals and supporting steel work and cable trenches.
2. For purpose of computation of volume of concrete and brick wall under Item, the volume of steel work embedded in the foundation block or muff shall be ignored.


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3. The volume of each muff will be included in the volume of concrete for the respective foundation for purpose of computation of volume of concrete.
4. The prices shall include cost of embodiment of drain pipes, conduits for cable or earthing flats where necessary.
5. In respect of concrete for cable trenches the price shall not include the cost of cable supports and trays, which shall be supplied and erected by the contractor and shall be paid for under item.
6. Dowel bars in special foundations and nominal reinforcement in black cotton soil foundation will be necessary such nominally reinforced foundations in black cotton soil will be payable under item. The steel for nominal reinforcement and dowel bars will be supplied by the contractor and the concrete mixture in such a case shall be as for normal foundation 1:3:6.

Schedule of Prices (Schedule-1, Section-3) Ferrous

Item No. 3(b)(i): Supply & erection of fabricated and galvanized structures (O, N & R type portals & TTC) with all necessary components other than masts.

The price shall cover the cost of supply of O, N and R type portals with components as per RDSO's Drg. No. 

- (i) ETVC/0008 Sheet No.1 latest Mod for 'N' type.
- (ii) ETI/C/0017 Sheet No.1 latest Mod for 'O' type.
- (iii) ETI/C/0011 Sheet No.1 latest Mod for 'R' type.

The structures shall be fabricated from steel conforming to IS-2062f2011 (or latest) Grade - E250 Quality-A IS-808/1989 and galvanised as per RDSOs specification No-ETI/OHE/13 (4/84) with A&C slip Nos 1 to 4 (or latest).

The price shall cover, cost of erection, alignment and setting before grouting, wherever required, of portals assembly of boom components and erection of the same. The prices shall also include Supply and erection of galvanised bolts, nuts washers etc. wherever required as per approved designs and drawings. The price shall cover assembling, adjustment and erection of all types of booms including TTC booms and any special structures across the track, not covered under Item ~~3(b)(iii)~~. The price shall also include the cost of repairing platform shelters in case the shelter is dismantled/ removed/damaged during the course of erection of a portal at platforms.

1. Galvanization shall be as per Railway Specification No. ETI/OHE/13(4/84) with C.S. No. 4 (05/2018) or latest with galvanization thickness of 1000 gram per sq. meter.
2. In case, required size of channels are not available as per approved drawing, higher size of channels can be used with approval of Dy. Chief Electrical Engineer (construction) and payment as per actual black weight will be paid.
3. The price shall also include the straightening of portal uprights etc bent during transit and cutting of masts/portal uprights to suit the site condition.
4. For standard fabrication of steel work or structures for which RDSO/CORE

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approved drawing are available, the black steel weight of steel work as specified in RDSO/CORE drawing, shall be considered for payment.

5. However in case the unit sectional weight of any member indicated in RDSO's drawing is not in conformity with the unit sectional weight as per the latest IS specification the weight of the fabricated steel work shall be calculated on the basis of latest IS specification and the same will be considered for payment for the nonstandard fabricated steel work, the calculated weight to be considered for payment under this item shall be included in the relevant drawing based on latest IS sectional weight at the time of submitting the designs for approval of the purchaser.
6. There will be no addition for increased weight due to galvanizing or painting or reduction for holes or screw cut.
7. Galvanization damaged during transportation/ carting will be touch up with cold ZINC paints by tenderer.
8. Crane will be arranged by railway for Portal boom erection only on demand by contractor.
9. Materials will be supplied at site of work.
10. Payable unit weights for standard mast.

Item No. 3(b)(ii): Supply and erection of structure steel (traction masts) fabricated and galvanised of all type: B-Series Mast

The price shall cover the cost of supply of B-Series traction mast 9.5 m and/or 11'4 m long i.e. B-Series Mast fabricated and galvanized as per RDSO Org No. ETI/C/0071 (Mod-E), TI/DRG/CIV/B-Mast/00001/ 13/0 with latest mod and specification No. ETI/OHE/13 (4/84) with A&C slip Nos 1 to 4 (or latest).

Steel shall be conforming to IS-2062/2011 (or latest) Grade - E250, Quality-A, and Zinc conforming to IS-209 (or Latest).

The price shall also cover the supply of all size of B-Series mast required which has not been mentioned.

The price shall cover the cost of erection, alignment and setting before grouting of individual traction masts and main masts of Switching and Booster Transformers stations including those for head spans. The price shall also include the cost of repairing platform shelters in case the shelter is dismantled/removed/damaged during the course of erection of a mast at platforms.

1. The price shall cover cost of fabrication, galvanization, and supply of individual tractions masts & Bridge mast.
2. Galvanization shall be as per Railway Specification No. ETI/OHE/13(4/84) with C.S. No. 4 (05/2018) or latest with galvanization thickness of 1000 gram per sq. meter.
3. In case, required size of channels are not available as per approved drawing, higher size of channels can be used with approval of Dy. Chief Electrical Engineer (construction) and payment as per actual black weight will be paid.

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4. The price shall also include the straightening of masts bent during transit and cutting of masts/portal uprights to suit the site condition.
5. For standard fabrication of steel work or structures for which RDSO/CORE approved drawing are available, the black steel weight of steel work as specified in RDSO/CORE drawing, shall be considered for payment.
6. However in case the unit sectional weight of any member indicated in RDSO's drawing is not in conformity with the unit sectional weight as per the latest IS specification the weight of the fabricated steel work shall be calculated on the basis of latest IS specification and the same will be considered for payment for the nonstandard fabricated steel work, the calculated weight to be considered for payment under this item shall be included in the relevant drawing based on latest IS sectional weight at the time of submitting the designs for approval of the purchaser.
7. There will be no addition for increased weight due to galvanizing or painting or reduction for holes or screw cut.
8. Galvanization damaged during transportation/ carting will be touch up with cold ZINC paints by tenderer.
9. Crane will be arranged by railway for Portal boom erection only on demand by contractor.
10. Materials will be supplied at site of work.
11. Payable unit weights for standard mast.

12.

Sr. No.	Type of mast	Black Weight (Kg) as per drawing
1	6"x6"x25.15 BFB	352.45
2	8"x6"x35 RSJ	494.00
3	B-150	369.69
4	B-175	422.89
5	B-200	474.19
6	B-250	695.27

Item No. 3(b)(iii): Supply and erection of special fabricated & galvanised steel structure other than portals and traction masts not covered under Item 3(b)(i) & 3(b)(ii).

The price shall Cover the cost of supply and erection of special fabricated & galvanised steel structures (other than BFB/RSUB-Series masts and portals) for conventional and High Rise OHE. The structure to be supplied under this Item shall be TTC, G-type, BFB type portals, Bridge masts, emergency masts -and double/fabricated "S" series masts such as S3, SS, S7, S8, S-100, S-101. T-150, Dwarf Masts etc Any other similar structure required during the execution of work shall also be supplied under this Item.

The price shall include the cost of steel, fabrication, galvanisation, and supply at site for erection.

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Steel shall be conforming to IS-2062/2011 (or latest) Grade - E250, Quality-A, Zinc conforming to

IS- 209/1997 (or latest) and galvanization to RDSOs specification No ETI/OHE/13(4/84) with A&C slip No.1 to 4, with latest spec. The various structures covered under this Item are:-

SN	Description	Drg No.	Mod
	TTC with boom	ETVC/0009 sheet 1	Latest
2	G-type portal Upright & end pieces.	ETVC/0056	Latest
3	BFB portal	ETVC/0026 Sh -1	Latest
4	S-7,12.4m	ETVC/0182	
5	S-8,12.4m	ETI/C/0183	Latest
6	S-100, for LT. transformer at SWS	ETI,'C/0043	
7	S-101, for Isolators inside SWS	ETVC/0044	Latest
8	S-3,11.4m	ETI,'C/0180	
9	S5, 114m	ETVC/0042	Latest
10	T-150, for LT supply transformer	ETI/PSI/037	Latest
11	Dwarf Mast	ETVOHE/G/1402	Latest
12	Special BFB Portal for 5 tracks (General Arrangement) for High Rise OHE.	TI/DRG'CIV/BFB-POTAL'O 0001/13/0 Sh.No. 1	
13	G-Type Portal Special Upright and End Piece for Hi h Rise OHE	TI/DRG/CIV/G-PORTAL/O 0001/13/0	Latest
14	Two Track Cantilever Structure (TTC) General Arrangement for High Rise OHE	TI/DRG/CIV/TTC/00001/13/0 Sh. 1	

The price shall cover, cost of erection, alignment and setting before grouting, wherever required, gantries, including tower/ steel tower/steel work for feeders for traction sub-station, drop arms, standard super masts and suspension brackets for return conductors, dwarf masts or stub masts for anchoring, complete with anchor plates drilled and welded in position, multiple cantilever cross arm, chairs, adopters for bracket assemblies and all other small part steel works, the erection of which is carried out by the Contractor irrespective of whether they are supplied by the Purchaser or the Contractor. The prices shall also include supply and erection of galvanised bolts, nuts washers etc wherever required as per approved designs and drawings. The prices shall also include the cost of repairing of platform shelters in case the shelter is dismantled/ removed/damaged during the course of erection of a mast/portal at platforms.

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Item No. 3(c): Supply only of fabricated steel other than masts

The price shall cover the cost of supply only of all fabricated steel work excluding fasteners which are required to be supplied by the Contractor. The cost of erection for such steel work, If carried out by the Contractor shall be paid for under Item-III.

For standard fabricated steel work for which RDSO'S approved drawings are available, the weight of steel work as specified in RDSOS drawing shall be considered for payment. However, in case the unit sectional weight of any member indicated in RDSOs drawing is not in conformity with the unit sectional weight as per the latest IS specification, the weight of the fabricated steel work shall be calculated on the basis of latest IS specification and the same will be considered for payment For the non-standard fabricated steel work, the calculated weight to be considered for payment under this Item shall be included in the relevant drawing based on, latest IS sectional weight at the time of submitting the designs for approval of the Purchaser.

The price shall include the cost of supply of bracket top and bottom mast fittings suitable for PSC masts.

Item No. 3(e)(i): Supply and erection of a Guy Rod Assembly

The price shall cover supply and erection of Guy Rod Assembly, for both conventional and High Rise OHE, of various lengths for traction masts, feeder line towers or supports complete with mast guy rod fittings, guy rod with adjustments and part/s be grouted in the anchor block The price shall not include the cost of supply and erection of a dwarf or stub mast with anchor plates drilled and welded in position, where required, for anchorage, and small parts steel work, complete with bolts and nuts etc., if any for attaching the mast guy rod fittings to the mast/structure which shall be paid for separately under the relevant Item. Prices indicated against all other Items should be exclusive of the price of supply and erection of guy rod, if any which will be paid for under this Item.

COMPONENTS REQUIREMENT

Riy. Id. No.	Description of components	Qty. per unit
3232	Mast guy rod fitting (welded) completes with 4 short bolts, nuts, lock nuts and washers for attachment to mast/S.P.S including appropriate fittings	1 set
5001/ 5001-1/ 5001-3	Anchor bolts (complete with nuts lock nuts and split pins	1 Set
5002	Guy rod stirrup	1 no.
5004 or 5005 or 5005-2 or 5006-+1 or 9070 or 9071 or5006-2	Guy rod with nut, lock nut, washer and split pin	1 Set
5007-1	Anchor 'v' bolt	2 nos.
5008	Anchor loop	2 nos.

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5220	Guy rod double strap assembly	1 set or 2 set as required
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NOTE:

1. In case the Contractor desires to adopt a different design for guy rod assembly, the same shall be indicated by him in the Tender and the components required should be clearly listed under this Item as deviation.

2. Supply and erection of guy rod assembly at anticreep portals will also be paid for under this Item.

3. Galvanization shall be as per Railway Specification No. No. ETI/OHE/13(4/84) with C.S. No. 4 (05/2018) or latest with galvanization thickness of 1000 gram per sq. meter.

4. All components should be as per latest RDSO Drawing and Specification with Revision (if any).

Item No. 3(i): Supply and erection of 25kV Caution Board/Plates

The price shall cover price of material including Caution Boards, SPS Items, nuts, bolts etc. as required and erection charges Caution Boards shall be of two types.

(i) General Caution Notice at entrance to Railway station (Hindi & English)

No. ETI/OHE/G/7551 Mod-C (or latest)

(ii) Caution Plate 25000 V No. ETI/OHE/Gf7531 Mod-C (or latest)

(iii) Price shall be inclusive of Sales tax, Excise duty, Freight etc Boards shall require to be installed on a steel structure/Rail post/wall of a building therefore mode of erection shall be as per requirement of the site.

Item No. 4(a)(i): Supply without insulator and erection of Single bracket assembly.

The price shall cover on a flat rate basis any bracket assembly on a traction mast or support on drop arm and shall include those on high/low level platform, in the vicinity of turnouts, over bridges or and at locations with reduced encumbrance or terminating wires. The price shall include the cost of supply of all components Including galvanised steel tube, dropper wires, bolts and nuts etc. but excluding small parts steel work and solid core insulators. Cost of insulators will be paid in Schedule-I, Section-5 and cost of SPS will be paid -under Item 3(c) of Schedule-I, Section-3. The price shall cover erection of all components including insulators, small parts steel work and dropper wires. However, this does not include the anticreep arrangement at masts/structures. The price shall include.

Rly. Id No.	Description of components	Qty. per unit
3021-1	Mast fitting for hook insulator (Forged)with 2 off bolts, nuts, lock nuts and washers of 16 dia	1 set

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2400	Tubular stay arm assembly (including galvanized steel tube).	1 set
2110/ 2130/ 2380	Catenary suspension bracket assembly or hook bracket	1 set
1160	Suspension clamp	1 set
2120, 2140, 2040, 2080	Bracket tube assembly complete with tube cap and sleeve where required (including galvanized steel tube).	1 set
3070-1/2	Mast bracket fitting assembly including 2 off bolts, nuts, lock nuts and washers of 16 m for attachment to structure or to small part steel work	1 set
2151-2, 2152 2161-2 2162-2	Register arm hook Top & Bottom complete forged with bolts nuts and lock nuts.	1 set
2420 or 24 22704 or 5	Register arm assembly or raised register arm assembly including galvanized steel tube.	1 set
2460	Register arm dropper assembly including dropper wire complete with bolts nuts etc.	1 set
2391-1; 2540/2520	Steady arm hook (BFB) (Forged) or bent steady arm (where required).	As required
2361-1, 2491-2, 2492-2	25 mm drop bracket (Forged) with bolts & locknuts. 25 mm Steady arm clamp (Forged) with bolts & locknuts	-do-
1220/1370/-1	Contact wire swivel clip or raised register arm cl	1 set
2550-1/2	Anti-wind clamp	As required

1. Hot dip zinc galvanisation of Tubes & fittings used on OHE cantilever, Guide tube etc. shall be 800 gram/sqmtr as per A&C correction slip no.4 of ETI/OHE/13(4/84) or latest.
2. The price shall include the cost of supply of all components including galvanized steel tube duly fabricated and without Porcelain insulators 1050/1600 mm CD as desired by open line) for polluted Zone (Id. 6000-1, 6030-1) including bolts, nuts etc. if any.
3. The price shall cover supply of all components including registered arm dropper for cantilever assembly as per latest RDSO drawing.
4. The price shall cover supply of double suspension clamp with thimble for anticreep centre.
5. The price shall cover supply of suspension clamp with thimble as per latest RDSO drawing.
6. All component should be as per latest RDSO specification and drawings, SMI, TI etc,
7. The price shall cover supply of RRA clamp must be with packing saddle as per drawing

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ETI/OHE/P/1370-1 rev-J or latest RDSO specification and drawings, SMI, TI.

8. The price shall include provision of packing saddle (RI No 1174) in catenary suspension clamp (RI No. 1160) as given in Modified drawing of suspension clamp (Drg. No. RE/33/P/1160 Rev K) as mandated vide RDSO MI No. TI/MI/0059 Dtd 05.09.24 (Drg. Attached in Annex II of above MI)
9. Composite insulators shall be used in polluted Zone and stone pelting areas with prior approval of Dy.CEE/C.
11. The price also covers cost for testing of insulator (ST/BT/9T) with Hydraulic insulator testing machine. Calibrated Insulator testing machine shall be arranged by contractor.
12. All Components shall have complied Latest RDSO/CORE specification. (Note: Forge type fittings shall be used instead of MCI wherever applicable.)
13. The price shall also cover for double inclined droppers shall be provided throughout the entire section in all the cantilevers to improve mechanical stability of the contact wire.
14. Price shall also cover for provision of 7 mm dropper in cantilever assembly.

Item No. 4(b)(i): Supply without insulator and erection of a pull off arrangement for one OHE

The price shall cover supply of all components required for a pull-off arrangement to pull one equipment only including supply Of copper conductors, small jumper(50) wire, head-span mast fittings complete with M.S. angle, equalising plate assembly, steady-arm, catenary dropper clip, contact wire swivel clip and fittings excluding solid core insulators (Cost of insulator will be paid in Schedule-I, Section-5). The price shall cover erection of all components including solid core insulators; small jumper wire and conductors.

Note:- (i) For composite OHEI a catenary dropper clip with necessary bimetallic strip/ washer to be used in place of catenary dropper clip (Id. No. 1192).

(ii) 5 mm diameter Hard drawn Copper wire shall be used for Register Arm Dropper for all locations except for those on long Girder Bridges, where wear rate is high for which 7 mm diameter Hard drawn Copper wire shall be used for Register Arm Dropper.

Item No. 8(b)(ii): Supply without Insulator and erection of materials for termination of Double conductor

The price shall cover supply of all materials necessary for the yoked termination of two overhead equipment conductors on a traction mast or structure, including appropriate mast anchoring clevis assembly, two adjusters, ending dampers for catenary and contact wires, anchor double strap assembly. equalising/ compensating plate and fittings including 9 tonne insulators (Cost Of insulator will be paid in Schedule-I, Section-5), assembly and terminating wirer if any. However, the price shall cover erection of all materials including the 9-tonne insulator assembly.

The ending clamp shall be installed correctly duly following instruction given in RDSO SMI No. TI/MI/0051 dt. 08.12.2017 (latest). The price shall cover supply & erection (Provision) of fluorescent red tape before ending cone. (As per RDSO SMI No. TI/MI/0037 Rev-3 and TI/MI/0051). Hot dip zinc galvanization of SPS shall be 1000 gram/sqmtr as per

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A&C correction slip no.4 of ETI/OHE/13(4/84) or latest.

Item No. 16(a)(i): Supply and erection of a structure bond.

1. The price shall cover for Supply and erection of a structure bond of GI flat 40 x 6 mm required to connecting a traction mast or structures to the nearest non track circuited rail, or earth electrode including all fasteners at both ends. Connection of structure bond to Rail in track circuiting area shall be done as per HQ letter No.El94/15/1(Comp. No. 677982) dated: 17.10.2025

The galvanization shall be done as per RDSO specification No. ETI/OHE/13(4/84) with C.S. No. 4 (05/2018) or latest ensuring quality of zinc, base metal, surface preparation. The weight of Zinc coating to be adopted is 750g/sqm. If galvanization is damaged due to hole drilling, welding, cutting, handling, erection etc. the rectification shall be done as per clause 8 of RDSO specification No. ETI/OHE/13(4/84) with ACS 1-4 (using zinc based solder/zinc based paints).

2. The price shall include shaping and drilling of the bond.
3. The price shall also include provision of heat shrinkable PVC sleeve & HDPE pipe as per latest guideline for structure bond under track circuited rail.
4. Pric shall also cover for connection of structure bond to Rail in track circuiting area under the sleeper as per HQ letter No. EL-94/15/1 datd 17.10.2025
5. Price shall also cover for chamfering of all type Rail hole for traction bonding.

Item No. 16(b): Supply and erection of a longitudinal bond.

1. The price shall cover for Supply and erection of a longitudinal bond of GI flat 40 x 6 mm required an electrical connection across a rail joint between consecutive lengths of rails including all fasteners at both ends.

The galvanization shall be done as per RDSO specification No. ETI/OHE/13(4/84) with C.S. No. 4 (05/2018) or latest ensuring quality of zinc, base metal, surface preparation. The weight of Zinc coating to be adopted is 750g/sqm. If galvanization is damaged due to hole drilling, welding, cutting, handling, erection etc. the rectification shall be done as per clause 8 of RDSO specification No. ETI/OHE/13(4/84) with ACS 1-4 (using zinc based solder/zinc based paints).

2. The price shall include shaping and drilling of the bond.
3. The price shall also include provision of heat shrinkable PVC sleeve & HDPE pipe as per latest guideline for structure bond under track circuited rail.

Item No. 16(c): Supply & erection of a transverse and special bond

1. The price shall cover for Supply and erection of a transverse and special bond of GI flat 40 x 6 mm, required a bond between two rails of a track or two rails of adjacent tracks including all fasteners at both ends.

The galvanization shall be done as per RDSO specification No. ETI/OHE/13(4/84) with C.S. No. 4 (05/2018) or latest ensuring quality of zinc, base metal, surface preparation. The weight of Zinc coating to be adopted is 750g/sqm. If galvanization is damaged due to hole drilling, welding, cutting, handling, erection etc. the rectification shall be done as per clause 8 of RDSO specification No. ETI/OHE/13(4/84) with ACS 1-4 (using zinc based solder/zinc based paints).

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2. The price shall include shaping and drilling of the bond.
3. The price shall also include provision of heat shrinkable PVC sleeve & HDPE pipe as per latest guideline for structure bond under track circuited rail.

Item No. 17(a): Supply & erection of a single earth electrode

The price shall cover supply of an earth electrode assembly as per RDSO Drawing No.ETI/PSI/222 Rev-A & ETI/OHE/P/7021 or latest & RDSO specification No. TI/SPC/OHE/Fittings/0130 with A&C Slip No1, ETI-OHE-13 (4-84) may 2018, TI/SPC/OHE/Fittings/0130-10/13-Rev-1 with all accessories & fasteners for switching station of 4.00 mtrs length. The price also covers the provision of a protective concrete box with removable cover. Hot dip zinc galvanization of earth electrode tube shall be 800 gram/sqmtr as per A&C correction slip no.4 of ETI/OHE/13(4/84) or latest.

Item No. 17(E): Supply and erection of 8 SWG G.I. wire for earthing

The price shall cover Supply and erection of 8 SWG G.I. wire for earthing of control panels, L.T. AC and DC distribution boards, battery chargers, etc. at sub-station control rooms. The requirement of fencing panel earthing to the nearest fencing upright shall also be included and paid for under this item.

Item No. 30(a) (i): Supply and erection of fencing panels at switching Station

The price shall include supply and erection of fencing panels painted with two coats of red Oxide zinc chromate primer to IS:2074:1979 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 metre length of the panels, 2.4 meter height measured in the plan view of appropriate approved drawings. The fencing panel should be made with 8 SWG Wire.

Item No. 30(a) (ii): Supply and erection of fencing uprights

The price shall cover supply and erection of fencing uprights painted with two coats of red oxide zinc chromate primer to IS-2074:1992 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. The cost of foundation of uprights will be paid under Item-2.

Item No. 30(b)(i): Supply and erection of anticlimbing device for Switching stations

The price shall cover supply with erection of an anti-climbing device consisting of steel fixture and galvanized barbed wire mounted on the fencing panels as per approved drawings. The price shall be per meter length of the panel. The price shall include painting of the fixtures with two coats of red oxide zinc chromate primer and finished with two coats of Aluminum paint as per IS: 2339.

Item No. 30(b)(ii): Supply and erection of anti-climbing device for L.T. Supply Transformer Stations.

The price shall cover supply with erection of an anti-climbing device consisting of steel fixture and galvanized barbed wire mounted on the fencing panels as per approved drawings. The price shall be per meter length of the panel. The price shall include painting

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of the fixtures with two coats of red oxide zinc chromate primer and finished with two coats of Aluminum paint as per IS: 2339.

Item No. 30(b)(iV): Supply and erection of anti-monkey menace.

The price shall include supply and fabrication of Anti Monkey scare measure for OHE mast at Monkey menace prone areas as per RDSO SMI No. TI/MI/0056 Rev-2 or ltest. The AMCD shall be barbed wire frame type as per Drg no TI/SK/OHE/ANTIMON/RDSO/00001/08/0 given in Annexure I OR Cylindrical arrangement as per drawing given in Annexure II. Location and type of AMCD shall be jointly decided by SSE/Elect/Construction and SSE/TRD and approved by Sr.DEE/TRD. One sample for each type of OHE mast /Structure is to be fabricated and submitted to concern SSE for approval before utilization at site. Any modification suggested by concern SSE based on practical implication must be incorporated in the design.

Item No. 30(j): Supply & Erection of protective screens on ROB/FOB

The price shall include design, supply, fabrication & erection of of continuous protective screens across the entire span of ROBs and FOBs passing over electrified tracks (Provision of continuous protective screen on FOB and ROB from inside shall be done) as per the RDSO latest drawing No. ETI/C/0068 Mod-H. The price shall cover all materials required for fabrication, including steel angles, tees, expanded metal (Jali), GI sheets, and paints. The price shall also include labour charges for fabrication, transportation, painting, and erection at specified locations. All works must strictly adhere to the Research Designs and Standards Organisation (RDSO) guidelines. Fabrication and erection must follow RDSO Drawing No. ETI/C/0068 Mod-I (latest revision). For ROBs, a parapet wall height of 1.80m must be ensured. If the existing wall is lower, a standard protective screen of 1.80m must be provided. Protective screens must be fixed inside the FOB/ROB structure to prevent any components from falling onto the live Over Head Equipment (OHE) wires. All gaps under the screens must be properly closed to prevent rainwater from seeping onto the OHE.

Item No.3(g): Supply of steel reinforcement for RCC work including cost of cutting, straightening, bending, biding, erecting and placing & keeping in position including all lead & lift & including cost of binding wire

The Item covers the price of supply of tested quality of steel for reinforcement of appropriate size and for reinforcement steel above 8 mm or suitable dia shall be High strength deformed steel bars conforming to IS:1786/1985 and below 8 mm dia shall be mild steel and medium tensile steel bars conforming to IS:432(Pt.I)/1982.

Price shall cover the cost towards cutting, straightening hooking, bending, binding, erecting and placing and keeping in position including all lead and lift and including cost of binding wire.

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.

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(Schedule of Prices-1, Section-4: Non Ferrous item)**Item No. 5(az)(ii): Supply and erection of span wire.**

The price shall cover supply and erection of a large span wire (130) per meter The payable length in case of head span wires shall be the horizontal distance between the inner faces of all traction masts/structure on which the mast attachments are mounted. and in case of Large Span Wire, the actual length shall be measured at the time of erection. No extra payment shall be made on account of the sag Erections of a meter beyond the first decimal shall be rounded off to the nearest first decimal.

NOTE: The quantity for which the payment is made for the supply and erection of large span wire under this Item shall be deducted from the corresponding length in the span for which payment is made under Item 6(az).

Item No. 6(az): Supply and erection of Over Head Equipment only.

The price shall cover the supply of all copper conductors including dropper wire (5 mm), jumper wire (50 sq mm, 19/1/80 mm) & 160 sq. mm Jumper wire as per the specifications indicated in Annexure-I. The price shall be excluding the cost of supply of contact wire (107 sq.mm HDGCC), catenary (65 sq.mm 19/2.10 mm, to be supplied by the purchaser. Provision of G jumper 160 sqmm with cross type arrangement as per RDSO drawing. Price shall also cover for provision of G jumper in overlap Zone instead of cross over zone at X/o & T/O location. Price shall also cover for provision of double G jumpers at first subsector to enhance current carrying Reliability.

The price Shall cover supply of all components including dropper Clips, parallel clamps for jumpering and splices (where their use is approved) and small parts steel works complete with bolts and nuts etc. for attachment of number plates to mast/structure, if any. Price shall also cover erection Three (03) nos. PG clamps, instead of 02 nos. on G jumpers, F jumpers, AT jumpers, and isolator jumpers to ensure firm connections. The price shall cover erection of all components and wires and conductors including contact wire, catenary wire, droppers, jumpers and terminating wires, if any, but excluding small parts steel work% if any. The price shall be excluding the cost of erection of large span wire, which will be paid under Item 5(az)(ii).

The price shall include provision of Retro reflective number plates on traction masts or structures. The prices shall exclude supply of small parts steel work for fixing of retro reflective number plate (like as Clamps & plates) will be paid under Item The price shall include bolts and nuts for attachment of Retro reflective number plates to masts/ structures The price shall also include the cost of painting the setting distance and rail level on masts/structures, stencilling of symbol for direction of emergency telephone socket The price shall not include termination of conductors which will be paid for under Item 8.

Rly. Ident No.	Description of components	Qty. for unit
	Dropper wire (5mm)	As required
	C & Antitheft Jumper wire (50 sqmm)	As required
	Jumper wire (160 sqmm)	As required

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1040-2 or SK-534/1 SK-575,'2 or SK- 576/1 SK-535/2 or 1041-3, 1031-3	& Contact Wire parallel clamp	As required
1180/SK572/1 &SK-572/2	Contact wire dropper clip (107)	-do-
1192	Catenary dropper clip complete with bolts, nuts etc	-do-
7501/7503	Enameled/ Retro reflective number plates complete with 2 Galv MS bolts m 10x35/30, nuts and lead washer for m 10 bolts but excluding SPS for attachment of number plate to masts/structures.	-do-
1110-2	Contact wire ending clamp	-do-
1120	Catenary ending clamp	-do-
1140	Large span wire clamp (130)	-do-
5020-1/5020-2	9-Tonne Adjuster (Forged)	
5030	Anchor double strap assembly	-do-
5191/5192	Compensating plate/equaiizing plate	-do-
The price shall also cover cost of different size of Rail Jumper, Hand Globes and Tape required for working in electrified section by Engineering gang, S&T, Operating and other Railway department in the section. Supply required for whole section.		
The price shall also cover cost of Hand Globes and Bamboo required for LC gate mans and Station master in the section, required for commissioning. Supply required for whole section.		
The price shall also cover cost of different size of MS cheques plate required for SSP/SP control building cubical required for commissioning. Supply required for whole section.		

Note: Tower wagon shall be made available for final checking of OHE prior to commissioning. In case of wiring train/8 Wheeler-Tower wagon is provided by railway for wiring, 75% of Erection rates of overhead equipment shall be paid.

Item No. 7(e): Supply and Erection of copper cross feeder wires 150 sqmm (37/2.25 mm HDBC) across the track at SP/SSP/FP/BT locations

The price shall cover the supply and erection of 25 kV feeder wire across/along the track at the location of SP/SSP/FP/BT/Gantries stations. Feeder wire shall be made of hard drawn bare copper conductor of size 150 sqmm (37/2.25 mm). The price shall be inclusive of cost of feeder wire but exclusive of termination (which will be paid under Item 8(b)(ix) and small parts steel work complete with bolts, nuts etc if any. The price shall cover supply &

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erection for Provision of anti-falling arrangement for along feeder jumper connected to OHE.

Item No. 12(az): Supply without Insulator & erection of a section insulator assembly

The price shall cover supply of all components required for a standard section insulator assembly (serving both the overhead equipment conductors) including supply of dropper wires for special droppers for supporting the equipment and all terminal fittings for conductors and the section insulator assembly including 9 tonne Insulator (RI No.6020) (Cost of insulator will be paid in Schedule-I, Section-5) on the catenary and Sectioning insulator (RI No.6110). The price shall be exclusive of Contact and Catenary wires, required if any. The price shall cover erection and adjustment of all components including section insulator assembly, 9-ton insulator on the catenary, Sectioning Insulator, Contact wire and droppers. Required quantity of Contact wire for the work shall be supplied by the purchaser.

Rly. Ident. No.	Description of components	Qty. per unit
1120 or 1120-1(1122 & 1123	Catenary ending clamp	2 set
1192,'ET1/OHE/SK/333.	Catenary dropper with assembly	As required
6170	Parallel clamp for double contact wire	12 set
6180	Section insulator dropper assembly	3 set
6100	Section insulator assembly	TO be supplied by the Contractor.
6020	9 tonne insulator assembly	To be supplied by the Contractor.

Item No. 12(d): Supply and Erection of a Ceramic/beaded Glass Fibre type (PTFE) Short Neutral section assembly

The price shall cover Supply and Erection of a Ceramic/beaded Glass Fibre type (PTFE) Short Neutral section assembly complete assembly. The price shall also cover end fitting for contact & catenary wire and other material required for erection & smooth operation with earthing arrangement. The short neutral assembly to be as per RDSO specification No. TI/SPC/OHE /SNS/0000 Rev.-1 with A&C Slip No.1or latest. Neutral section should be purchase from RDSO/CORE approved source only. The material is suitable for i.e. 65 sq.mm Catenary and 107 sq.mm contact wires. The ending clamp shall be installed correctly duly following instruction given in RDSO SMI No. TI/MI/0051 dt. 08.12.2017 (latest). The price shall cover supply & erection (Provision) of fluorescent red tape before ending cone. (As per RDSO SMI No. TI/MI/0037 Rev-3 and TI/MI/0051).

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Item No. 13(a): Supply without Insulator and erection of a 25 kV single pole isolator without earth contact assembly

The price shall cover **Supply without Insulator and erection** of a 25 KV, 1600A Single pole isolator complete for SP/SSP's and OHE's as per RDSO specification No. TI/SPC/PSI/ISOLTR/0210 with ACS Slip No.1 and 2 or latest, with mounting base (including 25 KV pedestal insulators-2 Nos. and operating rod insulators- 1 Nos.), operating rod and operating rod guides required for the operation of the isolator.

The price shall also cover supply of Al/Cu strips, integral lock, a 50 mm Brass pad-lock (Make - Godrej, Link), copper jumper for earthing and an Enameled number plate of approved design for each isolator.

Hot dip zinc galvanization of operating tube shall be 800 gram/sqmtr as per A&C correction slip no.4 of ETI/OHE/13(4/84) or latest.

Item No. 13(c): Supply without Insulators & erection of 25kV Double Pole Isolator

The price shall cover **Supply & Erection** of a 25 KV, 3150A Double pole isolator complete as per RDSO specification No. TI/SPC/PSI/ISOLTR/0210 with ACS Slip No.1 or latest, with mounting base (including 25 KV pedestal insulators-4 Nos. and operating rod insulators-2 Nos.), operating rod and operating rod guides required for the operation of the isolator.

The price shall also cover supply of Al/Cu strips, Integral lock, a 50 mm Brass pad-lock (Make - Godrej), flexible copper jumper for earthing and an Enameled number plate of approved design for each isolator.

Item No. 13(d): Extra for supply & erection of an earth contact assembly in an isolator

The price shall be payable as extra for supply and erection of an earth contact assembly in any isolator. The price shall cover the cost of supply and erection of 3x25 mm copper connections between the earth contact assembly and the structures.

Item No. 15(a)(i): Supply and erection of 160 sq.mm large copper jumpers.

The price shall cover the supply of large jumper wire size 160 sqmm made of annealed stranded 100% pure copper conductor as per RDSO's specification No. TI/SPC/OHE/JMP/0941 or latest and on a flat rate basis, the supply of all components and fittings required for providing a flexible copper large jumper connection, including supply of parallel dams, bi-metallic and Aluminium Copper Al-Cu strips, wherever required, and bolted type terminal connectors where ever required.

The price shall also cover the erection of the complete jumper assembly including jumper Wire. The price shall not, however be applicable for jumper connections already including under Item 6(az) and 10, but shall be applicable for any jumper of 160 sq.mm connections in any combination between feeders, lightening arrestors, isolators and boosters' stations. Continuity jumper at Boom anchor anti-creep will be payable under this Item.

Item No. 15(a)(ii): Supply & erection of small copper jumpers

The price shall cover supply of small jumper wire size 50sq mm (19/1.80 mm) made of annealed stranded pure copper conductor as per as per RDSO/CORE latest drawing and specification No. TI/SPC/OHE/JMP/0941 or latest , and on a flat rate basis, the supply of all components and fittings required for providing a flexible small copper jumper connection, including supply of parallel clamps, Aluminium Copper (Al-Cu) bi-metallic strips, wherever required, and bolted type terminal connector where ever required. The price shall also cover the erection of the complete jumper

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assembly including jumper wire. The price shall not, however, be applicable for jumper connections already including under Item 6(az) and 10, but shall be applicable for any small jumper connection in any combination required for lightening arresters and Isolators etc. Anti-theft jumper as per drawing No. ETI/OHE/G/05107, with latest mod. for connecting out-of-run OHE with the in running OHE at insulated/un-insulated over-lap locations and also anticreep locations at polluted zone wherever considered necessary will be payable under this Item.

Item No. 15(a)(iv): Supply & erection of a copper jumper (5 mm dia dropper wire).

The price Shall cover supply Of conductors/jumper wires, and on a flat rate basis, the supply of all components and fittings required for providing a single strand/flexible copper jumper connections not included under Items 6(az), 107 15(a)(ii) & 15(az)(iii), including supply of parallel clamps, Aluminium Copper (Al-Cu) bi-metallic strips, wherever required, including supply of bolted type terminal connector where ever required.

The price shall also cover the erection of the complete jumper assembly including jumper wire, to be provided between the Overhead equipment and LT. Transformers, drop out switch.

Note: In case the required length of jumper wires vary from the lengths given in column (4) of Annexure-6; the payment/deduction towards the extra/short length of jumper wires supplied 15(d) & 15(e) will be made at the rates given in.

Item No. 15(e): Supply of materials and erection of large copper jumper 160 Sq. mm between cross feeder and OHE

This jumper shall be provided between copper cross feeders and OHE. The price shall cover supply of 160 sq mm flexible copper jumper wire, made of annealed standard 100% pure copper conductor as per RDSOs specification TI/SPC/OHE/JMP/0941 (or latest spec and all components and fittings required for providing a flexible (160 Sq. mm) between copper cross feeder and existing OHE, including Parallel clamps (1030-3 & 1050-3) complete with fasteners etc as required. The price shall also cover the erection of the complete jumper assembly including jumper wire.

The price shall cover providing (Supply & Erection) for Provision of anti-falling arrangement for along feeder jumper connected to OHE.

Item No. 17(d): Supply and erection of copper strips for equipment earthing.

The price shall cover supply and erection of 25mmx3mm copper strips to connect the earth terminals of equipments like potential transformers, lightening arrestors, L.T supply transformers and booster transformer 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 No. 26(a)(ii): Supply & erection of Solid copper bus-bars 18mm.

The price shall cover cost for **Supply & Erection** of 18mm solid copper busbar as per latest RDSO/CORE specification or drawing.

Item No. 17(a): Supply & Erection of Tubular Aluminium Bus bars 50x39mm Dia

The price shall cover cost for **Supply & Erection** of 50/39 mm Al. bus bars procured from CORE approved sources in standard length. Bus bar shall be made of aluminium alloy grade63401 (WP condition to IS:5082-1981 or latest. The tolerance on diameter & thickness shall be as per Class-I of IS:2673- 1979 or latest. The bus bar shall be clean, smooth, mechanically sound and free from surface and other defects. The open end of bus-bar shall be covered by suitable tube cap. No splicing normally be allowed in the tubular bus-bars, unless the bus-bars exceeds 6M.

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Item No. 17(c)(i): Supply & Erection of Rigid Bimetallic Terminal Connector Suitable for 50 Dia Aluminium Tubular Busbar to Terminal Pad of 25kV Isolator/CT (RI-11090)

The price shall cover cost for Supply & Erection of Rigid Bimetallic Terminal Connector Suitable for 50 Dia Aluminium Tubular Busbar to Terminal Pad of 25kV Isolator/CT (RI-11090) as per requirement. The price also covers supply of fasteners and bimetallic strip (if applicable). The material shall be procured with latest RDSO specifications and approved source only.

Item No. 17(c)(ii): Supply & Erection of Expansion Type Terminal Connector to Suit 50 Dia Aluminium Tubular Busbar, Terminal Pad of 25kV CT/Isolator (RI-11060)

The price shall cover cost for Supply & Erection of Expansion Type Terminal Connector to Suit 50 Dia Aluminium Tubular Busbar, Terminal Pad of 25kV CT/Isolator (RI-11060) as per requirement. The price also covers supply of fasteners and bimetallic strip (if applicable). The material shall be procured with latest RDSO specifications and approved source only.

Item No. 17(c)(iii): Supply & Erection of 25kV System Rigid Bus Splice Connector to Suit 50 O/D Aluminium Tube on Both Ways (RI-11180)

The price shall cover cost for Supply & Erection of 25kV System Rigid Bus Splice Connector to Suit 50 O/D Aluminium Tube on Both Ways (RI-11180) as per requirement. The price also covers supply of fasteners and bimetallic strip (if applicable). The material shall be procured with latest RDSO specifications and approved source only.

Item No. 17(c)(iv): Supply & Erection of 25kV System TEE Connector to Suit 50 O/D Aluminium Tubular Busbar (RI-11150)

The price shall cover cost for Supply & Erection of 25kV System TEE Connector to Suit 50 O/D Aluminium Tubular Busbar (RI-11150) as per requirement. The price also covers supply of fasteners and bimetallic strip (if applicable). The material shall be procured with latest RDSO specifications and approved source only.

Item No. 17(c)(v): Supply & Erection of Rigid Through Connector to Suit 50 Dia Aluminium Tubular Busbar & SPIDER AAC Conductor for 25kV P.T Type-II (RI-11110)

The price shall cover cost for Supply & Erection of Rigid Through Connector to Suit 50 Dia Aluminium Tubular Busbar & SPIDER AAC Conductor for 25kV P.T Type-II (RI-11110) as per requirement. The price also covers supply of fasteners and bimetallic strip (if applicable). The material shall be procured with latest RDSO specifications and approved source only.

Item No. 17(c)(vi): Supply & Erection of 25kV System Expansion Bus Coupler on SI to Suit 50 O/D Al. Tube (RI-11120).

The price shall cover cost for Supply & Erection of 25kV System Expansion Bus Coupler on SI to Suit 50 O/D Al. Tube (RI-11120) as per requirement. The price also covers supply of fasteners and bimetallic strip (if applicable). The material shall be procured with latest RDSO specifications and approved source only.

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Item No. 17(c)(vii): Supply & Erection of 25kV System Tee Connector to Suit 50 O/D Aluminium Tubular Spider AAC Conductor (RI-11140)

The price shall cover cost for Supply & Erection of 25kV System Tee Connector to Suit 50 O/D Aluminium Tubular Spider AAC Conductor (RI-11140) as per requirement. The price also covers supply of fasteners and bimetallic strip (if applicable). The material shall be procured with latest RDSO specifications and approved source only.

Item No. 17(c)(viii): Supply & Erection of 25kV System Tee to Suit ZEBRA (28.58 Dia) ACSR Conductor on Both Ways (RI-11040)

The price shall cover cost for Supply & Erection of 25kV System Tee to Suit ZEBRA (28.58 Dia) ACSR Conductor on Both Ways (RI-11040) as per requirement. The price also covers supply of fasteners and bimetallic strip (if applicable). The material shall be procured with latest RDSO specifications and approved source only.

Item No. 17(c)(ix): Supply & Erection of Rigid Terminal Conductor Suitable for 20 Dia Al. Conductor To Terminal Pad of 132/66 kV CB, Isolator & 25kV PT Type I & II (RI-11120)

The price shall cover cost for Supply & Erection of Rigid Terminal Conductor Suitable for 20 Dia Al. Conductor to Terminal Pad of 132/66 kV CB, Isolator & 25kV PT Type I & II (RI-11120) as per requirement. The price also covers supply of fasteners and bimetallic strip (if applicable). The material shall be procured with latest RDSO specifications and approved source only.

Item No. 17(c)(x): Supply & Erection of Rigid Connector On SI To Suit 50 Mm O/D Al. Bus Bar (RI-11200)

The price shall cover cost for Supply & Erection of Rigid Connector On SI To Suit 50 Mm O/D Al. Bus Bar (RI-11200) as per requirement. The price also covers supply of fasteners and bimetallic strip (if applicable). The material shall be procured with latest RDSO specifications and approved source only.

Item No. 17(c)(xi): Supply & Erection of Sliding Clamp for 50mm O/D Al. Bus Bar (RI-11190)

The price shall cover cost for Supply & Erection of Sliding Clamp for 50mm O/D Al. Bus Bar (RI-11190) as per requirement. The price also covers supply of fasteners and bimetallic strip (if applicable). The material shall be procured with latest RDSO specifications and approved source only.

Schedule of Prices (Schedule -1, Section-5: Insulator)**Item No. 4(ax)(i): Supply of Stay Arm Porcelain (CD-1050 mm)**

The price shall cover cost for supply of complete 25 KV solid core long creepage Porcelain stay Arm insulator (CD-1050 mm) as per latest RDSO/CORE specification TI/SPC/OHE/INS/0071 or latest. The price shall cover for 100% testing (joint testing) of insulators shall be done before providing to the line. Use only UTM. (As per the latest guidelines)

Item No. 4(ax)(iv): Supply of Bracket Porcelain (CD-1050 mm)

The price shall cover cost for supply of complete 25 KV solid core long creepage Porcelain

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Bracket Porcelain insulator (CD-1050 mm) as per latest RDSO/CORE specification TI/SPC/OHE/INS/0071 or latest. The price shall cover for 100% testing (joint testing) of insulators shall be done before providing to the line. (As per the latest guidelines)

Item No. 4(bx)(i): Supply of 9-Tonne insulators for items 4(b)(i) & 4(b)(iii): Stay Arm Porcelain (CD-1050 mm)

The price shall cover cost for supply of complete 25 KV solid core long creepage Porcelain 9-Tonne insulators for items 4(b)(i) & 4(b)(iii): Stay Arm Porcelain (CD-1050 mm) as per latest RDSO/CORE specification TI/SPC/OHE/INS/0071 or latest. The price shall cover for 100% testing (joint testing) of insulators shall be done before providing to the line. (As per the latest guidelines).

Item No. 4(bx)(i): Supply of 9-Tonne insulators for items 4(b)(i) & 4(b)(iii): Porcelain (CD-1050 mm)

The price shall cover cost for supply of complete 25 KV solid core long creepage Porcelain 9-Tonne insulators for items 4(b)(i) & 4(b)(iii): Porcelain (CD-1050 mm) as per latest RDSO/CORE specification TI/SPC/OHE/INS/0071 or latest. The price shall cover for 100% testing (joint testing) of insulators shall be done before providing to the line. (As per the latest guidelines).

Item No. 8(bx)(i): Supply of 9-Tonne insulators for items 8(b)(i), (ii), (iii), (vi), (vii),(vii)&(ix):- Porcelain (CD-1050mm)

The price shall cover cost for supply of complete 25 KV solid core long creepage Porcelain 9 Tonne insulators for items 8(b)(i), (ii), (iii), (vi), (vii),(vii)&(ix):- Porcelain (CD-1050mm) as per latest RDSO/CORE specification TI/SPC/OHE/INS/0071 or latest. The price shall cover for 100% testing (joint testing) of insulators shall be done before providing to the line. (As per the latest guidelines).

Item No. 9(ax)(i): Supply of 9-Tonne insulators for items 9(a), (b), (c), (d)& (e):- Porcelain (CD-1050mm)

The price shall cover cost for supply of complete 25 KV solid core long creepage Porcelain 9 Tonne insulators for items 9(a), (b), (c), (d)& (e):- Porcelain (CD-1050mm) as per latest RDSO/CORE specification TI/SPC/OHE/INS/0071 or latest. The price shall cover for 100% testing (joint testing) of insulators shall be done before providing to the line. (As per the latest guidelines).

Item No. 11(ax)(i): Supply of 9-Tonne insulator for items 11(a)(i), &11 (a)(ii):- Porcelain (CD-1050mm)

The price shall cover cost for supply of complete 25 KV solid core long creepage Porcelain 9 Tonne insulators for items 11(a)(i), &11 (a)(ii):- Porcelain (CD-1050mm) as per latest RDSO/CORE specification TI/SPC/OHE/INS/0071 or latest. The price shall cover for 100% testing (joint testing) of insulators shall be done before providing to the line. (As per the latest guidelines).

Item No. 12(ax)(i): supply of 9-Tonne insulator for items No. 12(a):- Porcelain (CD-1050mm)

The price shall cover cost for supply of complete 25 KV solid core long creepage Porcelain 9 Tonne insulators for items No. 12(a) Porcelain (CD-1050mm) as per latest RDSO/CORE

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specification TI/SPC/OHE/INS/0071 or latest. The price shall cover for 100% testing (joint testing) of insulators shall be done before providing to the line. (As per the latest guidelines).

Item No. 12(cx): Supply of Sectioning Insulators for item No. 12(c) and 12(cx)

The price shall cover cost for supply of complete 25 KV solid core long creepage Porcelain 9 Tonne insulators for item No. 12(c) and 12(cx) Porcelain (CD-1050mm) as per latest RDSO/CORE specification TI/SPC/OHE/INS/0071 or latest. The price shall cover for 100% testing (joint testing) of insulators shall be done before providing to the line. (As per the latest guidelines).

Item No. 13(ax): Supply of Post & Operating rod insulators for item 13(a)

The price shall cover cost for supply of complete 25 KV solid core long creepage Porcelain 9 Tonne insulators for **item 13(a)** Porcelain (CD-1050mm) as per latest RDSO/CORE specification TI/SPC/OHE/INS/0071 or latest. The price shall cover for 100% testing (joint testing) of insulators shall be done before providing to the line. (As per the latest guidelines).

Item No. 13(cx): Supply of Post & Operating rod insulators for item 13(c)

The price shall cover cost for supply of complete 25 KV solid core long creepage Porcelain 9 Tonne insulators for **item 13(c)** Porcelain (CD-1050mm) as per latest RDSO/CORE specification TI/SPC/OHE/INS/0071 or latest. The price shall cover for 100% testing (joint testing) of insulators shall be done before providing to the line. (As per the latest guidelines)

Schedule -1, Section-6 (Providing, fixing of supporting arrangements for holding of OHE Mast in the Bridge Pier/ Viaduct)

Item No. 1: Preparation of design and drawing of Bridge Mast Fixing arrangement for holding of OHE.

The price shall be covered for Preparation of design and drawing of Bridge Mast Fixing arrangement for holding of OHE on Bridge pier. The price also cover cost for design and calculation of bridge OHE mast and its fixings arrangement calculation (holding down bolt calculation, Base plate calculation etc.) and OHE profile calculation for OHE under steel girder Bridge, Web bridge. The price also cover cost for approval of all these drawing and calculation from Railway Competent Authority open line as well as Construction. The price also cover cost for supply minimum 6 sets of Hard copy on paper/tracing with soft copy. The price also cover cost for submission and preparation of as erected drawing, design & calculation

Item No. 2: Scanning of RCC piar capes of Bridges with approved scanner detector /Rebar locator to find out the correct locations of reinforcement in piar caps of bridge up to depth of 900mm at various location marking on safe properly and submit the sketch of each location to avoid any damage to reinforcement of piar caps (work will be done under traffic condition with contractor ladder staging protection team and all safety arrangement with contractor tools plants equipments etc.)

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The price shall be covered cost for Scanning of RCC piers of Bridges with approved scanner detector/Rebar locator to find out the correct locations of reinforcement in piers of bridge up to depth of 900mm at various locations marking on safe properly and submit the sketch of each location to avoid any damage to reinforcement of piers (work will be done under traffic condition with contractor ladder staging protection team and all safety arrangement with contractor tools plants equipment etc.).

Item No. 3: Drilling horizontal/ vertical holes of up to 50 mm dia. in the existing stone masonry of RCC slab/CC/ Stone / Brick etc. work in pier cap of bridge pair to a depth varying from 500 to 1100 mm under line block using pneumatic driller, compressor etc and cleaning the holes using compressor for pressure grouting and removing the rock/ soil/ concrete fallen due to cavity formation and disposal of surplus spoils at locations and also as directed by the engineer –in charge with all lead and lift (all labour and materials by the contractor. the rate is inclusive of providing lighting arrangements.)

The price shall be covered cost for drilling horizontal/ vertical holes of up to 50 mm dia. in the existing stone masonry of RCC slab/CC/ Stone / Brick etc. work in pier cap of bridge pair to a depth varying from 500 to 1100 mm under line block as shown in the approved drawing using pneumatic driller, compressor etc using pneumatic driller, compressor etc. and cleaning the holes using compressor for pressure grouting and removing the rock/ soil/concrete fallen due to cavity formation and disposal of surplus spoils at locations and also as directed by the engineer -in charge with all lead and lift. The price shall be covered cost for all required labour and materials arranged by the contractor. The price shall be also covered cost for electricity & lighting arrangements.

Item No. 4: Supply of TGT bolts 25x1350x250 mm dia. Corrugated surface with hex nut, lock nut, Flat washer and spring washer as per RDSO Specification no. TI / SPC / OHE / Fasteners/0120 or latest.

The price shall be covered cost for Supply of TGT bolts size of 25x1350x250mm or bolt size shall be vary in length & dia as per calculation submitted by firm and approved by Railway with Corrugated surface with hex nut, lock nut, Flat washer and spring washer as per RDSO Specification no. TI / SPC / OHE /Fasteners/0120 or latest.

Item No. 5: Fixing of bolts of 25mm dia 1250mm long up to 1100mm with pressure grouting the existing drilled holes in the existing stone masonry of RCC slab/CC/ Stone / Brick etc. work in pier cap of bridge pair by epoxy groutings UNDER LINE BLOCK conditions at a minimum pressure of 7/kg/cm² consists of approved quality of epoxy resin harder and thinner (Araldite, Aradur, Fosroc, & similar make)) by suitable proportions including filler, such as silicon flour etc.

The price shall be covered for Fixing of bolts of 25mm dia 1250mm long up to 1100mm with pressure grouting the existing drilled holes in the existing stone masonry of RCC slab/CC/ Stone / Brick etc. work in pier cap of bridge pair by epoxy grouting at a minimum pressure of 7/kg/cm² consists of approved quality of epoxy resin harder and thinner (Araldite, Aradur, Fosroc, & similar make)) by suitable proportions including filler, such as silicon flour etc. as recommends by manufacturer the grouting should be carried after placing the bolts in position including all operation as per bridge code for epoxy grouting and also as directed by the Engineer -in charge with all lead and lift (all labour, materials and tools and plants like

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pneumatic driller equipment's, pressure injection, air compressor portable generator etc. by the contractor. The contractor's supply of items such as epoxy, resin and hardener should be provided with necessary test certificate for pot life test, strength test from approved test houses. The rate is also inclusive for providing lighting arrangements while execution).

Schedule -1, Section-7 (Other than SOR Item)

Item No. 1: Supply & Erection of Antibird disc on insulator end fitting

The price shall cover supply & Erection of Antibird disc on ST, BT & 9 ton insulators end fittings as per RDSO Drg No. TI/DRG/OHE/ABD/RDSO/00000/19/0 Rev.-I (Sh-1 & 2) or latest, under RDSO MI No. TI/MI/00059 Rev 3 or latest. The disk shall be made up of polycarbonate of fire-flammability rating of V-2 or higher as per UL94, from Group 01, class 2 of latest from Group 01, Class 2 of ASTM D 3935-2, with additional properties as given in SMI. Material shall be procured from RDSO/CORE Approved vendor.

Item No. 2: Supply & erection of Nylon/plastic Net- High density polyethelene (HDPE) monofilament netting type-III, UV stabilized as per IS 16008(Part-2)-2016/PVC Virgin HDPE Net Preferably in black colour.

The price shall Supply include erection of Anti Bird high density polyethelene (HDPE)monofilament netting type III, UV stabilized as per IS 16008 (Part-2)-2016.PVC virgin HDPE net preferably in black colour on fabricated structure, Portals/TTC, Fabricated DA, Gantry boom, etc. as per RDSO MI No. TI/MI/0050 Rev- IDtd.27.09.2021. The price shall include tying with UV resistant as per para 4.4 of RDSO/SMI.

Item No. 3: Supply & erection of 10 KVA Change over panel as per RDSO spec. suitable for 10 KVA AT supply

The price shall cover cost for supply & Erection of 10KVA Change over panel as per RDSO specification No. ETI/SPC/PSI/CLS/0020 or latest and suitable for 10 KVA AT Supply. The price also covers cost of Type one junction box and its drawing required to approval of Dy.CEE/CN. The price also cover cost of MCB, any relay, fittings, Glands, fasteners, Lugs etc. for commissioning of panel and smooth working.

Item No. 4: Supply & Erection of Station Equipments at SP/SSP as per RDSO Spec. No. TI/RCC/ SCADA/0134 with latest A&C slip with amendments

The Price shall cover cost for supply & Erection of Remote terminal unit (RTU) for SP/SSP as per RDSO specification No. TI/SPC/RCC/SCADA/0134 or latest and same shall support existing SCADA system at RCC.

Item No. 5: Providing (Supply & erection) of layout board for switching posts with latest A&C slip with amendments

The price shall cover cost for providing (Supply with erection) of lay-out board for switching post. The board shall be framed with Aluminium section in suitable size. Before supply the board necessary approval should be got from Concern Dy.CEE.

Item No. 6: Providing (Supply & erection) of SWR/Sectioning diagram board at stations

The price shall cover the cost for providing (Supply with Erection) of Sectioning/TWR diagram at Stations or TPC Room. The board shall be framed on 6mm Acroleic Sheet. The

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price shall also cover the cost of designing for Board. The board should be high resolution printing on Vinyl and to be pasted on acrylic sheet with lamination. The price shall also cover for erection /fixing on site with SS stud. Before supply the board necessary approval should be taken from Concern Dy. CEE.

Item No. 7: Digging of Trench size 450x1000 mm

The price shall cover erection of digging of Cable trench 450mm wide and 900mm depth for laying of different size cable. The price shall also cover for preparation of a detail plan for laying of cable & get approval of Dy.CEE/C before start the work.

Item No. 8: Supply & laying of sand and 2nd class bricks in trenches.

The price shall cover Supply and layings of bricks and sand in cable trench for protection of cable. A detail plan for laying of cable and showing method of laying of cable with bricks and sand shall be prepared and get approval of Dy.CEE/C before start the work.

Item No. 9: Tree Trimming / cutting

The price shall cover the cost of all type of tree cutting/trimming in section required for charging of OHE. The price shall cover in this schedule which all tree comes within 6mtrs from OHE. The price shall cover the cost of tree cutting from bottom.

Item No. 10: Supply & Erection of Fire Bucket with Stand for Switching Post

The price shall cover the cost of Supply & Erection of Fire Bucket with Stand for Switching Post. The work includes the procurement, fabrication, painting, and installation of a complete fire-fighting set at each designated switching post. High-quality galvanized mild steel fire buckets and a heavy-duty steel stand with a protective canopy. Secure installation of the stand at the switching post, typically near the entrance or in a clearly visible, accessible location. The stand should be grouted or firmly bolted to a concrete foundation at the switching post to prevent tipping. Filling of the buckets with clean, dry, and fine-grained sand. All components must comply with [RDSO](#) standards and Indian Standard IS 2546. Warranty: Standard tenders often require a warranty period, typically 30 months from delivery. Inspection: Materials are subject to inspection by authorized railway representatives (like [RITES](#) or RDSO) before dispatch.

Technical specification is as under:-

- Fire Buckets:
 - Capacity: Standard 10 litres.
 - Material: Galvanized mild steel (GMS) with a minimum zinc coating thickness of 0.06 g/cm².
 - Design: Round-bottom type to ensure they are not used for general purposes; must have a sturdy handle for easy manual handling.
 - Finish: Painted with two coats of white paint inside and two coats of signal red paint outside. The word "FIRE" must be painted in black on the outside.
- Bucket Stand & Canopy:

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- Fabrication: Made from M.S. Angles (typically 50x50x6mm) and a canopy of 18 SWG MS Sheet to protect the sand from rain.
- Configuration: Usually a 4-bucket or 6-bucket arrangement per stand.
- Painting: One coat of red oxide primer followed by two coats of Post Office Red enamel paint.

Item No. 11: Supply & erection of desk for Switching station

The price shall cover cost for Providing (supply with erection) of desk for Switching station. The price shall cover cost for Desk should be made of Wood and boxes/ drawer should be done for keeping register. The price shall also cover cost for fixing arrangement of desk on wall. The material shall be supplied after approval of Dy.CEE/C. The approval for size of desk shall be taken from concern Dy.CEE.

Item No. 12: Supply & Erection of Name board of switching Post

The price shall cover cost for Providing (supply with erection) of Name board of switching Post. Name board of switching Post shall be supplied from CORE/RDSO approved vendor and material shall be as per RDSO/CORE latest specification. The price shall also cover cost for fixing arrangement of Name Board on fencing. The price shall cover cost of require fasteners for fixing.

Item No. 13: Supply & Erection of Standarad Wooden Isolator Key Box with glass for SSP & Station

The price shall cover cost for Providing (supply with erection) of Standard Wooden Isolator Key Box with glass for SSP & Station. Isolator key box should be made of wooden material with glass in front side. Before supply of this material, Size and item specification shall be got approval from DY.CEE/C. The price shall also cover cost for fixing arrangement on wall. The price shall cover cost of require fasteners for fixing.

Item No. 14: Drilling of horizontal bore below track by pushing method for laying of HDDE pipe of various size upto 450 mm dia.

This item covers drilling of horizontal bore by pushing method or any suitable means in all types of soil 1.5 meter below ground level or 2.1 meter below track level for laying of HDDE pipes 150 mm to 450 mm dia by pushing method in presence of Railway representative taking necessary safety precautions of track and movement of trains.

Item No. 15: Modification, Upgradation, testing, wiring & commissioning in existing RTU at Site in the section and standard SCADA software at RCC equipments for configuration, integration/ hooking up of additional RTUs of section & adjacent section with master station as per RDSO Spec. No. TI/RCC/SCADA/ 0130/Rev-2) with latest A&C slip with amendments or latest

The price shall cover cost for Modification Upgradation, testing & commissioning in existing standard SCADA software at RCC equipment's for configuration, integration/ hooking up of additional RTUs of adjacent section with master station as per RDSO Spec. No. TI/RCC/SCADA/ 0134 with latest amendments.

Item No. 16: Providing utility van for tower wagon crew, shifting of man and material for the work, supervision of work and other misc work.

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The price shall cover providing utility van for tower wagon crew, shifting of man and Material for the work, supervision of work and other misc. work. The cost shall cover for Fuelling of Diesel/Petrol in utility van, Maintenance Charges, Toll Taxes etc. The price shall also cover for night working and outstation work.

Item No. 17: Supply & erection of fire fighting equipment

The price shall cover cost for Providing (supply with erection) of fire extinguisher conforming to IS:2171 or latest. The firefighting equipment shall be suitable to take care of B & C class of fire. The extinguisher shall have 10 Kg. Capacity of dry chemical powder. The price also cover cost for hanging arrangement / suitable clamps.

Item No. 18: Supply of First aid Box with Strecher etc.

The price shall cover supply with erection of standard first Aid box and stretcher with hanging arrangement of GI Sheet with pad lock as approved by the Employer. The list of items containing min the first aid box shall be obtained from employer/engineer.

Item No. 19: Erection of Additional contact wire piece across RRA clamp with supply & erection of 02 nos. of PG Clamps on either side (contact wire piece shall be supplied by Railway).

The price shall include Supply and fitting of 02 Nos. PG clamps on either side of RRA clamp as per RDSO SMI No. TI/MI/00058 Rev-I, dtd 10.08.2021. The additional contact wire of Nos. PG clamps on either side (RI No. 1041-2) as per SMI. The work involves bending and fixing of contact wire as per site requirement. Contract wire will be supplied by Railway.

Item No. 20: Provision of Buried Rail

The price shall cover cost for Providing (supply with erection) of Buried Rail with all required materials except piece of Rail(13mtrs) as per RDSO specification No. TI/SPC/PSI/EARTHING/0210 dtd20.08.2021. The price shall cover cost for Providing Earth electrode with Earth pit, GI Flat size of 75*8 as required for connecting earth electrode to Buried Rail & Buried rail to Running track as mentioned in RDSO specification No.TI/SPC/PSI/EARTHING/0210 dtd20.08.2021. The price shall cover cost for Providing digging, copper rivet, fasteners, Nut bolt, washer, Check nut etc. Rail will be provided by Railway from nearby site/P-way depot. The transportation up to site shall be in contractor's scope. All material except rail shall be supplied by contractor.

Item No. 21: Transportation of Railway supply materials/Released material from Railway depots/work site to Work site/Scrap depot

The Price shall cover cost for Loading, unloading and transportation of all released OHE materials i.e. OHE mast, cantilevers, SI, SP Isolator, Guy rod, insulators, DA, Chair etc. from site to Construction depot. /Scrap depot for DS-8 or as desired by SSE/TRD/C. The price also covers cost for transportation of materials (from OHE depot to Site) which is supplied by Railway and not covered in contractor's supply. The item of transportation of Contact wire, catenary wire, feeder wire and different type of cable shall not be cover under this item.

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Item No. 22: Supply of regulating equipment 5 pulley type complete with all accessories including SS wire rope and counter weight assembly for 2400kgf tension as per RDSO Spec. TI/SPC/OHE/ATD/0060(Rev. 2) or latest for conventional OHE

The price shall cover supply of regulating equipment 3 pulley type complete with all accessories including SS wire rope and counter weight assembly for 2400 kgf tension including 9 Tonne adjuster & 9TPorcelain Insulator CD 1050 mm with double strap assembly, and normal/antitheft guide tube assembly (RI5026-4,5,6,7, 3076-4, 5, 6, 7) including supply of regulating equipment as per RDSO Specification No. TI/SPC/OHE/ATD/0060 Rev.-2 with latest A&C Slip or latest and stainless steel wire rope as per Rly Specification No. TI/SPC/OHE/WR/1060(06/2006) With A & C No.1, 2, 3 & 4 or latest, suitable for 5 Pulley ATD required for regulating equipment suitable for 2400 kgf tension as per latest RDSO drawings & specification and small parts steel work, if any. The price shall also cover supply of anti-falling device (with extra fitting 3241 & 3243-01No. each), anti-climbing (stiffener) Angle on Anchoring, double eye distance rod with fasteners counter weight as per RDSO Drawing and mast fittings for all type mast. The price also covers cost for compliance of Latest Technical circular, MI/SMI's, Reliability action plan etc. (if applicable) Galvanization of all component shall be as per Railway Specification No. No. ETI/OHE/13(4/84) with C.S. No. 4(05/2018) or latest with galvanization thickness of 1000 gram per sq. meter. Hot dip zinc galvanization of Guide tube shall be 800 gram/sqmtr as per A&C correction slip no.4 of ETI/OHE/13(4/84) or latest. The price shall cover the provision of pipe on Hex tie rod of ATD's as per RDSO MI No. TI/MI/0035 Rev-1 dt.28.09.2001 (or latest). The provision on Hex tie rod shall be on ATDs connected on Turnouts, X-overs, Neutral sections, other short tension lengths and tension length with FTA on other end. The length of pipe shall be as per procedure given in RDSO MI. The pipe shall be of 20mm dia GI, medium class as per IS 1161-1979 (or latest). The ending clamp shall be installed correctly duly following instruction given in RDSO SMI No. TI/MI/0051 dt. 08.12.2017 (latest). The price shall cover supply & erection (Provision) of fluorescent red tape before ending cone. (As per RDSO SMI No. TI/MI/0037 Rev-3 and TI/MI/0051).

Item No. 23: Supply & Erection of fittings for provision of false catenary (Catenary ending cone, double strap, contact ending clamp) :

The price shall cover supply of all the fittings and fasteners for the successful provision of false catenary under overline structure as per latest RDSO/HQ guidelines.

Item No. 24: Erection of fittings for provision of false catenary

The price shall cover erection of all the fittings and fasteners for the successful provision of false catenary under overline structure. The price shall include erection of contact wire by dismantling the existing catenary. The required contact wire will be supplied by Railway.

Item No. 24: Provision of jumpering arrangement (160 sq.mm copper jumper wire) with PG clamp and related fittings for false catenary

The price shall cover supply & erection of jumpering arrangement (160 sqmm) with PG clamp and related fitting for the successful provision of false catenary under overline structure as per latest RDSO/HQ guidelines.

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Item No. 25.: Provision of Large-size modified double bolted PG clamps at all G-jumper connections to ensure better electrical continuity and mechanical strength.

The price shall cover supply & erection of Large-size modified double bolted PG clamps at all G-jumper & C jumper connections to ensure better electrical continuity and mechanical strength as per WR HQ guide lines as per W.R. ELECT/TRD/.DRG No- SR.DEE/TRD/NS/BCT1011.

Item No. 25.: Work under Power Block: Any erection work as per schedule done under power and /or Traffic block is subject to have extra rate.

The price covers 30% payment done of erection cost of an item under this schedule item which is required Erection under a power block. The price under this item covers extra charges over and above erection rates of items for erection of equipment in the vicinity (less than 2 mtrs) of energized overhead equipment which calls for a power block (shut off of traction power supply). Power block will be arranged by Railway as per suitable demand of contractor. The price payable under this item shall be 30% extra over the erection rates of the items referred to above provide 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.

General Conditions of Contract of April 2022 with latest correction slip is applicable of the above work and relevant drawing can be seen in the office of Deputy Chief Electrical Engineer (Construction), Western Railway, Pratapnagar, Vadodara, during any working day between 10.00 hours to 17.00 hours

End of Tender document

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Signature of tenderer

*Dy. Chief Electrical Engineer
(Const.) W. Rly. Vadodara.*