RAJASTHAN RAJYA VIDYUT PRASARAN NIGAM LIMITED
[Corporate Identity Number (CIN): U40109RJ2000SGC016485]
Regd. Office: Vidyut Bhawan, Jan Path, Jyoti Nagar, Jaipur-302005.
(An ISO 9001:2008 Certified Company)
OFFICE OF THE SUPERINTENDING ENGINEER (T&C)
220 KV GSS BUILDING, KALI MORI POWER HOUSE, ALWAR-301001
Tele/ Fax:-0144-2703332, E-Mail: -se.tcc6@rvpn.co.in,
Web site: http://energy.rajasthan.gov.in/rvpnl

No: RVPN/SE/T&C/AWRs/F.TN 250/2017-18/ D_________ Dated ________
E-Bid NO: RVPN/SE/T&C/ALWAR/NIB/TN-250/2017-18 (Bid No: )

On Line, E-Bids are hereby invited in Electronics system for
Construction work of 132 KV GSS RVPN, Baba Mohan Ram Temple, Bhiwadi,
District Alwar (Rajasthan), on labour rate contract basis, BSR-2017. Bids have to
be submitted only online in electronic format on website http://eproc.rajasthan.gov.in. The Bids document/ specification can be
downloaded from above mentioned website.

GENERAL DETAIL OF WORKS:

<table>
<thead>
<tr>
<th>A</th>
<th>BID No.</th>
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<table>
<thead>
<tr>
<th>B</th>
<th>Work Description</th>
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<tbody>
<tr>
<td>Construction work of 132 KV GSS, RVPN, Baba Mohan Ram Temple, Bhiwadi, on Labor Rate Contract. (BSR-2017) TN-250/2017-18</td>
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</tbody>
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<table>
<thead>
<tr>
<th>C</th>
<th>Cost of Tender Specification</th>
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<tbody>
<tr>
<td>Rs. 1,000/- + GST @18% Rs 180/- =Rs 1180/- (One Thousand One Hundred Eighty Only)</td>
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<thead>
<tr>
<th>D</th>
<th>Processing Fee of RISL</th>
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<tbody>
<tr>
<td>Rs. 1,000/- + GST @18% Rs 180/- =Rs 1180/- (One Thousand One Hundred Eighty Only)</td>
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<tr>
<th>E</th>
<th>Bid Security</th>
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<tbody>
<tr>
<td>Rs. 23800/- (Twenty Three Thousand Eight Hundred Only)</td>
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<tr>
<th>F</th>
<th>Estimated Cost</th>
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<tbody>
<tr>
<td>Rs. 11,88,506/- (As per G-Schedule BSR-2017)</td>
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<tr>
<th>G</th>
<th>Validity</th>
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<tbody>
<tr>
<td>120 days after the date of Opening of Price Bid</td>
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IMPORTANT DATES:

<table>
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<tr>
<th>S. No</th>
<th>Events</th>
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<tbody>
<tr>
<td>(i)</td>
<td>Date of downloading of tender specification</td>
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<tr>
<td></td>
<td>17.07.17 (10.00 Hours) to 10.08.17 (18.00 Hours)</td>
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</table>

| (ii)  | Deposit of Cost of Tender Specification, Processing Fee & Bid Security |
|       | Up to 10.08.17 (15.00 Hours) |

| (iii) | Date & Time of pre-Bid meeting along with Pre-bid Queries |
|       | On dated 26.07.17 (15.00 Hours) |

| (iv)  | Last date & time of submission of electronic bid |
|       | 10.08.17 (18.00 Hours) |

| (v)   | Opening of Technical Bid |
|       | 11.08.17 (11.00 Hours) |

| (vi)  | Opening of Price Bid |
|       | To be intimated separately to the qualified bidders |
NOTES:
1. The bidders are requested to submit their bids prior to last date of submission to avoid Non-submission of their bids up to prescribed date due to non-availability of / hanging of website at last moments. The date of submission of bids will not be extended if system is hanged up in last hours or congestion.
2. Furnishing of Bid Security /Exemption certificate as per clause No.1.03 of Section-I of this specification is essential otherwise the electronic bid will not be opened.
3. (i) The bidder will have to deposit prescribed cost of Bid specification by DD/Banker's cheque payable in favour of Accounts Officer (T&C), RVPN Ltd., Alwar up to stipulated date & time in the office of the Accounts Officer (T&C), RVPN, Alwar-301001 and obtain a receipt thereof.
   (ii) The bidder will have to deposit prescribed Bid Security by DD/Banker's Cheque payable in favour of Accounts Officer (T&C), RVPN Ltd., Alwar payable at Alwar or Bank guarantee in favour of Superintending Engineer (T&C), RVPN, Alwar in prescribed format (Annexure-I) up to stipulated date & time in the office of the Accounts Officer (T&C), RVPN, Alwar and obtain a receipt/ acknowledgement thereof and they shall upload the receipt/ acknowledgement along with their online bid.
   (iii) The bidder will have to deposit prescribed processing fee by DD/Banker's Cheque payable in favour of M.D., RISL payable at Jaipur with the S.E. (T&C) RVPN, Alwar up to stipulated date & time and obtain a acknowledgement thereof.
4. Bid security is to be furnished also by the Vendors registered with the NIGAM.
5. The Central and State Govt. undertaking/Corporations and companies are exempted from furnishing of bid security. However, they have to upload copy of certificate/documentary evidence in support of their being Govt. undertaking, with their bid.
6. Offers of bids without relevant documents with respect to qualifying requirements shall not be considered.
7. Technical and Commercial deviations, if any, shall only be mentioned in Schedule-VIII Section IV 'Departure from the Specification' attached with this specification. Mentioning of such deviations elsewhere in the offer will not be considered as deviation. The printed terms and conditions of firms, if any, attached with the Bid will not be considered. RVPN shall have right to accept or reject these deviations.
8. Offers of bids without Schedules and without relevant documents with respect to qualifying requirements shall not be considered.
9. Any cutting / over writing in the figures of Bided documents should also be clarified/ indicated in words duly signed.
10. The bidders are required to furnish the clarification/confirmation/ documents sought subsequent to opening of bid within specified time failing which; the case shall be finalized/decided on the basis of available information. The responsibility of being ignored on account of delay in furnishing of desired information/documents shall be of the bidder.
11. The Bid documents can be downloaded from web site http://eproc.rajasthan.gov.in. Details of this Bid notification and pre-qualification criteria can also be seen in NIT exhibited on website http://energy.rajasthan.gov.in/rvpan/. Bids are to be submitted online in electronic format only on website http://eproc.rajasthan.gov.in.
12. The bidders who are interested in bidding can download Bid documents from http://eproc.rajasthan.gov.in up to the stipulated date & time.
13. Bidders who wish to participate in this Bid will have to register on http://eproc.rajasthan.gov.in (bidders registered on eproc.rajasthan.gov.in before 30 09 2011 needs to register again). To participate in online Bids, bidders will have to procure Digital Signature Certificate (Type-II or Type-III) as per Information Technology Act-2000 by using which they can sign their electronic bids. Bidders can procure the same from any CCA approved certifying agency i.e. TCS, SafeCrypt, Ncode etc. or they may contact e-Procurement Cell, Department of IT & C.
Government of Rajasthan for future assistance. Bidders who already have a valid Digital Certificate need not to procure a new Digital Certificate.

Contact No. 0141 – 4022688 (Help desk 10.00 AM to 6.00 PM on all working days)
e-mail, eproc@rajasthan.gov.in
Address: e-Procurement Cell, RISL, Yojana Bhawan, Tilak Marg, C-Scheme, Jaipur

14. Bidder shall submit their offer online in electronic formats both for technical and financial proposals. However, cost of specification and Bid Security in the office of A.O. (T&C) RVPN, Alwar and processing fee with S.E. (T&C) RVPN, Alwar should be submitted physically at the respective offices, up to stipulated date & time. The Bid shall upload scanned copies of receipts / acknowledgement of above fee documents along with their online bid.

15. Before electronically submitting the Bids, it should be ensured that all the bid papers including conditions of contract are digitally signed by the bidder.

16. Bidders are also advised to refer “Bidders Manual” available under “Downloads” section for further details about the e-Bidding process.

17. The tenders are being invited by Superintending Engineer (T&C) Rajasthan Rajya Vidyut Prasaran Nigam Limited Alwar having office at 220 KV GSS, Kali Mor, Alwar-301001 (Rajasthan). Email id is se_tcc6@rvpn.co.in and Telephone No /contact No of office is 0144-2703332 of office of the SE (T&C) RVPN Alwar.

18. The on line Bids will have to be digitally signed and submitted in time specified on http://eproc.rajasthan.gov.in in the following manner.

ONLINE SUBMISSION:
The bidder has to submit their bid in 3 covers comprises of
(a) Cover 1 (.pdf) : FEE (scanned copies)
   (i) Proof of depositing cost of Bid specification i.e. the receipt issued by the ACCOUNTS OFFICER (T&C), RVPN, ALWAR on account of depositing the cost of Bid specification through DD/ Banker's Cheque payable in favour of Accounts Officer (T&C), RVPN Ltd., Alwar.
   (ii) Proof of submitting Processing Fee i.e. the acknowledgement issued by the S.E. (T&C) RVPN, Alwar on account of depositing the processing fee (Rs. 1000/-) through DD/Banker’s Cheque in favour of M.D., RISL payable at Jaipur.
   (iii) a) Proof of depositing bid security i.e. the receipt/ acknowledgement issued by the ACCOUNTS OFFICER (T&C), RVPN, ALWAR on account of depositing bid security through DD/Banker’s Cheque payable in favour of Accounts Officer (T&C), RVPN Ltd., Alwar or bank guarantee in prescribed format.

(b) Bid security is to be furnished also by the Vendors registered with the NIGAM.

(c) The Central and State Govt. undertaking/Corporations and companies are also exempted from furnishing of bid security. However, they have to upload copy of certificate/documentary evidence in support of their being Govt. undertaking, with their bid.

(b) Cover 2 (pdf) : TECHNO COMMERCIAL BID (scanned copies)
The technical information has to be prepared very carefully since it will be the basis for the pre-qualification of bidders. Only relevant and to the point information should be indicated. Bidders should neither supply information not requested in the specification nor make any comments. Failure to provide any required information, may lead to the rejection of the offer. Bidder must read Section-I, Section-II, Section-III & Appendix of specification very carefully before signing on it. Similarly, Schedules-I to VII of Section-IV, Documents in support of qualifying requirement & Bar-chart etc. must be signed digitally on each & every page by the authorized representative of the firm after filling requisite information/details, desired in the specification & PQR (Pre-Qualifying Requirement).

(c) Cover 3 (xls) : FINANCE : PRICE BID
This cover consists of price schedules (BOQ) for erection, testing and commissioning of construction work of 132 KV GSS, RVPN, BMRT, Bhiwadi, (Alwar), such as Earth Mesh, Erection of Sub-Station Structure, Bus bar stringing, equipment erection and Cabling work at 132 KV GSS RVPN, BMRT, Bhiwadi, (Alwar). The bidder must quote the prices for the works in the manner as indicated

[Signature]

[Signature]
in the Price schedules, failing which Bid is liable for rejection. The rates/prices shall be entered in figures in % Excess / Less. These schedule(s) must be digitally signed by the authorized representative of the firm.


20. The construction work is to be done as per VPN BSR -2017 effective from 01.04.2017 for which bill of quantity (BOQ) shall be provided with Bid specification.

21. The work has to be completed within a period of 04 (Four) months after placement of order/date of layout given by the work In-charge.

22. **Technical Qualifying Requirement:** The bidder must have satisfactory completed/executed the

   (i) Electrical construction work of 132 KV GSS or above voltage class GSS, at least One GSS, during previous 05 years tenure, from the date of Bid opening.

   Or

   (ii) Construction work of 132 KV or above voltage class Transformer Bay, including erection of Bay equipment viz. Transformer, Isolators, CT/PT, Circuit Breakers during previous 05 years tenure, from the date of Bid opening.

23. The purchaser does not bind himself to accept the lowest or any Bid or any part of the Bid and shall not assign any reason(s) for the rejection of any Bid or a part thereof.

24. The Bidder will have to quote the Firm prices inclusive of all taxes and duties and other related cost.

25. The bidder, if is a Micro, Small or Medium enterprise as per the Micro, Small & Medium enterprise development act, 2006 (MSMED Act 2006) and registered with the authorities under the above Act for the items/services covered under this Bid, then the firm has to indicate the Entrepreneurs Memorandum No. (Twelve Digit) and scanned copy of the certificate issued by the Authorities under the MSMED Act, 2006 should be uploaded along with the online bid.

26. Payment shall be made to supplier/contractor through RTGS/NEFT for quick and safe transfer of funds across the country. The charges for transfer through RTGS/NEFT shall be on the part of supplier/ contractor. The supplier / contractor shall furnish particulars to the payment making authorities of VPN in prescribed format to be provided by the purchaser.

27. This specification includes Section-I, Section-II, Section-II (A), Section-III, Appendix and Section-IV (Schedules).
BID SPECIFICATIONS FOR AWARD OF CONTRACTS FOR CONSTRUCTION WORK OF 132 KV GSS RVPN, BABA MOHAN RAM TEMPLE, BHIWAD (ALWAR).

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>PARTICULARS</th>
<th>PAGE NO.</th>
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<tbody>
<tr>
<td>1</td>
<td>SECTION-I</td>
<td></td>
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<tr>
<td></td>
<td>&quot;INSTRUCTIONS TO BIDDERS&quot;</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>SECTION-II</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot;GENERAL CONDITIONS OF CONTRACT INCLUDING ERECTION&quot;</td>
<td></td>
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<tr>
<td>3</td>
<td>SECTION-IIIA</td>
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<tr>
<td></td>
<td>&quot;COMMERCIAL TERMS AND CONDITIONS FOR ERECTION OF TRANSMISSION LINE&quot;</td>
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<td>4</td>
<td>SECTION-III</td>
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<td></td>
<td>&quot;TECHNICAL PARTICULARS&quot;</td>
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<td>5</td>
<td>APPENDIX</td>
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<td>6</td>
<td>SECTION-IV</td>
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<td></td>
<td>&quot;SCHEDULES&quot;</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>PRE BID QUERIES FORMAT &amp; ANNEXURE</td>
<td></td>
</tr>
</tbody>
</table>
SECTION-I

INSTRUCTIONS TO BIDDERS

1.01 INTRODUCTION:
The bidder, in his own interest is requested to read very carefully these instructions and the terms and conditions as incorporated in Section II & III before filling the Bid form. Submission of the Bid shall be deemed to be the conclusive proof of the fact that the bidder has acquainted himself and is in agreement with all the instructions, terms and conditions governing the specification, unless otherwise specifically indicated / commented by him in his Bid.

1.02 FILLING OF BIDS:
(a) Bids for procurement of Goods & Services having estimated value of Rs. Ten Lacs or more: and procurement of works having estimated value of Rs. Five Lacs or more shall be submitted online in the electronic format attached hereto and all blanks in the Bid and the schedule to the specification shall be duly filled in. The completed forms, schedule(s) shall be considered as part of the contract documents in the case of successful Bidder(s).
(b) No alteration should be made to the format / rates of the Bid specification and schedules. The bidder must comply entirely with specification.
(c) The Bid and all accompanying documents shall be in Hindi/English Language and shall be digitally signed by a responsible and authorized representative of firm. The name, designation and authority of the signatory shall be stated in the Bid.
(d) Bid should be filled in only with ink or typed and must be submitted online after signing digitally.
(e) All additions, alterations and over-writings in the Bid must be clearly initialed by the Signatory to the Bid.
(f) The bidder must quote the prices strictly in the manner as indicated herein, failing which Bid is liable for rejection. The rates/prices shall be entered in figures only. These must not contain any additions, alterations, over-writing, cuttings or corrections and any other marking which leave any room for doubt.
(g) The NIGAM will not be responsible to accept any cost involved in the preparation or submission of Bids.
(h) Any printed conditions of sale on the Bid shall not be accepted by the NIGAM. The bidder shall incorporate his conditions of sales, if any, in the text of the Bid itself.
(i) All Bids and accompanying documents will have to be digitally signed and submitted in time specified on http://eproc.rajasthan.gov.in
(j) The bidder should digitally sign the Bid form at each every page at the end.

1.03 BID SECURITY:
(a) The bidder shall furnish prescribed Bid Security by DD/Banker’s cheque payable in the name of Accounts Officer (T&C), RVPN Ltd., Alwar payable at Alwar or Bank guarantee in favour of Superintending Engineer (T&C), RVPN, Alwar in prescribed format (Annexure-I) up to stipulated date & time and obtain a receipt/ acknowledgement thereof. No other mode of deposit shall be accepted.
(b) Any Bid not accompanied by a copy of receipt/ acknowledgement for cost of Bid Specification, Processing Fee and bid security / Exemption Certificate shall be rejected and the Bid will not be opened.
(c) The bid security of unsuccessful bidders shall be refunded soon after final acceptance of successful bid(s) and signing of contract agreement and submitting performance security either in form of bank guarantee (B.O.) or crossed Bank Draft or by furnishing an undertaking for deduction of performance security from his each running and final bill @ 10% of the amount of the bill by
successful bidder(s). In case of the successful bidder, the amount of bid security may be adjusted in arriving at the amount of the Performance Security, or refunded if the successful bidder furnishes the full amount of performance security.

(d) Request for adjustments/proposal for acceptance of bid security, if any, already lying with the NIGAM in connection with some other Bids/orders shall not be entertained.

(e) No interest shall be payable on such deposits.

(f) The purchaser reserves the right to forfeit bid security or a part thereof in circumstances, which according to him indicate that the bidder is not earnest in accepting/executing any order placed under the specification.

(g) Bid security is to be furnished also by the Vendors registered with the NIGAM.

(h) A pre-bid conference is also scheduled to clarify doubts within the period specified in the NIB of the Prospective bidders who have deposited the cost of bid specification as per the details mentioned in the clause No 1.16 of Section-I. The minutes and response shall be provided promptly to all bidders and shall be published on the respective websites.

1.04 DOCUMENTS TO BE UPLOADED WITH THE BID:
Each Bid in electronic format shall be accompanied with the following schedules, documents and the fact of their having been enclosed should be as per Bid specification. All Bids and accompanying documents will have to be digitally signed and submitted in time specified on http://eproc.rajasthan.gov.in. The Bid which is not accompanied by any or all of the following schedules, documents or is accompanied by incomplete annexures / schedules is liable for rejection:

(a) Cover 1 (.pdf) : FEE (scanned copies)
   (i) Proof of depositing cost of Bid specification
   (ii) Proof of submitting processing fee
   (iii) Proof of depositing bid security / Exemption certificate

(b) Cover 2 (.pdf) : TECHNO COMMERCIAL BID (scanned copies)
   (i) Section – I - Instructions to Bidders
   (ii) Section-II, General Conditions of Contract Including Erection
   (iii) Section-IIA, Commercial Terms and Conditions for Erection of Substation
   (iv) Section-III, Technical Particulars
   (v) Appendix-Annexure A to D
   (vi) Section-IV, Schedules (I to VII)
   (vii) Documents in support of Qualifying Requirement
   (viii) Bar-Chart etc.

The above information should be prepared very carefully since it will be the basis for the pre-qualification of bidders. Only relevant and to the point information shall be indicated. Failure to provide any required information may lead to the rejection of the offer. All above documents are to be digitally signed on each & every page by the authorized representative of the firm after filling requisite information/details desired in the specification & PQR. Departure from specification (Technical & Commercial) shall only be given in Schedule-VIII. Deviations indicated elsewhere will be ignored.

(c) Cover 3 (xls) : PRICE BID : PRICE SCHEDULES (Section – IV, Schedule – I)
This cover consists of price schedules (BOQ) for erection, testing and commissioning of construction work of 132 KV GSS RVPN, Baba Mohan Ram Temple, Bhiwadi (Alwar), such as Earth Mesh, Erection of Sub-Station Structure, Bus bar stringing, equipment erection and Cabling work at 132 KV GSS BMRT, Bhiwadi (Alwar), The bidder must quote the prices for the works in which they wish to participate in the manner as indicated in the Price schedule(s), failing which Bid is liable for rejection. The rates/prices shall be entered in figures in % Excess/Less. These schedule(s) must be digitally signed by the authorized representative of the firm. The opening date for this shall be intimated later on.

1.05 BID FORMAT, SUBMISSION AND OPENING OF BIDS
(a) Bidder shall submit their bid in electronic format by digitally signing the same. Bidder shall procure Digital Signature Certificate (DSC) as per IT Act - 2000.

(b) The documents listed in ITT (Instructions To Bidders) clauses, along with addendum’s issued till date & time of bid submission, shall be filled by the bidder to bind the bidder to contract. All pages of the bid shall be stamped and digitally signed.

(c) All omissions in the schedule of price must be serially numbered and digitally attested by the officer opening the bids, so as to make further dispute impossible on this score.

(d) Bidders who have to participate in this Bid will have to register on [http://eproc.rajasthan.gov.in](http://eproc.rajasthan.gov.in) Further Bidders who have to participate in online Bids will have to procure digital signature certificate as per IT act so that they can sign their electronic bids.

(e) Before electronic submission of Bid, it should be ensured that Section-I, Section-II, Section-II (A), Section-III & Appendix of the Bid specification are digitally signed by the bidder.

(f) All Bids, in which any of the prescribed conditions are not fulfilled or which have been vitiated by errors in calculations, totaling or other discrepancies or which contain over writing in figures or words or corrections not initialed and dated, may be liable to rejection.

(g) The electronically received bids will be opened in the office of the Superintending Engineer (T&C) RVNP, Alwar on stipulated date & time in the presence of such bidders or their authorized representative, who choose to be present. The system does not permit electronic submission of late Bids after the due date & time.

(h) The opening of Bid shall not be witnessed by a bidder or a bidder who himself/ themselves has/ have not bided for the same work.

(i) In case, the date fixed for opening of the Bids is declared as a public holiday, the bid shall be opened on the next date on which office re-opens after such holiday(s).

1.06 VALIDITY OF OFFERS:

Bids shall be valid for a minimum period of 120 days after the date of opening of Bid. Bids mentioning a shorter validity period than specified are likely to be rejected/ignored.

1.07 SIGNATURE OF BIDDER:

The Bid must contain the name, designation and place of business of the person or persons making the Bid and must submit online, placing them in 3 covers after filling & signing digitally with his DSC (Digital signature). Bid by a partnership firm must be furnished with full names of all the partners and should be signed digitally by one of the member of partnership firm or by a authorized representative indicating the designation of the person or persons, with authority letter signed by the Chairman/ Secretary other person authorized to bind the Corporation/ Company in the matter.

1.08 QUALIFYING REQUIREMENT:

Qualification of bidder will be based on meeting the minimum pass / fail criteria specified in table below regarding the bidder’s technical experience and financial position/The bidder shall be required to furnish the information as detailed below:-

<table>
<thead>
<tr>
<th>S. No</th>
<th>Qualifying Requirement Details</th>
<th>Supporting Documents required</th>
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<tbody>
<tr>
<td>1.</td>
<td><strong>Bidder Status:</strong></td>
<td>Memorandum of Association</td>
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<tr>
<td></td>
<td>1.1 This invitation for Bids, issued by the Nigam is open all firms who are single entity and not joint Venture including company(ies), Government owned Enterprises registered and incorporated in</td>
<td>Partnership deed / other relevant documents, registration certificate as per Companies Act/ Relevant Act.</td>
</tr>
<tr>
<td><strong>India as per companies Act 2013/other relevant Act, barring Government Department and those bidders with whom business is banned by the Nigam.</strong></td>
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<tr>
<td>1.2 The Bidder must be ‘A’ Class Contractor for Electrical Works.</td>
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<tr>
<td>1.3 The bidder must have service tax Registration/GST Registration No. as applicable.</td>
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<tr>
<td>1.4 The Bidder must be registered with Provident Fund Commissioner</td>
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<tr>
<td>Certificate issued by the Electrical Inspector.</td>
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<td></td>
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<tr>
<td>Copy of service Tax/GST Registration Certificate</td>
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<td></td>
</tr>
<tr>
<td>Certificate issued by the Provident Fund Commissioner</td>
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</tr>
<tr>
<td><strong>2. TECHNICAL EXPERIENCE:</strong></td>
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<tr>
<td>The bidder must have satisfactory completed/executed the</td>
<td></td>
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<tr>
<td>(i) Electrical construction work of 132 KV GSS or above voltage class GSS, at least One GSS, during previous 05 years tenure, from the date of Bid opening.</td>
<td></td>
<td></td>
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<tr>
<td>Or</td>
<td></td>
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<tr>
<td>(ii) Construction work of 132 KV or above voltage class Transformer Bay, including erection of Bay equipment viz. Transformer, Isolators, CT/PT, Circuit Breakers during previous 05 years tenure, from the date of Bid opening.</td>
<td></td>
<td></td>
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<tr>
<td>Certificate (s) issued by user(s) / Purchaser(s) containing the details of execution of transmission lines with their voltage class.</td>
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<td></td>
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<tr>
<td>Note:- In case of bidders, executing works in Rajasthan against orders from erstwhile SSPC/Procurement-I, or any Circle of RVPN, the requirement of certificate from User/Purchaser is waived to the extent of order placed by the erstwhile SSPC/Procurement-I/RVPN Circle &amp; executed by them.</td>
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<tr>
<td><strong>3. FINANCIAL POSITION:</strong></td>
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<tr>
<td>The net worth of bidder for last 3 years should be positive</td>
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<tr>
<td>Audited balance sheet &amp; income statement / CA Certificate.</td>
<td></td>
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<td><strong>4.</strong></td>
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<tr>
<td>The bidder should be qualified, not be insolvent, not be receivership, not be Bankrupt or being wind up, should not have affairs administered by a court or a judicial officer, should not have business activities suspended, should not be blacklisted by any utility / agency, should not have a conflict of interest etc.</td>
<td></td>
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<tr>
<td>Declaration in Annexure-B</td>
<td></td>
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</tbody>
</table>

**1.09 PRICES:**

a) Bidder must quote their prices indicating the percentage variation on total construction cost of each line mentioned in the Section-IV Schedule-I available in cover 3 (xls) of specification. The percentage variation Excess or Less quoted by the bidder for a particular line in Schedule-I shall also be applicable for unit rate items indicated in Schedule-II available in cover 2 (pdf) for that line. These prices are variable price without any ceiling as detailed in following sub-clauses.

b) The bidder shall quote the prices inclusive of applicable service tax or GST.

c) The prices quoted should be inclusive of cost of transportation of material from departmental stores, which has to be situated on the proposed land of GSS/Ground Zero. The price quoted should be inclusive of cost of transportation
of material with a lead of 05 KMs from the departmental stores. In case of lead more than 05 Kms, RVPN shall pay extra lead to the contractor on PWD BSR rates applicable for additional each 1 KM beyond 05 KM. The shortest lead shall be considered for the transportation through which vehicle tractor can go to the work site/ location. The total weight of the materials shall be calculated as per approved bill of material including accessories.

d) The price shall remain valid till completion of line. These prices shall also be valid irrespective of nature of location.

e) The rates/prices shall be quoted in the manner as desired in the schedule of prices.

f) Any Bid containing prices not quoted in the manner prescribed under the above sub clause (a) to (e) is liable to be ignored.

g) No representation for enhancement of rates once accepted shall be considered.

1.10 RAJASTHAN VALUE ADDED TAX/GST:

In accordance with the scope of works, this is a labour contract of erection from the 'Free issue' material; hence no VAT shall be leviable. However, VAT/GST, if levied, shall be to the contractor's account.

1.11 QUANTITIES:

a) The quantum of work indicated in the accompanied schedule (s) is only provisional and the purchaser reserves the right of revising the same at the time of placing the order. The NIGAM also reserves the right to entrust only part work of a particular transmission line.

b) The NIGAM also reserves the right to split the quantities and to entrust the order for the erection work to one or more contractors. The bidder shall agree to accept part works at the rates/prices mentioned in his Bid and/or accepted by the NIGAM.

1.12 COMPLETION TIME:

a) The proposed work of construction of GSS mentioned in Schedule-I, is required to be erected/ executed and commissioned within the period mentioned in Schedule-III. This targeted completion period is inclusive of monsoon period. The commencement of completion period shall be reckoned after fifteen days from the date of issue of commencement order/date of layout issued by the work In-charge after ascertaining the availability of material and site clearance.

b) In case, completion of the work is not possible within the specified completion period, the Engineer In-charge will review the situation, record the reasons of delay either on part of Nigam or the contractor as the case may be and initiate a case for grant of further extension in completion period indicating expected target date of completion. Such case for time extension in completion period indicating expected target date of completion. Such case for time extension will be processed by the Engineer In-charge and submitted to XEN (T&C), Alwar before expiry of the stipulated completion period. The XEN (T&C), Alwar will examine the matter and submit his comments for obtaining time extension or cancellation of contract on the basis of facts/recorded reasons.

c) The Accounts Officers (T&C), Alwar will ensure that, final bill is entertained only after grant of suitable time extension in completion period is received from the competent authority.

1.13 AMENDMENT IN SPECIFICATIONS:

The Superintending Engineer (T&C) RVPN, Alwar may revise or amend the specification and timings prior to the date notified for opening of the Bids. Such revision or amendment, if any will be communicated to all the bidders through corrigendum(s) on http://eproc.rajasthan.gov.in as amendment or addenda to this invitation of the Bid.

The amendment (if any) will be notified on web for all prospective bidders who have received the Bid documents and it shall be binding on them. Bidders are required to immediately download any such amendment. It will be assumed that the information contained therein has been taken into account by the bidder in its Bid.
In order to provide prospective bidders reasonable time to take the amendment into account, in preparing their Bid, the Nigam may, at its discretion, extend the deadline for the submission of Bids, in which case, the Nigam will notify all bidders on web of the extended deadline, for submission of Bids.

1.14 GENERAL:
(a) Specification/Bid document may be downloaded by any of the interested bidder from [eproc.rajasthan.gov.in](http://eproc.rajasthan.gov.in) for the consideration of his Bid up to stipulated date & time. The cost of specification once deposited will not be refunded under any circumstances.

(b) The contractor shall treat the details of the specification and other Bid documents as private and confidential and they shall not be reproduced without the written authorization of the NIGAM.

(c) The NIGAM does not bind himself to accept the lowest or any Bid or any part of the Bid and shall not assign any reason(s) for the rejection of any Bid or a part thereof.

(d) The fact of submission of Bid to the NIGAM shall be deemed to constitute an agreement between the bidder and NIGAM whereby such Bid shall remain open for acceptance by the NIGAM and bidder shall not have option to withdraw his offer, impair or derogate the same. If the bidder be notified during the period of validity of Bid that his Bid is accepted by the NIGAM, he shall be bound by the terms of agreement constituted by his Bid and such acceptance thereof by the NIGAM, until formal contract of the same Bid has been executed between him and the NIGAM, in replacement of such agreement.

(e) The successful bidder shall have to execute the contract documents/agreement for the proper fulfillment of the contract. This shall be done by him and the NIGAM shall furnish such an executed stamped agreement free of charge.

1.15 Any action on the part of the bidder to revise the rates/price at his own interest after the opening of the Bid may result in rejection of the Bid and also debar him from submission of Bids to the NIGAM at least for one year.

1.16 PRE-BID MEETING/ CLARIFICATIONS:

i. A pre-bid conference is also scheduled by the procuring entity as per the details mentioned in the NIB and to clarify doubts of potential bidders in respect of the procurement and the records of such conference shall be published on the respective websites.

ii. Prospective bidders/firms, who have deposited the prescribed cost of bid specification as specified in NIB, are allowed to attend the pre-bid conference/meeting and submit their pre-bid queries only in the specified format (Annexure-I) and schedule.

iii. The period within which the bidders may seek clarifications under (b) above and the period within which the procuring entity shall respond to such requests for clarifications shall be as under:-

(a) Last date of submitting clarifications requests by the bidder: As per bid specification.

(b) Response to clarifications by procuring entity: As specified in bid specifications.

iv. The minutes and response, if any, shall be provided promptly to all bidders to which the procuring entity provided the bidding documents, so as to enable those bidders to take minutes into account in preparing their bids, and shall be published on the respective websites.

v. Publishing of any clarification on the respective website shall be deemed to have been conveyed to all bidders in cases of non-availability of contact details of those bidders who have purchased downloaded to the bid document, postal delay, and loss of clarification in the transit.

1.17 NEGOTIATIONS:

(1) Except in case of procurement by method of single source procurement or procurement by competitive negotiations, to the extent possible, no
negotiations shall be conducted after the pre-bid stage. All clarifications needed to be sought shall be sought in the pre-bid stage itself.

(2) Negotiations shall, however, be undertaken only with the lowest or most advantageous bidder under the following circumstances:
(a) When ring prices have been quoted by the bidders for the subject matter of procurement, or
(b) When the rates quoted vary considerably and considered much higher than the prevailing market rates.

(3) The bid evaluation committee shall have full powers to undertake negotiations.

(4) The lowest or most advantageous bidder shall be informed in writing either through messenger or by registered letter and email (if available). A minimum time of seven days shall be given for calling negotiations. In case of urgency the bid evaluation committee may reduce the time, provided the lowest or most advantageous bidder has received the intimation and consented to regarding holding of negotiations.

(5) Negotiations shall not make the original offer made by the bidder inoperative. The bid evaluation committee shall have option to consider the original offer in case the bidder decides to increase rates originally quoted or imposes any new terms or conditions.

(6) In case of non-satisfactory achievement of rates from lowest or most advantageous bidder, the bid evaluation committee may choose to make a written counter offer to the lowest or most advantageous bidder and if this is not accepted by him, the committee may decide to reject and re-invite bids or to make the same counter-offer first to the second lowest or most advantageous bidder, then to the third lowest or most advantageous bidder and so on in the order of their initial standing and work / supply order be awarded to the bidder who accepts the counter-offer. This procedure should be used in exceptional cases only.

(7) In case the rates even after the negotiations are considered very high, fresh bids shall be invited.

1.18 TRANSPARENCY IN PUBLIC PROCUREMENT:
The Government of Rajasthan has enacted the Rajasthan Transparency in Public Procurement Act, 2012 and Rajasthan Transparency in Public Procurement Rules, 2013 w.e.f. 26.01.2013. This procurement process is abided by the processes and procedures of the aforesaid Act & Rule. In case the any clause (s), term (s) & condition (s) in this bidder document differ in its interpretation and context from it the later (i.e. GOR Act and Rule as mentioned above) shall prevail.

SECTION – II

RAJASTHAN RAJYA VIDHYUT PRASARAN NIGAM LTD GENERAL CONDITIONS OF CONTRACT INCLUDING ERECTION

Notwithstanding anything contained to the contrary in the specification or Bid or any subsequent exchange of correspondences, these General Conditions of Contract shall prevail and shall be binding on the Contractor and any change or variation expressed or impressed howsoever made shall be inoperative, unless expressly sanctioned by the NIGAM. The Contractor shall be deemed to have fully informed himself and to have specific knowledge of the provisions of the General Conditions of Contract mentioned hereunder.

1. DEFINITION OF TERMS
a) In constructing these general conditions and the annexed specification, the following words shall have the meaning herein assigned to them unless there is anything in the subject or context inconsistent with such construction.
b) The "NIGAM" shall mean the RAJASTHAN RAJYA VIDHYUT PRASARAN NIGAM LTD represented by Chairman & Managing Director and shall include their legal personal, representative, successors and assignees. The "NIGAM" owner or customer shall mean the NIGAM.

c) The "Bidder/Bidder" shall mean and include one or more persons or any firm or any Company or Body incorporate who has submitted the Bid in response to "Invitation of Bid".

d) The "Contractor" shall mean the Bidder/bidder whose Bid has been accepted by the NIGAM and shall include the Bidder's heirs, legal representative, successors and assignees approved by the NIGAM.

e) The "Sub-contractor" shall mean the firm or the persons named in the contract for any part of the work or any person to whom any part of the contract has been sublet with the consent in writing of the NIGAM and shall include his heirs, legal representative, successors and assignees approved by the NIGAM.

f) The "CMD" shall mean the Chairman & Managing Director, RAJASTHAN RAJYA VIDHYUT PRASARAN NIGAM LTD, JAIPUR.

g) The "Engineer" shall mean the Chief Engineer, RAJASTHAN RAJYA VIDHYUT PRASARAN NIGAM LTD or other Engineer or officer for the time being or from time to time duly authorized and appointed in writing by the NIGAM to act as Engineer or Inspector for the purpose of the contract. In case where such Engineer has been so appointed, the word "Engineer" shall mean the NIGAM or his duly authorized representative.

h) "Plant", "Equipment", "Materials", "Stores", "Works", mean to include the plant and materials to be provided and work or works to be done by the Contractor under the Contract.

i) THE "CONTRACT" SHALL MEAN AND INCLUDE THE FOLLOWING:

1. Invitation of Bid.
2. Instructions to Bids.
3. Bid Form including schedule of prices.
5. Letter of Intent and its acknowledgement.
7. Formal work order.
10. Special instructions.
11. Site conditions.
12. Specification, specific conditions, schedules and drawings.
13. Addenda which may hereafter be issued by the NIGAM on web to the contractor as agreed between the Contractor and the NIGAM.
14. The Agreement to be entered into under Clause 2 of these General Conditions.

j) The "Specification" shall mean the specification, specific conditions annexed to the General Conditions of the Contract and the schedule thereto, if any.

k) The month shall mean, English calendar month i.e. period of 30 days and week shall mean a period of 7 days.

l) The "Site" shall mean the place or places named in the Contract and include, where applicable, the lands and buildings upon or in which the works are to be executed.

m) The "Place of delivery" shall mean the place of delivery at which the contractor is responsible to deliver the materials at the contract price.

n) The "Test of completion" shall mean such tests as are prescribed in the contract to be made by the Contractor before the Plant is taken over by the NIGAM as per the General Conditions.

o) "Letter of Intent" shall mean the NIGAM's letter conveying his acceptance of the Bid subject to such reservations as may have been stated therein.

p) The "Contract price" shall mean the sum named in or calculated in accordance with the provisions of the Contract/purchase or any amendments thereto.
q) CONSIGNEE / ENGINEER INCHARGE: The consignee shall mean and include the Assistant Engineer, Junior Engineer, Asst. Controller of Stores, Store Superintendents and or any other officer/official of the RAJASTHAN RAJYA VIDHYUT PRASARAN NIGAM LTD, all over Rajasthan, performing the duties of the consignee / Engineer In-charge as assigned to him under the contract.

r) "Writing" Shall include any manuscript, type written or printed statement under or over signature or seal as the case may be.

s) The Word "Codes" shall mean and include the Indian Electricity Rules IS Code of practice and Factory Rules and Regulations applicable in the State of Rajasthan on the date of issue of the letter of intent of such modifications thereof as may be specially stipulated by competent State authorities i.e. Electrical Inspector and Chief Inspector of Factories, Rajasthan.

t) Words importing the singular only shall also include the plural and vice versa where the context requires.

2. CONTRACT AGREEMENT:
The contractor and NIGAM shall as soon as possible, unless otherwise agreed upon enter into a sealed agreement for the proper fulfillment of the contract. The expenses of completing and stamping the agreement shall be paid by the contractor and the NIGAM shall be furnished free of charge with an executed stamped counter part of the agreement after the Bid has been accepted by the NIGAM. All orders/instructions to the contractor shall, except as herein otherwise provided, be given by the Engineer on behalf of the NIGAM.

3. SUBLETING AND ASSIGNMENT:
The contractor shall not save with the previous consent in writing of the NIGAM, sublet, transfer or assign the contract, or any part thereof, interest therein or benefit or advantage whatsoever provided nevertheless that any such permission granted to the contractor shall not relieve him from any obligation, duty or responsibility under the contract.

4. PERFORMANCE SECURITY DEPOSIT:
a) In order to secure/assure the fulfillment of the contract, the successful Bidder(s) upon receipt of preliminary acceptance letter/detailed purchase order as the case may be shall furnish within a period of 15 days a Performance Security deposit amount equivalent to 10% (Ten percent) of the contract value either by furnishing an undertaking for deduction of performance security from his each running and final bill @ 10% of the amount of the bill or by crossed Bank Draft or by way of Bank Guarantee from the scheduled Bank in the prescribed proforma to be obtained from the NIGAM on a Rajasthan state Non judicial stamp paper of appropriate value as required under the Rajasthan stamp duty Act duly authenticated by a 1st Class Magistrate or notary public or directly confirmed by the issuing Banker along with a certificate with regard to stamp duty. Such Bank Guarantee shall be valid up to a period of 14 months from the date of commissioning of transmission lines (e.g. up to the last day of the calendar month) and if required by the NIGAM, the validity of the Bank guarantee shall be further extended for such period as desired. The B.G. is to be furnished in whole Rupees. If the line is not commissioned at specified parameters but commissionned at reduced parameters due to reasons beyond the control of the contractor e.g. non readiness of Gantry / GSS at the line emanating / terminating points etc. in those cases such Bank Guarantee shall also be valid up to a period of 14 months from the date of commissioning of transmission lines at reduced parameters (e.g. up to the last day of the calendar month). b) Unless otherwise specifically required to be retained/forfeited by the NIGAM, the Performance Security deposit shall be refunded on request of the contractor after twelve months on completion of the entire work to the satisfaction of the NIGAM.

c) If the contractor fails or neglect to observe or perform any of his obligation under the contract, it will be lawful for the NIGAM to forfeit either in whole or in part at his absolute discretion, the Performance Security deposit furnished by the contractor.
(d) No interest shall be payable on such deposits. Bank charges or any other charges, if any, shall be to the Contractor's account. If the contractor fails to provide the Security within the period specified, such failure shall constitute a breach of the Contract and the NIGAM shall be entitled to make other arrangements at the risk and expenses of the contractor and the Bid Security deposited by the Contractor shall stand forfeited to the NIGAM.

5 RAJASTHAN VALUE ADDED TAX, GST, ROYALTY, LEVIES & DUTIES:

a) In accordance with the scope of works, this is a labour contract of erection from the "FREE ISSUE" material, hence no VAT/GST will be leviable. However tax on such labour contracts if levied, shall be to the Contractor's account.

b) Service Tax/GST:
The bidder shall quote the prices inclusive of applicable service tax/GST. Any liability towards service tax/GST, if arises/applicable, inclusive of cost of material to be supplied by VPN free of cost, shall be to the bidder's account. The bidder shall give service tax/GST registration number. Any statutory variations in service tax/GST will be to the contractor's account.

c) Work Contract Tax:
The work contract tax will be deducted at the applicable laws on the value of erection, testing & commissioning activities. Any liability arising on A/c of work contract tax will be to the contractor's account. Any statutory variation in the work contract tax will be to the contractor's accounts.

d) Income Tax:
If any income tax, surcharge on income tax or any other corporate tax is attracted under the law then the same shall be paid by him as per Government rules / deducted from his bills / invoices at the prevailing rate and if such tax is not applicable, then the contractor can claim reimbursement of the same from the relevant competent authority. However necessary TDS certificate(s) shall be issued by Nigam's paying Authority.

e) Royalty Tax:
In pursuance of the notification issued by Department of Mines, Government of Rajasthan vide circulars dtd.15.11.11, 18.10.12 & 09.01.13 regarding royalty tax determination and deposition of the same in the department of Mines & Geology, the Contractor shall be responsible for legitimacy of the civil material used in construction of the transmission line. The Contractor shall also be responsible for compliance of the instructions contained in the said circulars and further amendments if any. The payment of RA bills shall be made after ensuring compliance of the guidelines contained in the above circulars by the contractor.

In case any liability/dues against royalty is finalized by the Department of Mines, GOR, the firm shall be fully responsible for payment of such dues to the Mining Department or the same may be deducted/recovered by the Nigam from the financial hold available under this contract or any other contacts of Nigam or its successor companies of erstwhile RSEB.

6. ERECTION INSURANCE:
The contractor shall take suitable storage cum erection insurance policy for entire project at his own cost, the estimated cost of project for the purpose of insurance may be calculated as per the rates given in the Section-IV Schedule-II. The contractor shall also ensure the following

i) Contractor shall take storage cum erection insurance policies for entire project. However the insurance premium could be paid on installment basis, but it will be the responsibility of the contractor that the instalments are paid well within the time. In case the insurance is on installment basis, the receipt of payment of each installment shall be submitted to SE (T&C) Alwar, Engineer in-charge and A.O. (T&C) Alwar by the contractor.

ii) Deductible franchise should be minimum as per insurance rules. In case of any loss to the extent of deductible franchise, the same shall be borne by the contractor.

iii) Deleted.
IV) A policy indicating discount on account of "EXCESS" is not to be accepted.
V) Insurance policy shall be drawn in favour of the project/Work indicating the full name of Substation.
VI) Insurance policy shall be taken from nationalized insurance companies in Rajasthan Based, however for the contractor whose office is situated outside the Rajasthan, the insurance policy may be taken from place where such office is situated.
VII) Insurance policy shall be in combined name of RRVPN and contractor.
VIII) Computerized and stamped insurance policy shall be furnished by the contractor to the SE (T&C) Alwar for its acceptance.
IX) A copy of Computerized and stamped insurance policy shall also be furnished by the contractor to the line in-charge i.e. the AEN (T&C), RVPN, Bhiwadi who on receipt of its acceptance issued by the SE (T&C), Alwar shall issue the Substation material.

If Substation is not completed within the schedule completion time, the extension of insurance policy shall be arranged by the contractor. A part of the premium paid to the Insurance company for this extension, corresponding to the delay on the part of RVPN, shall be reimbursed to the contractor on finalization of time extension case. However part of the premium corresponding to the delay on the part of the contractor shall be borne by the contractor.

Deviation to this clause will not be acceptable. It is in the interest of contractor to take insurance policy for a longer period.

X) In case of up-gradation/modification of existing substation, the contractor may take section wise (instead for complete substation /work) storage cum erection insurance policy. However, this section wise policy shall also remain valid up to 30 days from the date of handing over the section of substation to the Engineer-in-charge.

7. COMPLETION TIME:
   a) The completion time shall be governed by clause No.1.12 of Section-I.
   b) The NIGAM reserves the right to defer the completion period as indicated in the work order. The period during which the works have been so deferred, shall not be reckoned as delay in completion in terms of clause "Delay in completion".

8. DELAY IN COMPLETION:
   a) The time for and the date of completion specified in the work order shall be deemed to be essence of the contract and the work shall have to be completed not later than the period specified therein. If the contractor fails to complete the work or any part thereof within the specified Completion period, the NIGAM shall be entitled at his option,
      (i) To recover from the Contractor, 0.5% (half percent) per week or part thereof for the delay (for unexecuted works) subject to maximum of 10% (ten percent).
      (ii) To cancel the contract and if so desired to complete the erection works by other agencies at the risk & cost of the contractor.
      (iii) In case, completion of the work is not possible within the specified completion period, time extension in completion period shall be sought in advance for which the Engineer In-charge will review the situation, record the reasons of delay activity wise either on part of Nigam or the contractor as the case may be and initiate a case for grant of further extension in completion period (original or revised) without waiting for completion of the work, indicating expected revised target date of completion. Such case for time extension will be processed by the Engineer In-charge and submitted to XEN (T&C), Alwar before expiry of the stipulated completion period. The XEN (T&C), Alwar will examine the matter and submit his comments for obtaining time extension or cancellation of contract on the basis of facts/recorded reasons.
(iv) The Accounts officer (T&C), RVPN, Alwar will ensure that, final bill is entertained only after grant of suitable time extension in completion period is received from the competent authority.

9. TERMS OF PAYMENT:
Payment for the erection of the line will be made to the contractor on submission of bills in accordance with the procedure as detailed below.

(i) Payment equal to 100% (in case contractor furnishes Performance Security deposit by crossed Bank Draft or by way of Bank Guarantee) or 90% (in case contractor furnishes an undertaking for deduction of performance security amount from his each running and final bill @ 10% of the amount of the bill) of the total value of the works will be paid against monthly running account bills to be submitted to the AEN (T&C), RVPN, Bhiwadi, in-charge of the work.

(ii) Balance 10% payment will be made after the 12 months performance period is over and instructions for release of the RMD has been issued by the SE (T&C) Alwar as per clause No.12 GUARANTEE or on furnishing of 10% performance bank guarantee. The payment will be made only after a Material Account Statement of items received and used or returned to stores is settled. Any discrepancy in the quantity, will have to be made good by the contractor or deduction of its cost at double the issue rate applicable at the time of issue of material will be made while settling the balance payment.

(iii) If a firm supplying material to the RVPN or executing any work obtain finance from bank by way of discounting of the bills. In such cases RVPN shall not at all be responsible for arranging payments to banks nor shall bear any liability towards the bank in such cases. This is to safeguard interest of the NIGAM against the firms/suppliers taking advantage of bank finance.

(iv) The payment of the running bills, up to the work order value will be released without limiting to the individual item quantity.

(v) Deduction, in respect of deficiencies etc. will be made by the AEN-In-charge while passing/verifying the bills and simultaneously be conveyed to the contractor.

The following time schedule is specified within which verification /countersignature of all bills shall be done.

<table>
<thead>
<tr>
<th>All R.A. Bills</th>
<th>Other-Bills</th>
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<tbody>
<tr>
<td>(balance payment etc.)</td>
<td></td>
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<tr>
<td>a) Verification by AEN-submission to XEN</td>
<td>7 days</td>
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<tr>
<td>b) Countersignature by XEN &amp; forwarding to AO (T&amp;C) Alwar</td>
<td>3 days</td>
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10. MODE OF PAYMENT:

i) Bills for 100% or 90% (as the case may be) value of the erection work during each calendar month as per clause 9 shall be submitted to the AEN (T&C), RVPN, Bhiwadi in-charge of the works at the end of that particular month, who will in turn process the same and forward it to XEN (T&C), Alwar in-charge of the works for countersignatures and finally to the Accounts Officer (T&C) Alwar for payment. These bills shall be serially numbered with suffix E-1.

ii) Bills for 10% value of the erection work done as per clause 9 shall be submitted to the AEN (T&C), Bhiwadi in-charge of the works, who will in turn process the same and forward it to XEN (T&C), Alwar in-charge of the works for countersignatures and finally to the Accounts Officer (T&C) Alwar for payment. These bills shall be serially numbered with suffix E-2.

iii) All the bills (in accordance with above clauses) shall be furnished along with following information:

a) Item wise work done during billing period, i.e., respective month
b) Cumulative work done item wise.
c) Accounts for GSS material, bolts-nuts and accessories consumed and balance stock.
d) Account of cement consumed, wastage and balance stock
e) Account of line material consumed, wastages and balance stock.

iv) The payment shall be made as per payment policy / within thirty days from the date of submission of complete document and completion of all contractual formalities as per requirement of the work order but in case of delay in payment the purchaser shall not be liable to pay any interest on the outstanding amount to the contractor.

v) The payment for survey, excavation, Stub setting, Concreting & earthing shall be made without insisting for Insurance Policy.

vi) The payment shall be made up to order value irrespective of individual item quantities appearing in price schedules of respective lines.

11. INSPECTION BY NIGAM’S REPRESENTATIVE:

(i) The XEN (T&C) in-charge of the works or his representative and the SE (QC), RVPN, Jaipur will be free to visit the contractor’s works, their site stores and erection site and also verify the NIGAM’s materials in the custody of the contractor, as and when required.

(ii) The contractor shall check the verticality of the structures in the presence of NIGAM’s Engineer before tightening and punching of bolts and nuts. The structures erected should be truly vertical after erection and no straining will be permitted to bring them so. The maximum tolerance permissible is 2.5 cm per 9 meters of height. However, due allowance in verticality due to any possible difference in the levels of stub-tops of the location would be permissible.

(iii) Wherever asked upon to do so, the contractor shall check the sag of the conductor and earth wire in the presence of NIGAM’s Engineer before final sagging. The contractor shall intimate the date and time of final sag to the NIGAM’s Engineer well in advance and the same will be done in the presence of NIGAM’s Engineer.

(iv) The Chief Engineer (T&C) or Engineer appointed by him at his discretion may uncover any casted foundation to find out the workmanship of foundation. The Contractor shall render necessary assistance during such fact finding operation and shall comply with the report of the investigating officer.

12. GUARANTEE:
The erection work will be covered under guarantee period against any defect arising from erection workmanship up to a period of 12 months from the date on which the line is completed in all respects, handing over of operation & material account is settled to the satisfaction of the NIGAM. The necessary instructions to release the P.B.G. or RMD (10% amount) retained against Guarantee (as the case may be) will be issued by the SE (T&C) Alwar.

13. MODE OF GUARANTEE:
In order to ensure compliance of the provisions contained in Clause No. 12 above, the successful contractor who have furnished an undertaking for deduction of performance security from his each running and final bill @ 10% of the amount of the bill irrespective of his being a registered vendor with NIGAM or not, shall be required to furnish a performance bank guarantee after completion of line and before claiming balance 10% payment, from any scheduled bank for an amount equivalent to 10% of the contract value on Rajasthan state Non judicial stamp paper of appropriate value as required under the Rajasthan stamp duty Act duly authenticated by a 1st Class Magistrate or notary public or directly confirmed by the issuing Banker along with a certificate with regard to stamp duty. Such guarantee shall be valid initially for a period of 14 months and to be extended for the period as specified in Clause No. 12. The contractor shall have to extend the validity period of the Bank guarantee, if required on intimation from the purchaser. Such Bank guarantee should remain valid up to the last day of the calendar month and be furnished in whole rupees.

14. LABOUR LAWS:
14.1 Contractor shall maintain a valid labour license under the Contract Labour (Regulation & Abolition Act) for employing necessary manpower required by
him. In the absence of such license, the contract shall be liable to be terminated without assigning any reasons thereof. NOTE:- "All contracts / Contractors with the Government shall require registration of workers under the Building & other Construction Workers (Regulation of Employment & Conditions of Service) Act, 1996 and extension of benefit to such workers under the Act. Deductions of cess at source will be made as per provisions of the said Act, in force from time to time."

14.2 EMPLOYEES PROVIDENT FUNDS:
The contractors registered with PF Commissioner will only be qualified to participate in the bid. The contractor shall have to submit a certificate every month that he is an establishment covered under the employees provident fund and miscellaneous provisions act 1952 and is having a separate code number with the Provident Fund Commissioner and also that the Provident Fund contribution in respect of all the employees employed by him along with employer's share of contribution etc. is being deposited with the Provident Fund authorities and shall also submit certified photo copies of the challans of deposits. In absence of above, the contractor shall be liable to deposit employee contribution, as well as, Employer's contribution and other charges in respect of all the employees engaged by him for the said work with RVPN along with details of the employees, their wages and the amount of contribution as per RVPN CPF Rules every month. In case of failure, RVPN shall be entitled to deduct 16% of the amount from his bills.

14.3 CONTRACTOR TO INDEMNIFY THE NIGAM:
The contractor shall indemnify the NIGAM and every member, officer and employee of the NIGAM, also Engineer-in-charge and his staff against all actions proceedings, claims, demands, costs and expenses whatsoever, arising out of or in connection with the matters referred herein above elsewhere and against all actions, proceedings, claims, demands, costs and expenses which may be made against the NIGAM or Govt. for or in respect of performance of his obligation under the contract documents. The NIGAM shall not be liable for or in respect of or in consequence of any accident or injury to any workman or other person in the employment of the contractor or his sub-contractor, and the contractor shall indemnify and keep indemnified the NIGAM against all claims, demands, proceedings, cost, charge and expenses whatsoever in respect thereof or in relation thereto.

15. CLIMATIC AND ISOCERINIC CONDITIONS:
The Contractor shall be required to execute the work in the tropical conditions such as high temperature, excessive humidity, dust and salt-laden atmosphere as detailed below.
(a) Maximum ambient air temperature in shade 50 deg.C
(b) Minimum temperature of air in shade 0 deg.C
(c) Maximum relative humidity 90%
(d) Minimum relative humidity 10%
(e) Height above Mean sea level, Upto 530 meters
(f) Dust storms are liable to occur during the period from March to July
(g) Average no. of thunder storm days per annum 25
(h) Average no. of tropical monsoon (condition) per annum 4 months
(i) Average Rainfall 10 cms to 100 cms.

16. MATERIAL AND WORKMANSHIP:
All the work executed shall be of best quality and capable of satisfactory operation under the climatic humid tropical conditions mentioned under clause no.16 above. The workmanship shall be of the highest grade and the entire work shall be in accordance with the best modern Engineering practices.

17. INDIAN ELECTRICITY ACT:
All the works covered by the Contract shall be in accordance with the Indian Electricity Act, 1910 with the latest amendments and the Electricity rules made thereunder.

18. SITE TESTS:
The NIGAM reserves the right to carry out any site tests. He may decide upon at his own expenses. In case the quality of work is not found as per work order, all expenses incurred during the site testing will be to the contractor's account.

19. CHANGE OF NAME OF THE BIDDER/CONTRACTOR:
(a) At any stage after bidding the NIGAM shall deal with the Contractor only in the name and at the address under which he has submitted Bid. All the liabilities / responsibilities for due execution of the Contract shall be that of the Contractor and in no circumstances, he shall be relieved of any obligations under the Contract. The NIGAM may, however, at his discretion deal with the Agents/ Representatives/ Distributors/ Manufacturers/ Associates/ Principals/ Sister concerns and such dealings shall not absolve the Contractor(s) from his responsibilities/ obligations/ liabilities to the NIGAM, under the contract.
(b) Any change/alteration of name/Constitution/Organization of the Contractor shall be duly notified to the NIGAM and the NIGAM reserves the right to determine the Contract, in case of any such notification. In the event of such determination, the Nigam may get the work executed from elsewhere at the risk and cost of the contractor.

20. DEDUCTION FROM CONTRACT PRICES:
The amount of all cost, damage or expense or other sums which under a particular Contract shall be payable by the Contractor to the NIGAM, shall be deducted by the NIGAM from amount due or becoming due by him to the Contractor under this contract or any other Contract without prejudice to the NIGAM's right to recover the same by ordinary process of law.

21. BANKRUPTCY:
If the Contractor shall commit any act of bankruptcy or being a Corporation commence to be wound up except for reconstruction purpose of carry on its business under a receiver, the executors, successors or other representative in law of the Contractor or any such receiver, liquidator or any person in whom the Contract may become vested, shall forthwith give notice thereof in writing to the NIGAM and shall for one month during which he shall take all reasonable steps responsible to prevent stoppage of the works, have the option of carry out the Contract subject to his or their providing such guarantee, as may be required by the NIGAM but not exceeding the value of the work for the time being remaining executed. In the event of stoppage of the works, the period of the option under this clause shall be fourteen days only. Provided that should the above option not be exercised, the Contract may be determined by the NIGAM by notice in writing to the Contractor and it shall be lawful for the NIGAM to take the work full or in part out of the Contractor's hands and re-contract at reasonable prices with any other persons and the NIGAM shall be entitled to retain and apply any balance which may be otherwise due on the Contract by him to the Contractor, or such part thereof as may be necessary to the payment of the cost of executing such work as aforesaid.

22. CONTRACT DOCUMENTS:
The contractor shall have to execute the contract agreement within 15 days from the date of receipt of detailed work order in triplicate in the prescribed (Form-VII) on non-judicial stamp paper as per stamp duty applicable in Govt. of Rajasthan along with copy of work order, copy of Section-I (Instructions To Bidders), Section-II (General conditions of Contract including Erection), Section-II(A) (Commercial Terms & Conditions for Erection of Substation) and Section-III (Technical Particulars). It is advised that each and every page of relevant documents are signed by authorized person with stamp. It may however be ensured that the one copy of the work order and other
Documents as above are signed by an authorized person holding valid power of attorney. The power of attorney on non-judicial stamp paper worth Rs...... (as per Rajasthan stamp duty act) which should be attested by the notary public. For this a copy of power of attorney in favour of person signing these documents, duly notarized in original be also submitted along with the above documents.

The receipt of above documents in order shall be notified by the Accounts Officer (T&C), RVPN, Alwar. in due course of time under intimation to SE (T&C), Alwar. No any payment shall be released without acceptance of the contract agreement.

23. FURTHER CORRESPONDANCE:
All correspondence pertaining to the work order in respect of any clarification required on the terms and conditions etc., should be addressed to the Superintending Engineer (T&C), RVPN, Alwar.

24. DISPUTES:

i) All disputes, differences, questions, whatsoever arising between the NIGAM and Contractor upon or in relation to or in connection with the contract shall be deemed to have arisen at Alwar (RAJASTHAN) only and no courts other than courts in Alwar shall have jurisdiction to entertain the same.

ii) The RVPN has constituted the centralized standing committee for settlement of disputed claims under conditions of contract relating to RVPN. The committee shall consider all cases for settlement of disputed claims relating to purchases, works, turnkey contracts and labour contracts, civil works etc. The committee shall also take decision whether a particular matter is required to be referred to the Board for approval before settlement. The matter for settlement shall only be referred to the centralized standing committee of RVPN by following the guide lines detailed below:

   (1) Disputes will be referred contract wise.

   (2) Disputes involving amount above Rs.1.00 lacs only will be referred / entertained.

   (3) Non-refundable fee shall be deposited by the contractor / firm @ 2% of disputed amount as claimed by the contractor/firm subject to maximum fee of Rs.1.00 lac.

   (4) In case of disputes, Application for settlement (only in prescribed format) may be collected from the purchaser office.

   The centralized standing committee fees shall be deposited in cash/ demand draft/ pay order with the Accounts Officer (T&C), RVPN, Alwar and shall furnish receipt thereof with a request for referring their disputes to the centralized standing committee for decision.

   For settlement, the firm shall furnish their application (only in prescribed format) indicating the details of dispute / grievances along with requisite settlement fee within a period of six months after receiving communication from Contracts Wing giving rise to cause of dispute / grievances.

25. ACCEPTANCE OF THE ORDER:
The acceptance of the order shall be conveyed to the Superintending Engineer (T&C), RVPN, Alwar, within ten days of the receipt of order in the prescribed proforma failing which it will be presumed that the terms and conditions incorporated in the order are acceptable to the contractor.
SECTION – II (A)
COMMERCIAL TERMS & CONDITIONS FOR ERECTION WORKS OF SUB STATIONS

1.0 SCOPE:
1.1 Please refer to Clause No. 1.1 of Section – III of this specification.
1.2 This specification covers the works of erection of 220kV and 132 kV Sub Stations. The works shall be carried out as detailed in the Schedule – III.
1.3 The Contractor shall carry out all additions / alterations required to complete the Sub Station works for commissioning at the same rates as indicated in the schedules.
1.4 The Contractor shall carry out / take up the work of erection activities awarded to him on as is where is basis.

2.0 WAY LEAVE AND REMOVAL OF OBSTRUCTIONS:
2.1 The NIGAM will arrange for right of way and clearance from obstructions for entry into the land from outside. As such there is no likelihood of hindrances in carrying out the work by the Contactor.
2.2 The Contractor shall immediately notify obstructions or hindrance from local villagers or the local authorities in the execution of the work to the concerned Engineer – in – Charge but shall not deal the matter directly. The Engineer – in – Charge will arrange to remove the obstacles as soon as possible.

3.0 ACCESS TO LOCATIONS:
It will be the Contractor’s sole responsibility to take the materials from the site store up to the location where it is to be installed/placed /erected. Any path way, temporary road, required will have to be provided by the Contractor at his cost. If for any reason the above is not feasible, the Contractor shall have to arrange transportation by head loads at his own cost. This is in connection with the transportation of material only.

4.0 DISTRIBUTION OF MATERIALS:
4.1 The Contractor has to take delivery of the equipments and other materials directly from the NIGAM’s store at Sub Station site and handle them carefully and transport them to the location where these will be erected. He will be responsible for any damage to or loss of the equipments/ materials at any stage during transportation or erection. The materials that will be issued by the NIGAM will be on “as is where is” conditions at the Sub Station site stores of the purchaser. The materials shall normally be issued during working hours.
4.2 The equipments/materials for the work shall be issued from the site stores located within the Sub Station. The stubs/anchor bolts/parts of the structure required for grouting will be issued at one time for carrying out the grouting work without insisting for insurance. The remaining material (other than the stubs/anchor bolts/ parts of the structures required for grouting) shall be issued to the Contractor only after furnishing of valid insurance policy to the order placing authority and Indemnity Bond to the Work – In – Charge. The insurance policy shall be accepted by order placing authority as per Clause 5.0 of Section – II whereas Indemnity Bond shall be accepted by the Work – In – Charge. The provision of clause 1.10 “PRICES” of Section – I shall be applicable for transportation of material.
4.3 The material shall be issued to the Contractor based on the progress of the work and subject to acceptance of insurance policy and indemnity bond as per provisions of Clause 5.0 of Section – II.
4.4 All the material shall be thoroughly checked by the Contractor before lifting from NIGAM stores. Once the material is lifted, no complaint for quantity or / and quality will be entertained.
4.5 The empty drums of conductor, earth wire and control cables shall be returned by the Contractor on as is where is basis.

[Signature]
4.6 On completion of the work, all surplus materials including the excess bolts and nuts, spring washers, plain washers, D – shackles, step-bolts, etc. and stub/anchor bolt setting templates shall be returned by the Contractor at the site stores of the NIGAM.

4.7 All the surplus structure/structure material shall be returned to the site stores as per instructions of Engineer – in – Charge of the work within one month of completion of erection. This includes unloading of structure material and stacking it as per instructions of the Engineer – in – Charge.

5.0 METHOD OF MEASUREMENT:
(Refer Section III for Scope of Work)

(a) EARTHING
i) Earth Mat: The distance between the two points of the earth mat between which the M.S. Rod has been connected shall be measured for the purpose of payment. The length of M.S. Rod actually laid shall not be considered for measurement of this work. No payment will be made for the length of the rod which may extend outside the points connected. Also, no payment shall be made for the overlapping lengths of M.S. Rod in case of joints in the earth mat.

ii) Earth Risers: The length of the M.S. Flat laid between the earthed point of the equipment/structure and the earth mat where it is connected shall be measured for the purpose of payment. No payment shall be made for the overlapping lengths of M.S. Flat in case of joints in the risers between the structure/equipment and the earth mat.

iii) Earth Electrodes: The measurement shall be in terms of numbers of electrodes irrespective of the length of the electrodes.

iv) The actual length of M.S. Rod/M.S. Flat used shall not be measured for the purpose of payment, i.e., the overlapping length of M.S. Rod/Flat in case of joints shall not be considered while measuring the length in case of earth mat and earth risers.

v) However, the actual length of M.S. Rod/M.S. Flat laid, including the overlapping lengths and the lengths extending beyond the connecting points, shall be considered in the material at site Account submitted by the Contractor.

vi) Small extra lengths of M.S. Rod/M.S. Flat up to 100 mm extending beyond the connecting points need not be cut.

vii) Wastage up to 1.0% of the M.S. Rod/M.S. Flat shall be permitted. However, the pieces of M.S. Rod/M.S. Flat left after the work is completed shall be deposited as far as possible.

b) SUB STATION AND EQUIPMENT STRUCTURE ERECTION AND ASSEMBLY:
No measurements are to be taken, but payments shall be made in respect of fully assembled structures (in terms of the unit in the Schedule – III (B), i.e., weight in M.T. as applicable) at the rates indicated in the work order and in accordance with the Technical Specifications in Section – III A. (Note: The unit weight of the Sub Station and equipment structure in sections III A are indicative only. The actual weight shall be taken as per approved BOM of the supplied structure. This may vary to any extent depending on the types of structures at the sub-station)

c) STRINGING OF BUS BAR:
The measurement of each bus section shall be on the basis of the section length measured between the center lines of the structures at both ends. The work of each section shall mean stringing of all three phases.

d) STRINGING OF EARTH WIRE:
The measurement shall be in terms of each earth wire strung between any two structures irrespective of the distance between the structures.

e) JUMPERING:
The measurement shall be in terms of each set of three jumpers of single /double conductors per phase connected between bus to equipment or
equipment to equipment or between bus to bus irrespective of the length of the conductor used.

f) EQUIPMENT ERECTION:
The measurement of the works at clause 1.1A(h) to (t) and 1.1B(h) to (r) of Section III(A) shall be made only in terms of numbers of the items erected as per requirements of Section III(A) and relevant Schedule.

g) CABLING:
i) Cable Laying: The measurement of the length of the Power/Control cables laid shall be made.

ii) Fixing in Cable Glands: The measurement shall be in terms of each end of the cable laid. For clarity, the payment for two nos. shall be made for each cable laid and fixed at both ends.

iii) Cable Termination:

a) Control Cable: The measurement shall be in terms of number of cables of each size which have been terminated, which includes termination of all the wires in the control cable at both ends. If all the wires are not got terminated, then deduction shall be made at the rate specified in the relevant item of the schedule for each wire not terminated.

b) Power Cables: The measurement shall be in terms of the ends of the cables terminated which includes termination of all 4 wires at each end. To clarify, the payment for termination of each cable shall be for 2 sets of 4 wires each.

6.0 INSPECTION BY NIGAM’S REPRESENTATIVE:
a) The Contractor shall check the verticality of the towers / structures in the presence of NIGAM’s Engineer before tightening and punching of bolts and nuts. The structures erected should be truly vertical after erection and no straining will be permitted to bring them so. The maximum tolerance permissible is one mm per 360 mm of tower height.

7.0 ELECTRICITY RULES:

7.1 All works shall be carried out in accordance with the revised and latest provisions under The Electricity Act, 2003 and Rules made there under.

8.0 ERECTION TOOLS:

8.1 a) All the erection tools required during construction of Sub Stations/bays shall be arranged by the Contractor at his own cost.
b) The crane required for any activity during erection shall be arranged by Contractor at his own cost. The price quoted shall also include charges for crane.
c) Templates for structures will however be supplied by the NIGAM which shall be returned by the Contractor in good condition on completion of the works.
d) Compression machine, if required for stringing/jumpering works, shall be provided by RVPN on rent free basis.

8.2 The Contractor only shall be completely responsible for any damage and loss of erection tools.

9.0 WASTAGES:

9.1 a) The Contractor shall make every effort to minimize the breakages, losses and wastages of materials/equipments, etc. supplied “Free of Cost” by the NIGAM for construction.
b) No damage/breakage/wastage shall be permitted except for the items mentioned at clause 9.2 below.

9.2 The maximum ceiling for wastages permitted is as under:

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Item</th>
<th>Percentage wastage permitted (Max.)</th>
<th>Compensation payable for excess wastage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Conductor and earth wire</td>
<td>1.0 %</td>
<td>Double the issue rate</td>
</tr>
</tbody>
</table>

[Signature]

(C)
2 Insulators 1.0 % Double the issue rate
3 Bolts & nuts (no extra bolts & nuts shall be supplied) 2.0 % Double the issue rate
4 Hardware & accessories 1.0 % Double the issue rate
5 M.S. Flat/M.S. Rod 1.0% Double the issue rate

9.3 The erection Contractor shall return to the NIGAM all the unused items. Conductor / earth wire length(s) less than 20 metres will be treated as wastage, but will be required to be returned as far as possible. Small extra lengths of M.S. Rod/M.S. Flat shall also be deposited as far as possible. However, the erection Contractor shall compensate the NIGAM at double the issue rate for the quantities exceeding permitted wastage and for the material not returned by the Contractor. However, in case of theft of material, recovery shall be made at single issue rate provided FIR has been lodged timely by the Contractor and a copy of the same is submitted to the Work – in – Charge.

9.4 All the wastages are accountable except for item no. 1 of clause 9.2. The account of permissible wastages shall be maintained at site in the registers as prescribed by the Engineer – in – Charge of the work, which will be subjected to periodical checking by NIGAM’s authorized representatives.

9.5 The account of wastages shall also be submitted with running accounts bills to the Engineer in Charge of the work. The copy of running account bill shall also be submitted to the concerned order placing authority.

10.0 PROGRESS REPORT:

10.1 Progress review meeting with the Contractor will be taken by the order placing authority as and when required. Minutes of such meeting shall be drawn and will include progress of works, site constraints, material constraints, delay on part of RVPN / Contractor, other bottlenecks, instructions given, decisions taken, agreed targets and views of both parties. Copy of these minutes shall be sent to the Contractor.

10.2 Deficiencies in the work shall be communicated in writing to the Contractor continuously and timely by all Inspecting Officers, and also taken up during progress review meetings.

10.3 Deficiencies which materially affect the safety and commercial use of the Sub Station/bay work will have to be attended by the Contractor before the Sub Station/bay is declared fit for charging or taking over.

11.0 QUANTITY OF WORK:

11.1 The quantities of various items of erection works indicated in the work orders placed against Central Labour Rate Contract shall be tentative / estimated. Final quantities shall be determined after completion of work. The Contractor has to carry out the work according to the final quantities as determined so as to complete the work for commissioning for which the rates of the Rate List shall be valid.

12.0 QUALITY OF MATERIAL TO BE USED BY CONTRACTOR

The material used shall meet the following requirements:

a) Paint: Asian / Nerolac / Berger / Jenson & Nicholson make
b) Cable Gland: Heavy duty single compression brass gland SIBG type of Gripwel, Comet, Metalcraft, Cabend, Trinity Touch or HMI make
c) Thimbles: Copper Terminal lugs of Dowell, Jainson, Elcon, Metalcraft, Cabend, Trinity Touch or Data make
d) Bitumen Impregnated tape: Bengal Bitumen, SPT Ltd. or Arcus Ltd. make
e) Bitumen Compound: Bengal Bitumen, SPT Ltd. or Arcus Ltd. make
f) Welding Electrodes: ISI marked

13.0 PENALTY FOR DELAY:

The Tenderer should note that the completion time allowed in the work order for carrying out the work shall be strictly observed. In case of failure to
complete the contracted works within the stipulated completion period, the Contractor shall be liable to pay penalty as per Clause 8.0 "Delay in Completion" of Section – II.

14.0 IMPORTANT INSTRUCTIONS:
In case of any doubt in the interpretation of the terms and conditions, the decision of the concerning Chief Engineer (T&C), Jaipur will be final and binding on the bidder and no dispute in this regard will be entertained.

15.0 SPECIAL INSTRUCTIONS:
a) The Bidders shall specifically note that the NIGAM will not pay any extra amount towards any type of claim except for the description indicated in erection schedule.
b) Quantities of works indicated in the work orders placed against Central Labour Rate Contract will be tentative / estimated and may vary according to requirement.
For the items where quantity is one (1), the Contractor has to execute the work as per requirement.

16.0 PERFORMANCE SECURITY DEPOSIT:
a) In order to secure/assure the fulfillment of the contract, the successful tenderer (s) upon receipt of preliminary acceptance letter/detailed purchase order as the case may be shall furnish within a period of 15 days a Performance Security deposit amount equivalent to 10% (Ten percent) of the contract value by furnishing an undertaking for deduction of performance security from his each running and final bill @ 10% of the amount of the bill.
b) Unless otherwise specifically required to be retained/forfeited by the NIGAM, the Performance Security deposit shall be refunded on request of the contractor after twelve months on completion of the entire work to the satisfaction of the NIGAM.
c) If the contractor fails or neglect to observe or perform any of his obligation under the contract, it will be lawful for the NIGAM to forfeit either in whole or in part at his absolute discretion, the Performance Security deposit furnished by the contractor.
d) No interest shall be payable on such deposits. Bank charges or any other charges, if any, shall be to the Contractor’s account. If the contractor fails to provide the Security within the period specified, such failure shall constitute a breach of the Contract and the NIGAM shall be entitled to make other arrangements at the risk and expenses of the contractor and the Bid Security deposited by the Contractor shall stand forfeited to the NIGAM.

SECTION – III

TECHNICAL SPECIFICATIONS FOR ERECTION WORKS OF SUB STATIONS

1.0 SCOPE:
1.1 The erection work of Sub Stations covered under this section consists of the following:
  TYPES AND AREAS OF WORK:
  (A) Erection of 220 KV and 132 KV Sub Stations
      The works/activities which may be required to be got done as per BSR 2017 for the work of Erection of Sub Station are as given below:
      (a) Laying of earth mesh.
      (b) Laying of Earth risers.
      (c) Placing/ Driving of earth electrodes.
      (d) Erection of Sub Station Steel Structures.
      (e) Stringing of Bus bar of ACSR Conductor .
      (f) Stringing of Earth wire.
      (g) Jumpering.
      (h) Erection of EHV transformer (Tank already placed on foundation with wheels).
(i) Erection of Circuit Breakers
(j) Erection of Station Transformer.
(k) Erection of current transformer/ potential transformer/ capacitive voltage transformer / Series Reactor / Residual Voltage Transformer / Neutral Current Transformer
(l) Erection of Lightening Arrestor.
(m) Erection of isolator & Earthing Switches.
(n) Erection of Wave Trap.
(o) Erection of Post insulator.
(p) Erection of control relay panel / L.T Panel / D.C. Board / RTCC Panel / PLC Panels, etc.
(q) Erection of marshaling kiosk / line matching unit / Line matching and distribution unit.
(r) Erection of Battery Charger.
(s) Erection of Battery Sets.
(t) Laying of control & Power cables & wiring etc.

1.2 The Contractor shall be fully responsible for completing all the above works and till they are taken over by the NIGAM.

1.3 The methods of erection activities not dealt in details are left to the Contractor who shall exercise his own judgment with regard to actual handling of materials and in deciding upon the best methods to be adopted.

2.0 GENERAL INSTRUCTIONS

(i) Transportation and unloading of the Sub Station material and equipment at the location shall be done in a safe manner so that they are not damaged or misplaced.

(ii) All the material and equipment shall be checked as per Bill of Material (BOM).

(iii) All support insulators and other fragile equipment shall be handled carefully preferably with cranes having suitable boom length and handling capacity.

(iv) Sling ropes etc. should be of sufficient strength to take the load of the equipment to be erected. They should be checked for breakages of strands before being used for the erection of equipments.

(v) The slings should be of sufficient length to avoid any damage to insulator or other fragile equipments due to excessive swing or scratching by sling ropes, etc.

(vi) Mulmul cloth shall be used for cleaning the inside and outside of hollow insulators.

(vii) Erection of equipment shall be carried out as per and in the manner prescribed in the erection, testing and commissioning manual / instructions procedures of the manufacturer, to be provided by the Engineer-In-Charge.

(viii) The services of the manufacturer’s Engineer, wherever necessary may be utilized by RVPN on its own account for erection, testing and commissioning of Sub Station equipment.

(ix) Whenever the work is required to be got done at the existing GSS where the adjacent portions may be charged, effective earthing must be ensured for safety against induced voltages so that work can be carried out without any danger / hazard to the workmen.

(x) Wherever EHT/HT/LT lines or installations are located in the land of the Sub Station, the Contractor shall ensure that adequate safety clearance is maintained during erection activities. In case shutdown of such lines or installations is required, the Contractor shall submit the request well in advance to the Work-In-Charge.

(xi) Wherever it is necessary to avail shutdowns of energized circuits for carrying out any work, the contractor shall request the work In-charge for arranging the same. The Work In-Charge shall submit a requisition to the Engineer In-charge of the GSS stating the date, time and duration of the
shutdown and the section / portion which is to be kept out of circuit during the shutdown.

(xii) The Work-In-Charge shall ensure that the portion of the switchyard under shutdown has been isolated and that effective earthing of the equipment / bus bar, on which work is to be carried out, has been done and obtain the PTW. He will then issue PTW to the contractor.

(xiii) The contractor shall ensure that the work is completed within the requisitioned time. (xiv) After completion of the erection work, all surplus material including bolts and nuts, templates, etc. shall be returned to the store. All unusable cut lengths of material such as conductor, earth wire, M.S. Rod and M.S. Flat, etc. shall not be treated as wastage and shall also be deposited in the store.

3.0 EARTHING: PLACING / DRIVING OF EARTH ELECTRODE, LAYING OF EARTH MAT AND LAYING AND FIXING OF EARTHING RISERS.

Note 1: The text and the drawings in this clause refer to some particular sizes of M.S. Rod or M.S. Flat. The reference is indicative only. The procedure/method, etc. are typically applicable to all sizes of M.S. Rod/ M.S. Flat. The following basic principles shall be followed.

(a) The minimum overlapping length for joints of M.S. Flat shall be equal to twice the width of the M.S. Flat.

(b) The Minimum overlapping length for joints of M.S. Rod shall be 100 mm for 25/28 mm dia and 200mm for 40mm dia. rod.

Note 2: The scope of work includes consumable items such as welding electrodes, bitumen compound, bitumen impregnated tape, red oxide paint, green paint and bentonite slurry except where specifically mentioned otherwise.

GENERAL INSTRUCTIONS:

(i) Earthing of the Sub Station shall be done as per the earth mat design provided by the Work-In-Charge. The details of the earthing material generally used in a Sub Station are given below:

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Purpose</th>
<th>Description &amp; Size of Material</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Voltage Class of GSS</td>
<td>132 KV Sub Stations</td>
</tr>
<tr>
<td></td>
<td>Main Earthing Conductor for Earth Mat.</td>
<td>25/28 mm dia M.S. Rod</td>
</tr>
<tr>
<td></td>
<td>Earthing Conductor for Risers (for equipments &amp; structures).</td>
<td>50 x 10 mm M.S. Flat</td>
</tr>
<tr>
<td></td>
<td>Earthing of LT panels, DC panel, C &amp; R Panels, marshaling boxes, Compressors, MOM boxes, junction boxes, lighting panels, etc.</td>
<td>50 x 6 mm M.S Flat</td>
</tr>
<tr>
<td></td>
<td>Earth Electrodes</td>
<td>25/28 mm dia M.S. Rod, 3250 mm long</td>
</tr>
</tbody>
</table>

(ii) All equipments and structures are required to be earthed by two separate and distinct connections with earth mat.

(iii) The neutrals of all voltage levels of transformers shall be earthed through independent earthing. All these earthing points should be interconnected with the Sub Station earth mat each earthing lead from the neutral of the power transformer shall be directly connected to two earth electrodes separately.
which, in turn, shall be connected to the earth mesh. The transformer tanks as well as associated accessories like separate cooler banks shall also be connected to the earth mat at two points.

(iv) Capacitor Voltage Transformers & Lightning Arresters shall be earthed through two independent risers directly connected to earth electrodes which should in turn be connected to the Sub Station earth mat. The distance between the electrodes should not be less than 4.0 metres.

(v) All other equipments such as Circuit Breakers, CTs, Isolators, Post Insulators, etc. shall also be earthed at two points.

(vi) Bus-Bar structures and equipment structures shall be earthed at two points.

(vii) Marshal boxes, cubicles, C&R Panels and all other metallic enclosures, which are normally not carrying any current, shall also be earthed.

(viii) All the earthing connections to the earth mat shall be by 2 nos. direct earthing risers free from kinks and of the shortest length. The two earthing connections / risers should be connected to the different sides of the earth mat enclosing the structure / equipment to be earthed.

(ix) For equipment earthing (including isolators), the earthing risers should be connected to the earthing terminal / pad of equipment and brought down along the leg / main member of structure and connected to the earth mat. The structure shall not be used as a part of the earthing.

3.2 BURIAL OF EARTHING CONDUCTOR:

(i) The alignment of the earth mat conductor can be changed by forming U - loops in case it fouls with equipment / structure foundations. The average spacing for East - West rows and for North - South rows of the earth mat shall, however, be kept as near as possible to the spacing indicated in the earth mat design.

(ii) Earthing conductors in the switchyard area shall be buried at a depth of at least 800 mm from top level of foundations unless stated otherwise.

(iii) Earthing conductor around any building shall be buried in earth at a minimum distance of 1500 mm from the outer boundary of the building.

(iv) In case high temperature is encountered at any location, the earthing conductor shall be laid at a minimum distance of 1500 mm away from such location.

(v) Earthing conductors, if embedded in the concrete, shall have approximately 50 mm concrete cover.

(vi) Earthing conductors laid in cable trenches, ladder columns, beams, walls, etc. shall be supported by suitable welding / cleating at intervals of 750 mm.

(vii) The earthing conductors shall be clamped with the equipment support structures at 1000 mm interval.

(viii) Transformer / Railway tracks within the switchyard area shall be earthed at a spacing of 30 meters and also at both ends.

(ix) Flexible earthing connectors shall be provided for the moving parts of equipments such as earthing switches and operating handles of isolators, etc.

(x) All lighting panels, lighting fixtures, junction boxes, receptacles, conduits, etc. shall be earthed. (xi) Earthing risers shall be run from the peaks of structures to the main earth mesh. The earthing bonds of the earth wire tension hardware shall be connected at the top of this earthing riser with bolts and nuts.

(xii) Bending of earthing rod and flat shall preferably be done by gas heating.

(xiii) Fencing should be separately earthed. Independent earthing conductor for earthing of fencing, buried at a depth of 600 mm, shall be provided 2 meters outside the switchyard fence. All the gates and every alternate post of the fence shall be connected to this earthing conductor at the corners and at every 20 meters.

3.3 EARTH ELECTRODES:

(i) The length of earth electrodes shall not be less than 3250 mm and shall be of one piece.
(ii) Except where rock is encountered, Rods shall be driven to a depth of at least 3000 mm.
(iii) Where rock is encountered at a depth of less than 3600 mm, the electrodes can be buried inclined to the vertical at an angle not more than 30° from the vertical. In all other cases, drilling shall be done for providing the pit for the electrode.
(iv) To reduce the depth of burial of an electrode in case of rocky soil without increasing the resistance, a number of rods shall be connected together in parallel as advised by the work-In-charge. The distance between two electrodes in such a case shall preferably be not less than twice the length of the electrode.

3.4 JOINTS:
(i) Minimum joints shall be made in the earth mat conductor as well as in preparing the risers.
(ii) All joints in the steel earthing system, except those where earth mat may have to be separated from equipment, etc. for testing, shall be made by electric arc welding. Welded surfaces should be painted with bitumen compound and afterwards coated with bitumen tape to protect them from rusting and corrosion.
(iii) Joints in the earthing conductor between the switchgear units and such other points which may be required to be subsequently opened for testing should be bolted type. The bolted connections, after being checked and tested, shall be painted with anticorrosive paint / compound. These joints should be accessible for supervision.
(iv) Earthing connections with equipment earthing pads shall be bolted type. Contact surfaces shall be free from scale, paint, enamel, grease, rust or dirt.
(v) Steel to copper connections shall be first bolted, then brazed and shall be coated with bitumen tape to avoid moisture ingestion.
(vi) All welded joints shall be allowed to cool down gradually to atmospheric temperature. Artificial cooling should not be used.

3.5 PLACING OF EARTH ELECTRODES:
3.5.1 Cut M. S. Rod of the applicable diameter to approximate lengths of 3.25 meters and, if required, prepare one end as spike for placing / driving into the ground.
3.5.2 Earth Electrode in Loose / Sandy Soil: (i) Excavate a pit approximately 1 M. x 1 M up to 0.6 meter depth.
(ii) Place the earth electrode in the excavated pit and drive it in the ground with a sledgehammer such that the top of the electrode is 0.55 meter below the foundation top level. This will leave 0.25 meters of the electrode above the ground for connecting it to the earth mat rods.
3.5.3 Earth Electrode in Hard Soil:
(i) Excavate a pit approximately 1 M. x 1 M. up to 0.6 meter depth.
(ii) Augur a hole in the ground to a depth of 3 meters inside this pit.
(iii) Place the electrode in the augured hole such that the top of the electrode is 0.55 meter below the foundation top level.
(iv) Backfilling of the excavation and compact the soil after completion of the work.
3.5.4 Earth Electrode in Rocky Soil (Normal Depth):
(i) Where rock is encountered at a depth of less than 3600 mm below the foundation level, excavate a trench which is inclined to the vertical at an angle not more than 30° from the vertical.
(ii) In all other cases, carry out drilling of the rocky soil for providing the pit for the electrode.
(iii) For connecting the electrode to the earth mat, clamp / hold the M. S. Rods of the electrode and the earth mat together. First weld these together at the crossing point.
(iv) Fabricate four cleats in the shape of M. S. Angles from M. S. Flat of size to be used for earthing risers and of length equal to 10 times the diameter of the
M. S. Rod. Weld these at all the corners of the joint. A typical joint is shown in Annexure – A, (II): JOINT OF M.S. ROD TO M.S. ROD AT EARTH ELECTRODE AND AT MESH CROSSINGS.
(v) After welding, apply bituminous compound to the hot joints, and cover the joints with bitumen impregnated tape.
(vi) Backfill the excavation and compact the soil after completion of the work.
(vii) If advised by the Engineer –In-Charge, the backfilling shall also have to be done with Bentonite, or a combination of bentonite and black cotton soil in the ratio of 1:6, to reduce the resistance to earth. The Bentonite & black cotton soil shall be arranged by RVPN in such case.
3.5.5 Earth Electrode in Rocky Soil (8 Meter Depth):
(i) Drill the earth pit having a throughout bore of 200mm dia to a depth of 8.0 meters from the top level of the foundations. This is to be done in all type of rocks by DTH system and over burden to be arranged by contractor.
(ii) Cut M.S. rod of applicable diameter to approximate length of 7.5 meters.
(iii) Place the earth electrode in the excavated pit such that the top of the electrode is 0.55 meters below the foundation top level.
(iv) For connecting the electrode to the earth mat, clamp / hold the M. S. Rods of the electrode and the earth mat together. First weld these together at the crossing point.
(v) Fabricate four cleats in the shape of M. S. Angles from M. S. Flat of size to be used for earthing risers and of length equal to 10 times the diameter of the M. S. Rod. Weld these at all the corners of the joint. A typical joint is shown in Annexure – A, (II): JOINT OF M.S. ROD TO M.S. ROD AT EARTH ELECTRODE AND AT MESH CROSSINGS.
(vi) After welding, apply bituminous compound to the hot joints, and cover the joints with bitumen impregnated tape. (vii) Back fill the pit with Bentonite slurry (to be arranged by the Contractor) and compact it after completion of the work.
3.6 LAYING OF EARTH MAT:
(i) Excavate trenches along the specified alignments to a depth of 0.80 meter below the foundation top level.
(ii) Where different ground levels are provided in the switchyard, uniformly increase the depth of excavation in the higher level from a distance of 5 metres from the lower level so as to attain the required depth of excavation in the lower level.
(iii) Wherever the earth mat is to cross cable trenches, underground service ducts, pipes, transformer tracks, etc., increase the depth of excavation so that it can be laid at a minimum depth of 300 mm below them.
(iv) Wherever the earth mat is to cross a road, increase the depth of excavation so that it can be laid 300 mm below the road or at a greater depth to suit the site conditions.
(v) Lay the M. S. Rod in the excavated trenches.
3.7 JOINTS IN EARTHING:–
3.7.1 Straight Joints of M. S. Rods in the Earth Mat:
(i) Place the rods so that they overlap each other by 4 times their diameter. e.g., 100 mm in case of M. S. Rod of 25 mm diameter. Clamp / hold these two lengths of M.S. Rods together and weld them on both sides.
(ii) Thereafter, place two pieces of M. S. Flat of size to be used for earthing risers and length 4 times the diameter of the rods on both sides of this joint, and weld these pieces on the rods. A typical joint is shown in Annexure – A, (III): JOINT OF M.S. ROD TO M.S. ROD IN EARTH MAT. (iii) After welding, apply bituminous compound to the hot joints, and cover the joints with bitumen impregnated tape.
3.7.2 Cross Joints of M. S. Rods in the Earth Mat:
(i) Clamp / hold together the two M. S. Rods crossing each other. First weld these together at the crossing point.
(ii) Fabricate four cleats in the shape of M. S. Angles from M. S. Flat of size to be used for earthing risers and of length equal to 10 times the diameter of the M. S. Rod. Weld these at all the corners of the joint. A typical joint is shown in Annexure – A, (II): JOINT OF M.S. ROD TO M.S. ROD AT EARTH ELECTRODE AND AT MESH CROSSINGS.

(iii) After welding, apply bituminous compound to the hot joints, and cover the joints with bitumen impregnated tape.

3.7.3 Joint of M. S. Rod and Earth Electrode:

(i) Clamp / hold together the M.S. Rod and the earth electrode. First weld these together at the crossing point.

(ii) Fabricate two cleats in the shape of M. S. Angles from M. S. Flat of size to be used for earthing risers and of length equal to 10 times the diameter of the M. S. Rod. Weld these at the joint. A typical joint is shown in Annexure – A, (IV): JOINT OF M.S. ROD TO M.S. ROD AT EARTH ELECTRODE.

(iii) After welding, apply bituminous compound to the hot joints, and cover the joints with bitumen impregnated tape. (iv) Backfill the excavation and compact the soil after completion of the work.

3.8 PREPARATION AND FITTING OF RISERS:

(i) Excavate trench from the equipment / structure foundation to the nearest rod of the earth mat. The depth shall be 0.80 meter below the foundation top level.

(ii) Cut M. S. Flat of the required length and form / bend it, by heating if required, to form a smooth and regular shape to match with the shape / form of the equipment / structures / foundation. The shape of the risers should be same / similar for the same type of equipment / structure.

(iii) Lay the prepared M. S. flat riser from the equipment / structure / peak of the structure (for grounding of earth wire) to the rod of the earth mesh in the excavated trench and then connect it to the equipment or structures or structure peak. The fitting to the equipment / structure may be bolted type (earthing terminal / pad of the equipment) or welded type (structure). For bolted type fitting, drill necessary holes in the riser and fix it with bolts & nuts. For welded type fitting, weld a length equal to at least twice the width of the M. S. Flat. (iv) In case joints are required to increase the length of the M. S. Flat risers, the two lengths of the M. S. Flat should overlap each other by twice the width of the M. S. Flat. After placing the M. S. flats one above the other as above, clamp / hold them together to provide good surface contact. Weld the two sides of the joint as well as the part between the flats on the top surface. A typical joint is shown in Annexure – A, (V): JOINT OF M.S. FLAT TO M.S. FLAT. (v) Weld the M. S. Flat riser to the rod of the earth mat after fitting / welding it to the equipment / structure / structure peak. Place the M. S. Flat below the rod, clamp / hold them together, and weld on both sides of the rod. Then form a piece of M. S. Flat 50 x 6 mm into a stirrup (as shown in the drawing) and place on the joint of the rod and flat. Alternatively, cut two pieces of M. S. Angle 50 x 50 x 6 mm of length equal to the width of the M. S. Flat and place these on both sides of the joint of the rod and flat. Weld these to both the rod and the flat. A typical joint is shown in Annexure – A; (VI) JOINT OF M.S. FLAT TO M.S. ROD OF EARTH MAT.

(vi) After welding, apply bituminous compound to the hot joints and cover the joints with bitumen impregnated tape.

(vii) Clamp the earthing risers with the equipment support structures at 1000 mm intervals.

(viii) Backfill the excavation and compact the soil after completion of the work.

(ix) Apply red oxide paint and then green enamel paint on the portion of the risers above ground level.

(x) A drawing showing the typical arrangement for earthing of equipment and its structure is given at Annexure—B.
Annexure-B

Drawing of earthing, and other associated works, as well as Electrical Lay Out Plan, duly approved by the competent authority, shall be provided at the time of execution of work by the work in-charge.

4.0 ERECTION OF SUB STATION STEEL STRUCTURES

1. General Instructions (i) The structure material shall be stacked member / item wise. (ii) The following shall be made available by RVPN to the contractor for erection of Sub Station structures / beams and equipment structures: a) Drawings and bills of material of structures / beams / equipment structures. b) Templates of structures.

4.2 Type of Structures: The types of structures generally used at Sub Stations are given below:

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Name of Structure</th>
<th>Type of Structure</th>
<th>Height of Column/ Height of Conductor (Meters)</th>
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<td>220 KV Structures</td>
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</tr>
<tr>
<td>1</td>
<td>AT1</td>
<td>AT1 Column with Peak</td>
<td>20.0 / 14.5 2.</td>
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<tr>
<td>2</td>
<td>AT3</td>
<td>Column without Peak</td>
<td>15.0 / 14.5</td>
</tr>
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<td>AT4</td>
<td>Column with Peak and Beams at two levels for Bus Bar stringing</td>
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<tr>
<td>4</td>
<td>AT6</td>
<td>Column without Peak</td>
<td>10.0 / 9.5 5</td>
</tr>
<tr>
<td>5</td>
<td>AT8</td>
<td>Column with Peak</td>
<td>15.0 / 9.5 6</td>
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<tr>
<td>6</td>
<td>AB</td>
<td>Beam</td>
<td>16.6 (Width)</td>
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<tr>
<td>B</td>
<td>132 KV Structures</td>
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<td></td>
</tr>
<tr>
<td>1</td>
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<td>Column with Peak</td>
<td>16.0 / 11.5</td>
</tr>
<tr>
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<td>BT3</td>
<td>Column without Peak</td>
<td>12.0 / 11.5</td>
</tr>
<tr>
<td>3</td>
<td>BT4</td>
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<td>8.0 / 7.5</td>
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<td>12.0 / 7.5</td>
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<tr>
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<td>BB</td>
<td>Beam</td>
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<td>P</td>
<td>Peak</td>
<td>2.5</td>
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<tr>
<td>8</td>
<td>Q</td>
<td>Column</td>
<td>7.5</td>
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<tr>
<td>9</td>
<td>R</td>
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<tr>
<td>10</td>
<td>GD</td>
<td>Beam</td>
<td>10.0 (Width)</td>
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<tr>
<td>C</td>
<td>33 KV and 11 KV Structures</td>
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<td></td>
</tr>
<tr>
<td>1</td>
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<td>Peak</td>
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<tr>
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<td>Y</td>
<td>Column</td>
<td>5.5/5.5</td>
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<tr>
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<tr>
<td>5</td>
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<td>Beam</td>
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<tr>
<td>AO1(T)</td>
<td>220KV Tandem Isolator</td>
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PREPARING FOR GROUTING:

4.3 Setting of Foundation bolts, leveling and

PREPARING FOR GROUTING: Foundation bolts, leveling and attachment.

4.3.1 Setting of Foundation bolts, Leveling and attachment.

Assuming the image contains a table related to foundation bolts and weights, the following table is extracted from the image:

<table>
<thead>
<tr>
<th>Type of Structure</th>
<th>Bolt Details</th>
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</thead>
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<tr>
<td>Steel Structure</td>
<td>33 kV 8 x 11 kV CT 8 x 11 kV CT</td>
</tr>
<tr>
<td>Isolator</td>
<td>132 kV Isolator</td>
</tr>
<tr>
<td>Isolator</td>
<td>220 kV Isolator</td>
</tr>
<tr>
<td>Isolator</td>
<td>220 kV Isolator</td>
</tr>
<tr>
<td>Rods, nuts, bolts (NG)</td>
<td>169 kV (NG)</td>
</tr>
<tr>
<td>Frame, 8 x 8 bolts (NG)</td>
<td>169 kV (NG)</td>
</tr>
<tr>
<td>Steel Structure</td>
<td>220 kV 8 x 11 kV CT 220 kV 8 x 11 kV CT</td>
</tr>
<tr>
<td>Isolator</td>
<td>132 kV Isolator</td>
</tr>
<tr>
<td>Isolator</td>
<td>220 kV Isolator</td>
</tr>
<tr>
<td>Isolator</td>
<td>220 kV Isolator</td>
</tr>
<tr>
<td>Rods, nuts, bolts (NG)</td>
<td>169 kV (NG)</td>
</tr>
<tr>
<td>Frame, 8 x 8 bolts (NG)</td>
<td>169 kV (NG)</td>
</tr>
</tbody>
</table>

Below for reference: The weights of various type of structures are detailed.
structures in which the lowest member is used as a stub, the assembled lower part of the structure shall be placed on the foundation. This shall be levelled & centered with reference to its location on the foundation. The stubs / lowest member shall thereafter be grouted ensuring that there is no displacement during the placing of the concrete and use of vibrator. (Grouting work i.e., concreting in the pockets of the foundations along with material, will be in the scope of RVPN) (iv) While leveling and centering the structure / template, the following points shall be checked: a) Level of structure / template with reference to the finished foundation level or the ground level. b) The level of the structure / template with reference to level of other similar structures. c) Distance of centre line of the structure from the center line of other structures or from a reference point. d) Centre to centre distance between structures, particularly structures which are to be connected together, for example, by a common beam.

4.4 ERECTION OF STRUCTURES:
4.4.1 Method of Erection: The contractor shall be at liberty to choose any of the three methods of erection of structures which are as below: (i) Ground assembly method. (ii) Section method. (iii) Built up method or Piecemeal method. He shall however be responsible for any damage to the structures/structure material or any adjacent structures/equipment.

4.4.2 Ground Assembly Method: (i) This method is used for erection of equipment structures and is the preferred method for erection of Sub Station structures when crane facility is available. (ii) This method consists of assembling the structure on the ground and erecting it as a complete unit. (iii) The complete structure is assembled in a horizontal position near its location. On sloping or uneven ground, suitable packing is provided in the lower level area before or during assembly, as required, to eliminate / minimize stress on the structure members. (iv) After the assembly is complete, the structure is picked up from the ground with the help of a crane and set on its foundation.

4.4.3 Section Method: (i) This method is used for large and heavy structures when crane facility is available. (ii) A mobile crane is used for erecting the structures. (iii) The two faces / sides of the complete structure are assembled on the ground and then erected. Alternatively, the two faces / sides of the major sections of the structure are assembled on the ground and the same are erected as units. (iv) Each assembled side is then lifted clear of the ground with the crane and is lowered into position on its foundation or fitted on to stubs or foundation bolts which are already grouted. One side is held in place with props or rope guys while the other side is being erected. The two opposite sides are then connected together with cross members. (v) In case where the major sections of the structure have been assembled, the first face of the second section is erected. After the two opposite faces have been erected, the bracings on the other two sides are bolted up. The last lift raises the top of the structure. After the structure top is erected and all side bracings have been bolted up, all the guys are thrown off.

4.4.4 Built up method or piecemeal method: (i) This method is used for large and heavy structures when crane facility is not available. (ii) This method consists of erecting the structure member by member. The structure members are kept on ground serially according to erection sequence so that they can be sent up conveniently. (iii) The erection progresses from the bottom upwards. The four main corner leg members of the first section of the structure are first erected. (iv) The cross bracings of the first section are raised one by one and bolted to the already erected corner leg angles. If these have been assembled on the ground, then they are lifted up as a unit. (v) For assembling the second section of the structure, a derrick is placed on one of the corner legs. This derrick is used for raising parts of second section. The leg members and bracings of this section are then hoisted and assembled. (vi) The derrick is then shifted to the corner leg members on the top of second section to raise the
parts of third section of the structure in position for assembly. The derrick is thus moved up as the structure grows. This process is continued till the complete structure is erected.

4.5 ERECTION OF BEAMS:
(i) The two faces of the beam are assembled on the ground. (ii) Each face of the beam is raised with the help of crane or using derricks which are placed on the top of the already erected structures on both the sides of the beam. Single or multi – way pulleys with polypropylene / steel ropes are used as per load requirement. The ends of the beam are connected to the column as per fixing arrangement provided on the columns. (iii) The bracings of the upper and lower faces of the beam are then raised up and fitted.

4.5.1 The columns shall be truly vertical and the beams truly horizontal after erection. Measures taken to bring the column to verticality and beam to horizontality should not result in strain on the structure members so as to cause distortion / bending of the members.

4.5.2 The work of erection of beams on erected columns and erection of equipment on erected structures shall not be taken up until these have been checked for tightening of the bolts & nuts.

4.5.3 All bolted connections shall be well tightened using spring washers & then punched at three points on the circumference of the bolt.

5.0 STRINGING OF BUS BARS OF ACSR CONDUCTOR, STRINGING OF SHIELD/ EARTH WIRE AND JUMPERING ETC.

5.1 General Instructions Note: The binding wire to be used for these works shall be arranged by the Contractor. (i) Care shall be taken during sagging operations so that no damage or deformation is caused to the structures. (ii) The ends of the cut piece of conductor / earth wire shall be tied with at least two rounds of binding wire so that the strands do not open out. The tying of the binding wire shall be done such that the binding wire does not get tightened in the groove of the T – Clamps or the PG (Parallel Groove) – Clamps or the terminal connectors of the equipment. (iii) Cut lengths of conductor and earth wire left after stringing of bus bars and earth wire can be used for jumpering work. (iv) Compression machine, if required, shall be provided on rent free basis by RVPN.

5.2 BUS BAR MATERIAL
The bus bar material generally used in 220 kV & 132 kV sub Stations is given below:

Sl. No | Description | Bus Bar and Jumper Material

5.3 STRINGING OF CONDUCTOR BUS BARS:
(i) The conductor shall be handled with care to prevent scratches on it or damage to the strands of the conductor. When the conductor is to be taken from drums, small lengths can be unwound from the drum. For longer lengths, the conductor drum shall be placed on a turn table or jacked up on a suitable
size of steel shaft. The conductor shall be paid out in a manner so that there are no scratches or damages caused to the conductor due to rubbing on the sides of the drum. (ii) Disc insulators shall be cleaned and examined for any cracks / chipping, etc. Disc insulators having any hair cracks or chipping or defective glazing or any other defect shall not be used. The limits of the area of defective glazing are given by the following formulas.

a) Single Glaze Defect = 0.5 + DXF/20000 DF Sq. cm.

b) Total Glaze Defect = 1.0 + DXF/20000 DF Sq. cm. where, \( D \) = Diameter of the disc in cm. \( F \) = Creepage distance in cm.

(iii) The disc insulators shall be assembled on the ground to form the suspension and tension strings as given below.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>System Voltage</th>
</tr>
</thead>
<tbody>
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<tr>
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<td>Tension String</td>
</tr>
<tr>
<td>E &amp; M Strength (kN)</td>
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<tr>
<td>Nos.</td>
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<td>4</td>
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</tbody>
</table>

(iv) After assembly of the strings, the mouth of the W – clips / R – clips shall be widened to prevent any inadvertent removal during service. (v) The suspension and tension hardware shall be assembled as per their respective drawings to be provided by RVPN and the disc insulator string shall be fitted in the requisite portion of the hardware assembly. (vi) For stringing of bus bars, the conductor shall be fixed and tightened in the clamp of the tension hardware on one side of the bus. Thereafter, the complete hardware assembly with the conductor shall be hoisted up and fixed on the beam at this end. Sagging arrangement shall be made on the other end of the bus and the conductor shall be tensioned. (vii) Measurement of length of conductor required for the bus shall be made thereafter and the conductor shall be released so that it returns to the ground. The conductor shall be cut to the marked length after deducting the length of the tension hardware with insulators and fixed in the clamps of the tension hardware. The conductor along with tension hardware set shall then be again pulled up and connected to the beam. (viii) Equalizing of tension in the different sub – conductors of the same phase and in the different phases shall be done, if required, to ensure equal sag of all the sub – conductors or between phases of the bus section as well as that of adjacent or parallel sections (ix) The spacers shall be fitted on the twin conductor bus bars at the spacing shown in the drawing (to be provided by RVPN). The spacers shall also be provided at points where jumpers are taken from the bus bar using T – clamps and / or P. G. clamps. Spacers are not used at jumper points in case T – Spacers are used for taking jumpers from multi conductor bus bars.

5.4 JUMPERING:

5.4.1 Jumpering of Conductors:
(i) The jumpers connecting different sections of the bus bars as well as those connecting equipment to bus bars shall be of Y – type.

(ii) A typical diagram of Y – type jumpering is given below.

(iii) For making Y – type jumpers, the jumper conductor(s) shall be first connected to the bus bar conductor(s) using T – Clamp / Spacer T – Clamp which is suitable for clamping the respective conductors, i.e., bus bar conductor(s) and the jumper conductor(s). Thereafter, the bus bar conductor(s) shall be again connected with the jumper conductor(s) using properly curved & shaped Y – conductor(s) and 2 nos. PG – clamps as shown in the diagram above. (iv) The jumpering between equipment shall be done with single / twin conductors as per the terminal connectors provided on the equipment. (v) In
case of jumpers for twin conductors, the spacers shall also be fitted at a suitable spacing on the jumpers in order to maintain their shape.

5.4.2 Jumpering Of Busbars:
(i) For jumpering of different sections of bus bars on the beam, the suspension hardware set along with disc insulators shall first be hoisted and fitted on the beam. (ii) Conductor of approximately the length required for the jumper shall be cut and straightened so that kinks are removed. This shall be connected to the bus bar conductor on one side of the beam after taking into consideration the natural curve of the conductor. (iii) This shall then be passed through the clamps on the suspension hardware so that the proper curve is obtained. The other end of the conductor shall then be taken up to the bus bar conductor on the other side and measurement of the length shall be taken. The conductor shall be cut to the appropriate length and then connected to the bus bar conductor on the other side. The length of the conductor used and its natural curve should be such that a neat and proper curve is obtained in the jumper without any kinks or bends. The clamp of the suspension hardware shall then be tightened after ensuring proportional lengths of the conductor on both the sides of the beam.

5.4.3 Jumpering from Busbar to Equipment:
(i) Approximate length of the conductor required for the jumper shall be cut and then connected to the bus bar conductor. (ii) In case the jumper is to be connected to equipment near or under a beam, the suspension hardware along with disc insulators is first fitted on the beam. The conductor shall be passed through the clamp of the suspension hardware. (iii) The end of the conductor shall be taken up to the terminal connector of the equipment. The measurement of length of the conductor up to the equipment shall be made. (iv) After cutting the conductor to the required length, it shall be connected to the equipment. (v) The clamps of the suspension hardware shall be tightened thereafter.

5.4.4 Jumpering between Equipments: (i) The distance between terminal connector of one equipment and terminal connector of other equipment is first measured. The appropriate length of the conductor shall be cut and then straightened so that curves and kinks are removed. (ii) The jumper conductor shall then be connected to the terminal connectors of both the equipments and straightened or shaped as per site condition to give a neat and proper look. (iii) Vertically supported insulators of equipments and Post Insulators should be checked for verticality again after jumpering on both sides and corrected if required.

5.5 STRINGING OF SHIELD / EARTH WIRE:
(i) The shield / earth wire shall be handled with care to prevent scratches on it or damage to the strands of the wire. When the shield / earth wire is to be taken from drums, small lengths can be unwound from the drum. For longer lengths, the earth wire drum shall be placed on a turn table or jacked up on a suitable size of steel shaft. The shield / earth wire shall be paid out in a manner so that there are no scratches or damages caused to the shield / earth wire due to rubbing on the sides of the drum. (ii) The earth wire shall be strung from one peak to another peak of the structures as per layout of the GSS. (iii) The tension hardware shall be assembled as per the relevant drawings to be provided by RVPN. (iv) The shield / earth wire shall be fitted and tightened in the clamp of the tension hardware on one side. Thereafter, the complete hardware assembly along with the shield / earth wire shall be hoisted up and fixed on the peak of the structure at one end. (v) Sagging arrangement shall be made on the other end and the shield / earth wire shall be tensioned. Measurement of length of shield / earth wire required shall be made thereafter and the shield / earth wire shall again be released so that it is returned to the ground. The shield / earth wire shall be cut to the marked length after adding
the length of the wire required for jumpering and fitted in the clamp of the tension hardware at the marked point. The shield / earth wire along with tension hardware set shall then be pulled up again and connected to the peak of the structure. (vi) Adjustment of tension in the earth wire may be done, if required, to ensure equal sag of all the earth wires in adjacent or parallel sections.

5.6 JUMPERING OF SHIELD / EARTH WIRE:
(i) The lengths of the earth wire which remain outside the tension hardware on the peak of the structures shall be cut, if required, so that these lengths when joined together form a smooth and proper curve. These shall be connected together using a PG Clamp. (ii) The earth bond provided with the earth wire tension clamp shall be connected to the specified point on the peak of the structure and to the earthing riser, which is used as a down conductor from the peak, for the purpose of connecting the shield / earth wire to the earth mesh of the Sub Station.

6.0 ERECTION ACTIVITIES IN RESPECT OF VARIOUS EQUIPMENTS.

A. STATION TRANSFORMER:
(I) ERECTION OF STATION TRANSFORMERS
(i) Transportation of the station transformer and accessories, if any provided loose) along with clamps and connectors from the site store to location carefully. (ii) Cleaning of the transformer and the bushings. (iii) Erecting the transformer on existing masonry platform by placing it properly, i.e., HV side towards 33 KV or 11 KV as the case may be. (iv) Fitting of the accessories, if any which have been provided loose. (v) Checking that all the accessories as per the bill of material have been provided and the same are in position. (vi) Making arrangements for locking the wheels of the transformer. (vii) Fitting of the terminal connectors/ clamps, etc. (viii) Tightening of nuts, bolts, etc. complete in all respect.

(II) ERECTION OF HORN GAP FUSE SET:
Transportation of Horn Gap fuse set and its accessories along with clamps and connectors and structures from site store to location. (i) Assembling (if required) of structure of Horn Gap fuse set. (ii) Fixing of structure of Horn Gap fuse set and leveling thereof. (iii) Assembling of Horn gap fuse set as per drawing. (iv) Mounting of Horn Gap fuse set on the structure. (v) Fitting of clamps and connectors, etc. (vi) Tightening of nuts, bolts, etc. complete in all respect.

(III) JUMPERING FROM ISOLATOR TO HORN GAP FUSE & HORN GAP FUSE TO SUB STATION TRANSFORMER.
(i) Transportation of conductor from site store to location. (ii) Carrying out jumpering between Isolator to Horn Gap fuse set and then from Horn Gap fuse set to Sub Station Transformer as detailed in clause 5.4.4 "JUMPERING BETWEEN EQUIPMENTS".

B. CURRENT TRANSFORMERS:
(I) GENERAL INSTRUCTIONS
(i) While erecting the current transformers, the P1 terminal of the current transformer shall be kept as per the instructions of Engineer-In-Charge.

(II) ERECTION
(i) Transportation of complete current transformers and their accessories, etc. along with clamps & connectors, etc. from site store to location. (ii) Carrying out leveling of already erected structure(s) and minor fabrication work, if required, for erection of the Current Transformer. (iii) Cleaning of the insulator of the Current Transformer. (iv) The IR values of primary terminals to earth will be measured by RVFN with 5 kV Megger. (v) Erecting of the Current Transformer on the structure. (vi) Fitting of the terminal connectors on the Current Transformer. (vii) Tightening of the nut, bolts, etc. complete in all respect.
C. CAPACITOR VOLTAGE TRANSFORMERS (CVT) / POTENTIAL TRANSFORMERS (PT)
(i) Transportation of complete CVT/PT and its accessories along with terminal connectors, etc. from site store to location. (ii) Carrying out leveling of already erected structure(s) and minor fabrication work, if required, for erection of the Capacitor Voltage Transformers / Potential Transformers. (iii) Cleaning of the insulators of the VTs. (iv) Assembling the different units of the same serial number of the CVT, if applicable. (v) The IR values of primary terminal to earth will be measured by RVPN with 5 kV Megger. (vi) Erecting the Capacitor Voltage Transformer / Potential Transformer on the structure. (vii) Fitting of the covers on the joints between different units of the CVT, if applicable. (viii) Fitting of the terminal connectors on the VT’s. (ix) Tightening of the nuts, bolts, etc. complete in all respect.

D. SERIES REACTORS / RESIDUAL VOLTAGE TRANSFORMER/ NEUTRAL CURRENT TRANSFORMER.
(i) Transportation of complete Series Reactor / RVT/ NCT and its accessories along with terminal connectors, etc. from site store to location. (ii) Carrying out leveling of already erected structures and minor fabrication work if required for erection of the equipments. (iii) Cleaning of the insulators of the Series Reactors / Residual Voltage Transformers/ Neutral Current Transformers. (iv) The IR values to earth of Series Reactors will be measured by RVPN with 5 KV Megger. (v) The IR values between primary terminal to earth and primary terminal to secondary terminals of Residual Voltage Transformers/ Neutral Current Transformers will be measured by RVPN with 5 KV megger. (vi) Erecting the Series Reactors / Residual Voltage Transformers/ Neutral Current Transformers. (vii) Fitting of the terminal connectors. (viii) Tightening the nuts, bolts, etc. complete in all respect.

E. LIGHTNING ARRESTERS I) GENERAL INSTRUCTIONS:
(i) The serial number of all the units of a multi- unit Lightning Arrester (LA) should be the same. (ii) The units of a multi- unit Lightning Arrester should be assembled in the sequence shown on the rating plate of the LA or in the catalogue of the manufacturer to be provided by the Engineer-In-Charge. 
TN-01/2016-2017/ (46) (iii) The insulated base unit should be erected in case of Lightning Arresters provided with surge monitors. (iv) The installation of the Lightning Arresters should be such that the direction of the open end of the explosion release vent (at top and bottom) is away from adjacent expensive equipment such as transformers.

II) ERECTION OF LAs OF 132 KV CLASS & 220 KV CLASS:
(i) Transportation of complete LAs along with accessories, clamps and connectors, etc. from site store to location. (ii) Leveling of the already erected supporting structure(s) and carrying out minor fabrication work thereon for erection of the Lightning Arresters and surge monitors, as required. (iii) Cleaning of the insulators of the Lightning Arresters. (iv) Assembling the different units of the same serial number of the Lightning Arresters, if applicable, Also, fitting of the corona rings between different units, if provided. (v) Erecting the Lightning Arresters on the already erected and leveled supporting structure(s). (vi) Fitting of the Surge Monitor on the structure and connecting it to the lowest unit of the Lightning Arrester above the base insulator. (vii) Fitting of the corona / grading ring on the top of the Lightning Arrester, if provided. (viii) Fitting of the terminal connectors on the Lightning Arresters. (ix) Tightening of the nuts, bolts, etc. complete in all respect.

III) ERECTION OF 33 KV & 11 KV LAs:
(i) Transportation of complete LAs along with accessories, clamps and connectors, etc from site store to location. (ii) Making of the mounting arrangements on the beam of the already erected Sub Station structures. (iii) Cleaning of the insulators of the Lightning Arresters. (iv) Erecting the Lightning Arresters on the already prepared arrangement on the beam of the Sub Station
structures. (v) Fitting of the terminal connectors on the Lightning Arresters. (vi) Tightening of the nuts, bolts, etc. complete in all respect.

**F. ISOLATORS ERECTION OF ISOLATORS:**

(i) Transportation of complete isolator with accessories. Post Insulators operating mechanism box, clamps and terminal connectors, etc. from site store to location. (ii) Leveling of already erected structure(s) and carrying out minor fabrication works, if required, for erection of the Isolator and operating mechanism(s). (iii) Erecting the 3 nos. base frames of individual phases on the structure(s). (iv) Carrying out leveling and centering of the base frames. (v) Fixing of the link pipes on the rotating parts of the base frames of the individual phases. (vi) Cleaning and assembling of the polycone insulator / insulator stack, as applicable. For single break isolators, there will be six polycone insulators / insulator stacks whereas for double break Isolators, the quantity will be nine. (vii) Fitting of the male and female contact arms on the polycone insulators / insulator stacks in case of single break Isolator. In case of double break Isolator, 6 nos. fixed contacts and 3 nos. moving contacts are fitted on the polycone insulators / insulator stacks. (viii) Fitting of the fixed contacts of earth blades in case of Isolator with Earth Switch. (ix) Fixing of the arcing horns (make before & open after the main contacts) or corona rings, as applicable. (x) Erecting the above assemblies on the rotating parts of the base frames. (xi) Carrying out adjustment / alignment of individual phases for smooth opening and closing and proper making of contacts.

(xii) Fitting of the inter – phase connecting pipes between the rotating parts of the base frames of the individual phases, including fixing of hardware for interlocking with earth switch wherever provided. (xiii) Fitting of the operating mechanism box for the Isolator. (xiv) Fitting of the main operating down pipe to operating mechanism for the Isolator. (xv) Checking of the operation and final adjustment / alignment of all the three phases of main Isolator for smooth, synchronized and complete operation as one unit. (xvi) Adjustment of the mechanical end stoppers on the base channel for both the closed and open positions. (xvii) Fitting of the terminal connectors on the Isolator. (xviii) Tightening of the nuts, bolts, etc. complete in all respect.

**II ERECTION OF EARTH SWITCHES:**

(i) Transportation of complete Earth Switch along with accessories and operating mechanism box, clamps and connectors, etc. from site store to location. (ii) Fixing of the earth blade mounting arrangements on the base frames of all the three phases. (iii) Fitting of the moving contact (earth blade) of the earth switches and counterweights, wherever provided. (iv) Carrying out the operation and adjustment / alignment of earth switch of each phase for smooth opening and closing and proper making of contacts. (v) Fitting of the inter – phase connecting pipes between the earth switches of the individual phases, including fixing of hardware for interlocking with main Isolator. (vi) Fitting of the operating mechanism box for the earth switches. (vii) Fitting of the main operating down pipe to operating mechanism for the earth switch. (viii) Checking the operation and final adjustment / alignment of all the three phases of the earth switch for smooth, synchronized and complete operation as one unit. (ix) Carrying out the adjustment and setting of mechanical interlock between main Isolator and earth switch to ensure that earth switch does not operate if the main Isolator is closed, and that main Isolator does not operate if the earth switch is closed. (x) Carrying out the adjustment of mechanical end stoppers for the OPEN and CLOSED positions of earth switch. (xi) Fitting of the earth bonds and other accessories as provided. (xii) Tightening of the nuts, bolts, etc. complete in all respect.

**III ERECTION OF OPERATING MECHANISM:**

(i) Carrying out the adjustment and setting of auxiliary switches. (ii) Carrying out the adjustment of limits switches in CLOSED and OPEN positions of isolators in case of motor operated mechanism. (iii) Carrying out the
adjustment of mechanical end stoppers for both the CLOSED and OPEN positions. (iv) Carrying out the adjustment of interlocking coil and plunger in CLOSED and OPEN positions. (v) Rechecking the adjustment/ alignment of the isolator main contacts for smooth opening and closing and proper making of contacts after jumpering on both sides.

G. WAVE TRAPS

I. GENERAL INSTRUCTIONS:
(i) The Wave Traps are erected as below.
S.No. Line Type of Coupling Phases on which Wave Traps are to be erected 1. Single Circuit Phase to Phase Two phases of the line TN-01/2016-2017/ (48) 2. Double Circuit Inter – circuit Same phase of both the circuits
(ii) For single circuit lines, the Wave Traps are generally erected on R & B phases. (iii) For double circuit lines, the Wave Traps are generally erected on the Y phase of both the circuits. (iv) The Wave Traps may be required to be erected on phases different from those mentioned at para (ii) and para (iii) above in case the end to end return loss is not found satisfactory during testing of the PLC Carrier Sets.

II. ASSEMBLY:
(i) Transportation of complete Wave Trap and its accessories, Hardwares, clamps and connectors, etc. from site store to location. (ii) Cleaning of the Wave Trap and its associated equipment. (iii) Fitting of the tuning pot and associated equipment in the Wave Trap by RVPN. (iv) Fitting of the end covers on the wave traps, and positioning them correctly by RVPN. (v) Fitting of the terminal connectors on the Wave Traps. (vi) Tightening of the nuts, bolts, etc. complete in all respect.

III. ERECTION OF SUSPENSION TYPE WAVE TRAPS:
(i) Fitting of the hardware for fixing the Wave Trap to the suspension string assemblies of the designated phases. (ii) Hoisting the Wave Trap through lifting arrangement on the beam of the Sub Station structure. (iii) Fitting of the Wave Trap on the already erected suspension string assemblies through suitable attachment. (iv) Tightening of the nuts, bolts, etc. complete in all respect.

IV. ERECTION OF PEDESTAL TYPE WAVE TRAPS:
(i) Leveling of the top plate of the already erected structure for wave trap. (ii) Assembling of the parts of the Polycone Insulators, if applicable. (iii) Erecting the polycone insulator(s) on the supporting structure. (iv) In case three Polycone Insulators are provided for each Wave Trap and these are in parts, then the connecting plate between the joints of the parts of the Polycone Insulators are also to be fitted. (v) Erecting the Wave Trap on the polycone insulators. (vi) Tightening of the nuts, bolts, etc. complete in all respect.

H. POST / POLYCONIE INSULATORS
(i) Transportation of complete Insulators & their accessories, clamps and connectors from site store to location. (ii) Leveling the top plate of the already erected structure for Post / Polycone Insulators. (iii) Cleaning the Post / Polycone Insulators. (iv) Assembling the parts of Post / Polycone Insulators, if required. (v) Erecting the Post / Polycone Insulators on the already erected supporting structure. (vi) Fitting the corona ring on the Post / Polycone Insulators, if provided. (vii) Fitting the clamps on the Post / Polycone Insulators. (viii) Tightening the nuts, bolts, etc. complete in all respect.

I. CONTROL & RELAY PANELS
(i) Transportation of Control and relay panels complete in all respect from site store to control room. (ii) Placing the panels at their designated locations on the trenches in the Control Room as per layout / instructions of Engineer-In-Charge. (iii) Fixing or bolting the panels (as per requirement of installation of the panels) on the channel / M. S. Angle fitted on the top of the walls of the trench or on the base frame, as provided, in the Control Room.
(iv) Leveling the panels and checking their verticality. (v) In the case of Duplex type of panels, connecting the control panel to the relay panel across the corridor using the fittings provided with the panels. Also fitting the covers for the corridor portion. (vi) Where a number of panels are to be placed adjacent to each other to form a Board or where a panel is to be placed adjacent to an existing Panel / Board, these shall be bolted together. There shall be no gap between panels which are placed adjacent to each other. (vii) Connecting the Bus wiring / interconnecting wiring between the control & relay panels of the Duplex type. Also connecting the similar wiring between control panel to control panel and / or relay panel to relay panel where a Board formation is made or where panels are connected to an existing Board / panel as per their relevant schematic drawings to be made available by the Engineer-In-Charge. (viii) Connection of earthing to existing earth strip in control room.

**J. LT PANELS:**

(i) Transportation of L.T. Panel complete in all respect from site store to control room. (ii) Checking the LT Panel for any mechanical damage before installation. (iii) The insulation resistance of panel wiring and the LT Bus Bar (phase to phase and phase to earth) will be measured by RVPN with 500 V Megger before connecting any cable. (iv) Placing the LT Panel at its designated location in the control room as per layout/ instructions of the Engineer-In-Charge. (v) Fixing / bolting the LT Panel on the trench provided in the floor of the control room. (vi) Connection of earthing to existing earth strip in control room.

**K. DC PANELS:**

(i) Transportation of D.C. Panel complete in all respect from site store to control room. (ii) Checking the DC Panel for any mechanical damage before installation. (iii) Placing the DC Panel at its designated location in the control room as per layout/ instructions of the Engineer In-Charge. (iv) Fixing / bolting the DC Panel on the trench provided in the floor of the control room or on the base frame if provided. (v) Connection of earthing to existing earth strip in control room.

**L. RTCC PANEL:**

(i) Transportation of RTCC Panel complete in all respect from site store to control room. (ii) Checking the RTCC panel for any mechanical damage before installation. (iii) The insulation resistance of panel wiring will be measured by RVPN with 500 V Megger before connecting any cable. (iv) Placing the RTCC Panel at its designated location in the control room as per layout/ instructions of the Engineer-In-Charge. (v) Fixing / bolting the RTCC Panel on the trench provided in the floor of the control room. (vi) Connection of earthing to existing earth strip in control room.

**M. MARSHALLING KIOSKS:**

(i) Transportation of Marshalling Kiosks complete in all respect from site store to location. (ii) Placing the Marshalling Kiosks on the foundation/ cable trench as per the instructions of Engineer-In-Charge. (iii) Carrying out centering and leveling of the Marshalling Kiosks including preparation for grouting work (grouting work, i.e., concreting in the pockets of the foundation along with material, will be in the scope of RVPN) (iv) After grouting, tightening of the nuts, bolts, etc. complete in all respect.

**N. BATTERY CHARGERS**

**I. GENERAL INSTRUCTIONS:**

(i) Maintain a minimum spacing of 15 cm. between the battery charger and other panels on both sides for proper ventilation.

**II ERECTION:**

(i) Transportation of battery charger along with accessories if any from the site store to control room. (ii) Checking the Battery Charger for any mechanical damage before installation. (iii) Placing the Battery Charger at its designated
location in the control room as per layout/instruction of Engineer-In-Charge. (iv) Fixing / bolting the Battery Charger on the trench provided in the floor of the control room. (v) Tightening the nuts, bolts, etc. complete in all respect.

O. BATTERY SETS (VALVE REGULATED LEAD ACID / VRLA)

I. ERECTION:
(i) Transportation of cells, battery stand, accessories, clamps & connectors, etc. from site store to battery room. (ii) Assembling if required, and installing the mounting frame / stand in the battery room. (iii) Erecting the modules containing the cells on the mounting frame / stand as per the Manufacturer's manual and erection drawings to be made available by the Engineer-In-Charge. (iv) Cleaning terminal surfaces of the cells with clean dry cotton cloth. (v) Making inter cell connections as per manufacturer's general arrangement drawings using the inter cell connectors after applying a thin layer of petroleum jelly on the bolts (only the bolts supplied with the Battery Set should be used). (vi) Tightening of the terminals and inter cell connectors. (vii) Fitting of battery identification label (serial no.), front cover, top cover and instruction labels, as supplied, on the cells.

II. FRESHENING CHARGE
(i) Give a freshening charge to the Battery Set by gradually increasing the voltage. The current should not be allowed to exceed 20 % of the 10 hour capacity of the Battery Set or the capacity of the battery charger. The voltage should not be allowed to exceed 2.30 volts / cell. (ii) The duration of the freshening charge and the voltage at which the Battery Set is to be charged, with reference to the ambient temperature, are given below. Either of the two options given in the table below can be adopted. Option Temperature Above 32 °C 15 – 32 °C Below 15 °C

III. DISCHARGE / CAPACITY TEST:
(i) The Battery Set shall be discharged after keeping it open circuit for not less than 2 hours and not more than 24 hours from the completion of full charge. (ii) Discharge the Battery Set at its 10 hour rate, i.e., at a current equal to 10% of its rated ampere hour capacity till the voltage of any one cell reaches 1.75 volts or the total battery close circuit voltage reaches 1.75 x n (where n is the number of cells in the Battery Set), whichever is earlier. (a) Maintain the discharge current within ± 1 percent of the specified rate of discharge. (b) Record the voltmeter and ammeter readings every 5 minutes for the first 15 minutes, and thereafter every 15 minutes up to the end voltage. (c) Note the time in hours elapsing between the beginning and end of the discharge. This shall be taken as the period of discharge. (d) The average temperature of the electrolyte during discharge shall be the average of the temperature readings noted at hourly intervals during discharge. The temperature of the battery terminal shall be measured as it will be almost the same as the electrolyte. (iii) During the above discharge test, the cell voltages shall not be less than the following values. (a) After six minutes from the start of discharge: 1.98 Volts b) After six hours of discharge: 1.92 Volts c) At ten hours of discharge: 1.75 Volts (iv) The capacity of the Battery Set is obtained by multiplying the discharge current in amperes by the time in hours as observed above. This capacity is corrected to 27 Deg. C by the formula: 
\[ C_{27} = Ct + Ct \times 0.43 \times (27 - t) \]

where \( C_{27} \) is the Capacity of the Battery Set at 27 Deg. C, and \( Ct \) is the measured Capacity of the Battery Set at \( t \) Deg. C. (v) If 100% or more capacity is achieved at any time during the above discharge test, equalize the voltage of all the cells as given at sub para (vii) below. Finally charge the Battery Set as per para IV and put it in operation in the floating mode as per para VI. (vi) The minimum acceptable capacity of the Battery Set (corrected to 27°C) which is to be achieved during the above discharge test is 85% of the rated capacity. If this is not achieved, the matter should be referred

[Signature]
to the manufacturer. (vii) If 85% or more capacity is achieved during the above discharge test, then equalize the voltage of all the cells as given below. (a) Bypass the cell that has first reached 1.75 V. (b) Continue discharging the Battery Set at its 10 hour rate. (c) Keep bypassing the cells that reach 1.75 V until the voltage of all the cells reaches 1.75 V. (viii) Charge and discharge the Battery Set until 100% capacity is achieved. If 100% capacity is achieved within another four discharges, finally charge the Battery Set and put it in operation in the floating mode.

IV CHARGING / RECHARGING:

(i) Immediately after the discharging is completed, the Battery Set should be charged by gradually increasing the voltage. The current should not be allowed to exceed 20% of the 10 hour capacity of the Battery Set or the capacity of the battery charger. The voltage should not be allowed to exceed 2.30 volts / cell.

(ii) Continue the charging till the charging current reduces to a negligible value.

V DISCHARGING:

(i) Discharging of the Battery Set is to be done as per procedure given at paras III (i) and III (ii). (ii) If this discharge is a capacity test, note the time in hours elapsing from the beginning to the end of the discharge. Calculate the capacity as given at para III and take necessary action as required.

VI (i) If the Battery set has achieved 100% capacity, then charge the Battery set as per para IV (i). (ii) After the Battery Set has been fully charged as per para IV (ii), switch off the boost charger. Switch on the float charger after setting its output voltage as per manufacturer's recommendations. (iii) Measure the voltages of all the cells of the Battery Set and record for future reference.

P. CABLE LAYING AND TERMINATIONS:

Note: The cable tags/marking strips, G.I. wire, cable glands, thimbles/lugs, ferrules, PVC perforated straps, sand and bricks are in the scope of supply of the Contractor. I GENERAL INSTRUCTIONS:

(i) The number of cables of each size and their lengths shall be assessed and intimated to the contractor by the Engineer In-charge. The cable laying schedule shall then be prepared by the Engineer In-charge so that maximum length of the cable in a drum can be utilized, leaving minimum scrap lengths.

(ii) Cable drums shall be unloaded, handled and stored properly. (ii) Rolling of drums shall be avoided as far as possible. The drums may be rolled for short distances provided they are rolled slowly and in the direction marked on the drum. In the absence of any indication, the drums may be rolled in the same direction as it was rolled during winding. (iv) Pulling out of cables from stationary drums shall not be permitted. (v) Cables shall not be bent below the minimum permissible limits given below:

S.No. Type of cable Minimum bending radius
1. Power cable 12 D
2. Control cable 10 D Where „D“ is overall diameter of the cable.

(vi) Cut lengths of cable which are available as surplus / left over material from other works should preferably be used first. Small cut lengths of cable left after laying long lengths can be used for bus wiring and looping.

II. PAYING OUT OF CABLES:

(i) Transportation of cable drums from the site store to location. (i) Handle the cable with care to prevent forming of kinks and damage to the insulation of the cable. (iii) When the cable is to be taken from drums, small lengths can be unwound from the drum. (iv) For longer lengths, place the cable drum on a turn table or jack up the drum on a suitable size of steel shaft. The cable shall be laid in a manner so that there are no scratches or damages caused to the cable due to rubbing on the sides of the drum. (v) The required lengths of cables are to be laid between the following equipments: (a) C&R Panels in Control Room to Marshalling Kiosk. (b) Marshalling Kiosk to Equipment. (c) Marshalling Kiosk to Marshalling Kiosk. (d) Equipment to Equipment in switchyard. (e)
C&R Panel to C&R Panel / other panels in Control room, etc. (vi) The cables shall be cut after taking into account the length required for connecting to the farthest terminals of the terminal block in the Control & Relay Panel / MK / equipment at both the ends.

III LYING OF CABLES IN TRENCHES:
(i) The removing of trench covers and the re-fixing after completion of work will be done by the contractor. (ii) The cables shall be placed in the racks in cable trenches. Power and control cables shall be laid in separate tiers. The order of placing cables (other than those directly buried) in cable trenches shall be as follows: (a) Bottom tiers: Power Cables / Cables having A. C. supply. (b) Middle tiers: Cables from CT / CVT / PT. (c) Upper most tiers: Cables having D.C. supply. (iii) The cables shall be securely fixed on the racks in the cable trenches. Particular care shall be taken when cables are laid in vertical & inclined cable trenches / galleries / vaults or supports.

IV MARKING AND TAGGING: (i) Cable tag / marking strip shall be provided on all cables at both ends (just before entry into the equipment enclosure), on both sides of a wall / floor crossing & on each duct / conduit entry for identification of the cable. Cable tags shall also be provided inside the switchgear, control and relay panels, etc., wherever required for cable identification. (ii) The numbering of cables on the tags shall be done as per cable schedule. Generally Cable size, identification of initial point and terminating end of equipment / Panel and a cable number shall be punched on the cable tag / marking strip by the Contractor. (iii) Rectangular shaped cable tag / marking strip of 1.0 mm thick aluminum with the description punched on it shall be securely attached to the cable by not less that two turns of 20 SWG GI wire.

V LAYING OF UNDERGROUND POWER CABLES:
(i) Excavation of trench of 30 cm width and 75 cm depth along the proposed route / alignment. The width may be increased in case a number of cables are to be laid. At crossings of cable trenches / roads / transformer tracks / pipes / earth mat conductor, etc., the depth shall be increased such that the bottom of the trench is 40cm below them. (ii) Covering the bottom of the trench with a layer of sand 25 cm thick. (iii) Laying the cable in the excavated trench. (iv) Covering the cable with bricks and backfilling the trench with the excavated sand. Compacting the sand by ramming. (Supply of sand & bricks are in the scope of work of the contractor) (v) Securing the cables on the supports above ground level.

VI MARKING AND TAGGING:
(i) Directly buried underground cables shall be clearly identified with cable marker made of iron plate (Cable marker will be provided by RVPN). (ii) Location of underground cable joints shall also be indicated with cable marker with an additional inscription "Cable joints". (Cable marker will be provided by RVPN). (iii) The markers shall project 150 mm above ground and shall be placed at intervals of 30 meters and at every change in direction. They shall also be located on both sides of road and drain crossings.

VII CABLE TERMINATION:
(i) Drilling the required holes in the gland plates of the panels / equipment, etc. for fixing the cables. (ii) Stripping off the insulation of the cable for sufficient length so that any wire of the cable can be terminated at the farthest terminal in the terminal blocks. (iii) For unarmoured cable, stripping off the outer and inner insulation sheaths of the cable. Fixing the cable gland on the cable end and then fixing the cable gland on the gland plate of the equipment / panel. (iv) For armoured cables, stripping off the outer and inner insulation sheaths of the cable including cutting off the armouring for the stripped off length keeping a small length for fitting in the cable gland. Fitting the gland nut in the cable. Bending the armouring to fit the gland. Fitting the gland nut and tightening. Fitting the cable gland on the gland plate of the equipment/ panel. (v) Sealing all unused
openings for cables in the cable gland plate to prevent entry of vermin and dust.

**VIII WIRE TERMINATION:**

(i) Identification of each core of the cable either by its physical location / marking / numbering or by testing continuity from both ends. (ii) Marking each core of the cable at both ends with a tag / ferrule as per cable schedule / schematic drawing as per instructions of Engineer-In-Charge. In panels in which a large number of cables are terminated, wire identification may be difficult, therefore, the complete cable number shall also be included in the tag / ferrule on each core if advised by the Engineer-In-Charge. (iii) Cutting each wire at the length required for terminating it on the terminal block. This should be done after proper dressing of the wire in the wiring trough. (iv) Stripping off the insulation of each core of the cable which is to be connected. Crimping the termination end / thimble / lug (pin or ring type, as required) of appropriate size on the wire as approved by the Engineer-In-Charge. (v) Connecting the wire to its terminal on the terminal block and tightening to ensure secure and reliable connection. (vi) Marking all the spare cores of the cables with tags / ferrules indicating the cable number.
APPELLIDX
Annexure - A:
Compliance with The Code of Integrity and No Conflict of Interest
Any person participating in a procurement process shall –
(a) not offer any bribe, reward or gift or any material benefit either directly or indirectly in exchange for an unfair advantage in procurement process or to otherwise influence the procurement process; (b) not misrepresent or omit that misleads or attempts to mislead so as to obtain a financial or other benefit or avoid an obligation; (c) not indulge in any collusion, Bid rigging or anticompetitive behavior to impair the transparency, fairness and progress of the procurement process; (d) not misuse any information shared between the procuring Entity and the Bidders with an intent to gain unfair advantage in the procurement process; (e) not indulge in any coercion including impairing or harming or threatening to do the same, directly or indirectly, to any party or to its property to influence the procurement process; (f) not obstruct any investigation or audit of a procurement process; (g) disclose conflict of interest, if any; and (h) disclose any previous transgressions with any Entity in India or any other country during the last three years or any debarment by any other procuring entity. Conflict of Interest:-
The Bidder participating in a bidding process must not have a conflict of interest.
A conflict of interest is considered to be a situation in which a party has interests that could improperly influence that party’s performance of official duties or responsibilities, contractual obligations, or compliance with applicable laws and regulations.

i. A Bidder may be considered to be in conflict of interest with one or more parties in abiding process if, including but not limited to: a. have controlling partners/shareholders in common; or b. receive or have received any direct or indirect subsidy from any of them; or c. have the same legal representative for purposes of the Bid; or d. have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the Bid of another Bidder, or influence the decisions of the Procuring Entity regarding the bidding process; or e. the Bidder participates in more than one Bid in a bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all Bids in which the Bidders is involved. However, this does not limit the inclusion of the same subcontractor, not otherwise participating as a Bidder, in more than one Bid; or f. the Bidder or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the Goods, Works or Services that are the subject of the Bid; or g. Bidder or any of its affiliates has been hired (or is proposed to be hired) by the procurement Entity as engineer-in-charge/consultant for the contract.
Annexure -B:

Declaration by the Bidder regarding Qualifications Declaration by the Bidder in relation to my/our Bid submitted to...............................................for Contract of.............................................in response to their Notice Inviting Bid No......................................Dated...........................................l/we hereby declare under Section 7 of Rajasthan Transparency in Public Procurement Act, 2012 that:

1. l/we possess the necessary professional, technical, financial and managerial resources and competence required by the Bidding Document issued by the Procuring Entity;

2. l/we have fulfilled my/our obligation to pay such of the taxes payable to the union and the State Government or any local authority as specified in the Bidding Document;

3. l/we are not insolvent, in receivership, bankrupt or being wound up, not have my/our affairs administered by a court or a judicial officer, not have my/our business activities suspended and not the subject of the legal proceedings for any of the foregoing reasons;

4. l/we do not have, and our directors and officers not have, been convicted of any criminal offence related to my/our professional conduct or the making of false statements or misrepresentations as to my/our qualifications to enter into procurement contract within a period of three years preceding the commencement of this procurement process, or not have been otherwise disqualified pursuant to debarment proceedings;

5. l/we do not have a conflict of interest as specified in the Act, Rules and the Bidding Document, which materially affects fair competition;

Date:

Signature
of bidder

Name:

Place

Designation:

Address:
Annexure –C:

Grievance Redressal during Procurement process The designation and address of the First Appellate Authority is as nominated vide order No. RVPN/AAO/F&R/F.98/D.53 dated 30.06.2016.

(1) Filling an Appeal If any Bidder or prospective bidder is aggrieved that any decision, action or omission of the Procuring entity is in contravention to the provisions of the Act or the Rules or the Guidelines issued there under, he may file an appeal to First Appellate Authority, as specified in the Bidding Document within a period of ten days from the date of such decision or action, omissions, as the case may be, clearly giving the specific ground or grounds on which he feels aggrieved:

Provide that after the declaration of a Bidder as successful the appeal may be filed only by a Bidder who has participated in procurement proceedings:

Provided further that in case a Procuring Entity evaluates the Technical Bids before the opening of the Financial Bids, an appeal related to the matter of financial Bids may be filed only by a Bidder whose Technical Bid is found to be acceptable.

(2) The officer to whom an appeal is filled under para (1) shall deal with the appeal as expeditiously as possible and shall endeavour to dispose of it within thirty days from the date of appeal.

(3) If the officer designated under para (1) fails to dispose of the appeal filed within the period specified in para (2), or if the Bidder or prospective bidder or the procuring Entity is aggrieved by the order passed by the First Appellate Authority, the Bidder or prospective bidder or procuring Entity, as the case may be, may file a second appeal to Second Appellate Authority specified in the Bidding Document in this behalf within fifteen days from the expiry of the period specified in para (2) or of the date of receipt of the order passed by the First Appellate Authority, as the case may be.

(4) Appeal not to lie in certain cases
No appeal shall lie against any decision of the Procuring Entity relating to the following matters, namely:-

(a) determination of need of procurement; (b) provisions limiting participation of Bidders in the Bid process; (c) the decision of whether or not to enter into negotiations; (d) cancellation of procurement process; (e) applicability of the provisions of confidentiality.

(5) Form of Appeal
(a) An appeal under para (1) or (3) above shall be in the annexed form along with as many copies as there are respondents in the appeal.
(b) Every appeal shall be accompanied by an order appealed against, if any, affidavit verifying the facts stated in the appeal and proof of payment of fee.
(c) Every appeal may be presented to First Appellate Authority or Second Appellate Authority, as the case may be, in person or through registered post or authorized representative.

(6) Fee of filing Appeal
(a) Fee of first appeal shall be rupees two thousand five hundred and for second appeal shall be rupees ten thousand, which shall be non-refundable.
(b) The fee shall be paid in the form of bank demand draft or banker’s cheque of the Scheduled Bank in India payable in the name of Appellate Authority concerned.

(7) Procedure for disposal of Appeal
(a) The First Appellate Authority or Second Appellate Authority, as the case may be, upon filing of appeal, shall issue notice accompanied by copy of
appeal, affidavit and documents, if any, to the respondents and fix date of hearing.
(b) On the date fixed for hearing, the First Appellate Authority or Second Appellate Authority, as the case may be, shall,-
(i) hear all the parties to appeal present before him; and
(ii) peruse or inspect documents, relevant records or copies thereof relating to the matter.
(c) After hearing the parties, perusal or inspection of documents and relevant records or copies thereof relating to the matter, the Appellate Authority concerned shall pass an order in writing and provide the copy of order to the parties to appeal free of cost.
(d) The order passed under sub-clause(c) above shall also be placed on the State Public Procurement Portal.

[Signatures]
Annexure –D FORM No. 1
[See rule 83]
Memorandum of Appeal under the Rajasthan Transparency in Public Procurement Act, 2012
Appeal No ..........of ............... Before the .................................. (First / Second Appellate Authority) 1. Particulars of appellant: (i) Name of the appellant: (ii) Official address, if any: (iii) Residential address: 2. Name and address of the respondent(s): (i) (ii) (iii) 3. Number and date of the order appealed against and name and designation of the officer / authority who passed the order (enclose copy), or a statement of a decision, action or omission of the procuring entity in contravention to the provisions of the Act by which the appellant is aggrieved: 4. If the Appellant proposes to be represented by a representative, the name and postal address of the representative: 5. Number of affidavits and documents enclosed with the appeal: 6. Grounds of appeal:

(Supported by an affidavit)

7. Prayer:

Place ........................................ Date ........................................

Appellant's Signature
SECTION-IV
SCHEDULE-I (Price Bid) (G-Schedule) (BOQ)

"G- SCHEDULE" for Construction Work of 132 KV GSS, VPN, Baba Mohan Ram Temple, (BMRT), Bhiwadi (Alwar)

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Description of Works</th>
<th>Qty.</th>
<th>Unit</th>
<th>Rate as per BSR in Rs.</th>
<th>Amount in Rs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Laying of Earth mesh with 25 mm /28 mm dia M.S. rod at a depth of 0.80 mtr. From top level of foundation, including excavation of trench of required depth and back filling of the same, transportation of M.S. rod of from site store to locations, welding of M.S. Rod to M.S Rod along the length at crossings and with earth electrodes as per drawing, application of bitumen compound and covering with bitumen impregnated tape on all welded joints for the type of soil prevalent at 0.80 mtr. Below top level of foundation (M.S. Rod of above sizes and M.S. flat as required shall be made available by VPN. (a) In case diesel generator is arranged by the Contractor at his own cost (1) Normal Dry Soil</td>
<td>3600</td>
<td>Mtrs</td>
<td>33/-</td>
<td>118800/-</td>
</tr>
<tr>
<td>2</td>
<td>Laying of earthing risers of 50x6mm/50x10mm/50x12 mm size M.S. flat at a depth of 0.80 mtrs. From top level of foundation, including excavation of trench of required depth and back filling of the same, transportation of m.s. flat from site store to locations, preparation of risers bending as per requirement (after heating if necessary) fixing on and welding/bolting to equipment/ structure and</td>
<td>4000</td>
<td>Mtrs</td>
<td>38/-</td>
<td>152000/-</td>
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</table>
peaks of structures, laying in the trench, welding to the earth mesh of M.S. rod as per drawing including welding of extra length of M.S. Flat if required, application of bitumen compound and covering with bitumen impregnated tape on all welded joints, painting of all surfaces of risers above ground level with red oxide and green paint, for the type of soil prevalent at 0.80 Mtrs. below top level of foundations. (M.S. Rod of above sizes and M.S. flat as required shall be made available by RVPN)

(a) In case diesel generator is arranged by the Contractor at his own cost

(1) Normal Dry Soil

Placing/driving of earth electrodes of 25/28mm dia MS Rod of length 3.30 Mtrs. Approx to a depth of 3.80 Mtrs. From the top level of the foundations including excavation of pit as required and back filling of the same, transportation of MS Rod from site stores to locations. Cutting of MS Rod to desired length, preparation of one end as spike if necessary, welding of earth electrodes to earth mesh of MS Rod as per drawing, application of bitumen compound and covering with bitumen impregnated tape on the all welded joints for the type of soil prevalent at 3.80 Mtrs. below top level of foundation (MS Rod of above sizes and MS Flat as required shall be made available by RVPN)

(a) In case diesel generator is arranged by

<p>| 3 | 140 | Nos. | 283/- | 39620/- |</p>
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<tr>
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<tr>
<td>4</td>
<td>110 MT</td>
<td>2321/-</td>
<td>255310/-</td>
</tr>
<tr>
<td>5</td>
<td>Section</td>
<td>1356/-</td>
<td>5424/-</td>
</tr>
</tbody>
</table>

**ERECTIOIN OF SUB STATION STEEL STRUCTURES, Columns, beams, lighting, mast and equipment structures (excluding Circuit Breakers) of all types including transportation of structure members, nuts & Bolts, washers etc. from site stores to locations, their assembly, placing on foundation, fixing of template, with foundation bolts as required, leveling and preparing for grouting as required, but excluding grouting, erection after grouting and lightening and punching of nuts & bolts. (Maximum height of structures up to 20 Mtrs.)**

Bus bar work :- Stringing of 132 KV/33KV bus bar of ACSR conductor including transportation of conductor disc Insulator & tension H/W from site store to location , laying & cutting required length of conductor cleaning and assembly of disc insulator as required along with filling of bolted type or compression type tension H/W as made available (compression machine shall be provided by RVPN on rent free basis) making up at one end string of conductor between the beams with the specified sag & tension also equalizing sag and tension also equalizing sag and fitting spacers & spacers T clamps or twin conductor for three phases of conductor in each bus section.

1. Single ACSR Zebra
2. Twin ACSR Zebra
3. Single ACSR Panther
<table>
<thead>
<tr>
<th>Item Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jumpering of ACSR Conductor (03 Nos. Y type) between bus to equipment or between equipment to equipment or between bus to bus including transportation of conductor from site store to location, cleaning and assembly of Disc Insulators as required along with fitting of suspension H/W &amp; erection as required cutting required length of conductor, making connection, fixing of spacers &amp; spacers T clamps as required tightening of clamps and connectors, dressing etc. for three phases 1. Single ACSR Panther /Zebra</td>
<td>110</td>
<td>Sets</td>
<td>333/-</td>
<td>36630/-</td>
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<tr>
<td>Twin ACSR Panther /Zebra CONTROL CABLES: Laying of PVC insulated unarmoured control cables of 1.1 KV grade with cooper conductor in cable tranches as per specification as required, including transportation of cable drums from site store to location, laying in cable tranches, cutting to required length, placing them on cable racks/cable tray/cable batten &amp; dressing, including removing &amp; re-fixing trench covers as required, making necessary connections, testing cable marking on both the terminating ends etc. as required for all size</td>
<td>10</td>
<td>Sets</td>
<td>665/-</td>
<td>6650/-</td>
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<tr>
<td>3cX2.5 SQ mm</td>
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<td></td>
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<tr>
<td>4cX2.5 SQ mm</td>
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<td>6cX2.5 SQ mm</td>
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<td>12cX2.5 SQ mm</td>
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<tr>
<td>18cX2.5 SQ mm</td>
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<td>(A) Un-armored control cables</td>
<td>23500</td>
<td>Mtrs.</td>
<td>5/-</td>
<td>117500/-</td>
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<td>No.</td>
<td>Description</td>
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<td>Unit</td>
<td>Rate</td>
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<tr>
<td>8</td>
<td>Erection of Current Transformer/ Potential Transformer/ Capacitive Voltage Transformer/ Series Reactors/ Residual Voltage Transformer/ Neutral Current Transformer with clamps and connectors on already erected steel structure including transportation from site stores to locations. Fabrication of base frame, fixing of terminal connectors, tightening of nuts &amp; bolts etc. complete in all respect. (1) 132 KV CT/PT/CTVT (2) 33 KV CT/PT</td>
<td>21</td>
<td>Nos.</td>
<td>1415/-</td>
</tr>
<tr>
<td>9</td>
<td>ERECTION of lightening arrestor on already erected steel structure including transportation of L.A., Clamps and connectors, surge counter, etc. from site stores to locations, fabrication of base frame, fixing of terminal connectors, surge counter, tightening of nuts &amp; bolts etc. complete in all respects. (1) 132 KV (2) 33 KV</td>
<td>28</td>
<td>Nos.</td>
<td>532/-</td>
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<tr>
<td>10</td>
<td>ERECTION of Isolators on already erected steel structure including transportation of base frame, P.I.s. Contacts, Mechanism Box, Clamps &amp; Connectors etc. from site stores to locations. Minor fabrications as required and fixing of terminal connectors etc. adjustment/alignment of isolator and its earth blade, if provided, for their smooth operation and final adjustment if required after jumpering. 132 KV a) Without E.B. b) With E.B. - Single</td>
<td>9</td>
<td>Nos.</td>
<td>1422/-</td>
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<td>18</td>
<td>Nos.</td>
<td>317/-</td>
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<tr>
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<td>10</td>
<td>Nos.</td>
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<td>2</td>
<td>Nos.</td>
<td>3045/-</td>
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<td>33 KV</td>
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<tr>
<td>a) Without E.B.</td>
<td>17</td>
<td>Nos.</td>
<td>916/-</td>
<td>15572/-</td>
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<tr>
<td>B) With E.B.</td>
<td>5</td>
<td>Nos.</td>
<td>1364/-</td>
<td>6820/-</td>
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</table>

11

Erection of 33 KV or 11KV Circuit Breakers including transportation of equipment structure members, nuts & bolts, clamps & connectors, accessories etc. from site store to location assembly of support structure their placing on foundation leveling and preparing for grouting as required. But excluding grouting assembly/placing of poles, mechanism box etc. on support structure as per manufacturer’s drawings fitting of terminal connectors etc. but excluding commissioning of CB

| i) 33 KV of 11 KV outdoor type (VCB/SF 6) | 7 | Nos. | 7404/- | 51828/- |

12

Erection of 132 KV Circuit Breakers, including transportation of equipment, structure members, nuts & bolts, clamps & connectors, accessories etc. from site store to location, assembly of support structure, their placing on foundation, levelling and preparing for grouting as required, but excluding grouting, assembly/placing of support columns/poles, mechanism box/control cubicle, and other accessories as per manufacturer’s drawings, fitting of SF 6 gas pipeline, fabrication of air/oil pipeline as required, electrical wiring from pole to control cubicle, fixing of terminal connectors as required, but excluding commissioning of CB, for all types of operating mechanism, as required.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th>40</th>
<th>Section</th>
<th>292/-</th>
<th>11680/-</th>
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</thead>
<tbody>
<tr>
<td>13</td>
<td>STRINGING of Earth wire (Size 7/3.15mm or 7/4 mm) including Transportation of Earth wire, Tension Hardware etc. from site stores to locations, laying and cutting required length of earth wire, fitting of bolted type or compression type hardware as made available (Compression machine shall be provided by RVPN on rent free basis) making up at one end stringing of earth wire between structure peaks with specified sag and tension jumpering and connecting with earth bonds for single earth wire.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>14</td>
<td>Erection of control &amp; Relay panel complete in all respect including transportation from site store to control room placing on foundation / payment range at per lay out inter connection between control &amp; relay panel and with existing panel fixing of side/ top cover &amp; doors earthing to existing earth strip in control room connection of Bus wiring to existing panel &amp; between control &amp; relay panel as required</td>
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<tr>
<td></td>
<td>(a) Simplex panel, RTCC Panel /PLCC Panel</td>
<td>12</td>
<td>Nos.</td>
<td>632/-</td>
<td>7584/-</td>
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<td>(b) Duplex panel</td>
<td>4</td>
<td>Nos.</td>
<td>1265/-</td>
<td>5060/-</td>
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<td>C) L.T. Panel</td>
<td>1</td>
<td>Nos.</td>
<td>1739/-</td>
<td>1739/-</td>
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<tr>
<td>15</td>
<td>ERECTION of wave trap on already erected structure beam including transportation of wave trap, disc insulator, hardware, clamps and connectors from site store to location, cleaning and assembly of disc insulators along with filling of suspension arrangement and erection, fixing of terminal connectors.</td>
<td>4</td>
<td>Nos.</td>
<td>599/-</td>
<td>2396/-</td>
</tr>
</tbody>
</table>
| 16 | Erection of Battery charger complete in all respect including transportation from site store to location, placing on foundation/ cable trench as per layout etc.  
   a) 110V DC, 200 AH  
   b) 48V DC, 200 AH | 1 | Nos. | 1265/- | 1265/- |
| 17 | Battery set assembly erection and commissioning of maintenance free VRLA type Battery set, including transportation of cells, battery stand, Nuts & Bolts from site stores to Battery room, assembly of stand, placing of cell on stand, making their interconnection initial charging & discharging and final charging as per procedure recommended by Battery set Manufacturer:  
   a) If electricity is available & arranged by RVPN without charges  
      i) 110 V DC, 200AH  
      ii) 48V DC, 200 AH | 1 | Nos. | 8027/- | 8027/- |
| 18 | ERECTION OF SUB STATION EQUIPMENTS -  
   Erection of 33/0.4 s/s transformer up to 500 KVA on existing masonary platform including transportation of transformer & accessories from site store to location . Erection of horn gap fuse set jumping from isolator to horn gap to transformer. | 1 | Nos. | 3967/- | 3967/- |
| 19 | LT POWER CABLE-  
   Laying of PVC Insulated PVC sheathed armoured/unarmoured LT power cable of 1.1 KV grade with aluminum conductor as per IS 1255 in ground/cable trench/valve surface including transportation of cable drum from site store to | 500 | Mtr. | 53/- | 26500/- |
<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
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<th>Rate (Rs)</th>
<th>Amount (Rs)</th>
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<tbody>
<tr>
<td>20</td>
<td>Erection of 132 KV class EHV transformer (tank already placed on foundation with wheel) including transportation of accessories from site store to locations, erection of HV, IV LV &amp; neutral bushings, main and OLTC Conservators, Radiators, equalizing pipe line marshaling kiosk, etc. as per manufacturer drawing, preparation of oil filling, dehydration of transformer, filter machine, oil tank, &amp; operating staff shall be provided by RVPN) electrical wiring from individual equipment e.g., Buchhloz relay, MOLG, OSR, etc. to marshaling kiosk etc. but excluding testing &amp; commissioning of transformer. (a) If electricity is available &amp; arranged by RVPN without charges. (1) Transformer received oil filled.</td>
<td>1</td>
<td>42089/-</td>
<td>42089/-</td>
</tr>
<tr>
<td>21</td>
<td>Fixing of control cables in position with single compression nickel plated brass cable glands confirming to IS: 12943 &amp; having tree metal washers and one rubber ring, including preparation of cable and drilling of corresponding holes in</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
gland plates etc. as required & including cost of cable glands for each cable gland of size

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Quantity</th>
<th>Unit</th>
<th>Rate</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>22 a. 19 sq. mm unarmoured control cables</td>
<td>180</td>
<td>Nos.</td>
<td>44/-</td>
<td>7920/-</td>
</tr>
<tr>
<td>22 b. 25 sq. mm unarmoured control cables</td>
<td>136</td>
<td>Nos.</td>
<td>67/-</td>
<td>9112/-</td>
</tr>
<tr>
<td>22 c. 32 sq. mm unarmoured control cables</td>
<td>112</td>
<td>Nos.</td>
<td>96/-</td>
<td>10752/-</td>
</tr>
</tbody>
</table>

Termination of wires of cables with copper conductor using copper terminal ends (pin or ring type as required of Dowell's or equivalent make as approved by the Engineer-In-Charge) duly crimped with crimping with crimping tool, including making wire.

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Quantity</th>
<th>Unit</th>
<th>Rate</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>22 a. 4CX2.5 sq. mm</td>
<td>200</td>
<td>Each</td>
<td>43/-</td>
<td>8600/-</td>
</tr>
<tr>
<td>22 b. 6Cx2.5 sq. mm</td>
<td>50</td>
<td>Each</td>
<td>64/-</td>
<td>3200/-</td>
</tr>
<tr>
<td>22 c. 12CX2.5 sq. mm</td>
<td>110</td>
<td>Each</td>
<td>128/-</td>
<td>14080/-</td>
</tr>
<tr>
<td>22 d. 18CX2.5 sq. mm</td>
<td>110</td>
<td>Each</td>
<td>191/-</td>
<td>21010/-</td>
</tr>
</tbody>
</table>

In case all the wires of any cable are not got terminated then a deduction at the rate of Rs. 6.00 shall be made for each end of the wires not terminated

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Quantity</th>
<th>Unit</th>
<th>Rate</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>23 a. 4CX4 sq. mm</td>
<td>300</td>
<td>Each</td>
<td>57/-</td>
<td>17100/-</td>
</tr>
</tbody>
</table>

In case all the wires of any cable are not got terminated then a deduction at the rate of Rs. 7.00 shall be made for each end of the wires not terminated

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Quantity</th>
<th>Unit</th>
<th>Rate</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>23 Erection of Marshalling KIOSK-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

LMU complete in all respect including transportation from site store to location, placing on foundation/ cable trenches per lay out, preparing for grouting of foundation bolt but excluding grouting

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Quantity</th>
<th>Unit</th>
<th>Rate</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>23 a. 132 KV Mk</td>
<td>5</td>
<td>Nos.</td>
<td>374/-</td>
<td>1870/-</td>
</tr>
<tr>
<td>23 b. 33 KV</td>
<td>8</td>
<td>Nos.</td>
<td>192/-</td>
<td>1536/-</td>
</tr>
<tr>
<td></td>
<td>Description</td>
<td>Quantity</td>
<td>Rate</td>
<td>Amount</td>
</tr>
<tr>
<td>---</td>
<td>-----------------------------------------------------------------------------</td>
<td>----------</td>
<td>------</td>
<td>--------</td>
</tr>
<tr>
<td>24</td>
<td>Erection of post insulator on already erected structure including transportation of P.I.s nuts bolts clamps &amp; connectors etc. from site store to location, fabrication of base frame &amp; assembly if required, fixing of clamps etc. a) 33 KV or 11 KV</td>
<td>6</td>
<td>75/-</td>
<td>450/-</td>
</tr>
<tr>
<td></td>
<td>TOTAL in Rs.</td>
<td></td>
<td></td>
<td>11,88,506/-</td>
</tr>
</tbody>
</table>

Rupees Eleven Lac Eighty Eight Thousand Five Hundred Six only
SECTION - IV
SCHEDULE-II
SAFETY ASPECTS AND INSTRUCTIONS TO BE COMPLIED WITH DURING ERECTION WORKS AT EHV SUB STATIONS

RVPN SAFETY INSTRUCTIONS WORK AT EXTRA HIGH VOLTAGE SUB STATIONS
1.0 POLICY, PHILOSOPHY, PRINCIPLES AND AUDIT
1.1 POLICY
i) The RVPN Safety Rules & Safety Instructions are drawn up to comply with the requirement of the Indian Electricity Rules, 1956. ii) The RVPN recognizes and accepts its statutory and moral responsibilities for ensuring safe design, construction, operation and maintenance of equipment and for the provision of safe methods of work and healthy working conditions. These requirements rank equally with other objectives of the Company. iii) The success of the Policy relies on all employees complying with safety requirements relevant to their responsibilities.
1.2 PHILOSOPHY
i) Transmission of electrical power at Extra High and High Voltage is carried out using the RVPN’s electrical and mechanical items of equipment, interconnected to form electro-mechanical systems. These systems contain inherent dangers but are designed so that they are safe when operated normally. ii) When work or testing is to be carried out on or near to these systems, rules need to be specified to achieve safety from the inherent danger. iii) These Safety Rules are based on a philosophy that persons will be protected from the inherent dangers. This is achieved by making persons “safe from the system”. iv) The inherent dangers are those arising from a system. The RVPN Safety Rules and Safety Instructions define the procedures and responsibilities for achieving safety of persons from inherent dangers. v) The Safety Rules are supplemented by the RVPN Safety Instructions which define the actions to be taken to apply the provisions of the Safety Rules. vi) The Safety Rules and Safety Instructions together form a system to provide a safe procedure for work or testing on the system and can be summarized as follows: a) Making available the equipment concerned for the maintenance work or testing work. b) Establishing safe conditions for maintenance work or testing work. This can be achieved by either limiting the area of work or testing or by isolating and discharging the contents to a safe working level. c) Authorizing the maintenance work or testing to commence. d) Receiving the authority to carry out maintenance work or testing, carrying out the work or testing while maintaining those safe conditions. e) Cancelling the authority to work or test on completion of the work or testing. f) Restoring the system to normal. vii) Further dangers are those arising from the environment in which persons undertake work. The way in which these dangers are managed is specified in the Safety Rules and Safety Instructions.
1.3 PRINCIPLES
The principles supporting the Policy and Philosophy for the Safety Rules and Safety Instructions are as follows:- i) The Safety Rules and Safety Instructions are only designed to protect people. ii) The primary method of achieving safety from the system is by isolation, followed by earthing for EHV and HV equipment. (in the case of mechanical equipment, this shall be followed by draining, venting, purging and discharging stored energy systems (as appropriate). Where reasonably practicable, all points of isolation, vents and earths should be locked. iii) The application of specific instructions / procedures where these Rules cannot be applied (e.g., Live / Hot Line Working). (iv) The safety precautions for all work and testing shall be maintained across all internal and external control boundaries.
TN-01/2016-2017 / (v) Training of all staff and monitoring / authorizing certain staff that will carry out specific duties in the application of the Rules. (vi) Ensuring compliance by a regular and systematic audit.

2.0 DEFINITIONS
Additional Earth(s): Temporary, portable Earth(s) which are issued to the recipient of the Permit To Work or Permit To Test and are included in an Earthing Schedule. They are applied within an Isolated Zone in order to discharge any induced voltage. Additional Earth(s) shall be minimum 35 sq. mm copper equivalent. Approved Procedure: RVPN Safety Instructions or other specialized procedures authorized by CE / SE. Authorized Person: Maintenance / Testing Engineer. Maintenance Engineer: Responsible for carrying out maintenance works of EHV & HV equipments, transmission lines & LT
systems. Testing Engineer: Responsible for carrying out testing of protective systems, PLC panels and other related equipments. Caution Notice: A notice in prescribed form to be applied at all points of isolation, or attached to all vents and drains and to Primary Earths where practicable and to control and operating devices to indicate that work or testing is being carried out. Certificate of A certificate which records the details of Isolation carried out at a No Back Feed: remote substation in order to achieve safety from EHV/HV systems and from test supplies. Certificate of A certificate which records the details of Isolation & earthing carried Earthing: out at a remote substation in order to achieve safety from EHV / HV systems and from test supplies. Company: RAJASTHAN RAJYA VIDYUT PRASARAN NIGAM LTD. (RRVPN), or, in short, VPN. Competent Person: A person not below the level of Supervisor or Technician. Danger: A risk to health, or of bodily injury, or to life. Danger Notice: An approved notice reading “Danger”. Dead: Not electrically Live or Charged. Earthing Device: An approved means of providing a connection between an electrical conductor / equipment and earth, being either a “Primary Earth” or an “Additional Earth”. Earthing Schedule: A schedule indicating the requirements of Additional Earth(s) for each stage of the work or testing. It must show the number of earths required and either describe or show pictorially their position in the Isolated Zone. Equipment: Electrical and mechanical apparatus / equipment used to protect, control, measure, generate, transmit and distribute electricity to which the Safety Rules apply. Extra High Voltage (EHV): Any voltage in excess of 33,000 volts (AC/DC). General Safety: Those actions required to maintain a safe environment / place for work / testing, e.g., safe access and safe methods of work & testing and the correct use of personal protective equipment. High Voltage (HV): A voltage between 650 volts and 33,000 volts. Isolated: Disconnected from associated Equipment by Isolating Device(s) in the isolated position, or by adequate physical separation. Isolating Device: A device for rendering Equipment Isolated. Isolated Zone: All items of equipment contained within a work / testing area for which isolation has been achieved at all points of supply. Keys: Safety Key: The key from a unique lock (at a location) which is used for locking / inter locking an Isolating Device, Earth or Drain / Vents. Key Safe: A designated lockable cabinet for the safe custody of all Safety Keys.

TN-01/2016-2017/ (52) L D: Load Dispatch Center – The center where the operations of the GSS / Power Stations and the RVPN Electricity grid constituting the RVPN power system are monitored & coordinated. Live: Charged / Energized at a voltage by being connected to a source of electricity. Lock / Locks: A device used for immobilization of an item of Equipment. Lock Closed: To secure an item of Equipment with padlocks or other device such that it is immobilized in the closed position. Lock Open: To secure an item of Equipment with padlocks or other device such that it is immobilized in the open position. Low Voltage (LV): A voltage not exceeding 250 volts. Medium Voltage (MV): A voltage between 250 and 650 volts. N R L D C: Northern Region Load Dispatch Center – The center where the operations of Northern Electricity grid constituting the power systems of the partner States are monitored & coordinated. Point(s) of Isolation: The point(s) at which Equipment has been Isolated and, when practicable, the Isolation Point immobilized and Locked. Caution Notices shall be attached to all Points of Isolation. PRASARAN NIGAM: RRVPN - Rajasthan Rajya Vidyut Prasaran Nigam Limited. Primary Earth(s): Earth(s) (Either fixed earth Switch(es) or Portable Earth(s) with sufficient / suitable electrical capacity) applied between the point of work and all points of EHV / HV isolation before the Permit To Work or Permit To Test is issued. Primary earth(s) shall be minimum 95 sq. mm copper equivalent. Permits To Test (PTT): A safety Document specifying the EHV / HV Equipment and the testing to be carried out and the actions taken to safeguard the disturbance of the system during the testing. Form of document is shown in Section 4.0 B. Permits To Work (PTW): A Safety Document specifying the Equipment / Area and the work / testing to be carried out and the actions taken to achieve Safety from the system. Form of document is shown in Section 4.0 A. Purged: A condition of Equipment from which any dangerous contents have been removed. RSI: RRVPN Safety Instructions. Safety Clearance: That distance from the nearest Extra High Voltage or High Voltage Exposed Conductor or
part of equipment not Primary Earthed, or from its support insulator, which must be maintained to avoid danger. Safe Electrical A distance of 1.5 meters minimum which must be maintained by Clearance: lineman from the conductors or jumpers of a de-
energized overhead line which has been Isolated & Primary earthed and for which a Safety Document has been issued before connection of Additional Earths under the terms of that Safety Document. Safety Document: A Document specifying the Equipment / Area and the work / testing to be carried out and the actions taken to achieve Safety from the system (Permit To Work), or to safeguard the disturbance of the system during the testing (Permit To Test). Safety from the That condition which safeguards persons working on or near to System: Equipment from the Dangers which are inherent in a System. Senior Authorized Person / Shift In charge: Engineer responsible for all operations and activities in substations. Supervision: Supervision, Personal / direct, by an Authorized Person who is available at the point of work or testing at all times during the course of that work or testing. System: Items of Equipment which are used either separately or in combination to generate, transmit or distribute electricity. Vented: Allowing a closed space to have an outlet to atmosphere so that the pressure has equalized to atmospheric.

3.0 GENERAL PROVISIONS.

3.1 GENERAL SAFETY. i) In addition to the requirements for establishing Safety from the System specified in these Safety Rules and Safety Instructions, General Safety shall be established and maintained at all times. ii) General Safety shall be established by the person holding the Safety Document before work / testing starts. The person responsible for establishing General Safety shall be specified in the Safety Instructions. iii) During the course of work, the person in charge of the work / testing shall ensure that each & every member of the working party maintains General Safety. (iv) It is the responsibility of all members of the working party, overseen by the person in charge of the work / testing, to ensure that their activities do not affect other work areas.

3.2 SAFETY RULES, SAFETY INSTRUCTIONS AND PROCEDURES. (i) These Safety Rules, Safety Instructions and Procedures are mandatory. (ii) Relevant Safety Rules issued by other Authorities should also be considered mandatory when designated as in Basic Safety Rules. 3.3 SPECIAL INSTRUCTIONS. Construction Work or testing carried out on or near to a System to which these Safety Rules cannot be applied, or for special reasons should not be applied, shall be carried out in accordance with an Approved Procedure. (e.g., EHV / HV Live Line / Hot Line working which cannot be covered in these Safety Rules).

3.4 OBJECTIONS ON SAFETY GROUNDS. Any person who has objections on safety grounds in the application of these Safety Rules and Safety Instructions shall explain their reasons to the person holding the Safety Document. If their objections cannot be resolved immediately, then the matter should be referred to the Site - In - Charge. If the objections are still not resolved then the matter should be referred to the Site - In - Charge.

4.0 THE BASIC SAFETY RULES.

4.1 APPLICATION OF RULES. i) The Rajasthan Rajya Vidyut Prasaran Nigam Limited Safety Rules and Safety Instructions shall be applied when working on or near to items of Equipment which are part of a System described in 4.1(ii). ii) The System to which these Safety Rules and Safety Instructions apply is all those items of Equipment owned by RVPN Limited and located within the Company's Sub Station fences or on its transmission lines.

4.2 APPROACH TO EXPOSED EXTRA HIGH VOLTAGE AND HIGH VOLTAGE CONDUCTORS AND INSULATORS.

i) Persons shall not allow any part of their body or objects / tools & plant to approach within the specified Safety Clearance to exposed EHV / HV conductors which are Live. The only exception to this is during Live / Hot line work carried out on EHV / HV equipment in accordance with Approved specialized procedure.

ii) SAFETY CLEARANCES: Highest System Voltage (kV) Safety Working Clearance (Meters) 12 2.6 36 2.8 72.5 3.1 145 2.7 245 4.3 420 6.4
iii) When Points of Isolation have been established and exposed conductors could be subject to Extra High Voltage or High Voltage, the only object permitted to approach within Safety Clearance shall be Approved voltage measuring devices or Earthing Devices. iii) When Points of Isolation have been established and Danger has been excluded by the application of Earthing Devices, approach is allowed under an appropriate Safety Document within the specified Safety Clearance.

TN-01/2016-2017/ (64)
TN-01/2016-2017/ (65)
TN-01/2016-2017/ (66)
TN-01/2016-2017/ (67)
TN-01/2016-2017/ (68)
TN-01/2016-2017/ (69)
TN-01/2016-2017/ (70)
TN-01/2016-2017/ (71)
TN-01/2016-2017/ (72)
TN-01/2016-2017/ (73)
TN-01/2016-2017/ (74)
TN-01/2016-2017/ (75)
TN-01/2016-2017/ (76)
SECTION-IV  
SCHEDULE-III  
Schedule of completion of construction work such as Earth Mesh, Erection of Sub-Station Structure, Bus bar stringing, equipment erection and Cabling work at 132 KV GSS BMRT, Bhiwadi (Alwar)  

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Name of the Substation</th>
<th>Period of completion for erection &amp; commissioning of transmission Substation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Construction work of 132 KV GSS RVPN, Baba Mohan Ram Temple, Bhiwadi (Alwar), on Labor Rate Contract BSR-2017.</td>
<td>04 Months (Four Months)</td>
</tr>
</tbody>
</table>

Note: 1. Above targeted completion period is inclusive of monsoon period.

(Signature)  
Designation  
With seal of the firm
## SECTION-IV

**SCHEDULE-IV**

SCHEDULE OF CAPACITY OF THE BIDDER IN RESPECT OF 132 KV & 220 KV SUBSTATIONS.

**ERECTION OF SUBSTATION: (i) Details of orders/works executed**

<table>
<thead>
<tr>
<th>S. No</th>
<th>Order No</th>
<th>Item</th>
<th>Order quantity</th>
<th>Name of order placing authority</th>
<th>Date commencement of work</th>
<th>Date of completion of work</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
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<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SIGNATURE OF AUTHORISED REPRESENTATIVE OF THE BIDDER SEAL/STAMP**

[Signature]

[Stamp]
## DEPARTURE FROM SPECIFICATION

The Bidder shall state under this schedule the departure from the purchaser's specification in respect of both technical and commercial terms & conditions:

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Main Deviations</th>
<th>from</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>Technical Deviations:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| (2)    | Commercial Deviations: |

Certified that we agree to all Technical Specification and Commercial Terms and conditions as laid down in "General Conditions of Contract" except for the deviations to the extent indicated above.

(Signature)
Name & Designation with Seal of the firm.
SECTION IV
SCHEDULE VI

(TO BE FILLED IN BY THE BIDDERS & UPLOADED WITH THE BID)

Contractors and/or their authorized agents who are quoting against this Bid are requested to furnish the following information along with the Bid. The Superintending Engineer will have the discretion to ignore the Bid without the under noted particulars and/or ignore the Bid particulars.

1. Name and Address of the Contractor / Firm
2. Place where office of the firm exist
3. Details of staff employed in the works
4. List of available machinery, tools & tackles, name of engineers/persons etc., for erection work.
5. Statement of financial resources and Banking reference along with Balance Sheet / Income Tax returns furnished for previous two years.
6. Whether the firm is a Micro, Small or Medium enterprise as per the Micro, Small & Medium Enterprise development act, 2006 (MSMED Act 2006) and registered with the authorities under the above Act for the items/services covered under this Bid. If yes, then the firm has to indicate the Entrepreneurs Memorandum No. (Twelve Digit) and scanned copy of the certificate issued by the Authorities under the MSMED Act, 2006 should be uploaded along with the online bid.
7. Whether the firm is registered under D.G.T.D. State Industries Department.
   If yes, give details along with copy of registration.

(Signature)  
(Name & Designation)  
With Seal of the firm.
SECTION-IV
SCHEDULE-VII

(Must be filled in by the Bidder and upload with Technical Bid)
To,
The SE (T&C),
Rajasthan Rajya Vidyut Prasaran Nigam Ltd.,
Alwar

Dear Sirs,

We agree to construct following Substation on Labor contract Basis.

<table>
<thead>
<tr>
<th>S. No</th>
<th>Name of the Substation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Construction work of 132 KV GSS, RVPN, Baba Mohan Ram Temple, Bhiwadi (Alwar), such as Earth Mesh, Erection of Sub-Station Structure, Bus bar stringing, equipment erection and Cabling work and other associated works, on labor rate contract, as per G-Schedule of works on BSR-2017</td>
</tr>
</tbody>
</table>

1. The percentage variation below / above for the cost of construction of Substation indicated in price schedule shall also be applicable in case of unit rate items detailed in Schedule-II (For the same Substation).
2. Any increase / decrease in the quantity of individual items mentioned in the price schedule shall be finalized on basis of the actual. The cost of that item shall be increased / decreased in proportion to the % variation.
3. The offer is valid for a period of 120 days after the date of opening of Techno Commercial Bid.
4. We confirm that we agree to all the terms and conditions as well as the technical stipulations of your Specification No. RVPN/SE/T&C/Alwar/TN-250/2017-18, and there are no deviations other than as specified in the Schedule-VII.

Yours faithfully,

(Signature)
Name & Designation with seal of the firm.
ANNEXURE-I
PRE-BID QUERIES FORMAT

Name of the company/Firm: Bidding document fee Receipt No:_______
dated_______ for Rs _______ Name of Person(s) Representing the
Company/Firm:
Name of person Designation E-mail-ID(s) Tel Nos & Fax No
Company/Firm Contacts
Contact Person(s) Address for correspondence
E-mail-ID(s) Tel Nos& Fax No

Query/Clarification Sought
MS (Excel Sheet Format)
S.No Bidder Name
ITB/GCC/ Specification clause No
Bid document page No
Clause details Query/ Clarification/ suggestion

(Signature),
Name & Designation
With seal of the bidder
ANNEXURE-II

CONTRACT AGREEMENT This Agreement is made at Alwar this day ................................between the ............................ RRVPN, Alwar (herein after called „NIGAM“ which expression shall, where the context so admits include its successors and permitted assignees) and M/s. .............................................. (herein after called „The Contractor“ which expression shall, where the context so admits include their heirs, executors, administrators and legal representative as well as successors and permitted assignees) are hereby held and firmly bind to the Rajasthan Rajya Vidyut Prasarana Nigam Ltd. to execute the work of.......................... to be executed as per rate, terms and conditions of .......................................................... awarded by the Nigam as per details given below:

1. Name of work
2. Name of order purchaser
3. Estimated cost
4. Earnest Money deposited.
5. Security Deposit
6. Tentative date of completion
7. Work order No. & date

I/we hereby assure and abide to fulfill all the conditions of the work order referred to above. I/we declare that I/we have read thoroughly and carefully all the terms & conditions, clauses of the work order/Bid specifications (Section- I to IV) and I/we hereby accept & abide with the terms and conditions of the said work order/Bid specifications for execution of the said work. I/we declare that, I/We will be fully responsible for safety of Nigam’s material issued to us for erection works as well as safety of our workers and confirm that, if any person get injured due to any accident during execution of work, the compensation if any, will be paid by me/us and RVNP shall not be responsible in any circumstances.

Signed and delivered by,

Witness:
Notary attested:

Accepted on behalf of RVPN,

Superintending Engineer (T&C)
RVNP, ALWAR
ANNEXURE-II
INDEMNITY BOND

Know all men by these presents that we

...................................................(herein after called „The Contractor"
which expression shall, where the context so admits include their, heirs, executors,
administrators and legal representative as well as successors and permitted assignees)
are hereby held and firmly bind to the Rajasthan Rajya Vidyut Prasaran Nigam Ltd.
(herein after called „NIGAM” which expression shall, where the context so admits
include its successors and permitted assignees) to refund the full amount of owner
supplied material made available by the Nigam under the terms and conditions of work
order No. ........................................ for the work of.................................................. If any loss, damage or deterioration of what
soever nature occurs to such material which is held by us at our site stores at works
site, in trust for and on behalf of the Nigam and or if any of such material or fabricated
articles made there from are in inspection by any officer authorized by the Nigam in this
behalf are found to be defective and rejected by such officer. We, hereby further bind
ourselves that the amount of such refund may be deducted by the Nigam from any sum,
which at any time thereafter may become due to us under said work order or any other
contract entered into by us with the Nigam.

We bind ourselves firmly by these presents dated ......................... and whereas
the contractor do hereby agree to be responsible for the safe custody and protection of
the said material against all risks (excluding war risks) and against loss, damage and
deterioration of whatsoever nature in respect of the said material while it remains in the
custody and possession of the sub-contractor / contractor.

AND WHEREAS the said material shall at all-time remains open for inspection by any
officer authorized by the Nigam. Now the conditions of the above written bond are such
that: - 1. The said contractor shall refund the full amount against the material as has
been supplied by the Nigam to them in respect of which loss, damage or deterioration of
whatsoever nature, except due to circumstances arising out of war has occurred. 2. The
contractor shall keep the said material open at any time for inspection by the officers
authorized by the Nigam till the said material is utilized by the contractor on the said
works and balance / surplus material is deposited with In-charge of the works. If the
material account is settled than the above written bond shall be void and of no effects,
otherwise the same shall be and remain in full force.

IN WITNESS WHEREOF we the said have hereto signed at ALWAR in the presence of:

Authorized signatory
Name/Address ________________________________

Witness:
Sign ________________________________
Address ________________________________

Notary attested: 

[Signature]