

# ASSAM ELECTRICITY GRID CORPORATION LIMITED

Regd. Office: 1st Floor, Bijulee Bhawan, Paltan Bazar, Guwahati – 781001

CIN: U40101AS2003SGC007238

Ph:- 0361-2739520/Fax:-0361-2739513 Web: [www.aegcl.co.in](http://www.aegcl.co.in)



**BID IDENTIFICATION NO: AEGCL/DGM/LAC/TT/TLS-69/2021/562; Dated: 20/12/2021**

Bidding Document  
For

**Supply of clamps, connectors & ACSR Zebra conductor for augmentation of existing 132kV single panther conductor bus with ACSR Twin Zebra conductor bus at 132/33kV GSS, AEGCL, Sishugram .**

**DEPUTY GENERAL MANAGER,  
LOWER ASSAM T&T CIRCLE, AEGCL  
NARENGI, GUWAHATI-26.**

**SECTION - 1**  
**INSTRUCTION TO BIDDER**

**1.1.0 Scope of Bid :-**

1.1.1. The **Deputy General Manager, Lower Assam, T&T Circle, AEGCL** on behalf of Assam Electricity Grid Corporation Ltd, hereinafter referred to as AEGCL or Purchaser invites sealed tenders in prescribed form, from reputed firms/ contractors having sound technical and financial capabilities for the following work. A single stage two envelope procedure (**Techno-Commercial and Price Bid**) will be adopted for this tender.

- a) **NAME OF WORK :- Supply of clamps, connectors & ACSR Zebra conductor for augmentation of existing 132kV single panther conductor bus with ACSR Twin Zebra conductor bus at 132/33kV GSS, AEGCL, Sishugram.**
- b) **LOCATION OF WORK :- 132kV Sishugram GSS, North Guwahati, Amingaon-31.**
- c) **ESTIMATED VALUE FOR THE WORK :- Rs. 2,41,888.00 (Rupees Two Lakh Forty one Thousand Eight Hundred and Eighty Eight) only including taxes.**
- d) **Fund: AEGCL's own source.**
- e) **Bidding address :-**

DEPUTY GENERAL MANAGER  
LOWER ASSAM, T&T CIRCLE, AEGCL,  
NARENGI.GUWAHATI-26

**1.2.0 Cost of Bidding :-** The bidder shall bear all costs associated with the preparation and submission of its bid and AEGCL will in no case be responsible or liable for those costs.

**Tender Paper Cost and Mode of Payment:**

The tender document can be downloaded from AEGCL website ([www.aegcl.co.in](http://www.aegcl.co.in)). For tender documents downloaded from AEGCL website, tender paper cost (in the form of A/C payee DD/Bankers Cheque) has to be submitted along with tender quotation. The cost of the tender paper is Rs. 1000/- (Rupees Five Hundred Only) to be pledged in favour of the "Managing Director, AEGCL, Guwahati".

**1.3.0 Bidding procedure :-**

Two envelope bidding procedure will be adopted. Bidders are to submit two sealed envelopes simultaneously, one containing the technical & Commercial Part-I (Technical & Commercial Bid) proposal and the other the price proposal Part-II (Price Bid), enclosed together in one sealed envelope. Initially, only the Part-I bids shall be opened. Part-I proposals submitted by bidders, which do not conform to the specified requirement, may be rejected as deficient bids. The Part-II (Price Bid) proposals of technically qualified bidders will be opened at a date and time, which will be informed to all the qualified bidders of Part-I.

**1.4.0 Scope of work :-**

1.4.1 The major scopes of work are as follows:-

- i. Design and supply of ACSR Zebra Conductor of reputed make only and as per the technical parameters given below.
- ii. Design and supply of Clamps & Connectors suitable for ACSR Zebra Conductors as per Bill of Quantity.
- iii. Design and supply of Disc Insulator (Anti Fog) 90kN of reputed make only,
- iv. Freight & Transit Insurance, storage at site and site insurance of all materials at site shall be in the scope of the contractor.
- v. Arrangements of any permits required for transportation and movement of supplied materials. However, AEGCL shall assist as far as practicable in the process.

1.4.2 The successful bidder will be expected to complete the works within **45 days** from the date of commencement of the Works. Bidder must submit a completion schedule bar chart for activities to complete the work within this time schedule.

## 1.5.0 Eligibility Criteria for the Bidder :-

1.5.1 To be qualified for award of Contract, bidders:

- i) Must have executed similar type of works in AEGCL or any other Govt entity/PSU.
- ii) Must compulsorily meet each of the following minimum criteria

### I.PERSONNEL CAPABILITY

The Bidder must have suitably qualified personnel to fill positions required for contract implementations. The Bidder will supply information of the key personnel, design & engineering staff, support staff, field staff giving details of experience in 132 kV or above voltage class Sub-Station and an alternate staff who meet the following minimum experience requirements.

### II.FINANCIAL CAPABILITY

- a) The Bidder should demonstrate that he has access to, or has available, liquid assets, unencumbered real assets, line of credit and other financial means (inter alia including a Guarantee or an undertaking from a Bank or financier) sufficient to meet the cash flow during the construction period and in no case should be less than **2 Lakh Rupees**.
- b) Average Annual turnover during the last 3 (three) years, ending 31<sup>st</sup> March of the previous financial year, should be atleast 30% of the estimated cost.
- c) Bidder shall submit the complete annual reports together with Audited statement of accounts of the company for last 3 (three) years. The Bidder shall submit the audited balance sheet and income statement of its own (separate) for the last three years and must demonstrate the soundness of their financial position showing long term profitability. Wherever necessary the Employer may make enquiries with Bidder's bankers.
- d) Bidder must keep GST liabilities up to date and non-payment of GST liabilities and non-filing of relevant GST return more than 3 (three) months shall be reckoned as GST defaulter and this may be considered a cause for disqualification of a bidder and the bid may be rejected.

### III.EQUIPMENT CAPABILITIES

- a) The bidder should have assured access to supply of fabricated steel structures and shall demonstrate that he or his supplier has capable of, manufacture & supply of such material. Bidders are required to demonstrate that based on known commitments the materials will be available for use in the proposed contract.
- b) Bidder may be manufacturer of the offered products or a firm/company having authorisation from a manufacturer. In case the bidder is not a manufacturer of the offered products, bidder must submit manufacturer's authorisation using for that purpose Form-MA provided in Section-4 Bidding forms.

### IV. LITIGATION HISTORY

Bidders shall submit details of all litigation, arbitration or other claims, whether pending, threatened or resolved in the last five years, with the exception of immaterial claims with a cumulative impact of not more than 10% of their total assets. The Employer may disqualify bidders in the event that the total amount of pending or threatened litigation or other claims represent more than 50% of their total assets.

### V. Joint venture bid will not be accepted

1.5.2 The Bidder's offer shall include and substantiate data on qualifying requirements such as:

- a) *Copies of original documents defining the constitution or legal status, place of registration, and principal place of business, written power of attorney of the signatory of the Bid to commit the Bidder.*
- b) *Copies of valid Trade License issued by competent authority in the State of Assam or in the State where the bidder's business is registered.*
- c) *Copies of PAN, GST Registration Certificate as per Goods & Services Tax laws.*
- d) *Total monetary value of similar work performed by the bidder in each of the last three years.*
- e) *Experience in works of a similar nature and volume for each of the last three years, and details of works under way or contractually committed in AEGCL or any other Govt. entity/PSU who may be contacted for further information on those contracts.*
- f) *Qualifications and experience of key site management and technical personnel proposed for the Contract.*
- g) *Reports on the financial standing of the Bidder, such as profit and loss statements and audited annual accounts certified by CA of the company for the last three years including IT return duly acknowledged by the tax department for the last three years.*

- h) *Evidence of adequacy of working capital for this contract (access to line (s) of credit and availability of other financial resources).*
- i) *Information regarding any litigation, current or during the last five years, in which the Bidder is involved, the parties concerned, and disputed amount.*

**1.5.3 Sub-contractor's experience and resources shall not be taken into account in determining the bidder's compliance with the qualifying criteria.**

1.5.4 Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if they have:  
Made misleading or false representations in the forms, statements and attachments submitted in proof of the qualification requirements.

1.5.5 Notwithstanding anything stated herein above, AEGCL reserves the right to assess the capacity and capability of the bidder to execute the work, should the circumstance warrant such assessment in the overall interest of AEGCL.

**1.6.0 Site Visit:** - The interested bidders are advised to visit any grid substation of AEGCL and examine the site of works and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the bid. The costs of visiting the Site shall be at the bidder's own expense.

**1.7.0 Clarification on Bidding Documents :-**

1.7.1 A prospective bidder requiring any clarification of the bidding documents may notify AEGCL in writing at the following address-

**Deputy General Manager, Lower Assam T&T Circle, AEGCL, Narengi, Guwahati-26**

AEGCL will respond to any request for clarification which it receives earlier than 7 (**seven**) days prior to the deadline for submission of bids.

1.7.2 Verbal clarification and information given by AEGCL or its employee(s) or representative (s) shall not in any way be binding on AEGCL.

**1.8.0 Amendment of Bidding Documents**

1.8.1. At any time prior to the deadline for submission of bids, the AEGCL may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, modify the bidding documents by issuing addenda.

1.8.2. Any addendum thus issued shall be part of the bidding documents pursuant to Sub-Clause, and shall be communicated in writing or by fax to all purchasers of the bidding documents. Prospective bidders shall acknowledge receipt of each addendum by fax to AEGCL.

**1.9.0 Language of Bid**

1.9.1 The bid, and all correspondence and documents related to the bid, exchanged between the bidder and AEGCL shall be written in the English language. Supporting documents and printed literature furnished by the bidder shall also be in English language.

**1.10.0 Documents Comprising the Bid**

1.10.1. The bid submitted by the bidder shall comprise two envelopes submitted simultaneously, one containing only the technical proposal and the other the price proposal.

1.10.2. The Bid submitted by bidders shall contain the following:

- a) Bid Submission Sheet
- b) Documentary evidence to establish that the Bidder meet the qualifying requirements in accordance with Clause 1.5.0.
- c) Documents to be furnished as per Clause 1.5.2.
- d) The Bid Guarantee (Bid Security) in accordance with Clause **1.16.0** & its sub clauses of this Section.
- e) All Bidding Schedules properly filled up including Price Bid Schedules.
- f) All other information and documents such as type test reports, drawings, technical leaflets etc, as required in the Technical Specification

### 1.11.0 Bid Form and Price Schedules

1.11.1 The Bidder shall complete the Bid Form and the appropriate Price Schedules furnished in the bidding documents in the manner and detail indicated therein, following the requirements of Clauses 1.12.0.

### 1.12.0 Bid Prices

1.12.1 Bidders shall give a breakdown of the prices in the manner and detail called for in the **Schedules of Prices**.

1.12.2 In the Schedules, Bidders shall give the required details and a breakdown of their prices, including all taxes, duties, levies, and charges payable as of twenty eight (28) days prior to the deadline for submission of bids, as follows:

- (a) Plant and equipment (**Schedules of Prices**) shall be quoted on an EXW (ex-factory, ex-works, ex-warehouse or off-the-shelf, as applicable). All taxes and duties taxes as applicable and freight and insurance shall be indicated separately.

### 1.13.0 Price Adjustment & Bid Evaluation Process

1.13.1 Price Adjustment: Prices quoted by the Bidder shall be FIRM during performance of the contract. Duties and Taxes shall be adjusted, except there is variation due to changes in legislation of the Country.

1.13.2 Bid Evaluation Process:

The following methodology will be practiced for identification and treatment of the Abnormally Low Bids (ALB) in this tender process of AEGCL:

(a) Identification:

For the identification of the Abnormally Low Bids, two approaches as applicable shall be adopted:

(i) **Absolute Approach** when there is fewer than five substantially responsive bidders and if the bid price is 20% or more below AEGCL's cost estimate then AEGCL's tender evaluation committee should clarify the Bid price with the bidder to determine whether the Bid is abnormally low.

(ii) **Relative Approach** is a statical comparison method which will be applied when there are more than five nos. of substantially responsive bids. A potential ALB is identified where the low Bid is more than one standard deviation below the average of substantially responsive bids received.

In this approach first the Average bid price is determined and then by deducting the standard deviation from the average bid price, potentially ALB may be determined.

(b) In case of ALB, the tender evaluation committee of the respective tenders shall undertake the following three stage review which are as follows:

- (i) Identify ALB as per the step mentioned in Clause No.(a).(i) and 10.b).(ii) whichever is applicable.
- (ii) Clarify and analyse the bidders resource inputs and pricing, including overheads, contingencies and profit margins. In that respect committee may seek the reference of the guidelines of World Bank, AIIB, ADB etc.
- (iii) Decide whether to accept or reject the tender.

(c) Additional Performance Security in case of acceptance of ALB:

(i) If any abnormally low bid is accepted under point no. (b) (iii), after taking of additional performance security as per the assessment of the committee, however the total performance security should not have to exceed 20% of the total contract value.

(ii) The additional performance security shall be treated as part of the original performance security and shall be valid for a period coextensive with the applicable defect liability period of the contract.

(iii) Non submission of the additional performance security shall constitute sufficient ground to rejection of the bid and similar assessment shall be initiated for the next ranked bidder identified as ALB.

### 1.14.0 Insurance

The Bidder shall insure the Works/Materials (in transit and at the site) in accordance with the requirements of General Conditions of Contract. The Bidder shall provide details of the policies that he intends to take out as part of his Bid submission. **The bid price shall include all costs in pursuance of fulfilling insurance liabilities under the contract.**

### 1.15.0 Bid Validity

- 1.15.1. Bids shall remain valid for a period of **180 (One Eighty)** days after the date of opening of Technical Bids.
- 1.15.2. In exceptional circumstances, prior to expiry of the original bid validity period, AEGCL may request that the bidders extend the period of validity for a specified additional period. The request and the responses thereto shall be made in writing. A bidder may refuse the request without forfeiting its bid security. A bidder agreeing to the request will not be required or permitted to modify its bid, but will be required to extend the validity of its bid security for the period of the extension, and in compliance with Clause **1.16.0** in all respects.

### 1.16.0 Bid Security (Earnest Money)

- 1.16.1. **The Bidder shall furnish, as part of its bid with the Technical Proposal, a bid security in the amount of Rs. 4,800.00 (Rupees Four Thousand Eight Hundred) only.**
- 1.16.2. For participation in the bidding procedure, participants must compulsorily pay the Bid Security / Earnest Money Deposit in the form of DD/Fixed Deposit/bank Guarantee/Banker's Cheque in favour of AEGCL, Guwahati. The bid security shall remain valid for 30 days beyond the original validity period for the bid, and beyond any period of extension subsequently requested.
- 1.16.3. Any bid not accompanied by an acceptable bid security shall be rejected as non-responsive.
- 1.16.4. The bid securities of unsuccessful bidders will be returned as promptly as possible, against written request from the unsuccessful bidders.
- 1.16.5. The bid security of the successful bidder will be returned when the bidder has signed the Contract Agreement and furnished the required performance security.
- 1.16.6. The bid security may be forfeited
- (a) if the bidder withdraws its bid, except as provided in Sub-Clause **1.221.22.1**;
  - (b) if the bidder does not accept the correction of its bid price, pursuant to Sub-Clause **1.271.27.2** or
  - (c) in the case of a successful bidder, if it fails within the specified time limit to
    - (i) sign the Contract Agreement,
    - (ii) furnish the required performance security.
- 1.16.7. No interest shall be payable by AEGCL on the above bid guarantee.

### 1.17.0 Alternative Proposals by Bidders

- 1.17.1 Bidders shall submit offers, which comply with the Bidding Documents, including the basic AEGCL's Requirements as indicated in the bidding documents. Alternatives will not be considered. The attention of bidders is drawn to the provisions of Clause **1.28.0** regarding the rejection of bids which are not substantially responsive to the requirements of the bidding documents.

### 1.18.0 Format and Signing of Bid

- 1.18.1. The bidder shall prepare one original and two copies of the bid proposal, clearly marking each one as: "ORIGINAL- BID PROPOSAL, etc as appropriate. In the event of discrepancy between the original and any copy, the original shall prevail.
- 1.18.2. The original and all copies of the bid shall be typed or written in indelible ink (in the case of copies, Photostats are also acceptable) and shall be signed by a person or persons duly authorized to sign on behalf of the bidder. All pages of the bid where entries or amendments have been made shall be initialed by the person or persons signing the bid.
- 1.18.3. The bid shall contain no alterations, omissions or additions, except those to comply with instructions issued by AEGCL, or as necessary to correct errors made by the bidder, in which case such corrections shall be initialed by the person or persons signing the bid.
- 1.18.4. The Bidders must submit the Bid Guarantee in separate sealed envelope, super-scribed as under:  
*"BID GUARANTEE (Name of the Package)"*
- 1.18.5. The Bid must contain the name, residence and place of business of the person or persons making the Bid and must be signed and sealed by the Bidder with his usual signature. The names of all persons signing should also be typed or printed below the signature.

- 1.18.6. Bids by Corporation / Company must be signed with the legal name of the Corporation/Company by the President, Managing Director or by the Secretary or other person or persons authorized to Bid on behalf of such Corporation/Company in the matter.
- 1.18.7. A Bid by a person who affixes to his signature the word 'President', 'Managing Director', 'Secretary', 'Agent', or other designation without disclosing his principal will be rejected.
- 1.18.8. Satisfactory evidence of authority of the person signing on behalf of the Bidder shall be furnished with the Bid.
- 1.18.9. The Bidder's name stated on the proposal shall be exact legal name of the firm
- 1.18.10. Bids not conforming to the above requirements of signing may be disqualified.

#### **1.19.0 Sealing and Marking of Bids**

- 1.19.1. The bidder shall seal the original copy of the bid proposal, and each copy of the technical proposal and each copy of the bid proposal in separate envelopes clearly marking each one as: "ORIGINAL- BID PROPOSAL", "COPY NO. I -TECHNICAL PROPOSAL", "COPY NO. I - BID PROPOSAL", etc as appropriate.
- 1.19.2. The bidder shall seal the envelopes containing the original bids and copies of the bid and then the originals and copies along with the envelope containing the Bid Security shall be put into a sealed outer envelope.
- 1.19.3. The inner and outer envelopes shall

- (a) be addressed to AEGCL at the following address:  
Deputy General Manager.  
LA T&T Circle, AEGCL, Narengi  
Guwahati-26

and

- (b) bear the following identification:

**"Supply of clamps, connectors & ACSR Zebra conductor for augmentation of existing 132kV single panther conductor bus with ACSR Twin Zebra conductor bus at 132/33kV GSS, AEGCL, Sishugram."**

In addition to the identification required in Sub-Clause 1.19.3, the inner envelope shall indicate the name and address of the bidder to enable the bid to be returned unopened in case it is declared "late" pursuant to Clause 1.21.0.

- 1.19.4. If the outer envelope is not sealed and not marked as above, AEGCL will assume no responsibility for the misplacement or premature opening of the bid.
- 1.19.5. The Bid must be accompanied with requisite BID SECURITY in a separate sealed cover.
- 1.19.6. The Bidders have the option of sending the Bids by post/courier or in person. Bids submitted by Telex/ Telegram/Fax will not be accepted. No request from any Bidder to AEGCL to collect the proposal from Airlines/Cargo Agents etc shall be entertained by AEGCL.

#### **1.20.0 Deadline for Submission of Bids**

- 1.20.1 Bids must be received by AEGCL at the address specified above no later than refer to NIT.
- 1.20.2 AEGCL may, at its discretion, extend the deadline for submission of bids by issuing an addendum in accordance with Clause 1.8.0, in which case all rights and obligations of AEGCL and the bidders previously subject to the original deadline will thereafter be subject to the deadlines extended.

#### **1.21.0 Late Bids**

- 1.21.1 Any bid received by AEGCL after the deadline for submission of bids prescribed in Clause 1.20.0 will be rejected and returned unopened to the bidder.

#### **1.22.0 Withdrawal of Bids**

- 1.22.1 The bidder may withdraw its bid after bid submission, provided that written notice of the withdrawal is received by AEGCL prior to the deadline for submission of bids.
- 1.22.2 The bidder's withdrawal notice shall be prepared, sealed, marked and delivered in accordance with the provisions of Clause 1.19.0, with the envelopes additionally marked "WITHDRAWAL".
- 1.22.3 Withdrawal of a bid during the interval between the deadline for submission of bids and the expiration of the period of bid validity specified in Sub-Clause 1.15.1 may result in the forfeiture of the bid security pursuant to Sub-Clause 1.16.6.

### **1.23.0 Opening of Bids**

- 1.23.1 AEGCL will open the Technical Bids ( Part-I ) , in the presence of bidders' representatives who choose to attend; at the following location:  
Deputy General Manager.  
LA T&T Circle, AEGCL, Narengi  
Guwahati-26

The bidders' representatives who are present shall sign a register evidencing their attendance.

- 1.23.2 Envelopes marked "WITHDRAWAL" shall be opened and read out first. Bids for which an acceptable notice of withdrawal has been submitted pursuant to Clause 1.22.0 shall not be opened.
- 1.23.3 The bidders' names, the Bid Prices, the presence or absence of Bid Security, and such other details as AEGCL may consider appropriate, will be announced and recorded by AEGCL at the opening. The bidders' representatives will be required to sign this record.

### **1.24.0 Process to Be Confidential**

- 1.24.1 Information relating to the examination, clarification, evaluation and comparison of bids and recommendations for the award of a contract shall not be disclosed to bidders or any other persons not officially concerned with such process. Any effort by a bidder to influence AEGCL's processing of bids or award decisions may result in the rejection of the bidder's bid.

### **1.25.0 Preliminary Examination of Bids and Determination of Responsiveness**

- 1.25.1 Prior to the detailed evaluation of bids, AEGCL will examine the bids to determine whether they are complete and all documents as per Clause 1.10.0 are provided or not, whether the documents have been properly signed, whether the required security is included, and whether the bids are generally in order and provides any clarifications and/or substantiation that AEGCL may require pursuant to Clause 1.26.0.
- 1.25.2 A substantially responsive bid is one which conforms to all the terms, conditions and requirements of the bidding documents, without material deviation or reservation and includes the amendments and changes, if any. AEGCL may waive any minor non-conformity or irregularity in a Bid which does not constitute a material deviation or reservation, provided such deviation or reservation does not (i) affect in any substantial way the scope, quality or performance of the Works; (ii) limit in any substantial way, inconsistent with the bidding document, AEGCL's rights or bidder's obligations under the contract; or (iii) whose rectification would affect unfairly the competitive position of other bidder's presenting substantially responsive bids.
- 1.25.3 Any bids found to be non-responsive for any reason or not meeting the minimum levels of the performance or other criteria specified in the bidding documents will be rejected by AEGCL and not included for further consideration.

### **1.26.0 Clarification of Bid Proposals and Contacting AEGCL**

- 1.26.1 To assist in the examination, evaluation and comparison of Bids, AEGCL may, at its discretion, ask any bidder for clarification of its bid. The request for clarification and the response shall be in writing or by mail, but no change in the price or substance of the bid shall be sought, offered or permitted except as required to confirm the correction of arithmetic errors discovered by AEGCL in the evaluation of the bids in accordance with Clause 1.27.0.
- 1.26.2 Subject to Sub-Clause 1.26.1, no bidder shall contact AEGCL on any matter relating to its bid from the time of opening Bids to the time the contract is awarded. If the bidder wishes to bring additional information to the notice of AEGCL, it should do so in writing.
- 1.26.3 Any effort by the bidder to influence AEGCL in AEGCL's evaluation of price proposals, bid comparison or contract award decisions may result in the rejection of the bidder's bid.

### **1.27.0 Correction of Errors**

- 1.27.1 Price Proposals determined to be substantially responsive will be checked by AEGCL for any arithmetic errors. Arithmetic errors will be rectified on the following basis. If there is a discrepancy between the unit rate and the total cost that is obtained by multiplying the unit rate and quantity, the unit rate shall prevail and the total cost will be corrected unless in the opinion of AEGCL there is an obvious misplacement of the decimal point in the unit rate, in which case the total cost as quoted will govern and the unit rate corrected. If there is a discrepancy between the total bid amount and the sum of total costs, the sum of the total costs shall prevail and the total bid amount will be corrected.
- 1.27.2 The amount stated in the Form of Bid for Price Proposal will be adjusted by AEGCL in accordance with the above procedure for the correction of errors and, shall be considered as binding upon the bidder. If the bidder does not accept the corrected amount of bid, its bid will be rejected, and the bid security may be forfeited in accordance with Sub-Clause 1.16.6(b).



## 1.28.0 Evaluation and Comparison of Bid Proposals

1.28.1 AEGCL will evaluate and compare only the bids determined to be substantially responsive in accordance with Clause 1.25.0.

1.28.2 For equipments and materials, the comparison shall be of the ex-factory price of equipments and materials offered (such price to include all costs as well as duties and taxes paid or payable on components and raw material incorporated); plus the cost of transportation, local taxes and duties, civil works, installation and other services required under the contract with due corrections as per Clause 1.27.0. AEGCL's comparison will also include the costs if any, resulting from application of the evaluation procedures described in Sub-Clause 1.28.4.

1.28.3 AEGCL will carry out a detailed evaluation of the bids in order to determine whether the bidders are qualified and whether the technical aspects are substantially responsive to the requirements set forth in the bidding documents. In order to reach such a determination, AEGCL will examine the information supplied by the Bidders and other requirements in the bidding documents, taking into account the following factors:

(a) Qualification

- (i) the determination will take into account the Bidder's financial and technical capabilities and past performance; it will be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to Clause 1.5.0 as well as such other information as AEGCL deems necessary and appropriate; and
- (ii) an affirmative determination will be a prerequisite for AEGCL to continue with the evaluation of the proposal; a negative determination will result in rejection of the Bidder's bid.

(b) Technical

- (i) overall completeness and compliance with AEGCL's Requirements; the technical merits of materials and equipments offered and deviations from AEGCL's Requirements; suitability of the facilities offered in relation to the environmental and climatic conditions prevailing at the site; quality, function and operation of any process control concept included in the bid;

(c) Commercial

- (i) Deviations and omissions from the contractual and commercial conditions as identified in the Bid.
- (ii) compliance with the time schedule called for in the Bidding Document and evidenced as needed in a milestone schedule provided in the bid; and
- (iii) the functional guarantees of the facilities offered against the specified performance criteria of the plant and equipment.

1.28.4 Pursuant to Sub-Clause 1.28.3, the following evaluation methods will be followed:

- (a) **Time Schedule:** The plant and equipment covered by this bidding are required to be shipped, installed and the facilities completed within the period specified in Sub-Clause

Bidders submitting bids which deviate from the time schedule specified will be rejected.

- (b) **Deviations from the Bidding Document:**

Bidders shall base their Bid price on the terms & conditions specified in the Bidding Documents.

Bids with material deviations and omissions shall be rejected.

- (c) **Functional Guarantee of the facilities:**

Bidders shall state the functional guarantees (e.g. guaranteed performance or ratings or efficiency) of the proposed Goods in response to AEGCL's Requirements (Technical Specifications). Goods, Plant and equipment offered shall have a minimum performance (functional guarantees/ratings) specified in the Technical Specifications to be considered responsive. Bids offering Goods, plant and equipment with functional guarantees less than the minimum specified shall be rejected.

1.28.5 AEGCL reserves the right to accept or reject any variation or deviation. Variations, deviations, and other factors which are in excess of the requirements of the bidding documents or otherwise result in the accrual of unsolicited benefits to AEGCL shall not be taken into account in bid evaluation.

## 1.29.0 Award

1.29.1 Subject to Clause 1.30.0, AEGCL will award the Contract to the bidder whose bid has been determined to be substantially responsive to the bidding documents provided that such bidder has been determined to be qualified in accordance with the provisions of Clause 1.5.0.

### **1.30.0 Employer's Right to Accept any Bid and to Reject any or all Bids**

1.30.1 Notwithstanding Clause **1.29.0**, AEGCL reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids, at any time prior to award of Contract, without thereby incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidder or bidders of the grounds for AEGCL's action. AEGCL is not bound to accept the offer of the lowest bidder.

### **1.31.0 Notification of Award**

1.31.1 Prior to expiration of the period of bid validity prescribed by AEGCL, AEGCL will notify the successful bidder by fax, confirmed by letter, that its bid has been accepted. This letter (hereinafter and in the Conditions of Contract called the "Letter of Acceptance") shall name the sum which AEGCL will pay the Contractor in consideration of the execution, completion and maintenance of the Works by the Contractor as prescribed by the Contract (hereinafter and in the Conditions of Contract called "the Contract Price").

1.31.2 The notification of award will constitute the formation of the Contract.

### **1.32.0 Signing of Contract Agreement**

1.32.1 At the same time that it notifies the successful bidder that its bid has been accepted, AEGCL will send the bidder the Form of Contract Agreement incorporating all agreements between the parties.

1.32.2 Within **15 (fifteen) days** of receipt of the Form of Agreement, the successful bidder shall sign the Form and return it to AEGCL.

### **1.33.0 Performance Security**

1.33.1 Within **15 (fifteen) days** of receipt of the notification of award from AEGCL, the successful bidder shall furnish to AEGCL a performance security in an amount of 10 (ten) percent of the Contract Price in accordance with the Conditions of Contract. The form of performance security provided in **Section 5** of the bidding documents may be used or some other form acceptable to AEGCL. The above performance security may be withdrawn on submission of performance security as per clause No 2.6.0

1.33.2 In case the bidder fails to submit the Performance Security in the form of Bank Guarantee, an amount equivalent to 10% of the Contract Price shall be retained as Security Deposits which shall be retained up to 90 (ninety) days after the end of Warranty Period.

### **1.34.0 Corrupt or Fraudulent Practices**

1.34.1 It is required that bidders/suppliers/contractors observe the highest standard of ethics during the procurement and execution of the contracts. In Pursuance of this Clause AEGCL;

- (a) defines, for the purposes of this provision, the terms set forth below as follows:
  - (i) "corrupt practice" means behavior on the part of officials in the public or private sectors by which they improperly and unlawfully enrich themselves and/or those close to them, or induce others to do so, by misusing the position in which they are placed, and it includes the offering, giving, receiving or soliciting of anything of value to influence the action of any such official in the procurement process or in contract execution; and
  - (ii) "fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Borrower, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Borrower of the benefits of free and open competition;
- (b) will reject a proposal for award if it determines that the bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question;
- (c) will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded a contract by AEGCL if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a contract.

## SECTION-2

### SPECIAL CONDITIONS OF CONTRACT.

#### 2.1.0 INTRODUCTION

2.1.1. This Special Conditions of Contract is supplementary to AEGCL's "General Conditions of Supply and Erection of AEGCL 2009", copies of which will be supplied with this Bidding Document. **However, in case of any contradiction, stipulations made in this Bidding Document, it shall prevail.**

#### 2.2.0 CONTRACTOR TO INFORM HIMSELF FULLY

2.2.1. The contractor should admit that he has examined the general condition of contract, specifications and schedule and has satisfied as to all the conditions and circumstances affecting the contract prices and fixed his price according to his own views on these matters and acknowledge that no additional allowances except as otherwise provided therein will be levied. The purchaser shall not be responsible for any misunderstanding or incorrect information obtained by the contractor other than information given to the contractor in writing by the purchaser.

#### 2.3.0 EXTENSION OF TIME

2.3.1. If the completion of the work is delayed due to reason beyond the control of the contractor, the contractor should without delay give notice to AEGCL within 7 ( seven) days in writing of his claim for an extension of time. The AEGCL may extend the completion date as may be reasonable but without prejudice to other terms and conditions of the contract.

#### 2.4.0 VARIATIONS, ADDITIONS AND OMISSIONS

2.4.1. The contractor shall not modify any of the terms and conditions except as directed in writing by AEGCL.

2.4.2. The AEGCL shall have the right during the contract to amend, alter, omit or otherwise vary any of the items by notice in writings. The contractor shall carry out such variations although the said variations shall not exceed 15% of the contract price except with written consent of the purchaser. The amount of such variations shall be determined in accordance with rates specified in the contract and where such rates are not available this will be mutually agreed between the purchaser and the contractor.

2.5.0 **Price Basis:** - Prices are to be FIRM. Supply rate should include prevailing rate of GST and freight and insurance charges. Whereas erection rate should include prevailing rate of works contract tax, service charges. Break up of taxes item wise should be shown separately. Prevailing rate of all taxes & duties should be mentioned. Road permit for supply items shall be arranged by the Contractor.

#### 2.6.0 PERFORMANCE SECURITY (Contract Performance Guarantee)

2.6.1. As a Contract Performance Security, the successful Bidder, to whom the work is awarded, shall be required to furnish a Performance Guarantee from a Nationalized Bank, in the form attached with the Bidding Document (Section -5) in favour of the AEGCL. The guarantee amount shall be equal to ten percent (10%) of the Contract Price and it shall guarantee the faithful performance of the contract in accordance with the terms and conditions specified in these documents and specifications. The guarantee shall be valid up to 90 (ninety) days after the end of Warranty Period.

2.6.2. In case the bidder fails to submit the Performance Security in the form of Bank Guarantee, an amount equivalent to 10% of the Contract Price shall be retained as Security Deposits which shall be retained up to 90 (ninety) days after the end of Warranty Period

2.6.3. The performance guarantee shall cover additionally the following guarantees to the owner:

- a) The successful Bidder guarantees the successful and satisfactory operation of the equipment furnished and erected under the contract, as per the specifications and documents.
- b) The successful Bidder further guarantees that the equipment/material provided and installed by him shall be free from all defects in design, material and workmanship and shall upon written notice from the Owner fully remedy as per Clause **Error! Reference source not found.**

2.7.4. The Contract performance Guarantee will be returned to the Contractor without any interest at the end of warranty period and written request from the contractor.

## **2.7.0 TAKING OVER**

2.7.1. When entire scope of works is completed by the Contractor and successfully commissioned in accordance with the Contract, the same shall be taken over by AEGCL and a Taking-Over Certificate for the Works shall be issued.

2.7.2. The date of issue of the 'Taking Over Certificate' by AEGCL or its representative shall be the date of taking over the works.

## **2.8.0 TERMS OF PAYMENT**

The terms of payment for the supply work shall be as follows

- i. No advance payment shall be made in this contract.
- ii. No claim for interest shall be entertained by AEGCL
- iii. The price is firm and no price variation shall be applicable.
- iv. Final bill must contain the original site register.
- v. 80% payment with 100% GST shall be released against receipt of materials in full and good condition at site. Balance 10% shall be released on completion of erection works.
- vi. The Bidder / Firm will have to be submitted the following Net Banking details.
  - a) Banker's Name & Branch
  - b) Account No
  - c) Banker's address
  - d) Banker's IFSC Code
  - e) Banker's RTGS Code

## **2.9.0 WARRANTY**

2.9.1. The contractor warrants that all goods are new, unused and of the most recent or current models, and that they incorporate all recent improvements in design and materials, unless provided otherwise in the Contract. The term period of warranty shall mean the period of 18 months from the date of the materials are received at site in good and acceptable condition. If during the period of warranty, any defect is found, the Contractor shall rectify all defects in design, materials and workmanship that may develop under normal use of the equipment upon written notice from the Purchaser who shall indicate in what respects the equipment is faulty. The rectification / free replacement must be carried out within a reasonable time period and at free of cost.

2.9.2. In the event of any emergency, where in the judgment of AEGCL, delay would cause serious loss or damages, repairs or adjustment may be made by the engineer or a third party chosen by the engineer without advance notice to the contractor and the cost of such work shall be paid by the contractor. In the event such action is taken by the engineer, the contractor will be notified promptly and he shall assist wherever possible in making necessary corrections. This shall not relieve the contractor of his liabilities under the terms and conditions of the contract.

2.9.3. If it becomes necessary for the contractor to replace or renew any defective portions of the works, the provision of this clause shall apply to portion of the works so replaced or renewed until the expiry of twelve (12) months from the date of such replacement or renewal.

2.9.4. The repaired or new parts will be furnished and erected free of cost by the contractor. If any repair is carried out on his behalf at the site, the contractor shall bear the cost of such repairs.

2.9.5. The acceptance of the equipment by the Employer shall in no way relieve the contractor of his obligation under this clause.

2.9.6. In the case of those defective parts, which are not repairable at site but are essential for the commercial operation of the equipment, the contractor and the engineer shall mutually agree to a programme of replacement or renewal, which will minimize interruption to the maximum extent in the operation of the equipment.

## **2.10.0 LIABILITY FOR ACCIDENTS AND DAMAGE**

2.10.1. The contractor shall indemnify the company (AEGCL) against any loss, damage, and injury to any person or to any property and against any other liability or obligation and against all actions, suits, claims demands costs, charges and expenses arising in connection with such damage, injury, liability or obligation resulting from:-

- (a). the negligence of the contractor and his workers, agents, subcontractors; and/or
- (b). the lack of or inadequacy of safety devices on equipment supplied under this contract.

## **2.11.0 USE OF MATERIALS ARRANGED BY THE BOARD**

2.11.1. If any materials supplied by AEGCL are found to be misused or wasted due to negligence by the contractor comes to the notice of the Board then the contractor shall be liable to pay compensation to the Board as may be decided by the Board.

## **2.12.0 PENALTY FOR DELAYED EXECUTION**

- 2.12.1. In the event of delay in completing the work extending beyond the date of completion or beyond the extended date, if any, permitted by the Board, the contractor shall pay as agreed liquidated damage and not as a penalty a sum equal to 1% of the contract price under this contract for each week of delay or part thereof subject to a maximum of 10% of the contract price.
- 2.13.0 SETTLEMENT OF THE DISPUTE & ARBITRATION**  
2.13.1. Any dispute arising out of the contract will first be discussed and settled bilaterally between the Assam Electricity Grid Corporation Limited and firms/ contractors. In case, the dispute cannot be settled bilaterally, it will be referred to arbitration by an arbitrator to be appointed by the AEGCL, The contractor shall not stop the work during settlement of any arbitration case. All disputes arising out of the agreement so made shall be subjected to the jurisdiction of district court of Kamrup District.
- 2.14.0 FORCE MAJEURE**  
2.14.1. Force Majeure shall be considered as any circumstances beyond the reasonable control of the party claiming relief, including but not limited to strikes lockout, civil commotion, riot, insurrection, hostilities, war, fire, flood, earthquake, delay in delivery of equipments or part thereof by AEGCL, would entitle contractor to extension of time.
- 2.15.0 PROGRESS REPORT**  
2.15.1. The contractor shall submit to AEGCL monthly progress report within the first week of every month giving the status of the contract work along with adequate number of photograph, indicating the various stages of execution of this contract.
- 2.16.0 ACCOMMODATION OF CONTRACTOR'S PERSONNEL**  
2.16.1. No quarter shall normally be provided by the Board for the accommodation of any of the contractor's employee in connection with the erection work, in exceptional cases, where accommodation is provided to the contractor at AEGCL's discretion, recoveries shall be made at such rates as may be fixed by the Board towards rent of the buildings and furniture and fittings if any therein as well as charges for electric supply, water supply and conservancy.  
2.16.2. The contractor shall at his own expenses make adequate arrangements for housing, supply of drinking water and provision of latrines and urinals for his staff and labour and disposal of sewage.
- 2.17.0 AGE LIMIT OF LABOUR**  
2.17.1. The contractor shall not employ persons below the age of 18 years as labours for the erection work.
- 2.18.0 SAFETY & PRECAUTIONS**  
2.18.1. The contractor shall provide adequate safety devices like head protective gears, belt etc, to his labours while executing the erection work.
- 2.19.0 INSURANCE**  
2.19.1. The Contractor at his cost shall arrange, secure and maintain all insurance as may be pertinent to the Works and obligatory in terms of law to protect his interest and interests of the Employer / AEGCL against all perils detailed herein. The form and the limit of such insurance as defined herein together with the under-writer in each case shall be acceptable to the AEGCL. However, irrespective of such acceptance, the responsibility to maintain adequate insurance coverage at all time during the period of contract shall be of the contractor alone. The contractor's failure in this regard shall not relieve him of any of his contractual responsibilities and obligations. The insurance covers to be taken by the contractor shall be in a joint name of the Employer and the Contractor. The Contractor shall, however, be authorized to deal directly with Insurance Company or companies and shall be responsible in regard to maintenance of all insurance covers.  
2.19.2. Any loss or damage to the equipment and material (including equipments & materials handed over to Contractor for execution of the Contract) during handling, transportation, storage, erection, putting into satisfactory operation and all activities to be performed till the successful completion of commissioning of the equipment shall be to the account of Contractor. The Contractor shall be responsible for preference of all claims and make good the damages or loss by way of repairs and/or replacement of the equipment, damaged or lost. The contractor shall provide the Employer with copy of all insurance policies and documents taken out by him in pursuance of the contract. Such copies of documents shall be submitted to the Employer immediately after such insurance coverage. The Contractor shall also inform the Employer in writing at least sixty (60) days in advance regarding the expiry/cancellation and/or change in any of such documents and ensure revalidation, renewal, etc., as may be necessary well in time.  
2.19.3. The perils required to be covered under the insurance shall include, but not be limited to fire and allied risks, miscellaneous accidents (erection risks) workman compensation risks, loss or damage in transit, theft, pilferage riot and

strikes and malicious damages, civil commotion, weather condition, accidents of all kinds, etc. The scope of such insurance shall be adequate to cover the replacement/reinstatement cost of the equipment for all risks up to and including delivery of goods and other costs till the equipment is delivered at Site. The insurance policies to be taken should be on replacement value basis and/or incorporating escalation clause. Notwithstanding the extent of insurance cover and the amount of claim available from the underwriters, the contractor shall be liable to make good the full replacement/rectification value of all equipments/materials and to ensure their availability as per project requirements.

- 2.19.4. The insurance shall also cover the Contractor against all claims arising from injuries, disabilities, disease or death of members of public or damage to property of others, due to any act or omission on the part of the Contractor, his agents, his employees, his representatives and Sub-contractors or from riots, strikes and civil commotion.
- 2.19.5. All costs on account of insurance liabilities covered under the contract will be to Contractor's account and will be included in Contract Price. However, the owner may from time to time, during the pendency of the contract, asks the contractor in writing to limit the insurance coverage, risks and in such a case, the parties to the contract will agree for a mutual settlement, for reduction in Contract price to the extent of reduced premium amount. The Contractor, while arranging the insurance shall ensure to obtain all discounts on premium which may be available for higher volume or for reason of financing arrangement of the project.

## SECTION – 3

### (A) TECHNICAL SPECIFICATION FOR DESIGN AND FABRICATION OF SUBSTATION STEEL STRUCTURES

#### 1. SCOPE

This section covers the design parameters, specification for clamps & connectors, bolts & nuts, tower accessories etc suitable for 132kV Twin Zebra ACSR Bus conductors and as per Specification.

#### 2. MATERIALS

##### 2.1 Clamps and connectors shall conform to IS 2121 unless otherwise mentioned hereunder.

Clamps and connectors shall be made of materials listed below:-

- i) For connecting Zebra : Aluminium alloy casting conforming to designation A 6 of IS 617
- ii) For connecting equipment : Bimetallic connectors made from aluminium alloy  
terminals made of copper casting conforming to designation A 6 of IS 617.
- iii) For connecting GI Shield wire : Malleable iron casting.
- iv) Expansion Connectors : Copper lamination to grade FRTP-2 of IS 191.
- v) Bolts, nuts, plain washers : Hot dip galvanised mild steel.  
and spring washers for items  
(i),(ii) and (iii).

##### 2.2 Spacers

Suitable spacers for forming rigid bundles of two conductors (where specified) to keep suitable conductor spacing shall be provided at but not limited to the following locations:

- (i) At intervals not exceeding 4 meters between two bounds in case of strung bus bars or other strung conductors.
- (ii) At one meter interval in case of jumper connections.

No magnetic material shall be used in fabrication of spacers except for the GI bolts and nuts.

##### 2.3 Bolts

Bolts used shall conform to IS12427 or bolts of property class 4.6 conforming to IS 6639 may also be used.

High strength bolts, if used (only with steel conforming to IS 8500) shall conform to property class 8.8 of IS 3757. Foundation Bolts shall conform to IS 5624.

Step bolts shall conform to IS 10238

##### 2.4 Nuts

Nuts shall conform to IS 1363 (Part 3). The mechanical properties shall conform to property class 4 or 5 as the case may be as specified in IS 1367 (Part 6) except that the proof stress for nuts of property class 5 shall be as given in IS 12427.

Nuts to be used with high strength bolts shall conform to IS 6623.

##### 2.5 Washers

Washers shall conform to IS 2016. Heavy washers shall conform to IS 6610. Spring washers shall conform to type B of IS 3663

Washers to be used with high strength bolts and nuts shall conform to IS 6649.

##### 2.6 Galvanisation

Structural members, plain and heavy washers shall be galvanized in accordance with the provisions of IS 4759. Spring washers shall be hot dip galvanized as per service grade 4 of IS 4759 or IS 1537.

##### 2.7 Other materials

Other materials used in the construction of the supporting structures shall conform to appropriate Indian Standards wherever available.

## (B.) TECHNICAL SPECIFICATIONS OF INSULATORS & HARDWARE FITTINGS

### 1. SCOPE

This Section of the specification covers design, manufacture, testing at works of suspension and tension string insulator assemblies suitable for 33kV Twin Zebra ACSR Bus conductors.

### 2. STANDARDS

The suspension and tension string assemblies, insulator discs and hardware offered, material and processes adopted in the manufacture of insulator discs and hardware shall conform to the provision of the following Indian Standards or equivalent other international standards:

- (1) IS: 731 Specification of porcelain insulators for overhead power lines.
- (2) IS: 2486 Specification of insulator fittings for overhead power lines.
- (3) IS: 2026 Specification for recommended practice for hot dip galvanising of steel
- (4) IS: 2633 Specification for method for testing uniformity of coating on zinc coated articles.
- (5) IS: 2107 Specification for white hearth malleable iron castings.
- (6) IS: 2108 Specification for black hearth malleable iron castings.

### 3. SERVICE CONDITIONS

The materials supplied shall be suitable for operation under the following climatic and other conditions:

- a) Peak ambient day temperature in still air: 45 °C
- b) Minimum night temperatures : 0 °C
- c) Ground temperatures: 40 °C
- d) Reference ambient day temperature : 45 °C
- e) Relative Humidity i). Maximum : 100 % ii). Minimum : 10 %
- f) Altitude : Below 1000 M above MSL
- g) Maximum wind pressure : As per IS: 802
- h) Seismic Intensity: ZONE-V as per IS 1893.

### 4. PARAMETERS OF DISC INSULATOR & INSULATOR STRINGS

#### 4.1 For Antifog Disc insulators

Sl. no.	Description	Electromechanical strength of insulator string fittings	
		90 kN	120kN
1.	Type of insulator	Ball & Socket	Ball & Socket
2.	Size of Ball & Socket	16B	20
3.	Dimensions		
(a)	Disc diameter	255	280
(b)	Unit spacing	145	145
4.	Creepage distance of single insulator (mm)	430	430
5.	Material	Porcelain	Porcelain
6.	Electrical value		
6.1	Power frequency withstand voltage		
(a)	Dry (kV rms)	80	85
(b)	Wet (kV rms)	45	50
6.2	Impulse withstand voltage (1.2/50 micro second)		
(a)	Positive (kV peak)	125	130



	(b) Negative (kV peak)	125	130
6.3	Impulse flashover voltage (1.2/50 micro second)		
	(a) Positive (kV peak)	135	140
	(b) Negative (kV peak)	130	135
7.	Minimum failing load (kN)	90	120

4.2 Each insulator string shall consist of following numbers of Disc & parameters.

Sl. no.	Description	No. of Disc insulator unit for	
		132 kV	33kV
1.	No. of Disc in Suspension string	9	3
2.	No. of Disc in Tension string	10	4
3.	Creepage distance of complete string (minimum)	3625 mm	900 mm

## 5. INSULATOR DISCS AND STRINGS

### 5.1 TYPE OF INSULATORS:

All suspension and tension strings shall consist of standard 255 x 145 mm centre ball and socket type porcelain insulators with all the exposed porcelain parts fully glazed, unless otherwise specified.

### 5.2 QUALITY AND STRENGTH OF THE INSULATORS:

The insulators and their hardware used in the lines shall comply with requirement of relevant IS or other equivalent international standards. The pin-ball shackle diameter of suspension string will be 16 mm and tension string will be 20 / 16 mm.

### 5.3 MATERIALS USED

The porcelain used in the manufacture of the insulators shall be of the best quality and shall be manufactured by the wet process. It shall be homogeneous, free from lamination; flaws etc. and well finished making it impervious to moisture. The glaze shall be brown colour and shall cover all the porcelain parts of the insulator except these areas necessarily left unglazed for the purpose of assembly. The cement used in the construction of the insulators shall not cause fracture by expansion or loosening and shall not give rise to any chemical reaction with the metal fittings.

## 6. INSULATOR STRING HARDWARE

### 6.1 HARDWARE

- Each insulator string assembly shall generally include the following hardware:
- Anchor shackle for attachment of suspension string assembly to the tower hanger and tension string assembly to the tower strain plate. Suitable top and bottom yoke assemblies with the arrangement of fixing a set of arcing horns.
  - Set of arcing horns
  - Suspension or tension clamp
  - Bolts, nuts, washers, split pins etc.
  - Other fittings necessary to make the strings complete such as ball clevis, socket clevis, chain links etc.
- The tenderer shall be responsible and satisfy himself that all the hardware included in strings are entirely suitable for the conductor offered.

### 6.2 SUSPENSION CLAMP

- The suspension clamps shall be made of malleable iron or aluminium alloy, hot dip galvanised and shall be suitable to accommodate the conductor together with one set of preformed armour rods. Suitable sheet aluminium liners shall be provided. The suspension clamps shall be designed to avoid any possibility of deforming or damaging the conductor. The lips shall be rounded off and the seating and the bell mouths shall be smooth to avoid corona and radio interference noises. The suspension clamps shall be suitable to carry the bottom part of the arcing horn and to receive the fittings of the insulator string.
- The suspension clamps shall be such that the conductor should not slip at a load of 25% of the breaking load of the conductor. The ultimate strength of the clamp for vertical load shall not be less than the failing load of the Disc Insulators.

### 6.3 STRAIN CLAMP

- The bolted strain clamps shall also be made of malleable iron or aluminium alloy; hot dip galvanised, lined with sheet aluminium liners and shall be suitable to accommodate the conductor with necessary binding tapes etc. The lips shall be rounded off carefully and conductor seating and the ball mouth shall be smooth to avoid corona and radio interference

noises. Suitable attachment for receiving one side of arcing horns and for connecting to the insulator strings shall be provided.

2. The strain clamps shall be such that the conductor should not slip at a load of 90% of the breaking load of the conductor. The ultimate strength of the clamp for horizontal load shall not be less than the ultimate strength of the conductor

#### 6.4 **ARCING HORNS:**

1. Arcing horns of approved size and dimensions shall be provided for every string of insulators. The performance data for arcing horns to be supplied shall be made available to the Employer.

#### 6.5 **OTHER INSULATOR STRING HARDWARE:**

1. The strength of other string hardware namely anchor shackle, yoke plates, socket-clevis etc. shall be co-ordinated with insulator disc strength.

### 7. **Interchangability**

- 7.1 The hardware together with ball and socket fittings shall be of standard design, so that this hardware are interchangeable with each other and suitable for use with disc insulators of any make conforming to relevant Indian/International Standard

### 8. **Ball and Socket Designation**

- 8.1 The dimensions of the ball and socket shall be of 16mm designation up to 90 KN discs and 20 mm designation for 165KN discs, in accordance with the standard dimensions stated in IS : 2486-(Part-II) or equivalent International Standards. The dimensions shall be checked by the appropriate gauge after galvanising only.

### 9. **Security Clips and Split Pins**

- 9.1 Security clips for use with ball and socket coupling shall be R-shaped, hump type which provides positive locking of the coupling as per IS: 2486-(Part-III) or equivalent International Standards. The legs of the security clips shall be spread after assembly in the works to prevent complete withdrawal from the socket. The locking device should be resilient, corrosion resistant and of suitable mechanical strength. There shall be no risk of the locking device being displaced accidentally or being rotated when in position. Under no circumstances shall the locking devices allow separation of fittings.

- 9.2 The hole for the security clip shall be countersunk and the clip should be of such design that the eye of clip may be engaged by a hot line clip puller to provide for disengagement under energised conditions. The force required to pull the security clip into its unlocked position shall neither be less than 50 N (5 kg) nor more than 500 N (50 kg).

- 9.3 Split pins shall be used with bolts & nuts.

### 10. **Arcing Horn for EHV Strings**

- 10.1 The arcing horn shall be provided on tower side of the hardware fittings. The same shall be either ball ended rod type or tubular type.

- 10.2 The spark gap shall be so adjusted to ensure effective operation under actual field conditions.

### 11. **Turnbuckle**

- 11.1 The turn buckle is to be provided with single tension hardware fitting. The threads shall be of sufficient strength to remain unaffected under the specified tensile load.

- 11.2 The maximum length of the turn buckle from the connecting part of the rest of the hardware fittings shall be 380 mm. The details of the minimum and maximum adjustment possible shall be clearly indicated in the drawing submitted with the bid. An adjustment of 135 mm minimum shall be possible with turnbuckle.

### 12. **Suspension Assembly**

- 12.1 The suspension assembly shall be designed, manufactured and finished to give it a suitable shape, so as to avoid any possibility of hammering between suspension assembly and conductor due to vibration. The suspension assembly shall be smooth and without any cuts, grooves, abrasions, projections, ridges or excrescence which might damage the conductor.

- 12.2 The suspension assembly/clamp shall be so designed so that it minimises the static and dynamic stress developed in the conductor under various loading conditions as well as during wind induced conductor vibrations. It shall also withstand power arcs and have required level of Corona/AIV performance.

### 13. **Standard Preformed Armour Rod Set**

- 13.1 The Preformed Armour Rod Set suitable for Conductor shall be used to minimise the stress developed in the sub-conductor due to different static and dynamic loads because of vibration due to wind, slipping of conductor from the suspension clamp as a result of unbalanced conductor tension in adjacent spans and broken wire condition. It shall also withstand power arcs, chafing and abrasion from suspension clamp and localised heating effect due to magnetic power losses from suspension clamps as well as resistance losses of the conductor.

- 13.2 The preformed armour rods set shall have right hand lay and the inside diameter of the helices shall be less than the outside diameter of the conductor in order to gently but permanently grip the conductor. The surface of the armour rod when fitted on the conductor shall be smooth and free from projections, cuts and abrasions, etc.

13.3 The pitch length of the rods shall be determined by the Bidder but shall be less than that of the outer layer of conductor and the same shall be accurately controlled to maintain uniformity and consistently reproducible characteristic wholly independent of the skill of linemen.

13.4 The conductivity of each rod of the set shall not be less than 40% of the conductivity of the International Annealed Copper Standard (IACS).

#### 14. Dead End Assembly

14.1 The dead end assembly shall be suitable for Conductor as detailed in the document.

14.2 The dead end assembly shall be compression type with provision for comprising the jumper terminal at one end. The angle of the jumper terminal to be mounted should be 300 with respect to the vertical line. The area of bearing surface on all the connections shall be sufficient to ensure positive electrical and mechanical contact. The resistance of the clamp when compressed on Conductor shall not be more than 75% of the resistance of equivalent length of Conductor.

14.3 The assembly shall not permit slipping of, damage to, or failure of the complete conductor or any part thereof at a load less than 95% of the ultimate tensile strength of the conductor.

#### 15 Fasteners: Bolts, Nuts and Washers

15.1 All bolts and nuts shall conform to IS: 6639 or equivalent International Standards. All bolts and nuts shall be galvanised as per IS-1367 -(Part 13)/IS-2629 or equivalent International Standards. All bolts and nuts shall have hexagonal heads, the heads being forged out of solid truly concentric, and square with the shank, which must be perfectly straight. All ferrous parts should be hot dip galvanized.

15.2 Bolts upto M16 and having length upto 10 times the diameter of the bolt should be manufactured by cold forging and thread rolling process to obtain good and reliable mechanical properties and effective dimensional control. The shear strength of bolt for 5.6 grade should be 310 MPa minimum as per IS-12427 or equivalent International Standards. Bolts should be provided with washer face in accordance with IS: 1363 Part-1 or equivalent International Standards to ensure proper bearing.

15.3 Nuts should be double chamfered as per the requirement of IS: 1363 Part-III or equivalent International Standards. It should be ensured by the manufacturer that nuts should not be over tapped beyond 0.4 mm oversize on effective diameter for size upto M16

15.4 Fully threaded bolts shall not be used. The length of the bolt shall be such that the threaded portion shall not extend into the place of contact of the component parts.

15.5 All bolts shall be threaded to take the full depth of the nuts and threaded enough to permit the firm gripping of the component parts but no further .it shall be ensured that the threaded portion of the bolt protrudes not less than 3 mm and not more than 8 mm when fully tightened. All nuts shall fit and tight to the point where shank of the bolt connects to the head.

15.6 Flat washers and spring washers shall be provided wherever necessary and shall be of positive lock type. Spring washers shall be electro-plated and electro-galvanized. The thickness of washers shall conform to IS: 2016.

15.7 The Bidder shall furnish bolt schedules giving thickness of components connected. the nut and the washer and the length of shank and the threaded portion of bolts and size of holes and any other special details of this nature.

15.8 To obviate bending stress in bolt, it shall not connect aggregate thickness more than three time its diameter.

15.9 Bolts at the joints shall be so staggered that nuts may be tightened with spanners without fouling. Fasteners of grade higher than 8.8 are not to be used.

#### 16. Materials

The materials of the various components shall be as specified hereunder. The Bidders shall indicate the material proposed to be used for each and every component of hardware fittings stating clearly the class, grade or alloy designation of the material, manufacturing process & heat treatment details and the reference standards.

### (C.) TECHNICAL SPECIFICATIONS FOR ACSR ZEBRA CONDUCTOR

#### 1. Standards :-

The ACSR Zebra conductors shall comply in all respects to the clauses of this specification as indicated below & with the Indian Standard Specification, International standards with latest amendments. The conductors should be of reputed make only.

Sl no.	Particulars	Standard
1.	Standard for Conductor	IS: 398(Part-II):1996

2.	Standard for Drum	IS: 1778:1989
3.	E.C. Grade Aluminium Rod- a) Standard b) Composition	IS: 5458:1997 Purity 99.6 (Min)
4.	High Tensile Galvanized Steel Wire - a) Standard	IS: 4826: 1979
5.	Galvanizing - a) Standard b) Purity of Zinc c) Process of galvanizing	IS: 4826: 1979 99.95 % (Min) Hot Dip
6.	Diameter of conductor (overall)	28.62 mm
7.	Diameter of Aluminium strands (each) a) Nominal b) Maximum c) Minimum	3.18 mm 3.21 mm 3.15 mm
8.	Diameter of Steel strands (each) a) Nominal b) Maximum c) Minimum	3.18 mm 3.24 mm 3.12 mm
9.	Overall cross-section	484 mm <sup>2</sup>
10.	Continuous rating in still air at 40°C ambient temperature	800 A

## 2. **Materials :-**

The material offered shall be of best quality and workmanship. The steel Cored Aluminum conductor strands will consist of hard-drawn aluminum wire manufactured from 99.5% pure electrolytic aluminum rods of E.C. Grade. The steel wire shall be made from materials produced either by the acid or basic open hearth process or by electric process. No steel wire drawn from pressmen process shall be used. The steel wire shall not contain sulphur or phosphorus exceeding 0.05 percent, and the total of sulphur and phosphorus shall not exceed 0.085 percent. 3.2 The steel wires shall be evenly and uniformly coated with zinc complying with Indian Standard 4826-1979 specification for galvanized coatings on round steel wires.

### (D.) **GUARANTEED TECHNICAL PARTICULARS**

- 1) This specification covers the minimum requirements for the design, engineering, manufacturing, inspection, testing and supply of clamps & connectors for augmentation of 33kV Single Panther conductor Bus to 33kV Twin ACSR Zebra conductor Bus at 220kV EHV Sarusajai Grid Substation, AEGCL. In addition to compliance of this specification, the following consideration shall be taken into account:
- 2) Compliance with applicable IS codes & standards as well as any statutory regulation in existence for a specific item.
- 3) The Guaranteed Technical Particulars of the materials shall be furnished by the Bidders with the Technical Bid. The Bidder shall also furnish any other information as in their opinion is needed to give full description and details to judge the item(s) offered by them.
- 4) The data furnished in Guaranteed Technical Particulars should be the minimum or maximum value (as per the requirement of the specification) required. A Bidder may guarantee a value more stringent than the specification requirement. However, for testing purpose or from performance point of view, the material shall be considered to have performed successfully if it achieves the minimum/maximum value required as per the technical specification. No preference whatsoever shall be given to the bidder offering better/more stringent values than those required as per specification unless stated otherwise.

### (E.) **INSPECTION:**

- i) The Purchaser shall have access at all times to the works and all other places of manufacture, where the materials are being manufactured and the supplier shall provide all facilities for unrestricted inspection of the works raw materials manufacture of all the accessories and for conducting necessary tests as detailed herein.
- ii) The supplier shall keep the purchaser informed in advance of the time of starting of the progress of manufacture of equipment in its various stages so that arrangements could be made for inspection.

- iii) No material shall be dispatched from its point of manufacture unless the material has been satisfactorily inspected and tested.
- i) The acceptance of any quantity of the equipment shall in no way relieve the supplier of his responsibility for meeting all the requirements of this specification and shall not prevent subsequent rejection if such equipment is later found to be defective.
- ii) No structure or any member thereof, which failed under the tests and inspection shall be supplied.

**(F.) QUALITY ASSURANCE PLAN:**

The Bidder shall invariably furnish following information along with his offer, failing which his offer shall be liable for rejection.

- (i) Names of sub suppliers for raw materials, list of standards according to which the raw materials are tested, list of tests normally carried out on raw materials in presence of Supplier's representative, copies of test certificate
- (ii) Information and copies of test certificates as in (i) and(ii) above in respect of bought out accessories.
- (iii) List of manufacturing facilities available
- (iv) Level of automation achieved and lists of areas where manual processing still exists.
- (v) List of areas in manufacturing process, where stage inspections are normally carried out for quality control and details of such tests and inspections.
- (vi) List of testing equipments with calibration certificates from Govt. approved test house available with supplier for final testing equipment and test plant limitation if any, vis-à-vis the type, special acceptance and routine test specified in the relevant standards. These limitations shall be very clearly brought out in the specified test requirements.

The supplier shall within 15 days of placement of order, submit following information to the purchaser.

- i) List of raw material as well as bought out accessories and the names of sub-suppliers selected from the lists furnished along with offer.
- ii) Type test certificates of the raw material and both bought out accessories.
- iii) Quality Assurance Plan (QAP) withhold points for purchaser's inspection.

The supplier shall submit the routine test certificates of bought out accessories and raw material viz. Copper, aluminum conductors, lubricating material, gear material etc. at the time of routine testing of the fully assembled isolator.

**(G.) DOCUMENTATION:**

All drawings shall conform to relevant international standards organization (ISO). All drawings shall be in ink and suitable for micro filming. All dimensions and data shall be in S.I. Units.

**List of Drawings and Documents**

The Bidder shall furnish four sets of following drawings / documents along with his offer.

- a) General outline and assembly drawings of the dis-connector operating mechanism, structure, insulator and terminal connector.
- b) Sectional views and descriptive details of items such as moving blades, contacts, arms contact pressure, contact support bearing housing of bearings, balancing of heights, phase coupling pipes, base plate, operating shaft, guides, swivel joint operating mechanism and its components etc.
- c) Loading diagram
- d) Drawings with structure for the purpose of type tests.
- e) Name plate.
- f) Schematic drawing.
- g) Type test reports.
- h) Test reports, literature, pamphlets of the bought-out items and raw material.

The supplier shall within 2 weeks of placement of order submit four sets of final versions of all the above said drawings for Purchaser's approval. The purchaser shall communicate his comments / approval on the drawings to the supplier. The supplier shall, if necessary, modify the drawings and resubmit four copies of the modified drawings for Purchaser's approval within 1 (one) week from the date of comments. After receipt of approval the supplier shall within three weeks submit 15 prints and two good quality re-producibles of the approved drawings for purchaser's use.

Six sets of the type test report, duly approved by the Purchaser shall be submitted by the supplier for distribution, before commencement of supply Adequate copies of acceptance and routine test certificates, duly approved by the Purchaser shall accompany the dispatched consignment.

The manufacturing of the equipment shall be strictly in accordance with the approved drawings and no deviation shall be permitted without the written approval of the purchaser. All manufacturing and fabrication work in connection with the equipment prior to the approval of the drawing shall be at the supplier risk.

**(H.) INSTRUCTION MANUALS:**

Fifteen copies of the erection, operation and maintenance manuals in English to be supplied for each type of disconnector one month prior to dispatch of the equipment. The manual shall be bound volumes and shall contain all drawings and information required for erection, operation and maintenance of the disconnector including but not limited to the following particulars.

- (a) Marked erection prints identifying the component parts of the disconnector as shipped with assembly drawings.
- (b) Detailed dimensions and description of all auxiliaries.
- (c) Detailed views of the insulator stacks, metalics, operating mechanism, structure, interlocks, spare parts etc.

**(I.) PACKING AND FORWARDING:**

The equipment shall be packed in crates suitable for vertical / horizontal transport, as the case may be and suitable to withstand handling during transport and outdoor storage during transit. The supplier shall be responsible for any damage to the equipment during transit, due to improper and inadequate packing. The easily damageable material shall be carefully packed and marked with the appropriate caution symbols.

Wherever necessary, proper arrangement for lifting, such as lifting hooks etc. shall be provided. Any material found short inside the packing cases shall be supplied by supplier without any extra cost.

Each consignment shall be accompanied by a detailed packing list containing the following information:

- (a) Name of the consignee.
- (b) Details of consignment.
- (c) Destination.
- (d) Total weight of consignment.
- (e) Handling and unpacking instructions.
- (f) Bill of material indicating contents of each package.

The supplier shall ensure that the bill of material is approved by the purchaser before dispatch.

SECTION – 4

BID SUBMISSION SHEET, BID FORMS AND SCHEDULES

1. Bid Submission Sheet

(To be submitted in Bidder's Letterhead)

Name of contract:

To,

The Deputy General Manager,  
Lower Assam, T&T Circle, AEGCL,  
Narengi.Guwahati-26

Sir:

We have examined the General Conditions of Contract, Technical Specification, Schedules, and Addenda Nos \_\_\_\_\_(if any). We have understood and checked these documents and have not found any errors in them. We accordingly offer to execute and complete the said Works and remedy any defects fit for purpose in conformity with these documents and the enclosed Proposal (Offer).

We accept your suggestions for the appointment of the Dispute Adjudication Board, as set out in the Bidding Document.

We agree to abide by this Bid until \_\_\_\_\_ and it shall remain binding upon us and may be accepted at any time before that date.

If our bid is accepted, we will provide the specified performance security, commence the Works as soon as reasonably possible after receiving the notice to commence, and complete the Works in accordance with the above-named documents within the time stated in the Bidding Document.

Unless and until a formal Agreement is prepared and executed this Bid, together with your written acceptance thereof, shall constitute a binding contract between us.

We understand that you are not bound to accept the lowest or any bid you may receive.

Commissions or gratuities, if any, paid or to be paid by us to agents relating to this Bid, and to contract execution if we are awarded the contract, are listed below:

Yours faithfully

Signature \_\_\_\_\_ in the capacity of \_\_\_\_\_ duly authorized to sign bids for and on behalf of

\_\_\_\_\_

Address

\_\_\_\_\_  
\_\_\_\_\_

2. Form-BG

Form of Bid Security (Bank Guarantee)

WHEREAS, \_\_\_\_\_ [Name of Bidder] (hereinafter called "the Bidder") has submitted his bid dated \_\_\_\_\_ [Date] for the construction of \_\_\_\_\_ [Name of Contract] (hereinafter called "the Bid").

KNOW ALL MEN by these presents that We \_\_\_\_\_ [Name of Bank] of \_\_\_\_\_ [Name of Country] having our registered office at \_\_\_\_\_ (hereinafter called "the Bank") are bound unto \_\_\_\_\_ [Name of Employer] (hereinafter called "the Employer") in the sum of \_\_\_\_\_ for which payment will and truly to be made to the said Employer the Bank binds himself, his successors and assigns by these presents. SEALED with the Common Seal of the said Bank this \_\_\_ day of \_\_\_\_\_ 20\_\_.

THE CONDITIONS of this obligation are:

- (1) If the bidder withdraws his Bid during the period of bid validity specified in the Form of Bid; Or
(2) If the Bidder refuses to accept the correction of errors in his Bid; Or
(3) if the Bidder, having been notified of the acceptance of his Bid by the Employer during the period of Bid validity;
(a) fails or refuses to execute the Form of Contract Agreement in accordance with the Instructions to Bidders, if required; or
(b) fails or refuses to furnish the Performance Security, in accordance with the Instructions to Bidders;

we undertake to pay to the Employer up to the above amount upon receipt of its first written demand, without the Employer having to substantiate its demand, provided that in its demand the Employer will note that the amount claimed by it is due to it owing to the occurrence of one or all of the three conditions, specifying the occurred condition or conditions.

This Guarantee will remain in force up to and including the date 180 days after the deadline for submission of bids as such deadline is stated in the Instructions to Bidders or as it may be extended by the Employer, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this Guarantee should reach the Bank not later than the above date.

DATE \_\_\_\_\_ SIGNATURE OF THE BANK \_\_\_\_\_

WITNESS \_\_\_\_\_ SEAL \_\_\_\_\_

\_\_\_\_\_  
(Signature, Name, and Address)



**3. Form-MA**  
**Form of Manufacturer's Authorization**  
**(To be submitted in Manufacturer's Letterhead)**

Bid No.:

To,  
The Deputy General Manager,  
Lower Assam, T&T Circle, AEGCL,  
Narengi, Guwahati-26

WE *[insert: name of Manufacturer]* who are established and reputable manufacturers of *[insert: name and/or description of the Goods]* having production facilities at *[insert: address of factory]* do hereby authorize *[insert: name & address of Bidder]* (hereinafter, the "Bidder") to submit a bid the purpose of which is to provide the following goods, manufactured by us, and to subsequently negotiate and sign the Contract:

1. -----
2. -----
- 

We hereby extend our full guarantee and warranty in accordance with **Clause 2.9.0** of the Special Conditions of Contract, for the above specified Goods supporting the Supply of specified Goods and fulfilling the Related Services by the Bidder against this Bidding Documents, and duly authorize said Bidder to act on our behalf in fulfilling these guarantee and warranty obligations. We also hereby declare that, we will furnish the Performance Guarantee in accordance with **SCC Clause 2.6.0**.

Further, we also hereby declare that we and, *[insert: name of the Bidder]* have entered into a formal relationship in which, during the duration of the Contract (**including related services and warranty / defects liability**) we, the Manufacturer or Producer, will make our technical and engineering staff fully available to the technical and engineering staff of the successful Bidder to assist that Bidder, on a reasonable and best effort basis, in the performance of all its obligations to the Purchaser under the Contract.

For and on behalf of the Manufacturer

Common Seal and Signature of the authorised person: Name:

Designation:

**NOTE:**

This MA should be signed by a person having either of the following-

- 1) Valid Power of attorney
- 2) Authorised by Managing Director
- 3) Member of Board of Directors

#### 4. Guarantee Declaration

We declare that the ratings, specifications and performance figures of the various plants and equipments /material furnished by us in the Bid are guaranteed. We further declare that in the event of any deficiencies in meeting the guarantees in respect of the characteristics mentioned in Guaranteed Technical Particulars, of Technical Bid as established after conducting the factory test, you may at your discretion, reject or accept the equipment/material after assessing the liquidated damages as specified in relevant clause of Bid Document.

Date:

(Signature).....

Place:

(Printed Name).....

(Designation).....

(Common Seal).....

**SECTION-5**

**BOQ**

(To be submitted in a separate envelope)

**Name of work: Supply of clamps, connectors & ACSR Zebra conductor for augmentation of existing 132kV single panther conductor bus with ACSR Twin Zebra conductor bus at 132/33kV GSS, AEGCL, Sishugram.**

**Name & Address of Bidder: .....**

Sl. No.	Item Description	UoM	Qty	Rate (in INR)	F&I (in INR)	Amount (in INR)
1.	ACSR Zebra Conductor	Mtr	300			
2.	Tension Clamp for Zebra conductor	No.	12			
3.	Suspension Clamp for Zebra conductor	No.	3			
4.	UPG Clamp (Zebra to Panther)	No.	54			
<b>Total</b>						
<b>Add GST @ 18%</b>						
<b>Grand Total</b>						
<b>Say</b>						