

NEPAL ELECTRICITY AUTHORITY

(An Undertaking of Government of Nepal)

Distribution and Consumer Services Directorate

Nepalgunj Regional Office, Nepalgunj



NATIONAL COMPETATIVE BIDDING (NCB)

(Single Stage Two Envelope Bidding Procedures)

Tender No: NRO/2074/075-11KV&11/0.4KV Line-01

BIDDING DOCUMENT

FOR

**Supply, Delivery, Installation, Testing and Commissioning of 11KV
and 11/0.4KV Line at different places of Rukum District.**

Volume 1: Technical Bid

**Bidding Procedures, Condition of Contract & Contract Forms, Work
Requirement & Technical Specifications.**

February 2018

Nepal Electricity Authority
Nepalgunj Regional Office
Nepalgunj, Nepal
Phone: 081-523419/526783



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Abbreviations

BD.....	Bidding Document
BDF.....	Bidding Forms
BDS.....	Bid Data Sheet
BOQ	Bill of Quantities
COF	Contract Forms
DP	Development Partners
DoLIDAR	Department of Local Infrastructure Development and Agricultural Roads
ELI	Eligibility
EQC.....	Evaluation and Qualification Criteria
EXP	Experience
FIN	Financial
GCC.....	General Conditions of Contract
GoN.....	Government of Nepal
ICC.....	International Chamber of Commerce
ITB.....	Instructions to Bidders
JV	Joint Venture
LIT	Litigation
NCB	National Competitive Bidding
PAN	Permanent Account Number
PPA	Public Procurement Act
PPMO	Public Procurement Monitoring Office
PPR	Public Procurement Regulations
PL.....	Profit & Loss
SBD.....	Standard Bidding Document
SCC	Special Conditions of Contract
TS.....	Technical Specifications
VAT	Value Added Tax
WRQ	Works Requirements



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Invitation for Bids
Nepal Electricity Authority
Nepalgunj Regional Office, Nepalgunj
First date of publication: 25 Feb 2018
National Competitive Bidding

Sealed tenders under two envelope bidding process are invited for the following Schemes of Nepal Electricity Authority, Nepalgunj Regional Office, Nepalgunj.

S.N	Works/Jobs	Tender No :	Sale of Tender Documents till date (Office time)	Last Date of Bid Submission, Opening Time and Place	Cost of Tender Documents (Bank Deposit)	Bid Security/ Bid Bond (Bank Deposit/Bank Guarentee)	Bank A/C No
1	Supply, Delivery, Installation, Testing and Commissioning of 11KV and 11/0.4KV Line at different places of Rukum District.	NRO/2074/075-11kV & 11/0.4kV Line-01	26 Mar ,2018	27 Mar ,2018 at or before 12:00 noon and 14:00 Hrs Respectively at NEA, Nepalgunj Regional Office	NRS. 10,000.00	NRs 48,00,000.00 valid for 150 Days.	Bank of Kathmandu ,Nepalgunj , AC No: 010500000354

For the further details and downloading of tender documents please visit our website <http://www.nea.org.np> and <http://www.e-nea.org.np> or Contact Tel No: 081-523419/526783



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INSTRUCTION TO BIDDERS

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SECTION - I

Instructions to Bidders

A. General	
1. Scope of Bid	<p>1.1 In connection with the Invitation for Bids indicated in the Bid Data Sheet (BDS), the Employer, as indicated in the BDS, issues this Bidding Document for the procurement of Works as specified in Section V (Works Requirements). The name, identification, and number of Contracts of the National Competitive Bidding (NCB) are provided in the BDS.</p> <p>1.2 Throughout this Bidding Document:</p> <ul style="list-style-type: none"> (a) the term “in writing” means communicated in written form and delivered against receipt; (b) except where the context requires otherwise, words indicating the singular also include the plural and words indicating the plural also include the singular; and (c) “day” means calendar day.
2. Source of Funds	<p>2.1 GoN Funded: In accordance with its annual program and budget, approved by the GoN, the implementing agency indicated in the BDS plans to apply a portion of the allocated budget to eligible payments under the contract(s) for which this Bidding Document is issued.</p> <p style="text-align: center;">Or</p> <p>DP Funded: The GoN has applied for or received financing (hereinafter called “funds”) from the Development Partner (hereinafter called “the DP”) indicated in the BDS toward the cost of the project named in the BDS. The GoN intends to apply a portion of the funds to eligible payments under the contract(s) for which this Bidding Document is issued.</p> <p>2.2 DP Funded: Payment by the DP will be made only at the request of the GoN and upon approval by the DP in accordance with the terms and conditions of the financing agreement between the GoN and the DP (hereinafter called the “Loan Agreement”), and will be subject in all respects to the terms and conditions of that Loan Agreement. No party other than the GoN shall derive any rights from the Loan Agreement or have any claim to the funds.</p> <p>2.3 Public Entities' own Resource Funded.</p>



<p>3.Fraud and Corruption</p>	<p>3.1 The Government of Nepal (GoN) requires that the Procuring Entities as well as bidders, suppliers, and contractors and their sub-contractors under GoN/DP-financed contracts, shall adhere to the highest standard of ethics during the procurement and execution of such contracts. In this context, the Employer;</p> <p>(a) defines, for the purposes of this provision, the terms set forth below as follows:</p> <ul style="list-style-type: none"> (i) “corrupt practice” means the offering, giving, receiving, or soliciting, directly or indirectly, anything of value to influence improperly the actions of another party; (ii) “fraudulent practice” means any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation; (iii) “coercive practice” means impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party; (iv) “collusive practice” means an arrangement between two or more parties designed to achieve an improper purpose, including influencing improperly the actions of another party. (v) “obstructive practice” means: <ul style="list-style-type: none"> (aa) deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a GoN/DP investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or (bb) acts intended to materially impede the exercise of the GoN’s/DP’s inspection and audit rights provided for under sub-clause 3.5 below. <p>(b) will reject bid(s) if it determines that the bidder has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;</p> <p>(c) will sanction a firm or individual, including declaring ineligible, for a stated period of time, to be awarded a GoN/DP-financed contract if it at any time determines that the firm has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices</p>
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in competing for, or in executing, a GoN/DP-financed contract.

- 3.2 The Bidder shall not carry out or cause to carry out the following acts with an intention to influence the implementation of the procurement process or the procurement agreement :
- (a) give or propose improper inducement directly or indirectly,
 - (b) distortion or misrepresentation of facts,
 - (c) engaging in corrupt or fraudulent practice or involving in such act,
 - (d) interference in participation of other competing bidders,
 - (e) coercion or threatening directly or indirectly to cause harm to the person or the property of any person to be involved in the procurement proceedings,
 - (f) collusive practice among bidders before or after submission of bids for distribution of works among bidders or fixing artificial/uncompetitive bid price with an intention to deprive the Employer the benefit of open competitive bid price,
 - (g) contacting the Employer with an intention to influence the Employer with regards to the bids or interference of any kind in examination and evaluation of the bids during the period from the time of opening of the bids until the notification of award of contract.
- 3.3 PPMO, on the recommendation of the Procuring Entity may blacklist a Bidder for a period of one (1) to three (3) years for its conduct including on the following grounds and seriousness of the act committed by the bidder:
- (a) if convicted by a court of law in a criminal offence which disqualifies the Bidder from participating in the contract,
 - (b) if it is established that the contract agreement signed by the Bidder was based on false or misrepresentation of Bidder's qualification information,
- 3.4 A bidder declared blacklisted and ineligible by the GoN, Public procurement Monitoring Office (PPMO) and/or the DP in case of DP funded project, shall be ineligible to bid for a contract during the period of time determined by the GoN, PPMO and/or the DP.
- 3.5 The Contractor shall permit the GoN/DP to inspect the Contractor's accounts and records relating to the performance of the Contractor and to have them audited by auditors appointed by the GoN/DP, if so required by the GoN/DP.



	<p>3.6 DP Funded: In pursuance of the fraud and corruption policy, the DP.</p> <ul style="list-style-type: none"> (a) will reject a proposal if it determines that the bidder recommended for award has directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question; (b) will cancel the portion of the loan/ credit/ grant allocated to a contract if it determines at any time that representative(s) of the GoN or of a beneficiary of the fund engaged in corrupt, fraudulent, collusive, or coercive practices during the procurement or the execution of that contract, without the GoN having taken timely and appropriate action satisfactory to the DP to address such practices when they occur.
<p>4. Eligible Bidders</p>	<p>4.1 A Bidder may be a natural person, private entity, or government-owned entity—subject to ITB 4.5—or any combination of them in the form of a Joint Venture (JV) under an existing agreement, or with the intent to constitute a legally-enforceable joint venture. In the case of a JV:</p> <ul style="list-style-type: none"> (a) all partners shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms. Maximum number of JV shall be three as specified in the BDS. The qualification requirement of the parties to the JV shall be as specified in Section III Evaluation and Qualification Criteria, and (b) the JV shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the parties of the JV during the bidding process and, in the event the JV is awarded the Contract, during Contract execution. <p>4.2 A Bidder, and all parties constituting the Bidder, shall have the nationality of any country or eligible countries mentioned in the BDS. A Bidder shall be deemed to have the nationality of a country if the Bidder is a citizen or is constituted, or incorporated, and operates in conformity with the provisions of the laws of that country. This criterion shall also apply to the determination of the nationality of proposed sub Contractors or suppliers for any part of the Contract including related services.</p> <p>4.3 A Bidder shall not have a conflict of interest. A Bidder found to have a conflict of interest shall be disqualified. A Bidder may be considered to be in a conflict of interest with one or more parties in this bidding process, if:</p> <ul style="list-style-type: none"> (a) they have controlling partners in common; or (b) they receive or have received any direct or indirect subsidy from any of them; or



	<ul style="list-style-type: none">(c) they have the same legal representative for purposes of this bid; or(d) they 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 Employer regarding this bidding process; or(e) a Bidder participates in more than one bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all Bids in which the party is involved. However, this does not limit the inclusion of the same sub Contractor in more than one bid; or(f) a Bidder or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the Contract that is the subject of the Bid; or(g) a Bidder or any of its affiliates has been hired (or is proposed to be hired) by the Employer as Engineer for the Contract. <p>4.4 A firm that is under a declaration of ineligibility by the GoN/ DP in accordance with ITB 3, at the date of the deadline for bid submission or thereafter, shall be disqualified.</p> <p>4.5 Enterprises owned by Government shall be eligible only if they can establish that they are legally and financially autonomous and operate under commercial law, and that they are not a dependent agency of the GoN.</p> <p>4.6 Bidders shall provide such evidence of their continued eligibility satisfactory to the Employer, as the Employer shall reasonably request.</p> <p>4.7 In case a prequalification process has been conducted prior to the bidding process, this bidding is open only to prequalified Bidders.</p> <p>4.8 Firms shall be excluded in any of the cases, if</p> <ul style="list-style-type: none">(a) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the Employer's country prohibits any import of goods or Contracting of works or services from that country or any payments to persons or entities in that country.(b) DP Funded: as a matter of law or official regulation, Nepal prohibits commercial relations with that country, provided that the DP is satisfied that such exclusion does not preclude effective competition for the supply of goods or related services required;
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	<p>(c) DP Funded: a firm has been determined to be ineligible by the DP in relation to their guidelines or appropriate provisions on preventing and combating fraud and corruption in projects financed by them.</p> <p>4.9 The Domestic Bidder who has obtained Permanent Account Number (PAN) and Value Added Tax (VAT) Registration Certificate(s) and Tax Clearance Certificate from the Inland Revenue Office or proof of submission of audited PL report to the Inland Revenue Office shall only be eligible. The foreign bidder submitting the documents indicated in the BDS at the time of bid submission and a declaration to submit the document(s) indicated in the BDS at the time of contract agreement shall only be eligible.</p>
<p>5. Eligible Materials, Equipment and Services</p>	<p>5.1 The materials, equipment and services to be supplied under the Contract shall have their origin in any source countries as defined in ITB 4.2 above and all expenditures under the Contract will be limited to such materials, equipment, and services. At the Employer's request, Bidders may be required to provide evidence of the origin of materials, equipment and services.</p> <p>5.2 For purposes of ITB 5.1 above, "origin" means the place where the materials and equipment are mined, grown, produced or manufactured, and from which the services are provided. Materials and equipment are produced when, through manufacturing, processing, or substantial or major assembling of components, a commercially recognized product results that differs substantially in its basic characteristics or in purpose or utility from its components.</p>
<p>B. Contents of Bidding Document</p>	
<p>6. Sections of Bidding Document</p>	<p>6.1 The Bidding Document consist of Parts I, II, and III, which include all the Sections indicated below, and should be read in conjunction with any Addenda issued in accordance with ITB 8.</p> <p>PART I Bidding Procedures</p> <p style="padding-left: 40px;">Section I Instructions to Bidders (ITB)</p> <p style="padding-left: 40px;">Section II Bid Data Sheet (BDS)</p> <p style="padding-left: 40px;">Section II Evaluation and Qualification Criteria (EQC)</p> <p style="padding-left: 40px;">Section IV Bidding Forms (BDF)</p> <p>PART II Requirements</p> <p style="padding-left: 40px;">Section V Works Requirements (WRQ)</p> <p style="padding-left: 40px;">Section VI Bill of Quantities (BOQ)</p>



	<p>PART III Conditions of Contract and Contract Forms Section VII General Conditions of Contract (GCC) Section VIII Special Conditions of Contract (SCC) Section IX Contract Forms (COF)</p> <p>6.2 The Invitation for Bids issued by the Employer is not part of the Bidding Document.</p> <p>6.3 The Employer is not responsible for the completeness of the Bidding Document and their Addenda, if they were not obtained directly from the source stated by the Employer in the Invitation for Bids.</p> <p>6.4 The Bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding Document. Failure to furnish all information or documentation required by the Bidding Document may result in the rejection of the bid.</p>
<p>7. Clarification of Bidding Document, Site Visit, Pre-Bid Meeting</p>	<p>7.1 A prospective Bidder requiring any clarification of the Bidding Document shall contact the Employer in writing at the Employer's address indicated in ITB 7.5 or raise any question or curiosity during the pre-bid meeting if provided for in accordance with ITB 7.4. The Employer shall be required to make available as soon as possible the answer to such question or curiosity in writing to any request for clarification, provided that such request is received as mentioned in BDS. The Employer shall forward copies of its response to all Bidders who have acquired the Bidding Document in accordance with ITB 6.3, including a description of the inquiry but without identifying its source. Should the Employer deem it necessary to amend the Bidding Document as a result of a request for clarification, it shall do so following the procedure under ITB 8 and ITB 22.2.</p> <p>7.2 The Bidder is encouraged to visit and examine the Site of Works and its surroundings and obtain for itself, on its own risk and responsibility, all information that may be necessary for preparing the bid and entering into a Contract for construction of the Works. The costs of visiting the Site shall be at the Bidder's own expense.</p> <p>7.3 The Bidder and any of its personnel or agents will be granted permission by the Employer to enter upon its premises and lands for the purpose of such visit, but only upon the express condition that the Bidder, its personnel, and agents will release and indemnify the Employer and its personnel and agents from and against all liability in respect thereof, and will be responsible for death or personal injury, loss of or damage to property, and any other loss, damage, costs, and expenses incurred as a result of the inspection.</p>



	<p>7.4 The Bidder's designated representative is invited to attend a pre-bid meeting, if provided for in the BDS. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.</p> <p>7.5 The Bidder is requested, as far as possible, to submit any questions in writing, to reach the Employer as mentioned in BDS.</p> <p>7.6 Minutes of the pre-bid meeting, including the text of the questions raised, without identifying the source, and the responses given, together with any responses prepared after the meeting, will be transmitted promptly to all Bidders who have acquired the Bidding Document in accordance with ITB 6.3. Any modification to the Bidding Document that may become necessary as a result of the pre-bid meeting shall be made by the Employer exclusively through the issue of an addendum pursuant to ITB 8 and not through the minutes of the pre-bid meeting.</p> <p>7.7 Non attendance at the pre-bid meeting will not be a cause for disqualification of a Bidder.</p>
8. Amendment of Bidding Document	<p>8.1 At any time prior to the deadline for submission of bids, the Employer may amend the Bidding Document by issuing addenda.</p> <p>8.2 Any addendum issued shall be part of the Bidding Document and shall be communicated in writing to all who have obtained the Bidding Document from the Employer in accordance with ITB 6.3.</p> <p>8.3 To give prospective Bidders reasonable time in which to take an addendum into account in preparing their bids, the Employer may, at its discretion, extend the deadline for the submission of bids, pursuant to ITB 22.2</p>
C. Preparation of Bids	
9. Cost of Bidding	<p>9.1 The Bidder shall bear all costs associated with the preparation and submission of its Bid, and the Employer shall in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.</p>
10. Language of Bid	<p>10.1 The Bid, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Employer, shall be written in the language specified in the BDS. Supporting</p>



	<p>documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages in the language specified in the BDS, in which case, for purposes of interpretation of the Bid, such translation shall govern.</p>
<p>11. Documents Comprising the Bid</p>	<p>11.1 The Bid shall comprise the following:</p> <ul style="list-style-type: none"> (a) Letter of Bid; (b) completed Schedules, in accordance with ITB 12 and 14, or as stipulated in the BDS; (c) Bid Security, in accordance with ITB 19; (d) alternative bids, at Bidder's option and if permissible, in accordance with ITB 13; (e) written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB 20.2; (f) documentary evidence in accordance with ITB 17 establishing the Bidder's qualifications to perform the Contract; (g) Technical Proposal in accordance with ITB 16; (h) In the case of a bid submitted by a JV, the JV agreement, or letter of intent to enter into a JV including a draft agreement, indicating at least the parts of the Works to be executed by the respective partners; and (i) Any other document required in the BDS.
<p>12. Letter of Bid and Schedules</p>	<p>12.1 The Letter of Bid, Schedules, and all documents listed under ITB 11, shall be prepared using the relevant forms in Section 4 (Bidding Forms), if so provided. The forms must be completed without any alterations to the text, and no substitutes shall be accepted. All blank spaces shall be filled in with the information requested.</p>
<p>13. Alternative Bids</p>	<p>13.1 Unless otherwise indicated in the BDS, alternative bids shall not be considered.</p> <p>13.2 When alternative times for completion are explicitly invited, a statement to that effect will be included in the BDS, as will the method of evaluating different times for completion.</p> <p>13.3 When specified in the BDS pursuant to ITB 13.1, and subject to ITB 13.4 below, Bidders wishing to offer technical alternatives to the requirements of the Bidding Document must first price the Employer's design as described in the Bidding Document and shall further provide all information necessary for a complete evaluation of the alternative by the Employer, including drawings, design calculations, technical specifications, breakdown of prices, and proposed construction methodology and other relevant details. Only the technical alternatives, if any, of the</p>



	<p>lowest evaluated Bidder conforming to the basic technical requirements shall be considered by the Employer.</p> <p>13.4 When specified in the BDS, Bidders are permitted to submit alternative technical solutions for specified parts of the Works. Such parts will be identified in the BDS and described in Section V (Works Requirements). The method for their evaluation will be stipulated in Section III (Evaluation and Qualification Criteria).</p>
14. Bid Prices and Discounts	<p>14.1 The prices and discounts quoted by the Bidder in the Letter of Bid and in the Schedules shall conform to the requirements specified below.</p> <p>14.2 The Bidder shall submit a bid for the whole of the works described in ITB 1.1 by filling in prices for all items of the Works, as identified in Section IV (Bidding Forms). In case of Unit Rate Contracts, the Bidder shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items against which no rate or price is entered by the Bidder will not be paid for by the Employer when executed and shall be deemed covered by the rates for other items and prices in the Bill of Quantities.</p> <p>14.3 The price to be quoted in the Letter of Bid shall be the total price of the Bid, excluding any discounts offered.</p> <p>14.4 Unconditional discounts, if any, and the methodology for their application shall be quoted in the Letter of Bid, in accordance with ITB 12.1.</p> <p>14.5 If so indicated in ITB 1.1, bids are invited for individual Contracts or for any combination of Contracts (packages). Bidders wishing to offer any price reduction for the award of more than one Contract shall specify in their bid the price reductions applicable to each package, or alternatively, to individual Contracts within the package. Price reductions or discounts shall be submitted in accordance with ITB 14.3, provided the bids for all Contracts are submitted and opened at the same time.</p> <p>14.6 Unless otherwise provided in the BDS and the Conditions of Contract, the prices quoted by the Bidder shall be fixed. If the prices quoted by the Bidder are subject to adjustment during the performance of the Contract in accordance with the provisions of the Conditions of Contract, the Bidder shall furnish the indices and weightings for the price adjustment formulae in the Table of Adjustment Data in Section IV (Bidding Forms) and the Employer may require the Bidder to justify its proposed indices and weightings.</p>



	<p>14.7 The bidder is subject to local taxes such as VAT, social charges or income taxes on nonresident international personnel, and also duties, fees, levies on amounts payable by the employer under the Contract.</p> <p>All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date mentioned in BDS prior to the deadline for submission of bids, shall be included in the rates and prices and the total bid price submitted by the Bidder.</p>
15. Currency of Bid and Payment	15.1 The currency of the bid and payment shall be in Nepalese Rupees.
16. Documents Comprising the Technical Proposal	16.1 The Bidder shall furnish a Technical Proposal including a statement of work methods, equipment, personnel, schedule and any other information as stipulated in Section IV (Bidding Forms), in sufficient detail to demonstrate the adequacy of the Bidders' proposal to meet the work requirements and the completion time.
17. Documents Establishing the Qualifications of the Bidder	17.1 To establish its qualifications to perform the Contract in accordance with Section III (Evaluation and Qualification Criteria) the Bidder shall provide the information requested in the corresponding information sheets included in Section IV (Bidding Forms).
18. Period of Validity of Bids	<p>18.1 Bids shall remain valid for the period specified in the BDS after the bid submission deadline date prescribed by the Employer. A bid valid for a shorter period shall be rejected by the Employer as nonresponsive.</p> <p>18.2 In exceptional circumstances, prior to the expiration of the bid validity period, the Employer may request Bidders to extend the period of validity of their Bids. The request and the responses shall be made in writing. If a bid security is requested in accordance with ITB 19, it shall also be extended 30 days beyond the deadline of the extended validity period. A Bidder may refuse the request without forfeiting its bid security. A Bidder granting the request shall not be required or permitted to modify its Bid.</p>
19. Bid Security	19.1 Unless otherwise specified in the BDS, the Bidder shall furnish as part of its bid, in original form, a bid security as specified in the BDS. In the case of a bid security, the amount shall be as specified in the BDS.



	<p>19.2 If a bid security is specified pursuant to ITB 19.1, the bid security shall be, at the Bidder's option, in any of the following forms:</p> <ul style="list-style-type: none"> (a) original copy of an unconditional bank guarantee from "A" class commercial bank or; (b) original copy of cash deposit voucher in the Employer's Account as specified in BDS. <p>In the case of a bank guarantee, the bid security shall be submitted either using the Bid Security Form included in Section IV (Bidding Forms) or in another substantially similar format approved by the employer prior to bid submission. The form must include the complete name of the Bidder. The bid security shall be valid for minimum thirty (30) days beyond the original validity period of the bid, or beyond any period of extension if requested under ITB 18.2.</p> <p>19.3 The bid security issued by any foreign Bank outside Nepal must be counter guaranteed by an "A" class commercial Bank in Nepal.</p> <p>19.4 Any bid not accompanied by an enforceable and substantially compliant bid security, if required in accordance with ITB 19.1, shall be rejected by the Employer as nonresponsive.</p> <p>19.5 If a bid security is specified pursuant to ITB 19.1, the bid security of unsuccessful Bidders shall be returned within three days, once the successful bidder has furnished the required performance security and signed the Contract Agreement pursuant to ITB 38.1.</p> <p>19.6 The bid security may be forfeited:</p> <ul style="list-style-type: none"> (a) if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Letter of Bid, except as provided in ITB 18.2 or (b) if the successful Bidder fails to: <ul style="list-style-type: none"> (i) sign the Contract in accordance with ITB 39.1; or (ii) furnish a performance security in accordance with ITB 38.1. <p>19.7 The Bid Security of a JV shall be in the name of the JV that submits the bid. If the JV has not been legally constituted at the time of bidding, the Bid Security shall be in the names of all future partners as named in the letter of intent mentioned in ITB 4.1.</p>
<p>20. Format and Signing of Bid</p>	<p>20.1 The Bidder shall prepare one original of the documents comprising the bid as described in ITB 11 and clearly mark it "ORIGINAL". Alternative bids, if permitted in accordance with ITB 13, shall be clearly marked "ALTERNATIVE". In addition,</p>



	<p>the Bidder shall submit copies of the bid in the number specified in the BDS, and clearly mark each of them "COPY." In the event of any discrepancy between the original and the copies, the original shall prevail.</p> <p>20.2 The original and all copies of the bid shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Bidder. This authorization shall consist of a written confirmation as specified in the BDS and shall be attached to the bid. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the bid, except for unamended printed literature, shall be signed or initialed by the person signing the bid.</p> <p>20.3 Any amendments such as interlineations, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the bid.</p>
D. Submission and Opening of Bids	
<p>21. Sealing and Marking of Bids</p>	<p>21.1 Bidders may always submit their bids by mail or by hand or by courier. When so specified in the BDS, bidders shall have the option of submitting their bids electronically. Procedures for submission, sealing and marking are as follows:</p> <p>(a) Bidders submitting bids by mail, by hand or by courier shall enclose the original and each copy of the Bid, including alternative bids, if permitted in accordance with ITB 13, in separate sealed envelopes, duly marking the envelopes as "ORIGINAL", "ALTERNATIVE" and "COPY." These envelopes containing the original and the copies shall then be enclosed in one single envelope. The rest of the procedure shall be in accordance with ITB sub-Clauses 21.2 and 21.3.</p> <p>(b) Bidders submitting bids electronically shall follow the electronic bid submission procedures specified in the BDS.</p> <p>21.2 The inner and outer envelopes shall: bear the name and address of the Bidder;</p> <p>(a) be addressed to the Employer as provided in BDS 22.1;</p> <p>(b) bear the specific identification of this bidding process indicated in BDS 1.1; and</p> <p>(c) bear a warning not to open before the time and date for bid opening.</p> <p>21.3 If all envelopes are not sealed and marked as required, the Employer will assume no responsibility for the misplacement or premature opening of the bid.</p>



<p>22. Deadline for Submission of Bids</p>	<p>22.1 Bids must be received by the Employer at the address and no later than the date and time indicated in the BDS.</p> <p>22.2 The Employer may, at its discretion, extend the deadline for the submission of bids by amending the Bidding Document in accordance with ITB 8, in which case all rights and obligations of the Employer and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.</p>
<p>23. Late Bids</p>	<p>23.1 The Employer shall not consider any bid that arrives after the deadline for submission of bids, in accordance with ITB 22. Any bid received by the Employer after the deadline for submission of bids shall be declared late, rejected, and returned unopened to the Bidder.</p>
<p>24. Withdrawal, and Modification of Bids</p>	<p>24.1 A Bidder may withdraw, or modify its bid after it has been submitted by sending a written notice in a sealed envelope, duly signed by an authorized representative, and shall include a copy of the authorization in accordance with ITB 20.2. The corresponding modification of the bid must accompany the respective written notice. All notices must be:</p> <ul style="list-style-type: none"> (a) prepared and submitted in accordance with ITB 20 and ITB 21, and in addition, the respective envelopes shall be clearly marked "WITHDRAWAL", "MODIFICATION;" and (b) received by the Employer prior to the deadline prescribed for submission of bids, in accordance with ITB 22. <p>24.2 Bids requested to be withdrawn in accordance with ITB 24.1 shall be returned unopened to the Bidders after completion of the bid opening.</p> <p>24.3 No bid may be withdrawn, or modified in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Letter of Bid or any extension thereof.</p>
<p>25. Bid Opening</p>	<p>25.1 The Employer shall open the bids in public at the address, date and time specified in the BDS in the presence of Bidders' designated representatives and anyone who choose to attend. Any specific electronic bid opening procedures required if electronic bidding is permitted in accordance with ITB 21.1, shall be as specified in the BDS.</p> <p>25.2 First, envelopes marked "WITHDRAWAL" shall be opened and read out. and the envelope with the corresponding bid shall not be opened, but returned to the Bidder. No bid withdrawal shall be</p>



	<p>permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at bid opening. Next, envelopes marked “MODIFICATION” shall be opened and read out with the corresponding bid. No bid modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at bid opening. Only envelopes that are opened and read out at bid opening shall be considered further.</p> <p>25.3 All other envelopes shall be opened one at a time, reading out: the name of the Bidder; the Bid Price(s), including any discounts and alternative bids and indicating whether there is a modification; the presence of a bid security and any other details as the Employer may consider appropriate. Only discounts and alternative offers read out at bid opening shall be considered for evaluation.</p> <p>No bid shall be rejected at bid opening except for late bids, in accordance with ITB 23.1.</p> <p>The Employer shall prepare a record of the bid opening that shall include, as a minimum: the name of the Bidder and whether there is a withdrawal, or modification; the Bid Price, per Contract if applicable, including any discounts and alternative offers; and the presence or absence of a bid security, if one was required. The Bidders’ representatives who are present shall be requested to sign the record. The omission of a Bidder’s signature on the record shall not invalidate the contents and effect of the record.</p>
E. Evaluation and Comparison of Bids	
<p>26. Confidentiality</p>	<p>26.1 Information relating to the examination, evaluation, comparison, and post-qualification of bids and recommendation of Contract award, shall not be disclosed to Bidders or any other persons not officially concerned with such process until information on Contract award is communicated to all Bidders.</p> <p>26.2 Any attempt by a Bidder to influence the Employer in the evaluation of the bids or Contract award decisions may result in the rejection of its bid.</p> <p>26.3 Notwithstanding ITB 26.2, from the time of bid opening to the time of Contract award, if any Bidder wishes to contact the Employer on any matter related to the bidding process, it may do so in writing.</p>



<p>27. Clarification of Bids</p>	<p>27.1 To assist in the examination, evaluation, and comparison of the bids, and qualification of the Bidders, the Employer may, at its discretion, ask any Bidder for a clarification of its bid. Any clarification submitted by a Bidder that is not in response to a request by the Employer shall not be considered. The Employer's request for clarification and the response shall be in writing. No change in the prices or substance of the bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the bids, in accordance with ITB 31.</p> <p>27.2 If a Bidder does not provide clarifications of its bid by the date and time set in the Employer's request for clarification, its bid may be rejected.</p>
<p>28. Deviations, Reservations, and Omissions</p>	<p>28.1 During the evaluation of bids, the following definitions apply:</p> <ul style="list-style-type: none"> (a) "Deviation" is a departure from the requirements specified in the Bidding Document; (b) "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Document; and (c) "Omission" is the failure to submit part or all of the information or documentation required in the Bidding Document.
<p>29. Determination of Responsiveness</p>	<p>29.1 The Employer's determination of a bid's responsiveness is to be based on the contents of the bid itself, as defined in ITB11.</p> <p>29.2 A substantially responsive bid is one that meets the requirements of the Bidding Document without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that,</p> <ul style="list-style-type: none"> (a) if accepted, would: <ul style="list-style-type: none"> (i) affect in any substantial way the scope, quality, or performance of the Works specified in the Contract; or (ii) limit in any substantial way, inconsistent with the Bidding Document, the Employer's rights or the Bidder's obligations under the proposed Contract; or (b) if rectified, would unfairly affect the competitive position of other Bidders presenting substantially responsive bids. <p>29.3 The Employer shall examine the technical aspects of the bid submitted in accordance with ITB 16, Technical Proposal, in particular, to confirm that all requirements of Section V (Works Requirements) have been met without any material deviation, reservation or omission.</p>



	<p>29.4 If a bid is not substantially responsive to the requirements of the Bidding Document, it shall be rejected by the Employer and may not subsequently be made responsive by correction of the material deviation, reservation, or omission.</p>
<p>30. Nonconformities, Errors, and Omissions</p>	<p>30.1 Provided that a bid is substantially responsive, the Employer may waive any non-conformities in the bid.</p> <p>30.2 Provided that a bid is substantially responsive, the Employer may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities in the bid related to documentation requirements. Requesting information or documentation on such nonconformities shall not be related to any aspect of the price of the bid. Failure of the Bidder to comply with the request may result in the rejection of its bid.</p> <p>30.3 Provided that a bid is substantially responsive, the Employer shall rectify quantifiable nonmaterial nonconformities related to the Bid Price. To this effect, the Bid Price may be adjusted, for comparison purposes only, to reflect the price of a missing or non-conforming item or component. The adjustment shall be made using the methods indicated in Section III (Evaluation and Qualification Criteria).</p> <p>30.4 If minor discrepancies are found such as in technical specification, description, feature which does not make the bid to be rejected, then the cost, which is calculated to the extent possible due to such differences, shall be included while evaluating the bid.</p> <p>30.5 If the value of such non-conformities is found more than fifteen percent the quoted amount of the bidder on account of minor discrepancies pursuant to ITB 30.4, such bid shall be considered ineffective in substance and shall not be involved in evaluation.</p>
<p>31. Correction of Arithmetical Errors</p>	<p>31.1 Provided that the bid is substantially responsive, the Employer shall correct arithmetical errors on the following basis:</p> <ul style="list-style-type: none"> (a) only for unit price Contracts, if there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the Employer there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected; (b) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and



<p>32. Evaluation of Bids</p>	<p>(c) if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.</p> <p>31.2 If the Bidder that submitted the lowest evaluated bid does not accept the correction of errors, its bid shall be disqualified and its bid security shall be forfeited.</p> <p>32.1 The Employer shall use the criteria and methodologies listed in this Clause. No other evaluation criteria or methodologies shall be permitted.</p> <p>32.2 To evaluate a bid, the Employer shall consider the following:</p> <ul style="list-style-type: none">(a) the bid price, excluding Provisional Sums and the provision, if any, for contingencies in the Summary Bill of Quantities, and Value Added Tax for Unit Rate Contracts, or Schedule of Prices for lump sum Contracts, but including Day work items, where priced competitively;(b) price adjustment for correction of arithmetic errors in accordance with ITB 31.1;(c) price adjustment due to discounts offered in accordance with ITB 14.4;(d) adjustment for nonconformities in accordance with ITB 30.3;(e) application of all the evaluation factors indicated in Section III (Evaluation and Qualification Criteria); <p>32.3 The estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in bid evaluation.</p> <p>32.4 If this Bidding Document allows Bidders to quote separate prices for different Contracts, and to award multiple Contracts to a single Bidder, the methodology to determine the lowest evaluated price of the Contract combinations, including any discounts offered in the Letter of Bid, is specified in Section III (Evaluation and Qualification Criteria).</p> <p>32.5 If the bid for an Unit Rate Contract, which results in the lowest Evaluated Bid Price, is seriously unbalanced, front loaded or substantially below updated estimates in the opinion of the Employer, the Employer may require the Bidder to produce detailed price analysis for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analysis, taking into consideration the schedule of</p>
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	<p>estimated Contract payments, the Employer may require that the amount of the performance security be increased at the expense of the Bidder to a level sufficient as mentioned in BDS to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract.</p>
33. Comparison of Bids	<p>33.1 The Employer shall compare all substantially responsive bids in accordance with ITB 32.2 to determine the lowest evaluated bid.</p>
34. Qualification of the Bidder	<p>34.1 The Employer shall determine to its satisfaction whether the Bidder that is selected as having submitted the lowest evaluated and substantially responsive bid meets the qualifying criteria specified in Section III (Evaluation and Qualification Criteria).</p> <p>34.2 The determination shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to ITB 17.1.</p> <p>34.3 An affirmative determination of qualification shall be a prerequisite for award of the Contract to the Bidder. A negative determination shall result in disqualification of the bid, in which event the Employer shall proceed to the next lowest evaluated bid to make a similar determination of that Bidder's qualifications to perform satisfactorily.</p>
35. Employer's Right to Accept Any Bid, and to Reject Any or All Bids	<p>35.1 The Employer reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to Contract award, without thereby incurring any liability to Bidders. In case of annulment, all bids submitted and specifically, bid securities, shall be promptly returned to the Bidders.</p>
F. Award of Contract	
36. Award Criteria	<p>36.1 The Employer shall award the Contract to the Bidder whose offer has been determined to be the lowest evaluated bid and is substantially responsive to the Bidding Document, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.</p>
37. Letter of Intent to Award the Contract/ Notification of Award	<p>37.1 The Employer shall notify the concerned Bidder whose bid has been selected in accordance with ITB 36.1 within seven days of the selection of the bid, in writing that the Employer has intention to accept its bid and the information regarding the name, address and amount of selected bidder shall be given to all other bidders who submitted the bid.</p>



	<p>37.2 If no bidder submits an application pursuant to ITB 40 within a period of seven days of the notice provided under ITB 37.1, the Employer shall, accept the bid selected in accordance with ITB 36.1 and Letter of Acceptance shall be communicated to the selected bidder prior to the expiration of period of Bid validity, to furnish the performance security and sign the contract within fifteen days.</p>
<p>38. Performance Security</p>	<p>38.1 Within Fifteen (15) days of the receipt of Letter of Acceptance from the Employer, the successful Bidder shall furnish the performance security from A class Commercial Bank in accordance with the conditions of Contract using Sample Form for the Performance Security included in Section IX (Contract Forms), or another form acceptable to the Employer. The performance security issued by any foreign Bank outside Nepal must be counter guaranteed by an "A" class commercial Bank in Nepal.</p> <p>38.2 Failure of the successful Bidder to submit the above-mentioned Performance Security or to sign the Contract Agreement shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security. In that event the Employer may award the Contract to the next lowest evaluated Bidder whose offer is substantially responsive and is determined by the Employer to be qualified to perform the Contract satisfactorily. The process shall be repeated according to ITB 37.</p>
<p>39. Signing of Contract</p>	<p>39.1 The Employer and the successful Bidder shall sign the Contract Agreement within the period as stated ITB 38.1.</p> <p>39.2 At the same time, the Employer shall affix a public notice on the result of the award on its notice board and make arrangement for causing such notice to be affixed on the notice board also of the District Development Committee, District Administration Office and District Treasury and Controller Office. The Employer may make arrangements to post the notice into its website, if it has; and if it does not have, into the website of the Public Procurement Monitoring Office, identifying the bid and lot numbers and the following information: (i) name of each Bidder who submitted a Bid; (ii) bid prices as read out at Bid Opening; (iii) name and evaluated prices of each Bid; (iv) name of bidders whose bids were rejected and the reasons for their rejection; and (v) name of the winning Bidder, and the Price it offered, as well as the duration and summary scope of the Contract awarded.</p> <p>39.3 Within thirty (30) days from the date of issuance of notification pursuant to ITB 37.1 unsuccessful bidders may request in writing to the Employer for a debriefing seeking explanations on the grounds on which their bids were not selected. The Employer</p>



	<p>shall promptly respond in writing to any unsuccessful Bidder who, requests for debriefing within 30 days of publication of the contract award.</p>
<p>40. Complain and Review</p>	<p>40.1 If a Bidder is dissatisfied with the Procurement proceedings or the decision made by the Employer in the intention to award the Contract, it may file an application to the Chief of the Public Entity within Seven (7) days of providing the notice under ITB 37.1 by the Public Entity, for review of the proceedings stating the factual and legal grounds.</p> <p>40.2 Late application filed after the deadline pursuant to ITB 40.1 shall not be processed.</p> <p>40.3 The chief of Public Entity shall, within five (5) days after receiving the application, give its decision with reasons, in writing pursuant to ITB 40.1:</p> <ul style="list-style-type: none"> (a) whether to suspend the procurement proceeding and indicate the procedure to be adopted for further proceedings; or (b) to reject the application. <p>The decision of the chief of Public Entity shall be final for the Bid amount up to the value as stated in BDS.</p> <p>40.4 If the Bidder is not satisfied with the decision of the Public Entity in accordance with ITB 40.3, or the decision by the Employer is not given within five (5) days of receipt of application pursuant to ITB 40.1, it can, within seven (7) days of receipt of such decision, file an application to the Review Committee of the GoN, stating the reason of its disagreement on the decision of the chief of Public Entity and furnishing the relevant documents, provided that its Bid amount is more than Rupees Forty Eight Lakhs Only (Rs.4,800,000.00). The application may be sent by hand, by post, by courier, or by electronic media at the risk of the Bidder itself.</p> <p>40.5 Late application filed after the deadline pursuant to ITB 40.4 shall not be processed.</p> <p>40.6 Within three (3) days of the receipt of application from the Bidder, pursuant to ITB 40.4, the Review Committee shall notify the concerning Public Entity to furnish its procurement proceedings, pursuant to ITB 40.3.</p> <p>40.7 Within three (3) days of receipt of the notification pursuant to ITB 40.6, the Public Entity shall furnish the copy of the related documents to the Review Committee.</p>



	<p>40.8 The Review Committee, after inquiring from the Bidder and the Public Entity, if needed, shall give its decision within one (1) month of the receipt of the application filed by the Bidder, pursuant to ITB 40.4.</p> <p>40.9 The Bidder, filing application pursuant to ITB 40.4, shall have to furnish a cash amount or Bank guarantee from "A" class commercial bank equivalent to zero point five percent (0.5%) amount of its quoted Bid amount with the validity period of at least ninety (90) days from the date of the filing of application pursuant to ITB 40.4.</p> <p>40.10 If the claim made by the Bidder pursuant to ITB 40.4 is justified, the Review Committee shall have to return the security deposit to the applicant, pursuant to ITB 40.9, within seven (7) days of such decision made.</p>
<p>41. Provisions of PPA and PPR</p>	<p>41.1 If any provisions of this document are inconsistent with Public Procurement Act (PPA), 2063 or Public Procurement Regulations (PPR), 2064, the provision of this document shall be void to the extent of such inconsistency and the provision of PPA and PPR prevail.</p>



SECTION - II

Bid Data Sheet

A. General	
ITB 1.1	The number of the Invitation for Bids is :
ITB 1.1	The Employer is: Nepal Electricity Authority
ITB 1.1	The number and identification of lots comprising this bidding process is Supply, Delivery, Installation, Testing and Commissioning of 11KV and 11/0.4KV Line at different places of Rukum District under turnkey basis as per specifications and Bill of Quantities/Price Schedules Bid identification Number: NRO/2074/075-11kV & 11/0.4kV Line-01
ITB 2.1	The name of the Project is: 11KV and 11/0.4KV Line at different places of Rukum District. The DP is: None The implementing agency is: Nepal Electricity Authority GoN Funded or DP Funded: GoN Funded
ITB 4.1 (a)	Maximum number of member of JV shall be three (3).
ITB 4.2	Eligible countries: all countries
ITB 4.9	The foreign bidder shall submit the following documents: Documents to establish that the bidder is registered as manufacturer/contractor at the relevant agency for conducting business similar to which this Invitation for bids is issued. <i>Non-Nepalese Bidders shall be required to submit the Temporary License and VAT registration certificates at the earliest possible after the Contract signing but not later than 45 days.</i> But, Resident foreign bidder shall submit PAN/VAT certificate and tax clearance certificate or proof of submission of Income Return for F/Y 2073/074. A foreign Bidder wishing to have or already having a local agent shall state name & address of local agent, Amount of commission, currency of Payment, Method of payment & Other conditions of the agreement (if any).
B. Bidding Document	
ITB 7.1	For <u>clarification purposes</u> only, the Employer's address is: <i>Attention: Project Manager</i> <i>Nepal Electricity Authority</i> <i>Neaplgunj Regional office</i> <i>Neaplgunj, Nepal</i> <i>Tel: 081-523419/526783</i>



ITB 7.4	A Pre-Bid meeting shall not be held. A site visit shall not be organized by the Employer.
ITB 7.5	Time for request: Requests for clarification should be received by the Employer no later than 10 days prior to the deadline for submission of bids.
C. Preparation of Bids	
ITB 10.1	The language of the bid is: English
ITB 11.1 (b)	In accordance with ITB 12 and ITB 14, the following schedules shall be submitted with the bid, including the priced Bill of Quantities for Unit Rate Contracts and Schedule of Prices for lump sum contracts: N/A
ITB 11.1 (i)	The Bidder shall submit with its bid the following additional documents: N/A
ITB 13.1	Alternative bids shall not be permitted.
ITB 13.2	Alternative times for completion shall not be permitted.
ITB 13.4	Alternative technical solutions shall be permitted for the following parts of the Works: N/A
ITB 14.6	The prices quoted by the Bidder shall not be subject to adjustment during the performance of the Contract.
ITB 14.7	The date for all duties, taxes, and other levies payable by the Contractor under the contract or for any other cause, as of the date 30 days prior to the deadline for submission of bids
ITB 18.1	The bid validity period shall be: 120 days
ITB 19.1	The Bidder shall furnish a bid security, from "A" class commercial bank with a minimum of NRs.4,800,000.00, which shall be valid for 30 days beyond the validity period of the bid.
ITB 19.2 (b)	Account Name: Nepal Electricity Authority Bank Name: Bank Of Kathmandu Bank Address: Nepalgunj Current Account Number: 010500000354
ITB 20.1	In addition to the original of the bid, the number of copy/ies is/are: 2 (two)
ITB 20.2	The written confirmation of authorization to sign on behalf of the Bidder shall indicate: (a) Notarized Power of Attorney; and (b) In the case of Bids submitted by an existing or intended JV, an undertaking signed by all parties (i) stating that all parties shall be jointly and severally liable, and (ii) nominating a Representative who shall have the authority to conduct all business for and on behalf of any and all the parties of the JV



	during the bidding process and, in the event the JV is awarded the Contract, during contract execution.
D. Submission and Opening of Bids	
ITB 21.1	Bidders shall have the option of submitting their bids electronically.
ITB 21.1 (b)	If bidders shall have the option of submitting their bids electronically, the electronic bid submission procedures shall be as described in 'Special Instruction to Bidders for e-Bidding' later on in this section.
ITB 22.1	For <u>bid submission purposes only</u> , the Employer's address is: <i>Nepal Electricity Authority</i> <i>Nepalgunj Regional Office</i> <i>Nepalgunj, Nepal</i> <i>Tel: 081-523419/526783</i> The deadline for bid submission is: Date 27 March, 2018 Time: On or Before 12:00 noon
ITB 25.1	The bid opening shall take place at: <i>Nepal Electricity Authority</i> <i>Nepalgunj Regional Office</i> <i>Nepalgunj, Nepal</i> Date 27 March, 2018 Time: At 14:00 hours
ITB 25.1	If electronic bid submission is permitted in accordance with ITB 21.1, the specific bid opening procedures shall be as described in 'Special Instruction to Bidders for e-Bidding' later on in this section.
E. Evaluation and Comparison of Bids	
ITB 32.5	The amount of the performance security be increased by Eight (8) percent of the Quoted bid price.



G. Special Instruction to Bidders for e-Bidding

A) Bid submission procedures through electronically (e-submission) only:

- i. Interested eligible bidders shall, either purchase the hard copy of the bidding document directly from the Employer's office as specified in the Invitation for Bid (IFB) or may download the necessary parts of the bidding documents from e-procurement section in NEA's web site <http://www.e-nea.org.np>. In case, the bidders choose to download the bidding documents, prepare the bids on downloaded documents, and submit their bids electronically. The Bidders shall be required to deposit the non refundable fee for the bidding document (as specified in the bid notice) in the bank account specified in the IFB and electronic scanned copy (*.pdf format) of the bank deposit voucher shall also be submitted along with the electronic bid files.
- ii. The Bidder shall fill the following documents and forms (in hard copy of issued bid documents), signed by the authorized representative with seal of the company.

- a) Bill of Quantity (BOQ) with rate, amount, b) Forms of Bid, Qualification Information

The Bidder shall then scan the completed original documents, forms in PDF formats with appropriate filename shown in the table below.

S. No.	Document	PDF File name	Requirement	Remarks
1	Form of Bid	Bid form -1	Mandatory	
2	Bid Security (Bank Guarantee)	Bid security-2	Mandatory	
3	Company registration,	Company reg-3	Mandatory	All firms in case of JV
4	VAT/PAN registration,	VAT reg-4	Mandatory for National firms	All firms in case of JV
5	Tax clearances certificate,	Tax-5	Mandatory for National firms	All firms in case of JV
6	Power of Attorney of Bid signatory	Power of att-6	Mandatory	
7	Joint venture agreement	JV doc-7	Mandatory	In Case of JV
8	Qualification Information	Qualifications-	Mandatory	
9	BOQ with rate, amount and total amount	BOQ-9	Mandatory	
10	Manufacturers Authorization	Authorization - 10	Not Mandatory	Mandatory for Goods
11	Technical Data Sheet	TDS-11	Not Mandatory	Mandatory for Goods
12	Certification Documents	Certifications-12	Not Mandatory	Like ISO Certification



13	Declaration Form	Declaration-13	Mandatory	
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Note: **Mandatory** means the mentioned files shall be included in e-submission and non-submission of such file shall be considered as non-responsive bid.

- iii. For e-submission purpose the Bidder shall, at first, register in the e-procurement section NEA's web site <http://www.e-nea.org.np>.
- iv. After preparing all the required bidding documents in PDF, scan the files as specified in (ii).
- v. The Bidder shall upload the PDF bid files and submit the complete bid online through e-procurement section of NEA's website <http://www.e-nea.org.np> within the specified date and time.
- vi. The e-procurement system will accept the e-submission of bid from the date after publishing of notice and will automatically disallow the e-submission of bid after the deadline for submission of bid, as specified above.
- vii. The standard time for e-submission is Nepalese Standard Time as set out in the server of IT Department of NEA.
- viii. When a bidder submits his bid in hard copy, the e-procurement section does not allow the bidder to submit his Substitution or Modification or Withdrawal through e-procurement section of NEA's web site.
- ix. Bidders may submit his Substitution or Modification or Withdrawal either in hard copy or through e-submission.
- x. For Substitution of Bid, the Bidder shall follow similar steps as specified in ITB Clause -22 with a Substitution letter in PDF file.
- xi. For Modification or Withdrawal of bid, the Bidder is required to submit PDF scan copy of their Modification or Withdrawal letter and a written Power of Attorney of the signatory for Modification/ Withdrawal, duly signed by Authorized Representative/s of the Firm / all authorized Joint Venture partners.
- xii. When a Bidder submits electronic bid by downloading the bidding documents from the NEA's webpage it is assumed that the Bidder prepares his bid by studying and examining all the Bidding documents including specifications and conditions of contract.
- xiii. In case the Bidder choose to download the bidding documents and deposit the cost of bidding documents (as specified in the bid notice), such deposited amount shall be verified by the office during bid evaluation process. The bid shall be considered as non-responsive and shall not be evaluated if the specified cost for bidding document is not deposited in the Employer's Revenue account.
- xiv. Proposed facility for submission of bid electronically through e-submission is to increase transparency, non-discrimination, equality of access, and open competition. The Bidders shall be fully responsible to use the e-submission facility in e-procurement section of NEA's



website <http://www.e-nea.org.np> in specified procedures and in no case the Employer shall be held liable for Bidder's inability to use this facility.

B) Requirements and Conditions for e-submission of bid:

- i. The Bidder shall submit his bid electronically in PDF files in the manner as specified above, and additional submission of hard copy of "original plus one copy of bid" is not mandatory.
- ii. In case, if both the electronic bid and original bid in hard copy are submitted to the Employer within the bid submission deadline, the Bidder's electronic bid and original bid in hard copy will be accepted for evaluation provided the facts and figures in hard copy confirm to the PDF files in electronic bid. If there is any discrepancy in fact and figures between the electronic bid and original bid in hard copy, it will be treated as two separate bids from one Bidder and hence, both the electronic bid and original bid in hard copy shall be disqualified.
- iii. However, for electronically submitted bid in PDF files, the Bidder shall be required to submit documents/clarifications for verification purpose upon notification to do so from the Employer within 3 days.
- iv. The e-submitted bids must be readable through open standards interfaces. Unreadable and or partially submitted bid files (not complying with the ITB Clauses) shall be considered incomplete and rejected for further bid evaluation.
- v. In addition to electronically submitted PDF files, the Bidder shall be required to submit documents and clarifications as required by the Employer. Non-submission of such documents and or clarifications by the Bidder within specified time may cause forfeiture of Bid Security.
- vi. In case of major discrepancy found between electronically submitted PDF bid files and documents/ clarifications provided by the Bidder, the bid shall not be considered for further evaluation.
- vii. The Bidder shall attach the Bid Security Guarantee in the format attached in the Bid Document. The Bid Security may be forfeited
 - a. if the Bidder does not respond to and/or submit the documents and or clarifications when requested by the Employer.
 - b. if major discrepancy is found between e-submitted bid information and documents/clarifications provided by the Bidder during verification process as requested by the Employer.

C) Bid Opening process for e-submitted bid

- i. Electronically submitted bid shall be opened first at the Bid opening time.
- ii. The e-procurement system allows the Employer to download and open the e-submitted bid files from the bidders only after the time for opening the bids.

Official stamp/signature area



- iii. The e-submitted bids must be readable through open standards interfaces. Unreadable and or partially submitted bid files (not complying with the ITB Clauses) shall be considered incomplete and rejected for further bid evaluation.
- iv. After opening of e-submitted bids files, all files shall be printed and recorded at the time of bid opening.
- v. In case of "WITDRAWAL" or "MODIFICATION" or "SUBSTITUTION" by the Bidder through e-submission, the e-submitted PDF files under "WITDRAWAL" or "MODIFICATION" or "SUBSTITUTION" shall be opened and read out first. Bids for which acceptable notice of "WITDRAWAL" or "SUBSTITUTION" has been submitted pursuant to ITB Clause shall not be opened.

D) Bid Evaluation and Comparison process for e-submitted bid

- i. In case of e-submitted bids, the Employer evaluates the bid based on the information as per electronically submitted bid files. For clarification/ verification purpose, the Employer may request the Bidder to submit documents/ clarifications.
- ii. In case, the Bidder could not substantiate or provide evidence to prove the information provided in e-submitted bid through documents/clarifications, the bid shall not be considered for further evaluation and respective ITB Clause for forfeiture of bid security shall be applicable.
- iii. The e-submitted bids must be readable through open standards interfaces. Unreadable and or partially submitted bid files (not complying with the ITB Clauses) shall be considered incomplete and rejected for further bid evaluation.

E) Qualification Information

In case of e-Bidding, the Bidder is required to submit the documents to prove minimum qualification requirements only and not the detail documents.

F) Bid Security Format

Form of Bid security shall include the provision as 'This Bank Guarantee shall not be withdrawn or released merely upon return of the original Guarantee by the Bidder unless notified by the Employer for the release of the Guarantee'.

Official stamp



Nepal Electricity Authority

Declaration Form (for E-bidding)

S.No.	Description	Status			
		Issued to	Issued by	Date of	No. of
		(as applicable)	(as applicable)	Issue	Pages
1	Notarized Power of Attorney from the Company to Sign on Company's behalf (For Single Bidder)				
2	Joint Venture Agreement; <i>If any</i>				
3	Notarized Power of Attorney to Sign the Bid on Company's behalf (Each Partner in case of JV)				
4	Notarized Power of Attorney to Sign the Bid (On Behalf of JV)				
5	Registration Certificate of the Bidder (and each partners in case of JV)				
6	Bid Security				
7	Price Schedule				
8	Bid Form				
9	Qualification Forms				
10	Complete Certified Audited Report of the Bidder (and each partner in case of	Year 1			
		Year 2			
		Year 3			



11	Performance (or user) Certificate/s (Bidder)	1				
		2				
		3				
		4				
12	Manufacturer's Authorization/s	1				
		2				
		3				
		4				
13	Power of Attorney from the Company to Issue the Manufactures Authorization					
14	Business License of Manufacturer/s	1				
		2				
		3				
		4				
15	User Certificate/s (Manufacturer)	1				
		2				
		3				
		4				
16	ISO Certificate	1				
		2				
		3				
		4				

Official stamp



17	Type Test Report/s (if required as per specification)	1				
		2				
		3				
		4				
18	Technical Data Sheet	1				
		2				
		3				
		4				
19	Other Certification (as per requirements)	1				
		2				
		3				
		4				

Official stamp or signature



SECTION III

Evaluation and Qualification Criteria

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SECTION - III

Evaluation and Qualification Criteria

This Section contains all the criteria that the Employer shall use to evaluate bids and qualify Bidders by post-qualification exercise. GoN/DP requires bidders to be qualified by meeting predefined, precise minimum requirements. The method sets pass-fail criteria, which, if not met by the bidder, results in disqualification. In accordance with ITB 32 and ITB 34, no other methods, criteria and factors shall be used. The Bidder shall provide all the information requested in the forms included in Section IV (Bidding Forms).

1. Evaluation

In addition to the criteria listed in ITB 32.2 (a) - (e) the following criteria shall apply:

1.1 Adequacy of Technical Proposal

Evaluation of the Bidder's Technical Proposal will include an assessment of the Bidder's technical capacity, to mobilize key equipment and personnel for the contract consistent with its proposal regarding work methods, scheduling, and material sourcing in sufficient detail and fully in accordance with the requirements stipulated in Section V (Works Requirements).

1.2 Multiple Contracts (Not Applicable)

1.3 Completion Time

Time to complete the plant and services from the effective date for determining time for completion of pre-commissioning activities is: **12 months**. Earlier Completion will be appreciable.

1.4 Alternative Technical Solutions (Not Applicable)

1.5 Quantifiable Nonconformities, Errors and Omissions

Pursuant to ITB 30, the cost of all quantifiable nonmaterial nonconformities or omissions (minor omissions or missing items) shall be evaluated. The Employer will make its own assessment of the cost of any nonmaterial nonconformities and omissions for the purpose of ensuring fair comparison of bids.

2. Qualification

Failure to fulfill any of the requirements specified in Qualification Criteria given below shall result in disqualification of the Bid.

2.1. Power of Attorney

The Bid shall include a notarized power of attorney authorizing the signatory of the bid to commit the Bid on behalf of the Bidder.



2.2. LegalStatus:

i) For the Bidder which is not a Joint-Venture:

The Bidder shall be a manufacturer or a contractor legally registered in their home country for at least five (5) years. A notarized copy of legal registration certificate shall be submitted along with the Bid.

ii) For the JV Bidder:

- (a) Original of joint venture agreement legally binding on all JV partners shall be included in the Bid. The joint venture agreement shall bear the seal of the entity and signatures of personnel authorized by the respective entities forming the joint venture. All such authorization documents shall also be included in the Bid. These Authorization document shall be on the original letterhead of the respective entity with stamp/seal of the entity.
- (b) The number of joint venture partners shall not exceed three (3).
- (c) Partners of the JV shall be a manufacturer or contractor legally registered for at least five (5) years.
- (d) Notarized copies of legal registration certificates for each JV partners shall be submitted along with the Bid.

2.3. Project Experience:

2.3.1 For the Bidder which is not a Joint Venture (JV):

- a. The Bidder shall include certificates from the end users validating that the Bidder has successfully completed supply, construction, installation, testing and commissioning of at least one Contract of similar size and nature or number of contracts of similar nature (*construction of 90 km of 11 kV and 90 km of 0.4 kV or higher voltage distribution line*) in the last 10 years.

The Bidder must have executed construction, installation and commissioning of at least one Contract of similar size and nature or number of contracts of similar nature whose aggregate size is not less than the size of this bid.

If the bid involves design the bidder shall propose there reputed designer with the experience of similar work and two user certificates not earlier than 10 years from the date of bid submission.

- b. The end user's certificates included in the bid shall be on the end user's original letter head with valid address for correspondence and signed by or on behalf of the end user.



2.3.2 For the JV Bidder:

- a. The lead partner shall have completed at least one project of size which is at least <60%of the Project experience stated above>.If the Bidder is previously not involved in design, then Lead Partner shall propose the reputed designer with the experience of similar work and two end user certificates not earlier than last ten (10) years from the date of bid submission.
- b. Each of the other partners of the JV shall have accomplished at least one project of size (as a JV) at least <20% of the Project Experience stated above>.
- c. The Bid shall include certificates from the end users for the lead partner and each of the other partners validating that they have successfully completed design (if the Bid involve design), supply, construction, installation and commissioning of projects of the size stated in 2.3.2 (a) and (b) above. The date in the end user certificates shall not be earlier than last ten (10) years from the last date of bid submission.
- d. The JV partners together shall have successfully completed design (if the Bid involve design), supply, construction, installation and commissioning of projects whose aggregate size is not less than the size of this Bid.

2.4. Financial Capacity of the Bidder

2.4.1 Financial Statements:

The Bidder including joint venture partners, if any, shall submit audited financial statements (Balance Sheet and Profit & Loss Account) for the last three (3) fiscal years. Balance sheet and profit & Loss Account sheet shall be signed and sealed by the registered auditor (s).

2.4.2 Line of Credit:

In the event that the working capital of the bidder (including each of the JV partner) is to be supplemented with the line of credit from a Bank, the Bidder shall submit original letter of the Bank pledging un equivocally that the Bank will provide required financial support in case the Bidder is awarded the contract. The amount of line of credit shall be clearly mentioned in the Bank letter. The bid title and the bid number shall also be mentioned in the Bank letter.

2.4.3 Average Annual Turnover

a. For the Bidder which is not a Joint Venture:

The Bidder shall have Average Annual Turnover (defined as the total payments received by the Bidder averaged over last three consecutive years) of not less than **NRs 98,000,000.00**

Handwritten signature/initials



b For the JV Bidder:

- i. The Average Annual Turnover of the lead partner shall not be less than 40% of the amount stated above in sub-clause 2.4.3.a.
- ii. The Average Annual Turnover of other partners shall not be less than 25% of the amount stated in sub-clauses 2.4.3.a.
- iii. Aggregate Annual Turnover of all the JV partners shall not be less than the values specified in sub-clauses 2.4.3.a.

2.4.4 Availability of Financial Resources (working capital)

a. For the Bidder which is not a Joint Venture:

The Bidder shall have working capital (defined as total current assets less total current liabilities) of at least **NRs 65,250,000.00** in the last fiscal year.

Note:

<Value> to be filled by the concerned office as per following calculation:

$$= \frac{(\text{Project Estimated cost less advance payment and retention money}) \times 4 \text{ months}}{(\text{project completion period in months})}$$

If the Bidder's working capital is in adequate, the Bidder shall supplement Working Capital with Banker's letter confirming the availability of a line of credit such that aggregate of the Bidder's Working Capital for the last fiscal year and the line of credit shall not be less than there acquired amount.

b For the JV Bidder:

- i. Working Capital of the lead partner shall not be less than 40% of the amount stated above in sub-clause 2.4.4.a.
- ii. Working Capital of other partners shall not be less than 25% of the amount stated in sub- clauses2.4.4.a.
- iii. Aggregate working Capital (with line of credit facilities) of all the JV partners shall not be less than the values specified in sub-clauses 2.4.4.a.

2.5. Quality of Goods

The offered Goods shall be in conformity with the specifications. The Bidder shall fill in technical Data Sheet provided in Section V, Works Requirements of the Bidding

Handwritten signature or mark



document. In order to prove that the Goods offered are in conformity with the specifications, the Bidder shall furnish documentary evidence in the form of literature (catalogue), drawings, detailed description of Goods with essential technical and performance characteristics and type test reports wherever called for.

- i. In case the Bidder is not the manufacturer of Goods offered, the Bidder shall submit manufacturer's certificate authorizing the Bidder to supply the manufacturers' Goods. This certificate shall bear details of the Goods that the manufacturer will be supplying under the authorization. The authorization shall be on the manufacturer's original letterhead with seal/stamp of the manufacturer.
- ii. The manufacturer of Goods to be supplied under this Bid shall hold valid quality ISO certificate as required by the specifications and a copy of ISO certificate shall be included in the Bid.
- iii. Type test certificate, if applicable, shall be included in the Bid and shall bear a date that is not earlier than five years from the last date of Bid submission, unless otherwise stated in the technical specification. The type test certificate shall have been issued by a reputed independent laboratory accredited by International Laboratory Accreditation Corporation (ILAC) or International Accreditation Forum (IAF) or other reputed accreditation agencies.

In case of the type test certificate is not as per the requirement, the bidder shall, upon award of the contract, undertake to carry out the required type tests from an independent laboratory qualified as above or in a laboratory owned or nominated by the Client/Employer before delivery of the corresponding equipment at no extra cost to the Client/Employer.

2.6 Manufacturer's Experience

The Bidder shall submit at least two numbers of end user certificates showing that the manufacturer has successfully completed the supply of at least twice the bid quantity (specified in bill of quantities/price schedules) as a main supplier over last five (5) years period ending on the last date of bid submission. Out of supplied quantity, a minimum of half the bid quantity for each item offered (as specified above) shall have been in operation satisfactorily to the end users for at least One (1) year. The end user certificates shall be on the letterhead of the end user with valid address for correspondence and signed by or on behalf of the end user.

2.7 Miscellaneous

The Bidder or any of the Joint Venture partners shall not be on the black list circulated by Public Procurement Monitoring Office, Government of Nepal or Nepal Electricity Authority.



2.8 Eligibility

Criteria	Compliance Requirements			Documents
Requirement	Single Entity	Joint Venture		Submission Requirements
		All Partners Combined	Each Partner	

2.8.1 Conflict of Interest

No conflicts of interest in accordance with ITB Sub-Clause 4.3.	must meet requirement	existing or intended JV must meet requirement	must meet requirement	must meet requirement	Letter of Bid
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2.8.2 Government-owned Entity

Applicant required to meet conditions of ITB Sub-Clause 4.5.	must meet requirement	existing or intended JV must meet requirement	must meet requirement	must meet requirement	Forms ELI -1, ELI - 2 with attachments
--	-----------------------	---	-----------------------	-----------------------	--

2.8.3 UN Eligibility

<i>Not having been declared ineligible based on a United Nations resolution or Employer's country law, as described in ITB Sub-Clause 4.8.</i>	must meet requirement	existing or intended JV must meet requirement	must meet requirement	must meet requirement	Letter of Bid
--	-----------------------	---	-----------------------	-----------------------	---------------



2.8.4 Other Eligibility

Submission of the following document is must:

- Copy of Firm Registration Certificate
- Copy of Business Registration Certificate
- Copy of VAT and PAN Registration Certificate,
- Copy of Tax Clearance Certificate/Tax return submission evidence for the 2073/074.
- A written declaration made by the bidder with a statement that s/he is not ineligible to participate in the procurement proceedings; has no conflict of interest in the proposed procurement proceedings, and has not been punished for a profession or business related offences.
- Joint Venture Authorization/Agreement (if any).
- Notarized Power of Attorney.
- Other documents as needed

2.9 Pending Litigation

Criteria	Compliance Requirements			Documents	
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	

2.9.1 Pending Litigation

All pending litigation shall be treated as resolved against the Applicant and so shall in total not represent more than 50 percent of the Applicant's net worth.	must meet requirement by itself or as partner to past or existing JV	not applicable	must meet requirement by itself or as partner to past or existing JV	must meet requirement	Form LIT – 1
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[Handwritten signature]



2.10 Personnel

The Bidder must demonstrate that it has the personnel for the key positions that meet the following requirements:

No.	Position	Total Work Experience [years]	Experience In Similar Works [years]
1	Project Engineer (Electrical)	10	2
2	Electrical Engineer	2	1
3	Electrical Overseer	5	2

The Bidder shall provide details of the proposed personnel and their experience records in the relevant Information Forms included in Section 4 (Bidding Forms).

2.11 Equipment

The Bidder must demonstrate that it has owned/hired the key equipment listed hereafter:

No.	Equipment Type and Characteristics	Min. Number Required
1	Truck and Pick Up Truck	1 each
2	Insulation Tester	1
3	Hand Ratchet Puller (Hand Vice)	3

The Bidder shall provide further details of proposed items of equipment using the relevant Form in Section 4 (Bidding Forms).

Handwritten signature/initials



SECTION IV
BIDDING FORMS

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20. Form EXP - 2(b): Specific Construction Experience in Key Activities 20



Letter of Technical Bid

The Bidder must accomplish the Letter of Bid in its letterhead clearly showing the Bidder's complete name and address.

Date:

Name of the contract:

Invitation for Bid No.:

To:.....

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the Bidding Documents, including Addenda issued in accordance with Instructions to Bidders (ITB) Clause 8.
- (b) We offer to execute in conformity with the Bidding Documents the following Works:
- (c) Our Bid consisting of the Technical Bid and the Price Bid shall be valid for a period of *insert validity period as specified in ITB 18.1 of the BDS* days from the date fixed for the bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
- (d) Our firm, including any subcontractors or suppliers for any part of the Contract, have nationalities from eligible countries in accordance with ITB 4.2.
- (e) We are not participating, as a Bidder or as a subcontractor, in more than one Bid in this bidding process in accordance with ITB 4.3(e), other than alternative offers submitted in accordance with ITB 13.
- (f) Our firm, its affiliates or subsidiaries, including any Subcontractors or Suppliers for any part of the contract, has not been declared ineligible by DP, under the Employer's country laws or official regulations or by an act of compliance with a decision of the United Nations Security Council;
- (g) We are not a government owned entity/We are a government owned entity but meet the requirements of ITB 4.5;¹
- (h) We declare that, we including any subcontractors or suppliers for any part of the contract do not have any conflict of interest in accordance with ITB 4.3 and we have not been punished for an offense relating to the concerned profession or business.
- (i) We declare that we are solely responsible for the authenticity of the documents submitted by us.



- (j) We agree to permit the Employer/DP or its representative to inspect our accounts and records and other documents relating to the bid submission and to have them audited by auditors appointed by the Employer.
- (k) If our Bid is accepted, we commit to mobilizing key equipment and personnel in accordance with the requirements set forth in Section III (Evaluation and Qualification Criteria) and our technical proposal, or as otherwise agreed with the Employer.

Name:

In the capacity of

Signed

Duly authorized to sign the Bid for and on behalf of

Date



Bid Security
Bank Guarantee

Bank's Name, and Address of Issuing Branch or Office
(On Letter head of the 'A' class Commercial Bank)

Beneficiary: name and address of Employer ...

Date: ...

Bid Security No.: ...

We have been informed that ... [insert name of the Bidder] (hereinafter called "the Bidder") intends to submit its bid (hereinafter called "the Bid") to you for the execution of name of Contract ... under Invitation for Bids No. ... ("the IFB").

Furthermore, we understand that, according to your conditions, bids must be supported by a bid guarantee.

At the request of the Bidder, we ... name of Bank. ... hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of amount in figures ... (... amount in words ...) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Bidder is in breach of its obligation(s) under the bid conditions, because the Bidder:

- (a) has withdrawn its Bid during the period of bid validity specified by the Bidder in the Form of Bid; or
- (b) does not accept the correction of errors in accordance with the Instructions to Bidders (hereinafter "the ITB"); or
- (c) having been notified of the acceptance of its Bid by the Employer during the period of bid validity, (i) fails or refuses to execute the Contract Agreement, or (ii) fails or refuses to furnish the performance security, in accordance with the ITB.

This guarantee will remain in force up to and including the datenumber... 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.

This Bank guarantee shall not be withdrawn or released merely upon return of the original guarantee by the Bidder unless notified by you for the release of the guarantee.

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 758.

... Bank's seal and authorized signature(s) ...

Note:

The bid security of has been counter guaranteed by the Bank on (Applicable for Bid Security of Foreign Banks).





Technical Proposal Format

Personnel

Equipment

Site Organization

Method Statement

Mobilization Schedule

Construction Schedule

Others

Handwritten signature or mark



Personnel

Form PER - 1: Proposed Personnel

Bidders should provide the names of suitably qualified personnel to meet the specified requirements for each of the positions listed in Section III (Evaluation and Qualification Criteria). The data on their experience should be supplied using the Form below for each candidate.

1.	Title of position	
	Name	
2.	Title of position*	
	Name	
3.	Title of position*	
	Name	
4.	Title of position*	
	Name	
5.	Title of position*	
	Name	

*As listed in Section III (Evaluation and Qualification Criteria).



Form PER - 2: Resume of Proposed Personnel

The Bidder shall provide all the information requested below. Fields with asterisk (*) shall be used for evaluation.

Position*		
Personnel information	Name	Date of birth
	Professional qualifications	
Present employment	Name of employer	
	Address of employer	
	Telephone	Contact (manager/personnel officer)
	Fax	E-mail
	Job title	Years with present employer

Summarize professional experience over the last twenty years in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From*	To*	Company, Project, Position and Relevant Technical and Management Experience*

[Handwritten signature]



Equipment

The Bidder shall provide adequate information to demonstrate clearly that it has the capability to meet the requirements for the key equipment listed in Section III (Evaluation and Qualification Criteria). A separate Form shall be prepared for each item of equipment listed, or for alternative equipment proposed by the Bidder. The Bidder shall provide all the information requested below, to the extent possible. Fields with asterisk (*) shall be used for evaluation.

Type of Equipment*		
Equipment Information	Name of manufacturer	Model and power rating
	Capacity*	Year of manufacture
Current Status	Current location	
	Details of current commitments	
Source	Indicate source of the equipment <input type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

The following information shall be provided only for equipment not owned by the Bidder.

Owner	Name of owner	
	Address of owner	
	Telephone	Contact name and title
	Fax	Telex
Agreements	Details of rental / lease / manufacture agreements specific to the project	



Bidder's Information and Qualification Format

Site Organization

Method Statement

Mobilization Schedule

Construction Schedule

Others

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Bidder's Qualification

To establish its qualifications to perform the contract in accordance with Section III (Evaluation and Qualification Criteria) the Bidder shall provide the information requested in the corresponding Information Sheets included hereunder.

Form ELI - 1: Bidder's Information Sheet

Bidder's Information	
Bidder's legal name	
In case of JV, legal name of each partner	
Bidder's country of constitution	
Bidder's year of constitution	
Bidder's legal address in country of constitution	
Bidder's authorized representative (name, address, telephone numbers, fax numbers, e-mail address)	
Attached are copies of the following original documents.	
<ol style="list-style-type: none"> 1. In case of single entity, articles of incorporation or constitution of the legal entity named above, in accordance with ITB 4.1 and 4.2. 2. Authorization to represent the firm or JV named in above, in accordance with ITB 20.2. 3. In case of JV, letter of intent to form JV or JV agreement, in accordance with ITB 4.1. 4. In case of a government-owned entity, any additional documents not covered under 1 above required to comply with ITB 4.5. 	



Form ELI - 2: JV Information Sheet

Each member of a JV must fill in this form

Bidder's legal name	
JV Partner's or Subcontractor's legal name	
JV Partner's or Subcontractor's country of constitution	
JV Partner's or Subcontractor's year of constitution	
JV Partner's or Subcontractor's legal address in country of constitution	
JV Partner's or Subcontractor's authorized representative information (name, address, telephone numbers, fax numbers, e-mail address)	
Attached are copies of the following original documents.	
<ol style="list-style-type: none">1. Articles of incorporation or constitution of the legal entity named above, in accordance with ITB 4.1 and 4.2.2. Authorization to represent the firm named above, in accordance with ITB 20.2.3. In the case of government-owned entity, documents establishing legal and financial autonomy and compliance with commercial law, in accordance with ITB 4.5.	



Form LIT - 1: Pending Litigation

Each member of a JV must fill in this form

Litigation			
<ul style="list-style-type: none">No pending litigation in accordance with Criteria 2.2 of Section III (Evaluation and Qualification Criteria)Pending litigation in accordance with Criteria 2.2 of Section III (Evaluation and Qualification Criteria)			
Value of Year	Matter in Dispute	Pending Claim in NRs	Pending Claim as a Percentage of Net Worth

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Form FIN - 1: Financial Situation

Each Bidder or member of a JV must fill in this form

Financial Data for Previous 3 Years [in NRs]		
Year 1:	Year 2:	Year 3:

Information from Balance Sheet

Total Assets			
Total Liabilities			
Net Worth			
Current Assets			
Current Liabilities			

Information from Income Statement

Total Revenues			
Profits Before Taxes			
Profits After Taxes			

- Attached are copies of financial statements (balance sheets including all related notes, and income statements) for the last three or above years, as indicated above, complying with the following conditions.
- All such documents reflect the financial situation of the Bidder or partner to a JV, and not sister or parent companies.
- Historic financial statements must be audited by a certified auditor.
- Historic financial statements must be complete, including all notes to the financial statements.
- Historic financial statements must correspond to accounting periods already completed and audited (no statements for partial periods shall be requested or accepted).



Form FIN - 2: Average Annual Construction Turnover

Each Bidder or member of a JV must fill in this form

The information supplied should be the Annual Turnover of the Bidder or each member of a JV in terms of the amounts billed to clients for each year for work in progress or completed to NRs at the end of the period reported.

Annual Turnover Data for the Last 10 Years (Construction only) in NRs.	
Year	Amount Currency

Average Annual Construction Turnover

--



Form FIN - 3: Financial Resources

Specify proposed sources of financing, such as liquid assets, unencumbered real assets, lines of credit, and other financial means, net of current commitments, available to meet the total construction cash flow demands of the subject contract or contracts as indicated in Section III (Evaluation and Qualification Criteria).

Financial Resources		
No.	Source of financing	Amount (in NRs)
1		
2		
3		

Note:

The letter from the Bank must be unconditional.



Form FIN- 4: Current Contract Commitments / Works in Progress

Bidders and each partner to a JV should provide information on their current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued.

SN	Name of Contract	Name of Contractors	Employer's Contract Address, Tel, fax	Contract Amount	Contract Date	Contract Duration	Value of Average Outstanding Work; NRs.	Completion Date	Estimated Monthly Invoicing; NRs./Month
1									
2									
3									
4									
5									
6									

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Form EXP - 1: General Project Experience

Each Bidder or member of a JV must fill in this form.

General Construction Experience				
Starting Month Year	Ending Month Year	Year	Contract Identification and Name and Address of Employer Brief Description of the Works Executed by the Bidder	Role of Bidder



Form EXP - 2(a): Specific Project Experience

Fill up one (1) form per contract.

Contract of Similar Size and Nature			
Contract No..... of.....		Contract Identification	
Award Date		Completion Date	
Role in Contract	<input type="checkbox"/> Contractor	<input type="checkbox"/> Management Contractor	<input type="checkbox"/> Subcontractor
Total Contract Amount	<input type="checkbox"/> NRS		
If Partner in a JV or subcontractor, specify participation of total contract amount	Percent of Total	Amount	
Employer's Name Address Telephone/Fax Number E-mail			
Description of the similarity in accordance with Criteria 2.4.2 (a) of Section III			
<p>Note : <i>The Employer should insert here contract size, complexity, methods, technology, or other characteristics as described in Section V (Work Requirements) against which the bidder demonstrates similarity in the box on the right-hand-side.</i></p>			



Form EXP - 2(b): Specific Project Experience in Key Activities

Fill up one (1) form per contract.

Contract of Similar Size and Nature			
Contract No..... of.....		Contract Identification	
Award Date		Completion Date	
Role in Contract	<input type="checkbox"/> Contractor	<input type="checkbox"/> Management Contractor	<input type="checkbox"/> Subcontractor
Total Contract Amount	<input type="checkbox"/> NRS		
If Partner in a JV or subcontractor, specify participation of total contract amount	Percent of Total	Amount	
Employer's Name Address Telephone/Fax Number E-mail			
Description of the similarity in accordance with Criteria 2.4.2 (a) of Section III			
<p>Note :</p> <p><i>The Employer should insert here production rate(s) for the key activity (activities) subject contract against which the bidder demonstrates in the box on the right-hand-side production rates achieved by him on previous contracts.</i></p>			

Section IX

SPECIFICATION

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Scope of Work

1.1 General:

The main components of the Supply, Delivery, Installation, Testing and Commissioning of 11KV and 11/0.4KV Line at different places of Rukum District. Electrical Transmission System on turnkey basis. The scope of supply of material and related services under this Project, but not limited to, are given below:

1.2 The scope of works includes construction of new 11KV and 11/0.4KV distribution line. The Contractor shall carry out preconstruction survey, prepare list of line materials & equipment required, supply and delivery of all the required line materials. The 11KV and 11/0.4KV Line shall be constructed with 10/8m steel tubular poles , 0.05/0.03 Sq. inch ACSR Conductor, 11 KV Insulator and Hardware with complete accessories etc as specified or referred to in the technical specifications. After construction of line, the contractor shall perform testing, & commission on erected line network shall be handover to NEA if test result shall be found satisfactory.

1.3 If any discrepancies in the specifications and drawing are found it, shall be discussed and rectified before or at the time of final approval of drawings.

1.4 The bidders are requested to visit site(s) at its own to get the general idea about 11KV and 11/0.4KV Line Distribution System network location and quote the price accordingly.

1.5 The Contractor shall have adequate manpower to execute the works at site(s) to complete the work within the scheduled time.

1.7 Equipment and Materials:

The Contractor to his designated store area shall deliver all equipment and materials. Such materials shall be delivered, unloaded and placed in stores in an acceptable manner and approved by the Employer or his authorized representative.

1.8 Erection:

When construction of 11KV and 11/0.4KV Line line has been completed and accepted by the Employer, the Contractor will make an inventory list (SDS) of the assemblies erected, and submit it to the Employer for approval and final payment. Before the Taking-Over of the works, the Contractor shall clean up all areas in which he has worked, place all unused materials in the designated stores and settle any claims, which may have resulted from his work and occupancy of the area. He shall then remove all equipments, vehicles, manpower and facilities, which, he has brought in except those which may be specifically exempt by the Employer.

1.9 Testing & Commissioning

Testing and Commissioning of the Complete of whole work as per the Specification should be performed to the satisfaction of the Owner.



1.10 Variation in Quantities of Work:

The Quantities listed in the Schedule of Rates and Prices represent the estimated quantities for tender purpose only. The Contractor shall carryout pre-construction survey (PCS) and detail design including Geographical Mapping, Drawing, Staking Preparation of Structure Data Sheet, Single Line Diagram and must submit final bill of quantity. The actually required quantity may vary from the quantity as listed in Schedules of Rates and Prices. The Contractor agrees to make no claim for anticipated profits or for alleged losses because of any difference between the quantities actually furnished and installed and the estimated quantities as indicated in these Bidding Documents.

All Construction materials required to carry out these works shall be provided by the Contractor. All works described herein and other works necessary to complete the job for proper coordination and operation, even if not stated, shall be within the scope of the Contractor's work and the cost of such works shall be considered to be included in the bid price.

The Contractor shall have adequate manpower to execute the works at the main site to complete the work within the scheduled time.

1.11 Specific construction materials selected for the Project Works:

1.11.1 Steel tubular poles (10m and 8m) have been selected to use as pole structures.

1.11.2 Aluminum Conductor Steel Reinforced (ACSR) conductor of 0.05 Sq. inch ACSR "Rabbit" and 0.03 Sq. inch ACSR "Weasel" shall be used for 11KV and 11/0.4KV Line construction .

1.11.3 The 11KV and 11/0.4KV Line materials such as Disc Insulator, Pin Insulator, conductor Hardware and fittings, Insulators Hardware and fittings, Stay set, Stay wire etc shall be in accordance with the technical specification.

1.11.3 Fully Galvanized steel materials have been used for fabrication of cross arms, channels, bracing, stay sets, stay wires, nut bolts, insulator spindles and earth electrodes.

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Technical Specifications

SPECIFICATION – NEA -01 ACSR CONDUCTOR

1.1 Scope

This specification covers the design, manufacturing/fabrication, supply and site delivery of Aluminum conductor steel reinforced (ACSR) commonly used on overhead power/distribution line construction.

1.2. Description

1.2.1 All conductors should be of Aluminum Conductors Steel Reinforced (ACSR) construction and shall be manufactured in strict conformity to BS215 Part 2. The ACSR conductor shall be fabricated in accordance with British Standards Institution Specification BS215: Part2 1956 or IS 398:1961.

The steel core and the first layer of aluminum shall be greased. The grease shall be of neutral type and at a temperature of 100° C and the grease neither flow nor extrude from the conductor. The grease shall retain its properties as resistance to oxidation and chemical stability at all service temperatures. The steel strands of ACSR conductor shall be performed so that they remain inert and do not move relative to each other when the conductor is out. The outermost layer of all conductors shall be stranded with right hand lay.

The correct tension must be maintained on the stranding machine when spinning the cable to avoid the possibility of bird caging during stringing. Any condition not complying may be rejected at the discretion of the Engineer.

The ACSR conductors must be manufactured by a company approved to quality standard ISO 9001 or ISO 9002. The ISO certification number, the name of the authorized approving authority with the contact address and telephone and fax numbers shall also be stated. The Bidder shall enclose a verified copy of the ISO certificate with the bid.

The purity of the Aluminum shall be the highest commercially available and not less than 99.5%, the copper content not exceeding 0.48%. The contractor shall submit the certificates of analysis giving the percentage and the nature of any impurities in the metal from which the wires are made. Aluminum wire shall be made to BS2627 and steel wires to BS4565.

Precaution shall be taken during the manufacturing, storage and erection of steel core aluminum conductors to prevent the possibility of contamination by copper or other materials, which may adversely affect the aluminum. The manufacture of steel core aluminum shall be carried out in a portion of factory specially set aside for such purposes. Machinery previously used in the manufacture of copper or copper-bearing conductors shall not be for the manufacture of these aluminum or steel wires. The size and the composition of the entire conductor shall be as stated in general specification.

The conductors shall be supplied on drums of approved construction. The drums shall be securely battened to protect the conductor. Drum battens shall not be removed until the drum is properly mounted on the drum station on line and battens shall be immediately refitted to the drum if any surplus conductor is left therein. Each drum shall be marked the manufacturer's name, direction of rolling, any mark, code name, the length, size stranding, net weight, gross weight, approximate measurement and production date

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of the conductor and manufacturing batch number incised. The standard length of the conductor in a Drum shall be as shown in the table below:

Conductor Size, Sq.Inch	0.03"WEASEL"	0.05"RABBIT"	0.1"DOG"
Normal length of the conductor,m	3000	2000	1000

However NEA may ask the supplier to supply conductor of 1 km length per coil and coiled without drum if required. The supplier shall quote the individual weight of the conductor and weight of the drum on which it is rolled.

It is made clear to the contractor that the guaranteed weight of the conductor 0.03 sq.inch size ACSR "WEASEL" is 127.7 kg per km, 0.05 sq.inch size ACSR "RABBIT" is 214 kg per km and 0.1 sq inch size ACSR "DOG" is 394 kg per km. For any reduction in the actual weight of the conductor from guaranteed weight, the deduction on the contract cost will be made by the NEA for the reduced weight as per the rate quoted on the price schedule. However no extra cost will be paid to the contractor for the increased weight (hence length of the conductor).

1.3. General Specification:

The ACSR Conductor to be supplied under this contract shall bear the following technical particulars :

	Description	RABBIT	WEASEL
1	Size	0.05 sq. Inch	0.03 sq. Inch
2	Number/Diameter of wire	61.7 mm ²	36.88 mm ²
	a. Aluminium	6/3.35	6/2.59
	b. Steel	1/3.35	1/2.59
3	Cross Section:		
	a. Aluminium	52.88 mm ²	31.63 mm ²
	b. Steel	8.81 mm ²	5.27 mm ²
	c. Total	61.70 mm ²	36.90 mm ²
4	Conductor Diameter	10.05 mm	7.77 mm
5	Ultimate Strength	1871 kg	1135 kg
6	Modulus of Elasticity	0.8055 x 10 ⁶	0.8055 x 10 ⁶
7	Coefficient of Linear Expansion	19.5 x 10 ⁻⁶	19.1 x 10 ⁻⁶
8	Standard Mass of Conductor	214 kg /km	127.7 kg /km
9	Electrical DC Resistance at 20°C	0.5426 ohm/km	0.9077 ohm/km
10	Standard Non Jointed Length on reel	3000	5000
11	Breaking Load	18.71 kN	11.66 kN
12	Mass of Zn Coating in steel strands	244 gm/m ²	230 gm/m ²
13	Nominal copper area	50 mm ²	20 mm ²
14	Standards	BS:215 part2, IEC209	

1.4. Tests

The manufactured conductors shall be subjected to the routine test at the manufacturer's premises before shipment. The following tests will be carried out as per IS398:Part 2 1976 Aluminum Conductor, ACSR Conductor (Second edition):

- a. Breaking Load Test
- b. Ductility Test
 - (i) Torsion test
 - (ii) Elongation Test



- c. Wrapping Test for Al. wires & Galvanized Steel wires
- d. Resistance test
- e. Galvanizing test

1.5 Packaging

Each reel of conductor furnished shall contain only one (1) length of cable. In other words there should not be any joint in the conductor rolled in a reel.

- a) The conductor drum shall be made of steel suitably protected against corrosion. Protective external lagging of sufficient thickness shall be provided and fitted closely on the reels. Binder consisting of steel straps shall be provided over the external laggings. The drum shall be new and sufficiently rugged in construction to withstand ocean shipping, road transport, several loading and unloading, storage in tropics, hauling and field erection of conductor without distortion or disintegration.
- b) All reel shall be legibly marked in paint with the following information:

- ❖ Size of conductor
- ❖ Type of conductor
- ❖ Color of insulation
- ❖ Length in meters
- ❖ Net weight of conductor
- ❖ Direction of rolling
- ❖ Total weight of the whole reel

1.6 Bid Documentation:

The bidder shall provide with the bid two (2) clear copies of the standard governing fabrication of the conductor and two (2) clear copies of all other specification referenced therein as relevant to the fabrication and testing of the ACSR conductor. The supplier shall also provide with the certificate of compliance, as specified in BS215Part2: 1970 at the time of the shipment of each lot of conductor or as required by the appropriate selection of the equivalent national standard. The Bidder shall provide certified test results of all types of ACSR conductors as required by governing standards.

All data, drawings, catalogue and others technical documents shall be bound separately from the Bid documents.

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TECHNICAL DATA SHEET
(To be filled in by the Bidder/ Manufacturer)

The Bidders/manufacturers are required to furnish the following information in the Data Sheet. Separate sheets can be used if additional space is required. The information furnished shall be supported by the catalogue and test reports. The information not supported by the catalogues, test reports etc. shall be deemed to have been "Not Provided".

The bidders/manufacturers are also required to underline the information asked for in the catalogue and /or test reports. Any deviation from NEA's requirements shall be clearly mentioned giving the reasons thereof.

ACSR Conductor

S.No.	Description			Bidders' Offer	
1	Manufacturer				
2	Governing Standards				
3	Copies of Standards Attached?				
4	Copies of type test attached?				
5	If standards are not to BS 215 / IEC: 209 (Part II) , are conductor specifications as the BS: 215 requirements in respect of the followings?				
	Diameter		Yes/No		
	Stand Size		Yes/No		
	Direction of Lay		Yes/No		
	Lay Ratio		Yes/No		
	Materials		Yes/No		
6	Technical Data				
	1	Size		0.05 sq. Inch "RABBIT"	0.03 sq. Inch "WEASEL"
	2	Number/Diameter of wire			
		a. Aluminium			
		b. Steel			
	3	Cross Section:			
		a. Aluminium			
		b. Steel			
		c. Total			
	4	Conductor Diameter			
	5	Ultimate Strength			
	6	Modulus of Elasticity			
	7	Coefficient of Linear Expansion			
	8	Standard Mass of Conductor			
	9	Electrical DC Resistance at 20°C			
	10	Standard Non Jointed Length on reel			
	11	Breaking Load			
		a. Aluminium			
		b. Steel			
	12	Mass of Zn Coating in steel strands			



SPECIFICATION – NEA -02

PORCELAIN INSULATORS

1. Scope

This Specification covers the fabrication and supply of pin insulators, disc insulators, stay insulators and shackle insulators, as herein specified for use on overhead power line construction.

2. General

- 2.1 All porcelain insulators shall be fabricated and tested in accordance with the Standards referenced or other national or international standards, for each type of insulator.
- 2.2 Porcelain shall be sound, free from defects, thoroughly vitrified and smoothly glazed. The glaze shall be brown in color. The glaze shall cover all exposed parts of the insulators.
- 2.3 The design of insulators shall be such that stresses due to expansion and contraction in any part of the insulator shall not lead to deterioration. The porcelain shall not engage directly with hard metal.
- 2.4 The cement used in construction of insulators shall not give rise to chemical reaction with metal fittings and its thickness shall be as uniform as possible.
- 2.5 The insulators should be manufactured in **automatic temperature-controlled kilns** to obtain uniform baking and better electrical and mechanical properties.
- 2.6 The manufacturer of the Insulators must have been accredited with ISO 9001 (including design in the scope of registration) quality certification.

3. Pin Insulator

- 3.1 The pin insulator shall be manufactured and tested in accordance with IS: 731-1971 and IS:3188 or the latest version thereof or any other national or international standards that ensures at least equal or better quality to the standard mentioned above, will also be acceptable. The lead thread shall be compatible with the insulator pin specified in these documents.

The pin insulator shall have following ratings and features:

Highest system voltage	12 kV	36 kV
Rated voltage	11 kV	33 kV
Creepage distance (min)	230 mm	580 mm
Wet power frequency withstand voltage	35 kV	75 kV
Impulse withstand voltage	75 kV	170 kV



Puncture power frequency voltage (min)	105 kV	180 kV
Visible discharge voltage (Effective)	9 kV	27 kV
Cantilever strength	5 KN	10 KN
G I pin head	Small	Large
	IS Ref.165P	IS Ref.L300N
	IS 2486 Part-II	

4. Disc Insulator

- 4.1 The disc insulator shall be manufactured and tested in accordance with IS: 731-1971 or latest version thereof or any other national or international standards that ensures at least equal or better quality to the standard mentioned above, will also be acceptable.
- 4.2 The disc insulator shall be ball and socket fitting type. The disc insulator shall have the following ratings and features:

Highest system voltage	12 kV
Rated voltage	11 kV
Porcelain diameter (min)	255 mm
Spacing	145 mm
Creepage distance (min)	280 mm
Power frequency puncture Withstand voltage	1.3 x Actual dry flashover voltage
Wet power frequency Withstand voltage	35 kV
Impulse withstand voltage	75 kV
Puncture power frequency Voltage (min)	105 kV
Visible discharge voltage	9 kV
Mechanical strength	45 KN
Ball and socket size	16 mm B
Applicable standard for Special characteristics	IS: 3188-1980

5. Stay Insulator



5.1 The stay insulator shall be manufactured and tested in accordance with IS: 5300-1969 or the latest version thereof or any other national or international standards that ensures at least equal or better quality to the standard mentioned above, will also be acceptable. The stay insulator shall have following ratings and features.

-	Highest system voltage	12 kV	36 kV
-	Rated voltage	11 kV	33 kV
-	Creepage distance (min)	41 mm	57 mm
-	Minimum failing load	44 KN	88 KN
-	Power frequency withstands voltage, 1 minute:		
	Dry	18 kV	27 kV
	Wet	8 kV	13 kV
-	IS designation	A	C

6. Shackle Insulator

6.1 The shackle insulator shall be manufactured and tested in accordance with IS: 1445-1977 or the latest version thereof or any other national or international standards that ensures at least equal or better quality to the standard mentioned above, will also be acceptable.

6.2 The shackle insulator to be furnished shall have following ratings and features:

Highest system voltage	1 kV
Rated voltage	500 V
Power frequency withstands voltage, 1 minute:	
Dry	23 kV
Wet	10 kV
Power frequency puncture withstand voltage, 1-minute	
1.3 X actual dry flashover voltage	
Leakage distance (min)	75 mm
Mechanical strength	16 KN
IS type	2
Type	A

7. MARKING

7.1 Each insulator shall be legibly and indelibly marked to show the following:

- Name or trademark of manufacturer.



- b) Year of manufacture.
- c) Minimum failing load in Newtons (for pin and disc insulators only)

7.2 Markings on porcelain shall be printed and shall be applied before firing.

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8.0 TESTS

The insulators shall comply with the following tests as per IS: 731-1971

8.1 TYPE TEST

- a. Visual examination,,
- b. Verification of dimensions,
- c. Visible discharge test,
- d. Impulse voltage withstand test,
- e. Wet power frequency voltage withstand test
- f. Temperature cycle test,
- g. Mechanical failing load test
- h. 24-hour mechanical strength test for strain insulators
- i. Puncture test
- j. Porosity test and
- k. Galvanizing test

8.2 ROUTINE TEST

- Visual examination
- Mechanical routine test
- Electrical routine test

9. BID DOCUMENTATION

- 9.1 The Bidder shall provide with the Bid two (2) clear copies of the governing standards for fabrication and testing of porcelain insulators and two (2) clear copies of all other relevant standards referenced therein.
- 9.2 The Bidder shall provide certified type test results of all types of porcelain insulators as required by governing standards and the documentary evidence to show that it has automatic temperature-controlled kilns. Failure of bidder to provide the said documents shall lead to rejection of its bid.
- 9.3 The Bidder shall furnish two (2) sets of dimensional drawings of all types of porcelain insulators.
- 9.4 The Bidder shall provide complete description, catalogue (in original) dimensional drawings of all types of insulators.
- 9.5 All data, drawings, catalogues and other technical documents shall be bound separately from the Bid documents.

SPECIFICATION – NEA-03

INSULATOR PINS

1. Scope

This Specification covers the fabrication and supply of bolt-type cross arm insulator pins.

2. Description

- 2.1 The insulator pin to be supplied shall conform to the nominated standards or to internationally accepted standards and to the shape and dimensions shown in the drawings contained in this specification. The insulator pin shall be furnished with a spring steel split lock washer and nut assembled on the insulator pin. The ratings and features of the insulator pins shall be as follows:

	For 12 kV	For 33 kV
Head type	Small S165P	Large L 300N
Total length	315 mm	450 mm
Stalk length	165 mm	300 mm
Shank length	150 mm	150 mm
Minimum failing load	5 KN	10 KN
Applicable standard	IS: 2486 (Part I & II) or equivalent national or international standard.	

The insulator pins shall be compatible with the insulators specified in Specification – NEA-02 and those listed in the Price Schedule.

3. Material

- 3.1 The insulator pins specified herein shall be fabricated from hot rolled steel. The pin shall be a single piece obtained preferably by the process of forging. It shall not be made by jointing, welding, shrink fitting or any other process from more than one piece of material. It shall be of good finish free from flaws and other defects. The finish of the collar shall be such that a sharp angle between the collar and the shank is avoided.

4. Galvanizing

- 4.1 All ferrous pins, nuts and washers except those made of stainless steel shall be hot dip galvanized. The threads of nuts shall be cut after galvanizing and shall be well oiled and greased. The galvanizing shall conform to IS 2629-1985 or equivalent national or international standard.

5. Finish

All insulator pins shall be reasonably smooth on all surfaces and free of sharp projections.

6. Tests

- 6.1 Insulator pins shall comply with the following tests as per IS: 2486.



6.2 Type Tests:

- Visual examination test,
- Checking of threads on head,
- Galvanizing test,
- Mechanical test.

6.2 Acceptance Tests:

- Checking of threads on head,
- Galvanizing test,
- Mechanical test.

6.3 Routine Test:

- Visual examination.

7. Bid Documentation

- 7.1 The Bidder shall furnish with the Bid a complete description of all insulator pins to be furnished, including dimensional drawings, certified copies of type-test results of all tests required, the identity of the proposed manufacturer, and the manufacturers' catalogue number and catalogue cuts. All technical data required to be furnished with the Bid shall be bound separately from the Bid Document.

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SPECIFICATION – NEA-04
**DISC INSULATOR FITTINGS
(TENSION SET)**

1. Scope

1.1 This specification covers the fabrication and supply of tension type disc insulator fittings.

2. Description

2.1 The disc insulator fittings shall be supplied with ball and socket couplings, twisted straps, and tension clamps. The insulator fittings shall conform to the shape and dimension shown in the drawings.

3. Material

3.1 The tension clamp shall be of the malleable iron type. Other accessories like ball and socket, nuts, bolts shall be made of hot rolled steel and the twisted cross arm strap shall be made of MS sheet metal. Cotter bolts and U-bolts shall be of galvanized steel. Cotter pins shall be stainless steel.

3.2 All forgings and castings shall be of good finish and free from flaws and other defects. The edges on the outside of fittings, such as the ball socket and holes, shall be rounded. The nominal dimensions of the ball and socket, ball eye and twisted cross arm straps, are given in Drawings. The ultimate strength of clamps shall not be less than 45 KN.

4. Galvanizing

4.1 All ferrous fittings and the parts other than those of stainless steel, shall be hot dip galvanized as per IS: 2629-1985 or equal internationally recognized standards.

5. Tests

5.1 The disc insulator fittings shall comply with the following tests as per IS: 2486 or equivalent national or international standard.

(a) ***Type Test:***

- Verification of Dimensions,
- Visual Examination Test
- Slip Strength Test,
- Mechanical Test,
- Electrical Resistance Test,
- Heating Cycle Test.

(b) ***Acceptance Tests:***

- Verification of dimensions,
- Galvanizing,
- Mechanical Tests.

(c) ***Routine Tests:***

- Visual Examination Tests
- Routine Mechanical Test



SPECIFICATION – NEA-05

SHACKLE INSULATOR FITTINGS

1. Scope

- 1.1 This Specification covers the fabrication and supply of D-Iron type shackle insulator fittings, and shackle strap required for shackle insulators for use in overhead low voltage line construction.

2. General Requirements

- 2.1 The shackle fittings shall be free of burrs, splinters, splits, sharp points and edges which may damage conductors or show evidence of poor workmanship. All ferrous fittings and parts other than stainless steel shall be galvanized as per IS: 2629-1985 or equivalent national or international standard. The minimum coating thickness shall be not less than 85 micron.

3. Other Requirements

- 3.1 D-iron type shackle fittings shall consists of the following main components:
- Mild steel D-iron;
 - 1 no. of mild steel bolt and nut;
 - 1 no. of spring washer.

The shackle strap consists of:

- 2 nos. of mild steel straps;
- 1 no. of mild steel bolt and nuts;
- 1 no. of spring washer.

The shackle strap shall be compatible with the type of shackle insulator intended to be used with it.

4. Tests

- 4.1 The shackle fittings shall comply with the following tests as per IS: 7935 or equivalent national or international standard:

1. **Type Tests:**

- Visual Examination,
- Verification of Dimensions,
- Galvanizing.

2. **Acceptance Tests:**

- Verification of Dimensions,
- Galvanizing Tests.

3. **Routine Test:**

- Visual Examination Test.





SPECIFICATION – NEA-06

STAY SET

1. Scope

This Specification covers the fabrication and supply of adjustable threaded, galvanized steel stay sets for use in overhead line construction.

2. Material

- 2.1 The stay set shall consist of mild steel, galvanized stay rod, stay tightener (turn buckle) or adjustable head, eyebolt for Steel Tubular pole or two-way clamp and twisted double-eye for steel tubular pole, thimbles complete with stay plate as shown in the conceptual drawings Dwg. A1.
- 2.2 The manufacturer of the Stay Set must have been accredited with ISO 9001 or ISO 9002 quality certification.
- 2.3 The stay rod and stay tightener shall be made of mild steel of minimum ultimate tensile strength of 4200-kg/sq. cm.
- 2.4 The stay plate shall be square type mild steel plate.
- 2.5 The thimbles shall be made of 1.219mm (18 SWG) GI sheet.

3. Description

- 3.1 Conceptual drawings of stay set and its associate hardware are given in Dwg. A1, and technical features and dimensions in Table 1.
- 3.2 The stay rod is either thimble-eye type or twin-eye type. The stay rod and suitable nut shall be fabricated to the shape and dimensions shown in Dwg. A1. The thimble-eye or twin-eye of the stay rod shall be made by drop forged processing. The thread form at the threaded end of the rod, and that of the accompanying nut, shall be optional with the supplier. However, it shall be the responsibility of the Supplier to supply the stay rod with a thread form that shall sustain the rated loads specified in Table 1 without creep or stripping over the full life of the rod material at specified diameter.
- 3.3 The stay tightener shall be fabricated in accordance with the conceptual drawing shown in Dwg. A1.
- 3.4 The eyebolt shall be oval-eye type. The eyebolt shall be made by drop-forged processing. The eyebolt shall be supplied with suitable nut and washer.
- 3.5 The two-way clamp required for mounting stay set (stay tightener) in steel tubular pole shall be made of hot-rolled steel flat. The clamp shall be two halve type and shall be provided with two numbers of nuts and bolts, diameter not less than 19 mm. The both ways of the clamp shall be suitable for accommodating two numbers of twisted double-eye fittings described in Clause 3.5 below. The two-way clamp shall be following types:
 - a) Type A: Suitable for pole diameter ranging from 180-230 mm.
 - b) Type B: Suitable for pole diameter ranging from 140-180 mm.



- 3.6 The twisted double eye shall be made by drop-forged processing. The twisted double-eye shall be twisted in 90^0 . The diameter of the steel shall not be less than 16 mm., and eye of the twisted-eye shall be suitable for accommodating sty tightener.
- 3.7 The Stay plate shall be square and the plate shall have a matching hole at the center to fit the end of the stay rod.
- 3.8 The thimble shall be suitable for terminating steel stay wire with a preformed grip.
- 3.9 After galvanizing, the nut and rod threading shall be such that the nut may be run the full length of the thread without the use of tools.

4. **Galvanizing**

- 4.1 All ferrous parts of the stay set shall be galvanized after fabrication in accordance with IS: 2629-1985 or the latest version thereof or any other national or international standards that ensures at least equal or better quality to the standard mentioned above, will also be acceptable.

5. **Tests**

- 5.1 Apart from the tests indicated in the relevant referenced standards of steel, the stay set shall undergo following type tests:
 - Visual Inspection.
 - Verification of Dimensions.
 - Tensile test: The stay set assemblies shall withstand a minimum tensile loads specified in Table 1.
 - Bend test: The stay rod shall be bend-tested over a mandrel of 19 mm through an angle of 90 degrees at any point in the un-threaded section of the rod without fracture of the steel. Temperature of the test shall be 22.5 deg Celsius.
- 5.2 Routine tests shall be performed on each batch of the stay sets as per the relevant governing standards.

6. **Quality Assurance Program**

- Along with the Bid the Bidder shall furnish quality assurance program of the manufacturer which includes the Quality System and the Quality Plans, which shall include, among others, information to meet the following requirement, failing which the Bid shall be liable for rejection.
- i. The structure of the organization;
 - ii. The duties and responsibilities assigned to staff ensuring quality of works;
 - iii. The system for purchasing, taking delivery and verification of materials;
 - iv. The system for ensuring quality of workmanship;
 - v. The quality assurance arrangement shall conform to relevant requirements of ISO9001;
 - vi. Statement giving list of important raw materials, names of manufacturer for the raw materials, list of standards according to which the raw materials are tested, list of test normally carried out on raw materials;
 - vii. List of manufacturing facilities available;
 - viii. List of areas in manufacturing process, where stage inspections are normally carried out for quality control and details of such tests and inspections;
 - ix. List of testing equipment available with the manufacturer for final testing of equipment specified and the test plant limitation, if any, vis-à-vis the type, special, acceptance and routine tests specified in the relevant standards.

7. Bid Documentation

- 7.1 The Bidder shall provide a complete description, catalogue and two (2) clear copies of certified dimensional drawings of all the components of the stay set.
- 7.2 A clause-by-clause commentary on specification, specifying compliance and deviations, if any.
- 7.3 All data, drawings, catalogues and other technical documents shall be bound separately from the Bid documents.

TABLE 1

RATINGS AND FEATURES

	11m	8m
Length of stay rod, m.	2.44	1.8
Diameter of stay rod, mm.	19	16
Ultimate tensile strength of stay rod and tightner (min.), kg/sq. mm.	4200	4200
Minimum breaking load, kg.	10,454	7,272
Length of threaded portion, mm.	300	300
Thimble shape	Suitable for preformed for 7/12 SWG stay wire	Suitable for preformed for 7/12 SWG stay wire
Thimble section Min.), SWG	18	18
Stay plate section, mm.	600×600×6	300×300×6
Eyebolt length, mm./1	300	300
Galvanization	<i>IS: 2629-1985</i>	

Note:

1. For the steel tubular pole, two-way pole clamp and twisted double-eye shall be provided instead of eye-bolt.

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SPECIFICATION – NEA-06

STRANDED STAY WIRE

1. **Scope**

This Specification covers the fabrication and supply of galvanized stranded steel wire for use in overhead power line as stay wire ropes for line supports.

2. **Description**

2.1 The steel strand shall be fabricated in accordance with B.S. 183 1972/(1983) or any revision thereof or other equivalent national or international standard provided that the resulting steel stock is of equal quality and strength. The minimum tensile strength of the steel shall be 4200 kg/cm². The wires shall be 45-ton quality.

2.2 The steel wire strand shall have a left-hand lay. The steel wires shall have no joint throughout the whole length. Strands shall be uniform and shall have no defects such as cracks, dust encapsulation or crevices. Further details are given in Table 1 herein.

2.3 The manufacturer of the Stranded Stay Wire must have been accredited with ISO 9001 or ISO 9002 quality certification.

3. **Galvanizing**

3.1 The stranded stay wire shall be galvanized after fabrication in accordance with IS: 2629-1985 or any revision thereof or any other national or international standards that ensure at least equal or better quality to the standard mentioned above will also be acceptable.

4. **Tests**

4.1 The stranded stay wire shall undergo type and routine tests in accordance with the governing standard.

5. **Packaging**

5.1 The stranded stay wire shall be furnished in reels holding approximately 300m. Each reel shall have a weather - resistant tag securely attached showing the length, nominal diameter, number of individual wires, and grade of the strand.

6. **Quality Assurance Program**

Along with the Bid the Bidder shall furnish quality assurance program of the manufacturer which includes the Quality System and the Quality Plans, which shall include, among others, information to meet the following requirement, failing which the Bid shall be liable for rejection.

- i. The structure of the organization;
- ii. The duties and responsibilities assigned to staff ensuring quality of works;
- iii. The system for purchasing, taking delivery and verification of materials;
- iv. The system for ensuring quality of workmanship;
- v. The quality assurance arrangement shall conform to relevant requirements of ISO9001;
- vi. Statement giving list of important raw materials, names of manufacturer for the raw materials, list of standards according to which the raw materials are tested, list of test normally carried out on raw materials;
- vii. List of manufacturing facilities available;



- viii. List of areas in manufacturing process, where stage inspections are normally carried out for quality control and details of such tests and inspections;
- ix. List of testing equipment available with the manufacturer for final testing of equipment specified and the test plant limitation, if any, vis-à-vis the type, special, acceptance and routine tests specified in the relevant standards.

7. Bid Documentation

- 7.1 The Bidder shall provide with the Bid two (2) clear copies of the governing standards for fabrication and testing of stranded stay wire and two (2) clear copies of all other relevant standards referenced therein.
- 7.2 The Bidder shall provide a complete description, and catalogue of stranded stay wire.
- 7.3 The Bidder shall provide certified type test results of insulator pins as required by governing standards.
- 7.4 A clause-by-clause commentary on specification, specifying compliance and deviations, if any.
- 7.5 All data, drawings, catalogues and other technical documents shall be bound separately from the Bid documents.

TABLE 1
RATING AND FEATURES

	11m	8m
Steel Wire Size (No. of wire/SWG)	7/12	7/12
Grade	700	700
Steel quality	45 ton	45 ton
Diameter of Wires, mm.	2.64	4.06
Minimum Weight, kg/km	300	720
Applicable Standard	B.S. 183 1972/(1983)	B.S. 183 1972/(1983)
Galvanization	IS: 2629-1985	IS: 2629-1985

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SPECIFICATION – NEA-07

GALVANISED STEEL BOLTS, NUTS AND

MISCELLANEOUS FASTENING COMPONENTS

1. **Scope**

- 1.1 This Specification covers the fabrication and supply of galvanized steel bolts and nuts, as specified herein, for use in overhead electric line construction.

2. **Material**

- 2.1 The bolts and nuts shall be manufactured and tested in accordance with IS: 1363 (Part I)-1984 or the latest version thereof or any other national or international standards that ensures at least equal or better quality to the standard mentioned above, will also be acceptable.

3. **General**

- 3.1 Bolts and nuts shall be furnished in the types, diameters and lengths specified in the Schedules of Rates and Prices. **However, the dimensions and length of threading of bolt must be confirmed with the Project prior to manufacture.**
- 3.2 Thread forms shall be consistent with all material/items listed herein and shall not strip or slip under sustained tensile loading equal to the design tensile strength of the threaded material item.
- 3.3 The manufacturer must have been accredited with ISO 9001:2000 with design and manufacturing quality certification.

4. **Machine Bolt and Nut**

- 4.1 Each machine bolt shall be furnished with two (2) hexagonal nuts and two (2) plain washers assembled thereon.

5. **Double-Arming Bolt and Nut**

- 5.1 Each double-arming bolt shall be furnished with four (4) hexagonal nuts and two (2) washers assembled thereon.

6. **Galvanizing**

- 6.1 The stranded stay wire shall be galvanized after fabrication in accordance with IS: 2629-1985 or any revision thereof or other equivalent national or international standard provided that ensure at least equal or better quality to the standard mentioned above will also be acceptable.

7. **Tests**

- 7.1 The bolt and nut shall undergo type and routine tests in accordance with the relevant governing standard.

8. **Quality Assurance Program**

Along with the Bid the Bidder shall furnish quality assurance program of the manufacturer which includes the Quality System and the Quality Plans, which shall include, among



others, information to meet the following requirement, failing which the Bid shall be liable for rejection.

- i. The structure of the organization;
- ii. The duties and responsibilities assigned to staff ensuring quality of works;
- iii. The system for purchasing, taking delivery and verification of materials;
- iv. The system for ensuring quality of workmanship;
- v. The quality assurance arrangement shall conform to relevant requirements of ISO9001;
- vi. Statement giving list of important raw materials, names of manufacturer for the raw materials, list of standards according to which the raw materials are tested, list of test normally carried out on raw materials;
- vii. List of manufacturing facilities available;
- viii. List of areas in manufacturing process, where stage inspections are normally carried out for quality control and details of such tests and inspections;
- ix. List of testing equipment available with the manufacturer for final testing of equipment specified and the test plant limitation, if any, vis-à-vis the type, special, acceptance and routine tests specified in the relevant standards.

9. Bid Documentation

- 9.1 The Bidder shall provide with the Bid two (2) clear copies of the governing standards for fabrication and testing of bolt and nut and two (2) clear copies of all other relevant standards referenced therein.
- 9.2 The Bidder shall provide certified type test results of bolt and nut as required by governing standards.
- 9.3 The Bidder shall provide catalogue and certified dimensional drawings of all types of bolt and nut.
- 9.4 A clause-by-clause commentary on specification, specifying compliance and deviations, if any.
- 9.5 All data, drawings, catalogues and other technical documents shall be bound separately from the Bid documents.

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SPECIFICATION – NEA-08

PREFORMED WIRE PRODUCTS FOR STAY SETS

1. Scope

This Specification covers the fabrication and supply of wire strand grips for stay set commonly used in overhead power line construction.

2. Description

2.1 The design of the preformed wire products specified herein shall be appropriate for the optimum combination of conductor strand diameter, inside diameter, rod diameter, pitch diameter, number of pitch lengths, direction of lay, and raw materials of the specific application.

2.2 The manufacturer of the Preformed Wire Products must have been accredited with ISO 9001:2000 with design and manufacturing quality certification.

2.3 The preformed wire product shall be so designed to grip the designated surface evenly, with evenly-spaced gaps, and shall not bridge the gripped surface due to excessive number of strands in the grip or tie.

3. Steel Wire Strand Grip for Stay Set

3.1 The steel wire strand grip shall be designed for use with thimble eye or double eye stay rod and tightner fabricated in accordance SPECIFICATION: S.P.13.0, stay wire fabricated in accordance with SPECIFICATION: S.P.14.0 (B.S. 183 1972/(1983)) and stay insulator fabricated in accordance with SPECIFICATION: S.P.11.0 (IS:5300-1969).

3.2 The steel wire strand grip shall be furnished for strand size and grade in accordance with Table 2.

3.3 The steel wire strand grip shall be manufactured of a galvanized steel wire in cabled loop form with long and short legs. The grip shall have a left-hand lay. Galvanizing shall be equivalent to Class C zinc coating per ASTM A-475.

3.4 The steel wire strand grip shall be color-coded for strand size and length and shall have one (1) or two (2) crossover marks for different diameter fittings. An identification tag shall be attached showing the manufacturer's catalogue number and applicable strand size.

3. Tests

The performs shall undergo type and routine tests in accordance with the relevant governing standard.

4. Quality Assurance Program

Along with the Bid the Bidder shall furnish quality assurance program of the manufacturer which includes the Quality System and the Quality Plans, which shall include, among others, information to meet the following requirement, failing which the Bid shall be liable for rejection.

- i. The structure of the organization;
- ii. The duties and responsibilities assigned to staff ensuring quality of works;
- iii. The system for purchasing, taking delivery and verification of materials;
- iv. The system for ensuring quality of workmanship;



- v. The quality assurance arrangement shall conform to relevant requirements of ISO9001;
- vi. Statement giving list of important raw materials, names of manufacturer for the raw materials, list of standards according to which the raw materials are tested, list of test normally carried out on raw materials;
- vii. List of manufacturing facilities available;
- viii. List of areas in manufacturing process, where stage inspections are normally carried out for quality control and details of such tests and inspections;
- ix. List of testing equipment available with the manufacturer for final testing of equipment specified and the test plant limitation, if any, vis-à-vis the type, special, acceptance and routine tests specified in the relevant standards.

5. Bid Documentation

- 5.1 The Bidder shall provide with the Bid two (2) clear copies of the governing standards for fabrication and testing of preformed wire products and two (2) clear copies of all other relevant standards referenced therein.
- 5.2 The Bidder shall provide certified type test results of preformed wire products as required by governing standards.
- 5.3 The Bidder shall provide complete description, and catalogue of preformed wire products.
- 5.4 A clause-by-clause commentary on specification, specifying compliance and deviations, if any.
- 5.5 All data, drawings, catalogues and other technical documents shall be bound separately from the Bid documents.

TABLE 1
STEEL WIRE STRANDED GRIPS

Tie Application for Strand Size	Identification Tag and Color Code	
7/8 SWG	GS-1	Red
7/12 SWG	GS-2	Blue

Note: All designations shown are used for product identification for the purpose of this IFB.



SPECIFICATION – NEA-09

CROSSARMS AND BRACING ANGLES

1. **Scope**

This Specification covers the fabrication and supply of galvanized steel cross-arms and bracing members commonly used in overhead power line construction.

2. **Material**

2.1 The steel cross-arms shall be fabricated from hot rolled channels and angles.

2.2 The steel channels and angles shall be fabricated and tested in accordance with Indian Standards IS: 226-1975 and IS-808-1964 or any revision thereof or other equivalent national or international standard provided that ensure at least equal or better quality to the standard mentioned above will also be acceptable. The minimum tensile strength of the steel shall be 4200 kg/cm².

3. **Description**

3.1 The steel cross-arms and bracing angles shall be of sizes shown in the Table 1: Cross-arms and bracing angles, contained herein.

3.2 Conceptual hole pattern and size of holes on cross-arm channels are shown in appropriate drawings herein, however, the Supplier must confirm with the Project the locations and sizes of holes prior to the manufacture.

3.3 The surface of the steel shall be flat after drilling or (punching) and free of dimpling or imperfections. The hole edges shall be broken by reaming. The holes shall be full dimension after galvanizing and no minus tolerance of specified hole size will be accepted.

3.3 The steel cross-arm and bracing angles shall be furnished reasonably smooth on all surfaces and free of burrs or sharp projections.

4. **Galvanizing**

4.1 The steel cross-arms and bracing angles shall be galvanized after fabrication in accordance with IS: 2629-1985 or any revision thereof or other equivalent national or international standard provided that ensure at least equal or better quality to the standard mentioned above will also be acceptable..

5. **Tests**

5.1 Apart from the tests indicated herein in the referenced standards, the channels and angles shall undergo following tests:

- Visual Inspection;
- Verification of Dimensions;

6. **Quality Assurance Program**

Along with the Bid the Bidder shall furnish quality assurance program of the manufacturer which includes the Quality System and the Quality Plans, which shall include, among others, information to meet the following requirement, failing which the Bid shall be liable for rejection.

- i. The structure of the organization;
- ii. The duties and responsibilities assigned to staff ensuring quality of works;
- iii. The system for purchasing, taking delivery and verification of materials;
- iv. The system for ensuring quality of workmanship;
- v. The quality assurance arrangement shall conform to relevant requirements of ISO9001;



- vi. Statement giving list of important raw materials, names of manufacturer for the raw materials, list of standards according to which the raw materials are tested, list of test normally carried out on raw materials;
- vii. List of manufacturing facilities available;
- viii. List of areas in manufacturing process, where stage inspections are normally carried out for quality control and details of such tests and inspections;
- ix. List of testing equipment available with the manufacturer for final testing of equipment specified and the test plant limitation, if any, vis-à-vis the type, special, acceptance and routine tests specified in the relevant standards.

7. Bid Documentation

- 7.1 The Bidder shall provide with the Bid two (2) clear copies of the governing standards for fabrication and testing of channels and angles and two (2) clear copies of all other relevant standards referenced therein.
- 7.2 The Bidder shall provide a complete description, catalogue and certified dimensional drawings of all channels and angles.
- 7.3 A clause-by-clause commentary on specification, specifying compliance and deviations, if any.
- 7.4 All data, drawings, catalogues and other technical documents shall be bound separately from the Bid documents.

TABLE 1: STEEL CROSSARM CHANNELS AND ANGLE BRACES

S.NO.	Description	Type	Dimension in mm.	
1.	Top Cross Arm	Channel	100*50*50*6.4 *385	
2.	Cross Arm	Channel	100*50*50*6.4 *1650	
3.	Arm Brace	Channel	50*5*948	
4.	Cross Arm Channel for double pole	Channel	100*50*50*6.4 *3400	
5.	Offset Channel	Channel	100*50*50*5*2100	
6.	Bracing Angles	Angle	100*50*6.4 *2648	
7.	Bracing Angle	Angle	100*50*6.4 *2250	

SPECIFICATION – NEA-10

FLAT CROSSARM BRACE

1. **Scope**

This Specification covers the fabrication, testing and supply of flat, galvanized steel cross-arm braces.

2. **Material**

2.1 The flat cross-arms brace shall be fabricated out of hot rolled steel flat.

2.2 The steel flat for cross-arms brace shall be fabricated and tested in accordance with Indian Standards IS: 226-1975, and IS-1731-1971 or any revision thereof or other equivalent national or international standard provided that ensure at least equal or better quality to the standard mentioned above will also be acceptable. The minimum tensile strength of the steel shall be 4200 kg/cm².

3. **Description**

3.1 The brace shall be furnished reasonably smooth on all surfaces and free of burrs or sharp projections.

3.2 The surface of the steel shall be flat after drilling or (punching) and free of dimpling or imperfections. The hole edges shall be broken by reaming. The holes shall be full dimension after galvanizing and no minus tolerance of specified hole size will be accepted.

3.3 The brace shall have a minimum tensile strength of 3182 kg at the bolt-hole and bolt slot.

3.4 The brace shall be capable of being bent 10 degrees at the bolt hole or slot and 140 degrees at any point between hole and slot without cracking of the base metal on the outside of bent portion.

3.5 The brace shall be drilled and dimensioned in accordance with Dwg. attached herein.

4. **Galvanizing**

4.1 The flat cross arm brace shall be hot dipped galvanized after fabrication in accordance with IS: 2629-1985 or any revision thereof or other equivalent national or international standard provided that ensure at least equal or better quality to the standard mentioned above will also be acceptable.

5. **Tests**

5.1 Apart from the tests indicated herein in the referenced standards, the flat cross arm brace shall undergo following tests:

- Visual Inspection;
- Verification of Dimensions;

6. **Quality Assurance Program**

Along with the Bid the Bidder shall furnish quality assurance program of the manufacturer which includes the Quality System and the Quality Plans, which shall include, among others, information to meet the following requirement, failing which the Bid shall be liable for rejection.

- i. The structure of the organization;
- ii. The duties and responsibilities assigned to staff ensuring quality of works;



- iii. The system for purchasing, taking delivery and verification of materials;
- iv. The system for ensuring quality of workmanship;
- v. The quality assurance arrangement shall conform to relevant requirements of ISO9001;
- vi. Statement giving list of important raw materials, names of manufacturer for the raw materials, list of standards according to which the raw materials are tested, list of test normally carried out on raw materials;
- vii. List of manufacturing facilities available;
- viii. List of areas in manufacturing process, where stage inspections are normally carried out for quality control and details of such tests and inspections;
- ix. List of testing equipment available with the manufacturer for final testing of equipment specified and the test plant limitation, if any, vis-à-vis the type, special, acceptance and routine tests specified in the relevant standards.

7. Bid Documentation

- 7.1 The Bidder shall provide with the Bid two (2) clear copies of the governing standards for fabrication and testing of flat cross arm brace and two (2) clear copies of all other relevant standards referenced therein.
- 7.2 The Bidder shall provide a complete description, catalogue and certified dimensional drawings of flat cross arm brace.
- 7.3 A clause-by-clause commentary on specification, specifying compliance and deviations, if any.
- 7.4 All data, drawings, catalogues and other technical documents shall be bound separately from the Bid documents.

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SPECIFICATION – NEA-11

TRANSFORMER PLATFORMS (FLAT ARM CHANNEL)

1. **Scope**

- 1.1 This specification covers the fabrication and supply of transformer platforms used in overhead power line construction.

2. **Material**

- 2.1 The transformer platform shall be fabricated from hot rolled channels, angles and steel members.
- 2.2 The steel channels and angles for transformer platform shall be fabricated in accordance with Indian Standards IS: 226-1975 and IS-808-1964 or any revision thereof or other equivalent national or international standard provided that ensure at least equal or better quality to the standard mentioned above will also be acceptable. The minimum tensile strength of the steel shall be 4200 kg/cm².

3. **Description**

- 3.1 The platform shall be fabricated out of galvanized steel members, field assembled by bolting.
- 3.2 The platform will support the transformer above the ground and will be supported by two-pole structures of steel tubular or Steel Tubular (STEEL TUBULAR) poles. Transformers will be bolted to the platform at four (4) points. Provision should be made for the mounting of transformers of different physical dimensions and ratings up to 200 kVA.
- 3.3 The platform shall be designed by the supplier and fabricated, in general, in accordance with the conceptual configuration shown in Dwg. A5 contained herein. The design shall provide support for a transformer of a minimum of 1500 kg in weight with a minimum safety factor of 2.0. The Platform shall be stiff and shall be capable of withstanding horizontal forces and an overturning moment due to seismic effects on a transformer with centre of gravity 0.5 meter above its base and seismic horizontal acceleration of 0.4g. The platform shall be stiff and shall not visibly deflect under static loading.
- 3.4 The platform shall be supplied disassembled, complete with all required members and fastenings. Packing may be made by banding structural members. Fastenings shall be separately packed. Structural members shall be clearly identified for ease of assembly in accordance with the assembly drawing furnished by the supplier.
- 3.5 The platform shall be suitable for fixing to support poles of 150 to 250 mm diameter in the case of poles, and to STEEL TUBULAR poles of rectangular section with 250 to 350 mm in width and 140 to 180 mm depth.

4. **Galvanizing**

- 4.1 All ferrous parts of transformer platform shall be galvanized after fabrication in accordance with IS: 2629-1985 or any revision thereof or other equivalent national or international standard provided that ensure at least equal or better quality to the standard mentioned above will also be acceptable.

5. **Tests**



- 5.1 Apart from the tests indicated herein in the referenced standards, the transformer platform shall undergo following tests:
- Visual Inspection;
 - Verification of Dimensions;

6. Quality Assurance Program

Along with the Bid the Bidder shall furnish quality assurance program of the manufacturer which includes the Quality System and the Quality Plans, which shall include, among others, information to meet the following requirement, failing which the Bid shall be liable for rejection.

- i. The structure of the organization;
- ii. The duties and responsibilities assigned to staff ensuring quality of works;
- iii. The system for purchasing, taking delivery and verification of materials;
- iv. The system for ensuring quality of workmanship;
- v. The quality assurance arrangement shall conform to relevant requirements of ISO9001;
- vi. Statement giving list of important raw materials, names of manufacturer for the raw materials, list of standards according to which the raw materials are tested, list of test normally carried out on raw materials;
- vii. List of manufacturing facilities available;
- viii. List of areas in manufacturing process, where stage inspections are normally carried out for quality control and details of such tests and inspections;
- ix. List of testing equipment available with the manufacturer for final testing of equipment specified and the test plant limitation, if any, vis-à-vis the type, special, acceptance and routine tests specified in the relevant standards.

7. Bid Documentation

- 7.1 A preliminary design of the platform shall be submitted with the Bid. Data to be supplied with the preliminary design shall be:
- a) Steel classification proposed to be used and the characteristics thereof;
 - b) Two copies of Preliminary detail drawings of the proposed platform;
 - c) Data regarding:
 - 1) Vertical and horizontal loading on poles,
 - 2) Resultant safety factor,
 - 3) Resultant deflection,
 - 4) Resultant percent of allowable tension, compression, and shear limits for the steel selected and associated fastening,
 - 5) Moments on pole due to seismic effects on the platform and transformers.
- 7.2 A clause-by-clause commentary on specification, specifying compliance and deviations, if any.
- 7.3 All data, drawings, catalogues and other technical documents shall be bound separately from the Bid documents.

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SPECIFICATION – NEA-12

POLE CLAMPS

1. **Scope**

- 1.1 This Specification covers the fabrication and supply of galvanized steel pole clamps with nuts, bolts and washers for use on overhead power line construction.

2. **Material**

- 2.1 The pole clamp shall be fabricated out of hot-rolled steel flat.
2.2 The steel flat for pole clamp shall be fabricated and tested in accordance with Indian Standards IS: 226-1975, and IS-1731-1971 or any revision thereof or other equivalent national or international standard provided that ensure at least equal or better quality to the standard mentioned above will also be acceptable. The minimum tensile strength of the steel shall be 4200 kg/cm².

3. **Description**

- 3.1 Outline details of pole clamps are shown in the drawings Dwg: A8. Dimensions may be changed to comply with the final pole sizes selected. Therefore, the dimensions must be confirmed with the Project prior to manufacture.
3.2 Two (2) numbers of galvanized, 16 mm. (dia.) × 60mm. (length), fully threaded bolts with two (2) nuts and washers shall be provided with each pole clamp.
3.3 The fittings shall be free of burrs, splinters, splits, sharp points and edges, which may damage conductors or show evidence of poor workmanship.
3.4 The surface of the steel shall be flat after drilling or (punching) and free of dimpling or imperfections. The hole edges shall be broken by reaming. The holes shall be full dimension after galvanizing and no minus tolerance of specified hole size will be accepted.
3.5 The pole clamps shall have a minimum tensile strength of 3182 kg at the bolt-hole and bolt slot.

4. **Galvanizing**

- 4.1 The pole clamps and nut, bolts and washers shall be galvanized after fabrication in accordance with IS: 2629-1985 or any revision thereof or other equivalent national or international standard provided that ensure at least equal or better quality to the standard mentioned above will also be acceptable.

5. **Tests**

- 5.1 Apart from the tests indicated herein in the referenced standards, the pole clamps shall undergo following tests:
- Visual Inspection;
 - Verification of Dimensions;

6. **Quality Assurance Program**

Along with the Bid the Bidder shall furnish quality assurance program of the manufacturer which includes the Quality System and the Quality Plans, which shall include, among others, information to meet the following requirement, failing which the Bid shall be liable for rejection.



- i. The structure of the organization;
- ii. The duties and responsibilities assigned to staff ensuring quality of works;
- iii. The system for purchasing, taking delivery and verification of materials;
- iv. The system for ensuring quality of workmanship;
- v. The quality assurance arrangement shall conform to relevant requirements of ISO9001;
- vi. Statement giving list of important raw materials, names of manufacturer for the raw materials, list of standards according to which the raw materials are tested, list of test normally carried out on raw materials;
- vii. List of manufacturing facilities available;
- viii. List of areas in manufacturing process, where stage inspections are normally carried out for quality control and details of such tests and inspections;
- ix. List of testing equipment available with the manufacturer for final testing of equipment specified and the test plant limitation, if any, vis-à-vis the type, special, acceptance and routine tests specified in the relevant standards.

7. Bid Documentation

- 7.2 The Bidder shall provide a complete description, catalogue and two (2) copies of certified dimensional drawings of pole clamps.
- 7.3 A clause-by-clause commentary on specification, specifying compliance and deviations, if any.
- 7.4 All data, drawings, catalogues and other technical documents shall be bound separately from the Bid documents.

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SPECIFICATION – NEA-13

SURGE ARRESTERS

1. Scope

This specification covers the manufacture, testing and supply of distribution type polymer-housed surge arresters commonly installed on overhead power lines.

2. Description

- 2.1 The surge arresters shall be suitable for use on a three-phase, wye-connected, ungrounded (solid grounding), 33 kV, 11 kV, 50 Hz distribution circuits at an altitude up to 2000 meters, and ambient temperatures ranging from -5 deg. C to 45 deg. C.
- 2.2 The surge arrester housing shall be of polymer type, manufactured using industry recognized polymeric material having superior insulating properties necessary for outdoor installations. The housing shall display in an indelible manner: Arrester type, voltage rating, and year of manufacture.
- 2.3 The surge arresters shall be of **gapless metal-oxide type**.
- 2.4 The surge arresters shall have line terminals and ground lead terminals accommodating copper or aluminium conductor sizes from 13.3 mm sq. (6 AWG) through 53.49mm sq. (1/ AWG). Each arrester shall be provided with nut and wire clamp as the line terminal and ground terminal accessory hardware.
- 2.5 The surge arresters shall be furnished with necessary mounting bracket and accessories necessary for steel channel (100x50x50x6mm) cross-arm mounting.
- 2.6 The surge arresters must be manufactured by a company approved to quality standard ISO 9001. The ISO 9001 certification number, the name of the authorized approving authority with the contact address and telephone and fax numbers shall also be stated. The Bidder shall enclose a verified copy of the ISO 9001 certificate with the bid.
- 2.7 The surge arresters shall have the following characteristics:

	11 kV	33 kV
a) Voltage rating (Ur), Vrms	9	30
b) Nominal system voltage, kVrms	11	33
c) Maximum system voltage, kVrms	12	36
d) System frequency, Hz	50	50
e) Nominal discharge current, kA	10	10
f) Creepage distance (terminal to base), mm	390	1000
g) Minimum power-frequency withstand		
Wet, kVrms	50	90
Dry, kVrms	70	95
h) Impulse withstand (1.2/50µsec), kVcrest	95	170
i) Maximum discharge (residual) voltage at 10kA lightning impulse current, kVcrest	29	90
j) Steep current residual voltage, kVcrest	32	99
k) Pressure relief class	B	B
High current	for 0.2s 20 kA	

- Low current for 0.5s 0.8 kA
- 2.8 The surge arresters shall be manufactured and tested in accordance with IEC 60099-4 (latest revision).
- 3. Quantity**
- 3.1 The quantity of the arresters to be under this Bid shall be as given in the Price Schedule.
- 4. Bid Documentation**
- 4.1 The Bidder shall have provided with the Bid two (2) clear copies of the governing test specification and a full description and list of electrical and protective characteristics of the surge arresters offered. The Bidder shall have to provide two (2) clear copies of certified type-set results of the surge arresters offered.

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SPECIFICATION - NEA-14

DISTRIBUTION CUTOUT

1 Scope

This Specification covers the testing and supply of open distribution cutouts commonly used on the primary side of 33 kV, 11 kV distribution transformers as protective device.

2. Description

- 2.1 The distribution cutouts shall be suitable for use on three-phase, wye-connected, ungrounded, 50 Hz distribution circuits at an altitude up to 2000 meters.
- 2.2 The distribution cutout shall be tested in full compliance with ANSI C 37.41-1981, ANSI C 37.42 or IEC 282-2.
- 2.3 The distribution cutout shall incorporate wet-process glazed porcelain insulators. The insulator shall display in an indelible manner: manufacture, type and voltage rating.
- 2.4 The fuse holder shall accommodate a non-expendable cap or an expendable cap determined by interrupting rating.
- 2.5 The cutout shall be furnished with a galvanized steel mounting bracket which may be adapted for steel channel (100x50x50x6mm) cross arm mounting.
- 2.6 The cutout shall have clamp type terminals to accept copper or aluminum conductors ranging from 25mm² to 150mm².
- 2.7 The Cut outs must be manufactured by a company approved to quality standard ISO 9001. The ISO 9001 certification number, the name of the authorized approving authority with the contact address and telephone and fax numbers shall also be stated. The Bidder shall enclose a verified copy of the ISO 9001 certificate with the bid.

3. Ratings

- 3.1 The distribution cutout shall have the following electrical characteristics:

		11 kV	33 kV	
System voltage	kVrms	11	33	
a) Design rating	kVrms	12	36	
b) Minimum power frequency withstand:				
	Dry	kVrms	35	90
	Wet	kVrms	30	70
c) Impulse withstand	kVcrest	95	170	
d) Interrupting capacity	kA	10	30	
e) Creepage distance	mm	200	380	
(Leakage to ground)				



- 3.2 The distribution cutout shall have 100 Ampere fuse holder. It shall have the capability of interchanging fuse holders from **100 Ampere to 300 Ampere capacities**.

4. General Requirements/Constructional Details

- 4.1 The typical constructional details of the fuse cutout are as follows:

- a. Copper current path;
- b. Copper arc shortening rod;
- c. Bird-proofed one-piece solid porcelain insulator;
- d. **Tinned plated bronze terminals** for use with copper or aluminum conductor;
- e. Two-place locking to prevent side movement of hood, contacts or hooks;
- f. One piece stainless steel channel;
- g. Stainless steel backup spring to maintain contact pressure;
- h. Silver to silver contacts;
- i. Galvanized steel hooks for load break tool;
- j. Cast bronze top tube casting and pull ring;
- k. High strength fiberglass fuse tube coated with ultra violet inhibitor;
- l. Hot stick hole in trunnion casting for hot stick work;
- m. Cast bronze lower tube casting;
- n. Stainless steel fuse link ejector and spring insures proper toggle action;
- o. Fuse holder toggle latch limits tension of fuse link;
- p. Cast bronze hinge for corrosion resistance;
- q. Large nut to fasten fuse link without breaking strands;

- 4.2 The design of cutout shall be such that the fuse holder can be interchanged with those of other manufacturer.

4. Bid Documentation

- 4.1 The Bidder shall provide with the Bid literature/catalogue giving a full description of the distribution cutouts and the fuse holders, including their operational details.
- 4.2 The Bidder shall provide a clear copy of certified type test results of the distribution cutouts offered.

5. Quantity

- 5.1 The quantity shall be as specified in the Price Schedule.



SPECIFICATION – NEA-15

FUSE LINK

1. **Scope**

This Specification covers the supply of button head fuse links commonly used in the protection of distribution transformers.

2. **Description**

- 2.1 The button-head fuse link shall be fabricated in full compliance with American National Standard specification ANSI C 37.42-1981, or latest revision thereof or any other national or international standards that ensures at least a substantially equal quality to the standard mentioned above, will also be acceptable.
- 2.2 The fuse link shall have fast characteristics and shall be suitable for protection of distribution transformers.
- 2.3 The fuse link shall be supplied in accordance with the type and ratings shown in the Bid package.

3. **Bid Documentation**

- 3.1 The Bidder shall furnish two (2) clear copies of governing standards for fabrication and testing of fuse links.
- 3.2 The Bidder shall furnish two (2) clear certified copies of catalogue of fuse links.
- 3.3 The Bidder shall furnish a clause-by-clause commentary on specification, specifying compliance and deviations, if any.
- 3.4 The Bidder shall also furnish with the Bid two (2) copies of the following data with respect to the fuse links furnished:
 - a) Time-Current (TC) characteristics curves at 30°C, including minimum melting time and total clearing time.
 - b) Preloading adjustment factors or curves.
 - c) Ambient temperature adjustment factors or curves.
- 3.5 All data, drawings, catalogues and other technical documents shall be bound separately from the Bid documents.

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SPECIFICATION – NEA-16

MOULDED CASE CIRCUIT BREAKERS

1. Scope

This specification covers the design, testing, and supply of moulded-case circuit breakers (MCCBs).

2. Description

- 2.1 The circuit breaker shall be fabricated and tested in accordance with IEC 60947 or latest revision, or an equivalent national standard and shall be suitable for connection to 400/230 volt, 3 -phase, 4 wire, un-grounded circuits.
- 2.2 The circuit breakers shall be rated in accordance with the parameters shown in Table 1 contained herein.
- 2.3 The circuit breakers shall be completely enclosed in a moulded case and shall be factory sealed. The circuit breaker shall have a quick make, quick break, over current switching mechanism that is mechanically trip-free for simultaneous tripping of all poles. Tripping due to overload or short circuit shall be clearly indicated by the position of the handle. The ON and OFF positions shall be clearly marked on the breaker case.
- 2.4 The circuit breaker shall be of inverse time and instantaneous trip type. The trip device shall be of thermal-magnetic or static release type.
- 2.5 The circuit breaker shall be provided with terminal connection of the screw-type or bus bar type as specified in Table 1. For circuit breakers with bus bar connection certain additional hardware shall be furnished with each circuit breaker as specified in Table 2 herein.
- 2.6 The circuit breakers shall be suitable for mounting in outdoor distribution panels and each breaker shall be furnished complete with one (1) set of bolt fastenings, complete with nuts and lock washers of the correct diameter for the mounting hole and of a length equal to the depth of the circuit breaker body plus approximately two (2) centimeters.
- 2.7 The circuit breakers shall have line load reversibility feature.
- 2.8 The MCCBs must be manufactured by a company approved to quality standard ISO 9001.(including design). The ISO 9001 certification number, the name of the authorized approving authority with the contact address and telephone and fax numbers shall also be stated. The Bidder shall enclose a valid copy of the ISO 9001 certificate with the bid.

3. Supply

The circuit breaker shall be supplied in accordance with the ratings shown in Table 1, the ancillary fittings shown in Table 2, and the quantities shown in the Bid packages.

4. Bid Documentation

The Bidder shall supply with the Bid the following documentation:

- a) Two (2) clear copies of the governing standard.
- b) Two (2) clear copies certified type test results as required by the governing standard.



- c) Two (2) copies of outline drawings for each breaker rating.
- d) Two (2) copies of time - current characteristic trip curves for each breaker rating.

TABLE 1

MOULDED-CASE CIRCUIT BREAKER

RATING

Rated Voltage	600 Volt
Number of Poles	3
Ampere Ratings	as per Price Schedule
Interrupting Capability	(IEC category P2)
Breaker rating:	50 to 100 Amp: 25 KA minimum (I_{cs}) 100 to 300 Amps: 35 KA minimum (I_{cs})

Impulse withstand voltage, KV 8

Breaker rated 50 Amperes through 200 amperes shall be furnished with thermal magnetic or static trip.

Breaker rated 300 Amperes through 500 amperes shall be furnished with Thermal -adjustable magnetic or static trip.

Breaker rated 50 to 100 Amperes shall accept conductors ranging from 15 mm² to 50 mm².

Breaker rated 160 to 300 amperes shall accept conductors ranging from 15 mm² to 125 mm².

Breakers rated 160 and 300 amperes shall possess busbar-type terminals. Refer to Table 2.

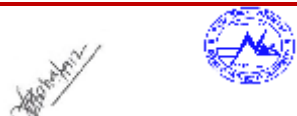
TABLE 2

CIRCUIT BREAKERS W/BUSBAR TERMINALS

BREAKER RATING	ADDITIONAL HARDWARE TO BE FURNISHED WITH EACH BREAKER
160 AMPERES	3 each 1-hole compression terminal for 75 mm square conductor
300 AMPERE	3 each 1-hole compression terminal for 150 mm square conductor

Notes:

1. All conductors will be stranded Aluminum
1. All breaker terminals, compression terminals, compression terminals, stacking spacers, and bolting shall be compatible with Aluminum conductors.



SPECIFICATION – NEA-17

DISTRIBUTION PANEL BOARD

1. Scope

1.1 This specification covers the fabrication and supply of distribution panel boards.

2. General

2.1 The panel board will be pole-mounted and used in conjunction with pole-mounted distribution transformers to house circuit breakers feeding 400/300 Volt circuits. External cabling will be provided by others.

2.2 The panel board shall be rectangular in shape with an entrance door in the front of the panel board. The panel board shall be equipped with interior stand-offs suitable for mounting moulded-case circuit breakers and for supporting cables. The panel board will be fixed to the pole by exterior mounting brackets attached to the back of the panel board. Details of these components shall be as specified in the following text and illustrated in the conceptual drawing attached hereto.

2.3 The panel board shall be fabricated to prevent ingress of moisture due to rainfall and dripping. The panel board shall be provided with means for natural ventilation.

3. Description

3.1 Material

- a) The panel board case, door, and pole mounting brackets shall be fabricated of galvanized steel sheet of minimum 2mm in thickness.
- b) The interior stand-offs shall be fabricated of steel sheet of sufficient thickness to support installed circuit breaker and cables without lateral movements.

3.2 Construction

- a) The panel board case and all interior and exterior attachment shall be spot-welded. All welding shall be of the highest quality. The panel boards shall be formed and welded square, and all attachments to the interior and exterior surfaces shall be welded square and perpendicular to the plane attached.
- b) The panel board shall be so constructed as to be water tight from blowing of free-falling rain. There shall be no apertures in the panel board case other than those provided for the entrance door, cable fittings, or ventilation. The top extension and bottom shall be so formed to provide a drip edge and prevent water from flowing on the respective under-surfaces.
- c) All individual pieces of metal shall be edge finished prior to assembly to provide surfaces and edges with are free from sharp points and edges. After welding in place, all welds shall be finished to smooth condition.

3.3 Panel Board Front

- a) The front panel shall be fabricated as a separate piece containing the panel board door and doorframe. The front shall be attached to the panel board housing by suitable bolting arrangements to provide a watertight and dust tight seal at the perimeter.

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- b) The door shall be equipped with a gaskets, removable door, door-handle lock, and suitable hinges.
- c) The door and panel frame shall be so fabricated to provide an integrated structure which is warp-resistant and which will maintain dust-tight and watertight seal.
- d) Gasket material shall be heat-resistant and shall retain its resilience over time to precluded degradation of dust-tight and watertight properties.
- e) The insert able (and removable) door handle shall provide a door and locking function. The handle shall be insulated.
- f) The door hinge may be continuous type or separate hinge units. However, the type of hinge furnished must accommodate, and not degrade the dust-tight and watertight characteristics and must provide adequate door alignment and support over time.

3.4 Circuit Breaker Standoffs

- a) The stand offs shall be shaped and dimensioned to accommodate the MCCB as required by Bid Packages.
- b) The standoffs shall be precisely located.

3.5 Cable Stand-offs

- a) The cable stand-offs shall be properly shaped and dimensioned.
- b) The standoff shall have the metal edges contoured and smoothed to prevent abrasion of applied cable serving.
- c) The standoff shall be located within the panel board to make allowance for cable bending radii and the location of other components.

3.6 Bus bars

- a) The neutral and phase bus bars shall consist of copper bar insulated from the panel board by 600 V porcelain insulators. The copper bus shall be properly dimensioned.
- b) The bus bars shall be located within the panel board to provide adequate clearance for the installation and correct functioning of all items.
- c) If it is required to drill or penetrate the panel board back to install 600 V insulators, the outside of the panel board shall be permanently sealed over the attachment to retain water-tightness.

3.7 Cable Entrance Fittings and Knockouts

- a) Knockouts for cable entrance fittings (bushings) shall be provided in the bottom of the panel board.
- b) All necessary cable entrance fittings shall be supplied for proper connections of all circuits for fulfill the requirement of the Bid Package. The fittings shall be designed to be suitable for exposed cables entering the panel board from below and shall secure the cable with inserts to prevent lateral and longitudinal movement of the cables.



- c) The fittings shall be threaded multi-piece construction which when installed securely locks the fittings to the panel board metal. The fittings may be of metal or polymer material. Metal fittings shall be galvanized or plated as appropriate. The fitting inserts may be single or multi pieces and shall be of a material sufficiently elastic and resilient to securely grip the PVC cable sheath without damage. The fitting components shall enable capture of the inserts to preclude insert creep and fallout due to clamping pressure.

3.8 Ventilation

- a) The panel board shall be provided with apertures for natural draft ventilation in the panel board bottom and in the top overhang.
- b) The ventilation apertures shall be covered with bronze screen materials of a mesh sufficiently shall to preclude passage of small insects. The edges of the bronze screening shall be surely fastened to the panel board by means of soldering or epoxy adhesive. The mesh shall be protected during panel board fittings to preclude clogging of mesh openings by finishing materials.

3.9 Pole Mounting Bracket

The panel board shall be provided with two (2) pole mounting brackets. The size of poles will be confirmed by NEA after the order is placed.

3.10 Grounding Stud

- a) The panel board shall be provided with a brass-grounding stud located in an approved location.
- b) The grounding stud shall be fitted to the panel board to insure low resistivity and water tightness of the installation.
- c) The grounding stud shall be complete with pressure washer, lock washer, and nuts.

3.11 Finish

- a) After fabrication, the panel board shall be thoroughly cleaned of all dirt, grease, mill scale, and weld slag on all interior and exterior surfaces and all surfaces of all component parts, and one (1) coat of red oxide metal priming paint shall be thoroughly applied. Paint colour of the two (2) finish coats of paints shall be of light grey. The finish coats shall be of oil based or epoxy paint.
- b) The bronzed screen ventilation holes, working surfaces of door hinge and door lock, and outside face of grounding stud shall be free of all finishing materials.

4. Bid Documentation

The Bidder shall provide with the Bid the following items of documentation:

- a) Two (2) copies of certified fabrication drawings showing all views, section, and dimensions of individual components and assembled panel board.
- b) Complete description of all materials to be used, including cable entrance fittings and finishing materials.
- a) Identification of proposed manufacturer.

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SPECIFICATION – NEA-18

DISCONNECT SWITCH

1. Scope

This Specification covers the manufacture, testing and supply of single-pole, pole mounted disconnect switch suitable for double cross arm mounting commonly used in overhead electric power lines.

2. Description

- 2.1 The manufacturer of Disconnect Switches must have been accredited with ISO 9001 including design quality certification.
- 2.2 The switch assembly shall be fabricated and tested in accordance with IEC: 265-1 (1988), IEC: 529 (1989) and IEC: 60-1 (1989), latest revision thereof or any other national or international standards that ensures at least a substantially equal quality to the standard mentioned above, will also be acceptable.
- 2.3 The switch base shall be rugged and formed steel channel with holes and slots to adapt the switch to various mounting configurations. The switch shall be furnished with straps and hardware for steel cross arm mounting.
- 2.4 The switch shall have a silver-plated copper switch-blade. The switchblade shall incorporate a positive locking latch and a large pulling eye and pry-out mechanism.
- 2.5 The switch shall include tin-plated connector clamps that accommodate conductors from 25 sq. mm. to 100 sq. mm.
- 2.6 The electrical characteristics of the switch shall be as follows:

	11kV	33kV
Rated maximum voltage	12 kV	36 kV
Nominal voltage	11 kV	33 kV
Rated frequency	50 Hz	50 Hz
Rated normal current	400 A	800 A
Momentary current	40 kA	40 kA
Rated short circuit making current	25 kA	25kA
Impulse withstand voltage	95 kV	170
Min. power frequency withstand voltage		
Dry	35 kV	90
Wet	30 kV	70

3. Tests

The switch shall be tested in accordance with the relevant provisions of the governing standard.

4. Bid Documentation

- 4.1 The Bidder shall furnish two (2) clear copies of governing standards for fabrication and testing of switch and two (2) clear copies of all other relevant standards.
- 4.2 The Bidder shall furnish two (2) clear certified copies of all type tests of switch offered as required by the governing standard.
- 4.3 The Bidder shall furnish two (2) clear certified copies of catalogue and outline drawings for each type of switch showing dimensions, arrangements and name and location of all Parts.
- 4.4 The Bidder shall furnish a clause-by-clause commentary on specification, specifying compliance and deviations, if any.
- 4.5 All data, drawings, catalogues and other technical documents shall be bound separately from the Bid documents.

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SPECIFICATION – NEA-19

PVC - INSULATED CABLE

1. Scope

This Specification covers the manufacture and supply of 600/1000 Volt, PVC-insulated, 4 core stranded aluminum power cable.

2. Description

- 2.1 The electric cable shall be manufactured and tested in full compliance with British Standards BS 6346:1987 or latest revision thereof, or any other national or international standards that ensures at least a substantially equal quality to the standard mentioned above, will also be acceptable.
- 2.2 The cable shall be multi-conductor, stranded aluminum with sizes as specified in the Price Schedule.
- 2.3 The conductor insulation shall be extruded PVC compound and shall be rated 600/1000 Volt. The insulation shall be colored red, yellow, blue, or black.
- 2.4 The cable shall be un-armored and shall have an over sheath of extruded PVC
- 2.4 The PVC cables must be manufactured by a company approved to quality standard ISO 9001 or ISO 9002. The ISO certification number, the name of the authorized approving authority with the contact address and telephone and fax numbers shall also be stated. The Bidder shall enclose a verified copy of the ISO certificate with the bid

3. Tests

- 3.1 The routine tests of the cable shall be done at manufacturer's plant in accordance with BS: 6346:1987 or other equivalent national or international standards including following test.
 - Visual examination
 - Construction Test
 - Spark test on core
 - Spark test on over sheath
 - Voltage test on completed cable
 - Insulation Resistance Test.

4. Packaging

- 4.1 Each reel of conductor furnished shall contain only one (1) length of cable.
- 4.2 The cable drum shall be made of steel suitably protected against corrosion. Protective external lagging of sufficient thickness shall be provided and fitted closely on the reels. Binder consisting of steel straps shall be provided over the external laggings. The drum shall be new and sufficiently rugged in construction to withstand ocean shipping, road transport, several loading and unloading, storage in tropics, hauling and field erection of



cables without distortion or disintegration.

4.3 All reels shall be legibly marked in paint with the following information:

- a) Size of cable
- b) Color of insulation
- c) Length in meters
- d) Net weight of cable

5. Bid Documentation

5.1 The Bidder shall provide with the Bid two (2) clear copies of the Standard governing manufacturer of the cable and two (2) clear copies of all other relevant standards referenced therein.

5.2 The Bidder shall provide certified type test results of all types of cables as required by governing standards.

5.3 The Bidder shall provide complete description, catalogue and certified drawings of all types of cables.

5.4 A clause-by-clause commentary on specification, specifying compliance and deviations, if any.

5.5 All data, drawings, catalogues and other technical documents shall be bound separately from the Bid documents.

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SPECIFICATION: NEA-20

SELF-SUPPORTING LV AERIAL BUNDLED CONDUCTORS (ABC)

1. Scope

This Specification covers the design, manufacture, factory test and supply of 0.6/1 KV four-core cross-linked polyethylene (XLPE) insulated self-supporting aerial bundled conductors (ABC) for use in the construction of 400/230V, 3-phase, 4-wire, uni-grounded, distribution systems.

2. Description

2.1 The cable shall be manufactured and tested in accordance with UK ESI Standard 43-14: "Aerial Bundled Conductors XLPE Insulated for LV Overhead Distribution", or BS-7870 (Part V) or latest revision thereof or any other national or international standards that ensures at least a substantially equal quality to the standard mentioned above, will also be acceptable.

2.2 The ABC Cable manufacturing company shall have been accredited with ISO 9001 (design included) quality certification.

2.3 The ABC shall be self-supported type.

2.4 The conductor shall consist of compact round stranded aluminum wires. The conductor shall be insulated by extruded black cross-linked polyethylene (XLPE) material.

2.5 The complete cable shall consist of four equal-size insulated conductors stranded together, and the direction of lay shall be right-hand. The type of construction shall cause the tensile load to be shared equally between four conductors.

2.6 The outer covering of the R phase of the cable shall be embossed with the name of the manufacturer, name of the Purchaser "NEA-NEA, the cross sections, type of insulation followed by "Electric Cable: 600/1000 Volts" at the spacing of 5 meters. Every 2 meters of outer covering of the cable shall also be embossed with length of the cable.

2.7 The other technical specifications of the ABC are given in Table 1: Technical Data.

3. Phase Identification

3.1 The identification of the conductors shall be provided by means of ribbing on the external surface of the insulation. R, Y and B phase conductors shall have one, two and three ribs respectively. Space between the ribs in Y and B phases shall be 3 mm. for 25 sq. mm. cables and 5 mm. for 50 sq. mm. and 95 sq. mm. cables. The neutral conductor shall have preferably with the minimum of 12, 16, and 20 evenly spaced ribs on 25 sq. mm, 50 sq. mm. and 95 sq. mm. cables respectively. Ribs shall be in rounded form.

4. Testing

4.1 The tests shall be made on the completed cables at the manufacturer's plant in accordance with governing standards including following tests:

Construction tests

- Verification of diameters of conductor and insulated conductor, and thickness of insulation, and so on.

Test on XLPE



- Hot set tests
- Tensile strength at break
- Elongation at break
- Shrinkage

Mechanical tests

- Breaking load test
- Bending test-

Electrical tests

- High voltage test
- Conductor resistance at 20 deg C.
- Insulation resistance
- Spark test

Simulated solar radiation test

5. Packaging

- 5.1 Each reel of the conductors furnished shall contain only one (1) length of conductor.
- 5.2 All conductors shall be furnished on non-returnable seasoned wooden reels or steel suitably protected against corrosion. All timber shall be treated to provide protection against rot and insects. Protective external lagging of sufficient thickness shall be provided and fitted closely on the reels. Binder consisting of steel straps shall be provided over the external laggings. The reel shall be new and sufficiently sturdy in construction to withstand ocean shipping, road transport, several loading and unloading, storage in tropics, hauling and field erection of conductor without distortion or disintegration. The treatment process shall not have deleterious effect on the cable. Before dispatch, the ends of the bundled conductors shall be sealed to prevent moisture ingress during transportation and storage. Both ends of every length of the assembled bundle shall be temporarily bound in such a manner as to prevent cores from separating.
- 5.3 All reels shall be legibly marked in paint with the following information:
- a) Type of conductor
 - b) Size of conductor
 - c) Voltage
 - d) Length in meters
 - e) Net weight of conductor and Drum Separately
 - f) Direction of rolling
- 5.4 The standard length of the completed conductor in each reel shall be as per the table below:
- | | | | |
|-------------------------------------|-----------|-----------|-----------|
| Cable Size (sq. mm): | 25 | 50 | 95 |
| Normal Length of the Conductor (m): | 1000 | 1000 | 500 |

6. Bid Documentation

- 6.1. The Bidder shall furnish with the Bid two (2) clear copies of the Standard governing fabrication and testing of the ABC and two (2) clear copies of all other relevant standards for the fabrication and testing of XLPE insulated LV ABC.



- 6.2. The Bidder shall furnish two (2) sets of complete description, catalogue, drawings showing general construction and size of the cables. The Bidder shall also furnish dimensional drawing of cable drum for each type of ABC.
- 6.3. The Bidder shall furnish two (2) clear certified copies of all type tests performed on all types of cables offered.
- 6.4. A clause-by-clause commentary on specification, specifying compliance and deviations, if any.
- 6.5. All data, drawings, catalogues and other technical documents shall be bound separately from the Bid documents.

TABLE 1

TECHNICAL DATA

SELF SUPPORTING LV ABC

Nominal cross sectional area, mm ²	25	50	95
Number of Core	4	4	4
Form of conductor	Stranded compacted circular		
Number of wires in conductor	7	7	19
Min. diameter of conductor, mm	5.8	8.0	11.3
Max. dc resistance of conductor at 20 deg.	1.200	0.641	0.320
C, Ω/km			
Max. continuous current carrying capacity per phase (A)	105	150	225
Min. breaking load of conductor, kN	3.5	7.0	13.3
Min. average thickness of insulation excluding ribs,mm	1.3	1.5	1.7
Min. thickness of insulation at any point, mm	1.07	1.25	1.43
Min. breaking load of cable, kN	14.0	28.0	53.2



SPECIFICATION: NEA-21

FITTINGS FOR SELF-SUPPORTING LV AERIAL BUNDLED CONDUCTORS (ABC)

1. **Scope**

This Specification covers the fabrication and supply of fittings and associated apparatus for with LV aerial bundled conductors (ABC).

2. **Description**

2.1 The fittings, hardware and equipment shall be fabricated in accordance with UK ESI Standard 43-14: "Conductor Fittings and Associated Apparatus for use with LV ABC" latest revision, and all referenced standards therein, or latest revision thereof or any other national or international standards that ensures at least a substantially equal quality to the standard mentioned above, will also be acceptable.

2.2 The ABC Cable hardware manufacturing company shall have been accredited with ISO 9002 quality certification.

2.3 The fittings shall be for use in conjunction with 4-core ABC of 95 sq. mm, 50 sq. mm and 25 sq. mm nominal cross-sectional areas.

2.4 Contractor shall get approval of all drawings and hardware sample from Purchaser before starting the fabrication of all hardware.

2.5 The fittings and accessories are as follows:

2.5.1 *Anchor clamps:*

The anchor clamps shall be bolted type. The wedge of clamp shall be made of age and weather resistant insulating material with high mechanical strength. The tightening straps shall be made of hot dip galvanized steel. The clamp shall be load with the spring. The clamp shall have at least 2 bolts for tightening. The hooking end of the clamp shall be provided with hot dip galvanized nut and bolts with safety lock. The clamp shall be suitable for following ABC. The Anchor clamps shall be suitable for use in conjunction with the support hooks and double-eye fittings stated in Sub Clauses 2.4.3 and 2.4.5 respectively.

<u>ABC size/type</u>	<u>Breaking load (kN)</u>
95 sq. mm, 4-core ABC	43
50 sq. mm, 4-core ABC	37
25 sq. mm, 4-core ABC	37

2.5.2 *Suspension clamps*

The suspension clamps shall be suitable for following ABCs and angle of deviations. The clamps shall be suitable for use in conjunction with the support hooks stated in Sub Clauses 2.4.3 below.

<u>Type</u>	<u>ABC size/type</u>	<u>Max. angle of deviations (degree)</u>
Type A1	95 sq. mm, 4-core ABC	30



Type A2	50 sq. mm, 4-core ABC	30
Type A3	25 sq. mm, 4-core ABC	30
Type B1	95 sq. mm, 4-core ABC	60
Type B2	50 sq. mm, 4-core ABC	60
Type B3	25 sq. mm, 4-core ABC	60

The ferrous part of the clamps shall be hot dip galvanized.

2.5.3 *Support hooks (Pig tail type)*

The support hooks shall be made of hot dip galvanized steel of sufficient sizes. The support hook shall be suitable for mounting in pre-stressed concrete (PSC) poles and steel telescopic tubular (STT) poles.

(i) Support hooks suitable for PSC poles: The support hooks shall be bolted type and shall be of sufficient length and have sufficient threading to enable them to be used on following sizes of PSC poles.

- a) Type A: Size ranging between 130 mm. to 170 mm.
- b) Type B: Size ranging between 190 mm. to 240 mm.

The pig tail end of the hook shall have stopper for maintaining clearance between pole and the suspension clamp. The hook shall be provided with either 2 sets of suitable hexagonal nuts or one set of hexagonal nut and one set of eye nut. The eye of eye nut shall have minimum inner diameter of 30 mm. and shall be suitable for installing in conjunction with anchor clamp stated in clause 2.4.1 above. The support hook shall have diameter not less than 16 mm. and shall have enough mechanical strength to withstand load, which applies during its service period. The support hook and its accessories shall be made of hot dip galvanized steel.

(ii) Support hooks suitable for STT poles: The support hooks shall be mounted on circular two-way clamp. The hook (pig tail) shall be mounted on one of the ways of the clamp. The clamp shall be suitable for following sizes of poles.

- a) Type C: Two-way clamp suitable for pole diameter ranging between 190 mm. to 230 mm.
- b) Type D: Two-way clamp suitable for pole diameter ranging between 140 mm. to 180 mm.

The remaining way of clamps shall be suitable for accommodating two numbers of double eye fitting stated in Sub Clause 2.4.5 herein, to be used along with anchor clamps stated in clause 2.4.1 above. The width and thickness of clamp shall be not less than 50 mm. and 6 mm. respectively. Nuts and bolts of the clamp shall have diameter not less than 16 mm.

2.4.4 *Weak links*

The weak link shall be suitable for installation between support hook and the suspension or anchor clamp. The link shall be made of hot dip galvanized steel. Two ends of the link shall





be twisted by 90°. The weak link shall be suitable for using in conjunction with following ABC.

- (i) 95 sq. mm., 4-core ABC
- (ii) 50 sq. mm., 4-core ABC
- (iii) 25 sq. mm., 4-core ABC

The weak links designated above shall have release force near to the highest values of maximum working tension of respective ABCs.

2.4.5 *Double-eye fitting*

The double eye fitting shall be made of hot dip galvanized steel. The diameter of the steel and inner diameter of the eye shall be not less than 16 mm. and 30 mm. respectively. The one end of the eye fitting shall be mounted on bolt of clamps stated in sub clause 2.4.3 (ii), stated above and other end shall be used along with anchor clamp, stated in sub clause 2.4.1.

2.4.6 *Insulated wall fittings (cleats)*

The insulated wall fittings shall be single hole fixing type. The fixing shall be done either by the hammering of nail or by using lag screw into hole on wall. The fitting shall be made of weather, heat and age resistant black polyamide insulating material with sufficient mechanical strength. It shall have capacity to hold different sizes of ABC as stated above and other cables having overall outer diameter from 6 mm. to 50 mm. Preferably, the fitting shall be removable notched strap type. The fitting shall have wet flashover voltage not less than 6 kV.

2.4.7 *Insulate removable strap*

The insulated removable strap shall be made of weather, heat and age resistant insulating material having wet flashover voltage not less than 6 kV. It shall be suitable to hold ABC having overall outer diameter from 20 mm. to 50 mm. preferably, the fitting shall be removable notched strap type.

2.4.8 *Insulated cable end caps*

The insulated cable end caps shall be made of weather and age resistant insulating material and shall have wet flashover voltage not less than 6 kV. The cap shall be heat shrinkable type and shall be coated internally with a suitable sealant. The caps shall be suitable for following sizes of ABC.

- (i) 95 sq. mm., 4-core ABC
- (ii) 50 sq. mm., 4-core ABC
- (iii) 25 sq. mm., 4-core ABC

2.4.9 *Insulated insulation piercing connectors*

The insulated insulation piercing connectors shall be suitable for using with aluminium ABC and concentric cables. It shall be made of high quality, weather, heat and age resistant insulating material having wet flashover voltage not less than 6 kV. It shall be



watertight and suitable for making connections to the live lines. The piercing of main line and the tapping shall be done simultaneously. The design of the connectors shall be such that its removal is being possible even after breaking of the shear head. The connector shall be provided with end cap for tapping end. The connector shall be suitable for following cables.

<u>Type</u>	<u>Main</u>	<u>Tapping</u>
Type A	25-95 sq. mm, ABC	25-95 sq. mm, ABC
Type B	25-95 sq. mm, ABC	25-95 sq. mm, ABC

2.4.10 *Insulated tools for with insulated insulation piercing connectors.*

The tool set shall be fully insulated, made of high quality insulating materials, having wet flashover voltage not less than 6 kV. The design of the tool set shall be suitable for use with connectors described in sub clause 2.4.9 above and shall allow the safe installation to live line.

2.4.11 *Core separators (pairs)*

The core separators shall essentially comprise two wedges to facilitate the installation of connectors on tensioned ABC cable. The two separators shall be joined together with a nylon cord. The two separators, which shall be made from wither hardwood or rigid plastic, shall be so shaped as to be capable of being positively locked in position.

2.4.12 *Anchor clamp for concentric type service drop cable*

The core separators shall essentially comprise two wedges to facilitate the installation of connectors on tensioned ABC cable. The two separators shall be joined together with a nylon cord. The two separators, which shall be made from wither hardwood or rigid plastic, shall be so shaped as to be capable of being positively locked in position.

3. **Tests**

3.1 In respect of the following fittings the tests shall include, but not limited to the following:

Anchor clamps:

Static test

Dynamic test

High temperature test (thermal)

Low temperature test

Tensile (high tension) test

Voltage test (on ABC) following dynamic, high and low temperature, and high tension tests.



Suspension clamps:

Slip test
Voltage test (on cable)
Thermal test

Insulation piercing connectors:

Electrical heat cycle test

Tests for other fittings and hardware shall be conducted in accordance with the relevant national or international standards.

4. Bid Documentation

- 4.1 The Bidder shall furnish with the Bid two (2) clear copies of the Standard governing fabrication and testing of the fittings and accessories for LV ABC and two (2) clear copies of all other relevant standards referenced therein.
- 4.2 The Bidder shall furnish two (2) sets of complete description, catalogue, dimensional drawings showing general construction and size of all fittings and accessories.
- 4.3 The Bidder shall furnish two (2) clear certified copies of all type tests performed on all fittings and accessories offered.
- 4.4 A clause-by-clause commentary on specification, specifying compliance and deviations, if any.
- 4.5 All data, drawings, catalogues and other technical documents shall be bound separately from the Bid documents.

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SPECIFICATION NEA-22

STEEL TUBULAR POLE

1. Scope

This Specification covers the fabrication and supply of tubular steel pole commonly used in overhead power line construction.

2. General

The Steel pole shall be fabricated in several length and strength, as specified in Table 1 contained herein.

Description

- 3.1 The steel pole shall be swaged design and shall consist of three (3) separate lengths of steel tubing swaged at two (2) Joints to fabricate the pole.
- 3.2 The steel tubing used in pole fabrication shall be of steel of any approved process possessing a minimum tensile strength of 42 kg/ sq. mm and a chemical composition of not more than 0.060 percent sulfur and not more than 0.060 percent phosphorus.
- 3.3 Tubular poles shall be made of welded tubes, swaged and joined together. The upper edge of each joint shall be chamfered at an angle of about 45 degrees.
- 3.4 The tubing diameter and tubing wall thickness shown in Table 1 for each length of pole are minimum size to be used in fabrication each length of pole. It shall be the responsibility of the BIDDER to determine the adequacy of the component tubing shown for the load to be sustained. In the event that the BIDDER shall increase the diameter and /or wall thickness, or both to develop the required pole strength in accordance with the Bidder's method of fabrication, However, in no case shall the tubing diameter or wall thickness for any component tube be less than value shown in Table 1 for the particular length of pole.
- 3.5 The bottom section of the poles shall be galvanized with minimum coating of weight not less than 460-gm/-sq.m internally and externally. The whole length of the bottom section including the base plate shall be galvanized for each of the 8/9/10/11 m Pole.

The remaining portion of the pole shall be painted with one coat of red oxide primer as specified in IS 2074-1997.
- 3.6 The pole shall be drilled in accordance with the drilling patterns as defined in figure of specified in the bid package.
- 3.7 Each pole shall be provided with the through hole of 1/1 mm diameter at a height of 300 mm above planting depth of Earthling.
- 3.8 Each pole shall be provided with a steel top, plate 3 mm minimum thickness welded to the end of the top tube section. The plate shall not project beyond the perimeter of the top section. Each pole shall also be provided with the welder base plate, similar to the details



shown in figure 2 contained herein. The base plate steel shall be optional with the fabricator and shall be welded to the bottom of the pole.

The pole shall, be drilled in accordance with the drilling patterns as defined in the Figure. All the holes shall be of 18 mm dia. However, the manufacturer must get approval of the drilling pattern before manufacturing the poles. Each pole shall be marked with the appropriate length as shown in Figure.

- 3.9 The folding type of poles shall be fabricated in such a way that the section pieces can be carried to the site and fitted on the site itself. The pole section on top shall have a flange and the section under it shall overlap to a **length of 25 cm** as shown in the diagram. The poles shall be drilled in such a way that the section in top could be securely fixed the section under it by two bolts of 5/8" x 7" at 90 degree each other. Two such joints form a complete pole of three sections as shown in Fig 2 and 3.
- 3.10 Each pole shall be marked with the appropriate length as shown in table 1. The length of designation followed by the appropriate drilling pattern letter, shall be black stencil painted with numeral and letters approximately five(5) centimeters in heights e.g. 11-c the marking shall be located on the surface of the pole at a distance of 1.5 meters above the design ground line.

4. Tolerance

- 4.1 The pole shall be as nearly circular as possible, and their outside diameter shall not vary from the specified value by more than 4.1%.
- 4.2 The finished pole shall not be out of straightness by more then 1/600 of its length.

5. Tests

- 5.1 The following shall be performed for each length of pole furnished. All testing shall be fully documented and certified test reports shall be provided to NEA.

a) Tensile Test and chemical analysis for Sulphur and Phosphorus

- I. Deflection test
- II. Permanent set test
- III. Drop test

- 5.2 Number of poles selected for condition tensile test and chemical analysis of sulphur and phosphorus shall be as given below.

Lot Size	No Poles
Up to 500	1
501 to 1000	2
1001 to 2000	3
2001 to 3000	4
3001 to above	5

- 5.3 Number of poles selected for conducting the deflection permanent set and drop tests specified shall be as follows:

Lot Size	No of Poles
Up to 500	5
501 to 1000	9
1001 to 2000	13
2001 to 3000	18
3001 to above	20

- 5.4 The deflection, Permanent set and drop test shall be conducted in succession on each of the poles deleted.

a) **Deflection Test**

Each pole shall be rigidly supported for a distanced from the butt end equal to the depth to which it is to be planted in the ground. It shall then be loaded ad a cantilever and the appropriate deflection load of Table1 applied, at right angles of the axis of the pole 30 cm. from the top of ht poles up to9 m. Long 90 (overall) and 60 cm from the top for poles over 9 m. (overall). For convenience in testing, the pole may be fixed horizontally. The temporary deflection due to the applied load at the point of application of load shall not exceed 157.5 mm.

b) **Permanent Set Test**

This test shall be carried out of immediately after the deflection test. After application of proper load specified in Table 1 the permanent set measured from the top position after the release of the appropriate applied load at the pint of application of the load, shall not exceed 13 mm.

c) **Drop Test**

The test shall be made in the case of swaged poles. The pole shall be dropped vertically with butt end (bottom end) down wards, three times in succession from a height of 2 m. on to a hardwood block laid on a concrete foundation. The pole shall not show any sings of telescoping or loosening of joints.

- 5.5 Should any of the poles first selected fail to pass any of the tests specified above tow further poles shall be selected for testing from the same lot in respect of each failure, should both these additional poles fail, the test material represented by the rest sample shall be deemed as no complying with this specification.

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6 Bid Documentation

- 6.1 The BIDDER shall provide with the Bid (2) clear copies of all specification governing the selection of steel tubing and any standards followed in the fabrication and testing of the poles of offered.
- 6.2 The BIDDER shall also provide the name of the pole manufacturer and confirmation that pole Delivery schedule, shown in Appendix, Volume 1 of the IFB of which this specification is a part, will be complied with.
- 6.3 The supplier shall provide two (2) copies of all certified test reports not later than the time of shipment of the poles tested.
- 6.4 If the BIDDER has utilized tubing in the fabrication of any length of poles which vary from the tubing listed in Table1 the BIDDER shall provide a certified copy of all calculations establishing the need for the increase in tubing size.

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SPECIFICATION OF STEEL TUBLAR POLES

IS Designation	410 SP-53	410 SP-43	410 SP-29	410 SP-12
Overall Length	11 Mtr.	10 Mtr	9 Mtr	8 Mtr

SECTION

1. (i) **TOP**

Length	2.70 m	2.4m	2.0m	1.75m
Out side Diameter	114.3 mm	114.3mm	88.9mm	76.1mm
Thickness	3.65 mm	3.65mm	3.25mm	3.25mm

(ii) **MIDDLE**

Length	2.70 m	2.4m	2.0m	1.75m
Out side Diameter	139.7 mm	139.7mm	114.3mm	88.9mm
Thickness	4.5 mm	4.5mm	4.5mm	4.85mm

(iii) **BOTTOM**

Length	5.60 m	5.2m	5.0m	4.5m
Out side Diameter	165.1 mm	165.1mm	139.7mm	114.3mm
Thickness	4.85 mm	4.5 mm	4.85 mm	5.4mm

2. Application of Load from top	600 mm	600mm	300mm	300mm
3. Approximate weight (Without the weight of Base Plate which is 4.2kg)	183 Kg	160 Kg	125 Kg	97 Kg
4. Crippling Load	307 kgf	348 Kgf	277 Kgf	231 Kgf
5. Load for Permanent set test	210 kgf	238 Kgf	190 Kgf	158 Kgf
6. Load for temporary deflection test.	74 Kgf	108 Kgf	83 Kgf	74 Kgf
7. Breaking Load	433 Kgf	490 Kgf	390 Kgf	325 Kgf

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CONSTRUCTION STANDARD

CONSTRUCTION WORKS

1. General

- 1.1 These specifications together with the Construction Standards shall govern the performance of the Works and shall be the basis for inspection and acceptance of the Works by the NEA.
- 1.2 These specifications and the Construction Standards shall be considered as mutually inclusive, and the conditions stated in each shall supplement the other as appropriate.
- 1.1 All these specifications shall be followed at all times by the Contractor unless specifically accepted in writing by the NEA, or unless some aspects of the work covered by these specifications are not required by the scope of work.

2. Route of Circuits

- 2.1 The line routes shown on line route drawings are provisional and subject to finalization by the Contractor. To the greatest extent practicable, all overhead circuits should be located along streets or traveled ways ordained by the Village Development Committee or required authority as public property, except as required for service drops and circuits to individual consumers.
- 2.2 To the greatest extent practicable, all facilities should be located on public property, and in no case shall private property be occupied unless specifically authorized by the NEA. *Community shall be responsible for providing right of way.*

3. Surveys and Staking

- 3.1 All structures should be located at the outer limits of public property along streets or travelled ways. Structures should also be located along streets at property lines of adjacent private property. Structures and stays running parallel or perpendicular to the line route shall not block portions of streets, travelled ways, drives, passages, or gates.
- 3.2 All structures shall be so located as to reduce, to the greatest extent practicable, obstacles to pedestrian and vehicular traffic.
- 3.3 Where underground facilities are indicated by surface conditions, or where such facilities can be located, structures and stays shall be so located as to avoid conflict with such facilities during construction.
- 3.4 All structure and stay lead locations shall be staked. At points of intersection (PI) of tangent line sections, steel rebar stakes shall be used to locate the PI. A minimum of two (2) side sightings will be made at each PI to permit re-location of PI in the event of stake removal. All structure locations in tangent line sections shall be staked.
- 3.5 All distances between structures, and other necessary measurements of length, shall be measured to accuracy of 0.1 meter and all angles shall be determined by transit to an accuracy of 0.1 decimal degree. All elevations shall be measured to an accuracy of 0.1 meter by means acceptable to the NEA.
- 3.6 All measuring and staking activity shall be accomplished by personnel with experience in survey procedures; and standard survey equipment acceptable to the NEA, shall be used



to perform the survey work. Field survey notes covering all survey work shall be produced and maintained and shall be returned to the NEA at the time of submission of final PCS report. The format of proposed survey notes shall be submitted to the NEA for approval.

- 3.7 Survey work shall include centerline and structure location and staking; determination of overhead and side clearings of other structures, wires, and obstacles; area surveys and plotting; and centerline profiles of terrain; as directed by the NEA.

4. Technical Documentation

- 4.1 All technical documentation as specified herein shall be prepared by the Contractor. The Contractor shall employ skilled drafting personnel to produce all documentation specified. All technical documentation prepared by the Contractor shall be subject to the approval of the NEA prior to acceptance by the NEA of such documentation. All technical documentation shall be prepared in the English language.

- 4.2 Documentation shall be prepared using the following mediums:

- (a) A4 Size of paper shall be used to produce the base Structure Data Sheet (SDS) and A1 size of drawing papers for As-Built Drawings and other drawings specified by the NEA. The scale for drawing shall be 1:5000.

A1 594 mm x 841 mm (23.39" x 33.11")

A4 210 mm x 297 mm (8.27" x 11.69")

- (b) Computerized geographical information system shall be used to produce small area plotting, profiles of line-sections and centerline plotting necessary for the development of SDS and As-Built Drawings.

- (c) A set of digitized data on CD shall be submitted separately.

- 4.3 SDS shall be prepared as specified in *Vol I, Preamble to Price Schedules* by the Contractor showing his proposed construction details for erection of facilities in accordance with the Construction Standards. The SDS shall be prepared after the centerline survey and staking is completed, for any line section designated by NEA, and shall be submitted to NEA for approval prior to any construction of the facilities shown in SDS. Submission of SDS for approval shall be in A4 size paper.

NEA may require any revisions to be made, at their sole discretion, prior to approval of the SDS for construction. An approved and field checked SDS is required for all Construction Units invoiced by the Contractor. The Contractor and NEA representative shall perform Field checking of the SDS jointly. The SDS and As Built Plan are intended as permanent records for NEA. Any construction performed prior to the Contractor's receipt of approved SDS from NEA shall be completely at the Contractor's risk, and NEA shall have the right to require any correction due to the un-approved construction activities.

- 4.4 As-Built Drawings shall be prepared by the Contractor in the general format provided by the NEA. Drawing size shall be approximately 841 x 594 mm overall and the scale shall be 1:5000. The NEA shall provide any available environmental background data for inclusion on the various drawings and the Contractor shall record (in ink) all facilities As Built.



- 4.5 The Contractor shall prepare other technical drawings, in the same medium and format as the As-Built Drawings, for example As-Built Drawings index sheets, pole maps, and one line diagrams as specified and required by the NEA.
- 4.6 The Contractor shall prepare and furnish Transformer Record documents, in the format specified by the NEA, for each transformer installed.

5. Material Storage

- 5.1 The Contractor shall be responsible for storage of all materials and equipment delivered by him for the work; and security of materials. The Contractor shall manage all labor, equipment, and vehicles to load and transport said materials and equipment to the worksites.

5.2 Worksite

- (a) Extended storage of materials along the routes of lines will not be permitted.
- (b) Conductor reels may be spotted at the worksites for a short period prior to installation provided that crating and reel lagging are intact to protect the items. Poles may be spotted at structure locations for short periods prior to setting.
- (c) All poles, and conductor placed at the worksites shall be located so that the items are not subject to damage and do not impede pedestrian or vehicular traffic.
- (d) Any damage caused by imprudent placement of equipment and materials by the Contractor at the worksites shall be corrected by the Contractor, in a manner acceptable to the NEA, at the Contractor's cost.

5.3 Contractor's Storage Facility

The Contractor shall be financially responsible for the secure and proper storage of materials, prior to installation of the materials and equipment, to prevent loss or damage to any materials. However Contractor may use NEA sub-stations premises subject to approval of concern NEA/Substation Authorities.

6. Poles and Cross Arms

6.1 Pole Numbering

Poles and structures shall be numbered in accordance with a numbering system provided by NEA. Each pole shall be marked permanently through template with the assigned number.

6.2 Pole Framing

Pole and structures shall generally be framed in accordance with Construction Standards and the construction SDS. Where special framing requirements are necessary, the Site Engineer or Engineer shall provide framing instructions for the specific structure.

Each cross-arm shall be attached to the pole by a pole clamp or by machined bolts of sufficient length to pass completely through the holes provided on the pole and cross-arms and receive their full complement of nuts.

Bolts of proper length shall be used. Excess nuts shall not be used to make use of a bolt, which would otherwise be too long. The end of a machined bolt projecting more than 3

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centimeters beyond the nut shall be cut off to a length of 2 centimeters beyond the nut. Each bolt, when installed, shall have its full complement of nuts.

Washers shall be used where specified in these standards. For wooden pole, bolted connection through wood members should be drawn tight to allow for shrinkage of wood. Bolts should be pulled up so that the wood is compressed but not so tight to break the wood fibers. Fiber breaks on the surface of the pole increases probability of decay.

During the erection work at the field there may be necessity to modify galvanized steel hardware and may have to be drilled, reamed, filed or cut. Under such a condition the area of the steel exposed, after these modifications, shall be coated with a zinc-rich paint to protect the steel from corrosion.

6.3 Excavation

All excavations made for the installation, or demolition, of facilities shall be accomplished in a timely manner according to the scheduled installation. Required excavations shall be opened, material installed, and backfill placed, as specified, in a continuing operation to the greatest extent practicable.

Any excavation left open during discontinuous construction, which is accessible to the public or along public thoroughfare, shall be covered or barricaded, and marked by suitable visual means, to prevent a public hazard.

Excavations shall be properly located and sized for the intended use. Pole and stay plate/ anchor excavations shall be correctly sized to retain undisturbed soil to the greatest extent consistent with the means of excavation. Pole holes shall be made by power-driven auger or by manual methods; power-driven shovel equipment shall not be used. Pole holes shall be excavated to the specified depth with no tolerance shallow and tolerance of ten (10) centimeters deep. The bottom of pole holes shall be undisturbed soil, gravel or rock. Stay plate holes shall be excavated by manual methods to specified depth with no disturbed soil in the direction of the anchor rod.

All excavations shall be backfilled with excavated material, or as specified for the installation. Backfill shall be free of foreign materials and shall be well tamped with excess backfill graded over the excavated area to prevent depressions resulting from eventual natural compaction. The Contractor if so directed by NEA shall remove large amounts of excess backfill from the site. If so directed by NEA, the Contractor shall provide suitable backfill materials for excavations where existing removed materials is insufficient, or inappropriate, to provide suitable grading of the excavated area.

6.4 Pole Setting

Poles shall be set in accordance with the appropriate Sections of the Construction Standards.

Each pole shall be assigned a unique construction number at the time of structure staking for preliminary identification and preparation of SDS.

Pole holes shall be dug large enough in diameter to admit a tamping bar all around the periphery of the pole and shall have a uniform dimension as per the type of pole used at the top and bottom. Poles shall be planted in the ground to the depth specified in construction. Drawings before planting a pole, the bottom of the hole made for planting the pole, shall be cleaned of free soil and firmly tamped, to prevent the hole from settling.



The stability of a pole, particularly a pole without stay, is greatly influenced by the size of the pole hole, the nature of the soil and the care exercised in back filling and tamping. Two active hand tampers and one slow shovel shall result in good compaction.

Poles shall be set to stand perpendicular except at terminals, angles and other points of excessive strain where they shall be given a rake not to exceed 10 centimeters against the direction of strain. Poles located at the sides of banks or other locations, where washouts may occur, shall be protected by suitable cribbing, or shall be referred to the Engineer for recommended action.

After the pole is in position and the hole is back filled and tamped, soil shall be piled and packed firmly around the pole. Pole setting shall be inspected prior to acceptance and any back fills that have sunk shall be refilled.

Where it is necessary to set poles at locations where the soil has very low bearing value, or in swampy conditions, a pole may be fitted with a bog shoe in accordance with construction drawings the engineer may specify that type of construction.

Poles located in shallow riverbeds shall be protected by gabions as designated by the Site Engineer or Engineer. Gabions should be approximately 2 meters x 1 meter x 1 meter. Four such gabions are required for each pole.

Set pole and pour 860 mm diameter foundation as per construction standard construction drawing. Level areas around pole and set gabions in pattern shown in construction drawing. It is important to lace adjacent gabions together along the perimeter of all contact surfaces. Fill gabions with hard, durable, clean stone, 100 mm to 200 mm in size in three layers. Install two connecting wires at each layer. Lace gabion lids securely making certain all edges are closed. Fill void between pole and gabion with hard, durable, clean rock 200 mm minimum size.

7. Stays

7.1 Stay leads specified in construction documents are defined as the horizontal distance from the centerline of the pole at ground line to the point where the anchor rod should enter the ground assuming the ground to be level. For the correction in stay leads for uneven ground see construction drawing.

The Engineer, upon request, may designate the actual location of stay anchor rods on slope of hills. The stay stake indicates the point where the anchor rod enters the ground. The anchor hole shall be dug accordingly.

The attachment of one stay shall not overlap that of another stay when 2 or more stays are carried to a pole or anchor. Each shall be entirely independent of the other. This does not prevent the use of multiple eye rods for nuts designed for such use.

All stays to be installed on a pole line shall be placed and drawn reasonably taut before the conductors are tensioned. After the conductors are tensioned and sagged to their final position, the stays shall be carefully inspected to see that each is carrying its share of the load on the pole as intended. If multiple stays are not carrying equal strain, the slack stay shall be pulled up until it is sharing load as intended.

Stay anchors must be installed full depth and set to pull against undisturbed soil to develop full tension. An anchor not properly installed will move and allow movement of the top of the pole, thus slacking the conductors. Stay anchors installed in soft or unstable





earth shall be placed at specified depth and back filled with 5 cm. maximum size crushed stone placed to a depth of 1 meter from the bottom of the pole.

7.2 Installation of Stays

Where stays are installed on a line angle structure, line of stay shall bisect the outside line angle.

The span of stay extending between poles shall not be greater than 60 meter.

Anchor and anchor rods shall be set so that the axis of the rod and line of stay shall be straight. The portion of the anchor rod above the ground shall not be bent at an angle to connect a stay wire. If this occurs, anchor and anchor rod shall be reset. The anchor rod shall not be exposed for more than 15 centimeters above the ground after the anchor is set. If gravel back fill is required to set anchor in soft or unstable soil, as per construction drawing the Contractor will have to carry out the gravel back fill as directed by Engineer.

If a stay is installed on a pole where low voltage conductor is dead ended or double dead ended and extends past stay, a piece of plastic hose slit along the length shall be placed over the stay wire extending from the upper stay attachment to 200 mm below lowest low voltage conductor. After installation, the hose shall be wrapped with plastic tape and the hose shall be secured to the upper stay bolt with tie wire.

7.3 Stay Insulators

Stay insulators shall be installed on all stays in accordance with the construction drawings.

8. Conductor

Aluminum Conductor Steel Reinforced (ACSR) conductor shall be used for 33,11,0.4/0.23 kV overhead lines.

8.1 Sagging

Conductors shall be sagged in accordance with the sag chart specified by these specifications.

The importance of careful sagging of conductors cannot be over emphasized. Conductors have definite characteristic that control their behavior resulting from changes of temperature, wind speed and additional load due to ice or wet snow.

Conductors must not be sagged too tightly (less than specified sag) as unspecified extra tensions may result in failure of conductor structure.

Conductors sagged too loosely (more than specified sag) may contact adjacent conductors hardware or any structure. Excess sag can reduce clearance beneath the line with the ground to the point of danger.

8.2 Sag Charts

Unless otherwise noted, all sag charts are calculated on the basis of 35 kg/m² wind pressure

Sag is always measured vertically, without wind, when conductors are being installed or re-sagged.

Unless otherwise specified by the Site Engineer or Engineer for a specific condition, initial or stringing sag shall be applied to the installation of all new unstressed conductors. The initial sag is always less than the final sag. The most practical method of obtaining the correct sag is by sighting between two adjacent structures. Choose the structure, which is reasonably near the same elevation

Sags for the various temperatures shall be furnished by the Engineer in a table form for spans not covered by the sag chart.

In order to ascertain the sag for a given stringing temperature, select the point corresponding to the proper temperature on the scale on the left-hand side of the sag chart. Lay a straight edge so that it passes through this point and the point of the center scale representing the length of span to be sagged. The straight edge will then indicate the proper stringing sag on the right-hand scale. Interpolate if the temperature of span is not exactly the same as designated on the chart. The low voltage neutral conductor shall be sagged with the same sag as the low voltage phase conductor. If the low voltage conductor, as a group, has less design sag than the high voltage phase conductor installed above it, the low voltage conductor, as a group, shall be installed to the same sag as the high voltage conductors installed above. The sag of pre stressed conductors such as installed with a tensioning machine shall be specified by the Engineer for the job.

8.3 Stringing

All cable grip used for the installation of conductors shall be of the type designed to prevent injury to the conductor.

Attach targets to each structure at a distance below each point of the support of conductor equal to the required sag. Sight from one target to the other. The line of sight between targets may be horizontal or inclined. Draw the conductor up to the proper sag, which will be reached when its lowest point will be in line with the target.

Where terrain and / or length of span is such that the targets would fall below the ground line, the difference in elevation between the lower conductor attachment and the lowest point of sag, sag below lowest support will be furnished by the engineer in the tabular form.

The dynamometers and similar apparatus shall be used for tensioning of conductor to obtain appropriate sagging of conductors. Dynamometer shall be used only when the sight method is not feasible. Dynamometer shall be checked for accuracy before using.

For stringing of ACSR conductors of all sizes, stringing rollers or roller shall be used to support the conductor as it is pulled out and sagged. Stringing rollers shall be used regardless of size of aluminum conductors, bare or covered.

Stringing rollers shall be suspended at each insulator support position so that the conductor shall roll smoothly over the roller-protecting conductor from any physical damage.

Stringing sheaves shall have a diameter at least 20 times the conductor diameter and so finished as to prevent damage of any kind to the conductor as it is pulled through the sheaves.

Conductor drum shall be located at a sufficient distance from the first structure to avoid excessive bending of the conductor over the sheaves and excessive downward loading on the cross-arms.

Attention shall be paid to the fact that all sag charts contained herein for ACSR conductors are calculated on the basis of non pre-stressed conductor. For this reason, at no time during the stringing or sagging operation, shall conductors of this type be pulled to sag, which are less than those shown by the charts.

Special care shall be taken at all times to prevent the conductor from becoming kinked, twisted or abraded in any manner. Where it is necessary to drag conductors on the ground, the conductors shall be protected by covering all stones or other objects, which might damage the conductor with boughs or trees or suitable pieces of lumber. These requirements are especially important when ACSR conductor is being handled on river crossing spans. Floats with rollers shall be used to prevent the conductor from dragging along the river bottom.

In stringing conductors across highways, the conductors shall be fully protected from passing vehicles by use of temporary guard structures.

8.4. Damaged Conductor

Damaged conductors shall be repaired by using a repair sleeve provided that no more than 2 strands of the outer aluminum layer are damaged and further provided that none of the sleeve core strands are damaged. For a conductor damaged in excess of the above conditions, the damaged section of the conductor shall be cut out and a tension splice installed.

When cutting out damaged section of conductor, no more than 1 tension splice shall be permitted in a span and no splice is made within 8 meters of an insulator attachment.

8.5 Sag Error

Sag error shall not exceed ± 40 mm from the sag defined by the sag chart.

8.6. Conductor Attachment

Conductors shall be secured to pin insulators with pre-formed conductor ties or with tie wire. Insulator ties, except at jumper supports in structures, shall be made with pre-formed ties when available.

Conductors shall be connected to dead end assemblies with tension set.

8.7 Line Splices for Tensioning and Looping

Cleaned and polished contact surfaces are necessary to make conductor splices so that it shall remain free from trouble. Great care shall be taken to completely clean the strands of aluminum conductor. The splicing sleeve must be centered over the conductor ends before compressing to make a splice of required strength.

Appropriate sleeve shall be used for splicing ACSR conductors prior to installation. The outer strands of aluminum shall be carefully cleaned with a wire brush to remove all foreign matter till the aluminum shines brightly. The cleaning applies to both new and old conductors. The manufacturer pre-filled with inhibitor compound supplies splicing sleeves for aluminum conductor.

Splices in line conductors shall be so located that the end of the splicing sleeve is at least 30 cm from the end of a suspension or dead end clamp. Non-tension loops, such as between dead ends, shall be spliced with a connector when the conductors are of same metal and size.

8.8 Connectors

Cleaned and polished contact surfaces are necessary to make electrical connections that will be free from trouble.

Tap connectors are supplied by manufacturers pre-filled with inhibitor compound. Excess inhibitor compound shall not to be removed but it shall be wiped over the connector as a moisture seal. Connectors shall not be covered or taped.

Compression connectors shall be located in such a manner that there shall be at least 30 cm of conductor between the end of the connector and the end of a dead end

Connectors shall be installed on non-tensioned portion of the conductor such as loops in preference to the conductor in the span.

Connectors installed on conductor shall be located in a span adjacent to the crossing rather than the crossing span when practicable.

Aluminum compression connectors, pre-filled with inhibitor compound, shall be compressed on the cleaned area of aluminum conductor. Where necessary, inhibitor compound shall be applied to the cleaned conductor and connector before assembly.

Aluminum compression connectors shall be used for connecting aluminium-to-aluminium conductors.

8.9 Conductor Accessories

Pre-Formed Ties and Grips

Taps for jumpers and services shall not be made over the legs of ties or dead end grips.

Pin Insulator Ties

Pin insulator ties are of 2 types:

- a. With single top grooves: Single top ties may be used to turn line angles to 7 degrees where single insulators are permitted. Please refer construction drawing for specific applications.
- b. With side grooves with specific size of ties for specific conductor in each tie style: Specific usage is dictated by insulator pin loading and use of single insulators as specified in construction drawing.

Shackle Insulator Ties

Shackle insulator ties are furnished in one type with specific size of ties for specific conductor. Shackle ties may be used to turn line angles at 20 degree. At the line angles, the conductor shall be located on the side of the vertically installed shackle insulator that causes the conductor to be forced against the shackle insulator. Angle loading shall not be imposed on the ties itself.

Preformed Stay Wire Binder

Preformed stay wire binder for stay wire are furnished as per construction drawing.



Preformed stay wire binder are right hand lay. Preformed stay wire binder may be removed and replaced up to 3 times, when initially installed, to permit adjustment of stay tension.

When applying ties or grips the manufacturer's identification tag and colour coding shall be checked to insure that the tie or grip is the right unit specified for application on the specific conductor or wire strand.

Perform for stay wire are furnished with 2 crossover markings. When applying preform on hardware, the grip shall be installed using the crossover point closest to the loop of the grip.

Compression Fittings

Full-tension conductor splices and repair sleeves are furnished for all conductors to be installed.

a. Full Tension Conductor Splice

Full-tension spliced for ACSR conductor is provided in a 2/1-piece unit. Full tension conductor splices will develop full conductivity of the conductor and a minimum of 95% of the rated conductor breaking strength. Please see construction drawing for splicing instructions.

b. Repair Sleeves

Conductor repair sleeves are furnished for all conductors to be used to restore the rated current carrying capacity of conductors with broken strands. Repair splices have no tension rating.

8.10 PG Clamps

PG clamps are furnished in a full range of sizes for application in the non-tension connection in 33, 11 kV circuits. The PG clamps are designed for general use in making tap and jumper connections of various types. In all applications of PG clamp fittings, the conductor metal shall be wire-brushed to a bright condition to remove surface oxidation on the conductor.

8.11 Application

When applying ties or grips the manufacturer's identification tag and colour coding shall be checked to insure that the tie or grip is the right unit specified for application on the specific conductor or wire strand.

Preformed for stay wire are furnished with 2 crossover markings. When applying preformed on hardware, the grip shall be installed using the crossover point closest to the loop of the grip. In all applications of PG clamp fittings, the conductor metal shall be wire-brushed to a bright condition to remove surface oxidation on the conductor.

8.12 Line Construction

Arrangement of Conductor: The standard position of 33, 11 kV phase conductors on the cross-arm in the normal triangular configuration looking from the normal source of power supply shall be seen as:

Red (R) on top of the pole, Yellow (Y) on right hand end of the cross-arm and Blue (B) on left hand end of the cross arm.

Attachments to Poles

Boltholes are provided on poles for cross-arms, cross-arm braces and stay bolts.

Conductor Ties

Pre-formed ties and grips shall be used for attaching conductors to structures when available.

If pre-formed materials are not available, the wire shall be soft conductor so that when made up, the tie wire will bind the conductor tightly. No tie wire shall be used for a second time.

Tie wire shall be of the same metal as that of the bare conductor to which the tie is applied.

Conductor Support

The conductor supports on straight lines shall be carried on the top wire groove of the pin insulator. Conductors shall be attached to the side conductor groove of pin insulator on the outside of angles so that transverse conductor tension will tend to hold the conductor in the insulator groove.

Conductor ties shall not hold a conductor on the insulator when uplift exists. If uplift is found, it is required to consult with the Site Engineer or the Engineer to determine remedial action to be taken.

8.13 Pole Wiring

All taps or connections passing from one level to another on the pole shall, as far as possible, be vertical. Connections shall have sufficient length so that the line conductors are not moved from normal positions and normal movement is not restricted. Connections shall have at least 30 centimetres clearance from other conductors. Any connection carried from one side of the pole to the other side shall be supported on pin insulators.

9. Transformer Structures

Distribution panel-board material and equipment ratings shall be determined by the kVA rating of the transformer and number of 400/230 volt out going distribution circuits.

Where out going distribution circuits are installed, pole moment loading must be balanced by another out going distribution circuits in the opposite direction or by installation of stays.

Two separate rods shall be used to earth the transformer structure

- a.) One for surge arresters and equipment
- b.) Another for the neutral of transformer low voltage winding, body of transformer and the body of MCCB box.

Each earth rod shall be driven at a minimum distance of 2 meters from the adjacent pole resulting in a minimum distance of 6 meters between the two ground rods.

Ground conductor lead shall be stranded steel wire.

1/2" banding material shall be used to strap grounding conductors to pole(s) at one (1) meter intervals.

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Compression connectors and PG clamp shall be used to make all electrical connections. When connecting copper transformer circuit conductor to the secondary line conductors, the copper conductor shall be placed below the aluminium conductor at the connection so that rainwater will flow from the aluminum conductor onto the copper conductor.

Conductor shall be terminated on main breaker and neutral bus with cable socket of proper size.

Individual conductors of the circuits located in panel boards shall be bundled with cotton or nylon cord and trained and tied to conductor standoff clips.

10. Installation Criteria

10.1 The line alignment should be as straight as possible to minimize requirements for stays.

The basic span shall be maintained within the following limits:-

33 kV line: 50m to 55 m

11 kV line: 50m to 55 m

Low voltage and composite line:

S. No.	No of wire	Span in meter
1.	4 wire	35-40
2.	3 wire	40-45
3.	2 wire	45-50

10.2 The entire construction works shall be performed as per the construction units specified. Whenever the construction unit does not cover any specific activity, the Contractor and the NEA shall mutually settle the cost as per the man-hour involvement for the same and according to the labor rate quoted by the Contractor in his Bid.

10.3 Detailed schedules of material to be used are provided in each structure drawing of the construction standards. It shall be the responsibility of the Contractor to judge the appropriateness of the listed material according to the site conditions. If there is any need for addition/reduction or deviation from the listed material size/quantity, the Contractor shall ask the NEA for the approval of the same.

10.4 All types of line clearances shall be maintained as per the construction standards provided to the Contractor. Deviations from the standards may be allowed only for unique or special conditions.

10.5 Safety rules of the NEA shall be strictly observed at all times by the NEA and the Contractor and their personnel. Special care shall be taken to maintain the optimum conductor sag to provide adequate safety to the construction and the property or people.

10.6 All fastenings (e.g. preforms, nut bolts, stays and the like) shall be so installed that the constructed line components shall not fail to remain within the safety margin while maximum working load is applied.

- 10.7 If the Contractor requires clarification of any construction standard or unit or he feels any doubt in his interpretation of construction activities he should clarify the points with the NEA in writing and the decision thus made shall be valid for further work.
- 10.8 HV Insulators: The Contractor shall use HV pin insulators in the alignment of the line where the break angle does not exceed the limits provided hereafter,

S. No.	Conductor Size in mm ²	Minimum Break Angle in Degrees
4.	100 (Dog)	7
5.	50 (Rabbit)	15.5
6.	30 (Weasel)	24.5

In the case where the break angle exceeds the above values the Contractor shall make dead end at the angle structure and use disc insulator fittings.

11. Installation of Stays

- 11.1 The Contractor, in general, shall install at least one stay for the supports in the following cases

- (a) Dead end structure
- (b) Tee-off (Tap) structure

- 11.2 Stay may not be installed in the following conditions

HV Line (33, 11 kV) with 11 m Pole

- a) - Conductor 3x100 mm²
 - Span 75 m (max)
 - Break angle: 4 deg.

- b) - Conductor 3x50 mm²
 - Span 75 m (max)
 - Break angle: 5.5 deg.

- c) - Conductor 3x30 mm²
 - Span 75 m (max)
 - Break angle: 6.5 deg.

Composite (HV +LV) line with 11 m pole

- a) - Conductor 3x100 mm² HV; 3x50 mm²+30 mm² LV
 - Span 40 m (max)
 - Break angle: 2 deg.
- b) - Conductor 3x50 mm² HV; 3x30 mm²+1x30 mm² LV

- Span 50 m (max)
- Break angle: 2.5 deg.

For conditions different from the above, the Contractor shall provide calculations showing the number of stays necessary and get approval from NEA prior to installation.

12. Transformer Mounting

Each transformer (except single phase pole mounted) shall be so mounted on the platform that the centre of the transformer is in the middle of the platform. Deviations are not permitted from this rule.

13. Grounding Procedure

13.1 Purpose

Grounding conductors and electrodes (ground rods) are installed on poles and structures to provide a low impedance path to ground for fault currents and over voltages and current waves initiated by lightning strokes. The objective is to minimize possible difference in potential between normally non-current carrying parts and from those parts to ground. It is also necessary to provide a current path to ground to enable protective devices to quickly de-energize the circuit under over voltages and over current conditions.

13.2 Parts to be grounded

The following parts shall be grounded

- a) Surge arrester ground studs
- b) Normally non-current carrying parts of the switches, frames, panel boards, cabinets, re closer tanks etc.
- c) Low voltage neutral points of the transformer.
- d) Neutral for the low voltage (0.4/0.23 kV) line shall be grounded at every 15 poles.

13.3 Grounding Conductors

Conductor sizes for grounding of specific parts shall be made as follows.

Surge Arrester	2AWG copper welded
Switch frames and re closers	2 AWG copper welded
Transformer neutral points	25 sq mm copper wires

All the grounding conductors shall be installed with the high-density polythene pipe at least above reach of the human beings

13.4 Ground Rod Installation

At switches, re closers grounding points the ground rod shall be installed in the ground at a minimum lateral distance of two meter from the associated poles. The top of the ground rod shall be driven to a minimum depth of 40 centimetres below grade before connecting the ground conductor to the ground rod.

At the transformer structure body of the transformer and the body of surge arrester, MCCB box, the grounds shall be separated laterally from transformer secondary neutral point grounds by a minimum of 6 meters. Ground rods shall be driven to a minimum depth of 40 centimetres below grade before connecting the grounding Conductor to the ground rod.



The grounding conductor shall be encased in a rigid plastic pipe for a distance of 3 meters above the top of the concrete pole foundation or collar. The plastic pipe shall be of sufficient internal diameter to contain the grounding conductor.

14. 400/230 Volt Low Voltage Circuits General Instructions

14.1 General

Bare wire 400/230 Volt circuits shall be supported on shackle insulator with D-iron. Generally, shackle insulator with D-iron shall be placed on the same side of the pole throughout the length of the line. Care shall be taken to see that shackle insulator with D-iron shall be mounted on that side of the pole from where most of the house service connection shall be extended.

Spacing between two conductors for low voltage circuit shall be 305 mm.

The three low voltage phase conductor shall be located in descending order from the top of the pole with Red (R) on the top, Yellow (Y) below Red and Blue (B) below Yellow. The low voltage neutral conductor shall occupy the bottom position.

14.2. Neutral Conductor

Neutral conductor may be the same size as the phase conductor or be sized smaller than the phase conductors. The neutral conductor size shall be specified by the work plan.

All neutral conductors shall be bare ACSR.

14.3 Phase Conductor

Phase conductors shall be bare ACSR conductor as specified by the work plan.

15. Safety

- 15.1 The Contractor shall take all measures required to safeguard the public, public and private property from any hazard to life, limb, or property, which may arise during the performance of the construction of the works. Such measures shall include, but not be limited to barricades, signs, newspaper announcements, traffic control by police, or other advisory and control methods deemed appropriate.
- 15.2 The Contractor shall provide his work force with all tools and equipment in sufficient numbers and quality to perform all aspects of the works in a safe manner. The Contractor shall provide protective headgear for all members of his workforce, and shall provide protective clothing as required for specific tasks. The Contractor shall instruct his work Force in proper and safe construction techniques and shall continuously monitor compliance with safety instructions throughout the period of the Contract.
- 15.3 The Contractor shall provide, and require use of, protective grounding equipment when :
 - a) Work is being performed on lines adjacent, either in extension of, or parallel to, energized circuits.
 - b) Work is being performed on isolated circuits after conductors have been installed
- 15.4 The Contractor shall maintain all tools and equipment in good working order. All mechanized equipment shall have adequate safety mechanisms and guards in place and be



fully operational. Operators of such equipment shall be skilled and fully trained in the operation of such equipment.

- 15.5 The Contractor shall provide and maintain emergency medical supplies to cover with accidents and snakebites for his work force on a readily available basis. The Contractor shall also instruct all supervisory personnel in the action to be taken in the event of serious injury, and the sources and locations of professional medical assistance, which shall be employed in such cases.
- 15.6 The Contractor shall apply all accidental insurance policies to his work force for an accident occurring during the working period of the construction.

16. Tests

- 16.1 The Contractor shall furnish the electrical test equipment and personnel to perform electrical tests of equipment and circuits, as specified by, and under the supervision of the NEA.
- 16.2 The Contractor shall meggar all circuits installed with a motor-driven megger or equivalent instrument to demonstrate the acceptable insulation characteristics of the line prior to energization and Provisional Acceptance. 400/230 V overhead circuits shall be tested at 500 volts AC.
- 16.3 The Contractor shall conduct DC hi-potential tests on all underground circuits, after makeup but prior to backfilling. The test shall be made with DC hi-potential test set capable of non-destructively testing the cable at approximately 300% of cable voltage rating.
- 16.4 The Contractor shall megger all transformers with a motor-driven megger prior to connection to the LV network.
- 16.5 All tests specified shall be conducted during suitable atmospheric conditions under the supervision and witness of the NEA. All test results shall be documented and signed by both parties.

17. Demolition

- 17.1 The Contractor shall perform the removal of all existing facilities in accordance with the specific directions of the Authorized Personnel. All materials removed shall remain the property of NEA and the Contractor shall deliver all salvaged materials to the NEA warehouse, or as specifically directed by the Branch Chief in writing.

18. Cleanup

- 18.1 The Contractor shall ensure that all worksites shall be free of all manner of debris resulting from the construction activity.
- 18.2 All crating, conductor reels, packaging materials, conductor scraps, and other miscellaneous items are removed from the workplace. All holes resulting from removal of facilities shall be filled. If trees or brush have been cut or trimmed, all cuttings shall be removed. The worksites shall be left in clean natural conditions.
- 18.3 Site cleanup shall be an integral part of the Provisional Acceptance process, and no line section shall be provisionally accepted unless all cleanup work has been accomplished.



19. Tree Cutting and Trimming

- 19.1 Any tree cutting or tree trimming shall be accomplished by the Contractor in coordination with CBO.
- 19.2 All cutting shall be removed by the Contractor with disposition of cutting as specified by NEA.

20. Interruptions to Existing Service

- 20.1 The Contractor shall arrange for interruptions of service to existing lines with NEA. Every effort shall be made to limit such interruptions to the minimum.
- 20.2 If it is possible to maintain service to a section of line by constructing temporary facilities approved by NEA, the Contractor shall detail man hours and classification of personnel required to construct such facilities and submit to NEA for approval prior to any work being performed. Payment for approved work shall be based on the rates covered in *Vol I, Preamble to Price Schedules*, Construction Unit 10.

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TECHNICAL DATA SHEETS

(To be completed by the Bidder)

1. ACSR Conductor

- | Description | Queries |
|--|---------|
| 1. Manufacturer | |
| 2. Copies of fabrication standards attached? | Yes/No |
| 3. If standards are other than BS: 215 / IEC: 209 (Part II)
Then conductor specifications are same as
BS: 215 / IEC: 209 requirements in respect of the following? | |
| Diameter | Yes/No |
| Strand size | Yes/No |
| Direction of lay | Yes/No |
| Lay ratio | Yes/No |
| Materials | Yes/No |
| 4. Technical data: | |

Code Name	Nominal Area (sq. mm)	Stranding (Al/Steel)	Breaking Strength (KN)	Mass (kg/km)	Resistance at 20 ° C (Ohm/Km)
DOG					
RABBIT					
WEASEL					

Signature _____

As representative for _____

Address _____

Date _____



Porcelain Insulators

Pin Insulators

<i>Description</i>	<i>Queries</i>
1. Manufacturer	
2. Catalog	
3. Model number	
4. Applicable standards	
5. Copies of standards attached	Yes/No
6. If not IS Standards, are standards used equivalent?	Yes/No
7. Copies of alternate standard attached?	Yes/No
8. Ratings:	
Highest system voltage	kV
Rated voltage	kV
Creepage distance (min)	mm
Wet frequency puncture withstand voltage	kV
Impulse withstand voltage	kV
Puncture power frequency voltage (min)	kV
Visible discharge voltage	kV
Cantilever strength	kN
G I pin head	

Signature _____

As representative for _____

Address _____

Date _____

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Disc Insulators

Description	Queries
1. Manufacturer	
2. Catalog No.	
3. Model number	
4. Applicable standard	
5. Copies of standards attached? Yes/No	
6. If not IS standards are standards used equivalent?	Yes/No
7. Copies of alternate standard attached?	Yes/No
8. Ratings:	
Highest system voltage	kV
Rate voltage	kV
Porcelain diameter (min)	mm
Spacing	mm
Creepage distance (min)	mm
Power frequency puncture Withstand voltage	kV
Wet frequency puncture Withstand voltage	kV
Impulses withstand voltage	kV
Puncture power frequency voltage (min)	kV
Visible discharge voltage	kV
Mechanical strength	kN
Ball and socket size	mm

Signature _____

As representative for _____

Address _____

Date _____



Stay Insulator

Description	Queries
1. Manufacturer	
2. Catalog No.	
3. Model number	
4. Applicable standards	
5. Copies of standards attached?	Yes/No
6. If not IS standards, are standards Used equivalent?	Yes/No
7. Copies of alternate standards attached?	Yes/No
8. Ratings:	
Highest system voltage	kV
Rated voltage	kV
Creepage distance (min)	mm
Minimum failing load	kN
Power frequency withstand voltage, 1 minute	
Dry	kV
Wet	kV
IS designation	

Signature _____

As representative for _____

Address _____

Date _____



Shackle Insulator

Description	Queries
1. Manufacturer	
2. Catalog No.	
3. Standards	
4. Copies of standards attached:	Yes/No
5. If not IS standards, are standards used equivalent?	Yes/No
6. Copies of alternate standards attached?	Yes/No
7. Ratings:	
Highest system voltage	kV
Rated voltage	kV
Power frequency withstand voltage, 1 minute	
Dry	kV
Wet	kV
Power frequency puncture withstand	
Voltage, 1 minute	kV
Leakage distance (min)	mm
Mechanical strength	kN
IS designation	

Signature _____

As representative for _____

Address _____

Date _____



2. Insulator Pins

<i>Description</i>	<i>Queries</i>
1. Manufacturer	
2. Type of steel used	
3. Dimensional drawings attached?	Yes/No
4. Copies of type test attached?	Yes/No
5. Ratings and features	
	For 11 kV
Head type	
Total length	mm
Stalk length	mm
Shank length	mm
Minimum failing load	k N
Applicable standard	
Catalog number	

Signature _____

As representative for _____

Address _____

Date _____

[Handwritten signature]



3. Disc Insulator Fittings

Description	Queries
1. Manufacturer/Catalogue No.	
2. Preliminary drawings furnished?	Yes/No
3. Steel Classification	
4. Malleable tension clamp?	Yes/No
5. Cotter pin and U-bolts are galvanized?	Yes/No
6. Cotter pins are stainless steel?	Yes/No
7. Galvanizing conforms to IS: 2629 – 1985?	Yes/No
8. Ultimate strength of clamps	
9. Applicable standard(s)	

Signature _____

As representative for _____

Address _____

Date _____

[Handwritten signature]



4. Shackle Insulator Fittings

	Description	Queries
1.	Manufacturer	
2.	Catalogue no.	
3.	Drawing furnished?	Yes/No
4.	Steel classification	
5.	Reference galvanizing specifications	

Signature _____

As representative for _____

Address _____

Date _____

[Handwritten signature]



Item No. 5 : Stay Set
(To be completed by Bidder)

Item	Stay Set			
	Description	Unit	Stay Set (19 mm.)	Stay Set (16 mm.)
1.	Manufacturer			
2.	Catalog Numbers			
3.	Steel Classification			
4.	Governing Standard for galvanization			
5.	Load rating, kg.			
6.	Type tests-tensile load data attached?		Yes/No	Yes/No
7.	Type test-bend test data attached ?		Yes/No	Yes/No
8.	Dimensional drawing attached?		Yes/No	Yes/No





Item No. 6 : Steel Wire Strand

(To be completed by Bidder)

Item	Steel Wire Strand		
	<i>Description</i>	<i>Unit</i>	<i>7/8 SWG</i> <i>7/12 SWG</i>
1.	Manufacturer		
2.	Strand diameter (overall)	mm	
3.	No. of Strands		
4.	Minimum Breaking load	kg	
5.	Nominal diameter of coated wire in strand	mm	
6.	Left hand lay	Yes/No	
7.	Governing Standard for manufacturing and testing	Yes/No	
8.	Governing Standard for galvanization		
9.	Standards attached?	Yes/No	





Item No. 7 : Galvanized Steel Nuts and Bolts

(To be completed by Bidder)

Item	Galvanized Steel Nuts and Bolts	
	<i>Description</i>	<i>Unit</i>
1.	Manufacturer	
2.	Material Description furnished?	Yes/No
3.	Governing Standard for manufacturing and testing	
4.	Governing Standard for galvanization	
5.	Standards attached?	Yes/No
6.	Catalog numbers attached for all items?	Yes/No





Item No. 8: Cross-arm and angle

(To be completed by Bidder)

Item	Cross-arm and angle	
<i>Description</i>		<i>Unit</i>
1. Manufacturer		
2. Steel Classification		
3. Minimum tensile strength of steel		
4. Is the cross arm and angles fabricated from hot-rolled steel sections?		Yes/No
5. Governing Standard		
6. Standard attached?		Yes/No
6. Governing Standard for galvanizing		
7. Drawings of cross arm and bracing?		Yes/No



Item No. 9 : Flat cross-armbrace

(To be completed by Bidder)

Item	Flat cross-arm brace	
<i>Description</i>		<i>Unit</i>
1. Manufacturer		
2. Steel Classification		
3. Minimum tensile strength of steel		
4. Is the flat cross arm brace fabricated from hot-rolled steel sections?		Yes/No
5. Governing Standard for manufacturing and testing		
6. Governing Standard for galvanizing		
7. Standards attached?		Yes/No
8. Drawings of flat cross arm brace?		Yes/No



Item No. 10: Transformer Platform (Flat Arm Channel)

(To be completed by the Bidder)

Item	Transformer Platform	
<i>Description</i>		<i>Unit</i>
1. Manufacturer		
2. Preliminary details dwg. furnished?		Yes/No
3. Steel Classification/ Characteristics furnished?		Yes/No
4. Governing Standard for galvanization		
5. Vertical Load on pole		
6. Resultant Safety Factor		
7. Resultant Deflection at design load		mm
8. % of allowable tension		
9. % of allowable compression		
10. % of allowable shear limits		





Item No. 11: Pole Clamps

(To be completed by Bidder)

Item	Pole Clamps	Unit
	<i>Description</i>	<i>Unit</i>
1.	Manufacturer	
2.	Steel Classification	
3.	Governing Standard for galvanization	
4.	Drawings of Pole Clamp furnished?	Yes/No



12. Distribution Transformer

Description	Queries	Transformer Rating, KVA
1. Manufacturer		
2. Copies of IEC standards attached?	Yes/No	
3. Copies of type test for each rating attached?	Yes/No	
4. Copies of outline drawings for each size attached?	Yes/No	
5. Winding material:		
6. Primary Winding BIL	kV	
7. Primary Bushing BIL	kV	
8. Accessories listed below furnished?		
a) Lower oil filter valve	Yes/No	
b) Liquid level gauge	Yes/No	
c) Lifting lugs	Yes/No	
d) Hand hole	Yes/No	
e) Tank earthing terminal	Yes/No	
f) Overload protection	Yes/No	
If yes, details attached?	Yes/No	
9. Testing facilities available		

Description

Name of the test equipment/facility

Applied voltage test

Induced voltage test

No load loss and excitation current test

Impedance voltage and load loss tests

Resistance measurement

Ratio tests

Polarity and phase relation tests

Leakage tests

Insulation resistance tests



10. Design information			
Rated power (IEC rating)	25	50	100
Number of phases			
Frequency, Hz			
Voltage ratio at no-load, kV.....			
Winding connections.....			
Type of core sheet.....			
Magnetising current at normal ratio:			
hv, Amp			
lv, Amp			
Maximum flux density in core iron at normal voltage and frequency based on the net section of iron:			
Cores, T			
Yokes, T			
Type of winding:			
hv ..			
lv			
Maximum current density in winding at rated power:			
hv, Amp/mm ²			
lv, Amp/mm ²			
Type of insulation used for:			
Hv winding.			
Lv winding.			
No-load loss at normal voltage ratio and 75°C, Watt			
Load loss at rated current and at 75°C, Watt			
Regulation at 75°C and rated power as a percentage of normal voltage:			
at 1 p.f, %			
at 0.8 p.f, %			
Impedance voltage at 75°C and rated power:			
at normal tapping,%			
at -5% tapping %			
at +5% tapping %			
Efficiency at 1 p.f 125% and rated current, %			
Efficiency at 1 p.f 100% and rated current, %			
Efficiency at 1 p.f 75% and rated current, %			
Efficiency at 1 p.f 50% and rated current, %			
Efficiency at 1 p.f 25% and rated current, %			
Temperature rise at rated kVA by Thermometer in oil			
Temperature rise at rated kVA by			



- Resistance of windings
- Permissible overload
- Transformer insulating oil specification.....
- Total volume of insulating oil at 20°C, litre.....
- Effective expansion capacity of conservator, litre.....

11. Approximate weight and dimensions

- Transformer core and windings, kg.....
- Tank and fittings, kg.....
- Oil, kg.....
- Total weight, kg.....
- Thickness of tank sides, mm
- Thickness of tank bottom, mm
- Thickness of radiator, mm.....
- Approximate dimensions including fittings:
 - Overall length, mm.....
 - Overall width, mm.....
 - Overall height, mm.....

Signature _____

As representative for _____

Address _____

Date _____

[Handwritten signature]



13. Surge Arrester

Description	Queries
1. Manufacturer	
2. Catalog numbers	
3. Governing standard	
4. Copies of standard attached?	Yes/No
5. Certification	
6. Copies of certified type tests attached?	Yes/No
7. Copy of certified type test attached?	Yes/No
8. Surge arrester type	
7. Pressure relief provided	Yes/No
8. Ground lead disconnecter provided	Yes/No
9. Ratings:	
System voltage	kV
Maximum system voltage	kV
Voltage rating (Ur), Vrms	kV
System frequency	Hz
Nominal discharge current	kA
Creepage distance	mm
Minimum power frequency withstand:	
Wet	kV
Dry	kV
Pressure relief class	

Signature _____

As representative for _____

Address _____

Date



14. Distribution Cutout

Description	Queries
1. Manufacturer	
2. Catalog Numbers	
3. Applicable standard	
4. Certification	
5. Copies of standard attached?	Yes/No
6. Copy of certified type tests attached?	Yes/No
7. Clamp type terminals for Copper / aluminium cable 25-150mm ² ?	Yes/No
8. Ratings:	
System voltage	kV
Design ratings	kV
System frequency	Hz
Max. design rating	kV
Minimum power frequency withstand	
Dry	kV
Wet	kV
Impulse withstand	kV
Creepage distance	mm
9. Interrupting capacity	kA

Signature _____

As representative for _____

Address _____

Date _____



15. Fuse Link

Description	Queries
1. Manufacturer	
2. Catalog Numbers	
3. Governing standard	
4. Copies of standard attached?	
5. Time Curves attached	
Minimum melting time	Yes/No
Total clearing time	Yes/No
6. Preload adjustment data attached?	Yes/No
7. Ambient temperature adjustment data attached?	Yes/No

Signature _____

As representative for _____

Address _____

Date _____



16. Moulded Case Circuit Breakers

Description	Queries
1. Manufacturer	
2. Catalog number	
3. Model offered	
4. Applicable standard	
5. Certification	
4. Copies of standards attached?	Yes/No
5. Copies of certified type tests attached?	Yes/No
6. Copies of outline drawings attached?	Yes/No
7. Copies of time – current characteristics trip curves for each breaker rating attached?	Yes/No
8. Ratings:	
Rated voltage	Volts
Number of poles	
Ambient Temperature	Deg. C
Nominal rating current	Amperes
Rated breaking capacity	kA
Impulse withstand voltage	kV
Interrupting capability	
Line load reversibility	Yes/No
All bid documents furnished?	Yes/No
All other features provided?	Yes/No

Signature _____

As representative for _____

Address _____

Date _____



17. Distribution Panel Board

Description	Queries
1. Manufacturer	
2. Fabrication drawings copies attached?	Yes/No
3. Attached description of all materials used?	Yes/No
4. Furnished description of cable entrance fittings?	Yes/No

Signature _____

As representative for _____

Address _____

Date _____

[Handwritten signature]



18. Disconnect Switch

Description	Queries
1. Manufacturer	
2. Catalog number	
3. Copy of test data per IEC Standard 265 attached?	Yes/No
4. Rating:	
Design Voltage	kV
Continuous Current	Amps
Momentary rating (r.m.s)	Amps
Impulse Withstand (BIL)	kV
Min Power Frequency Withstand:	
1 minute dry	kV
10 seconds wet	kV
Insulator creepage distance	mm
Insulator dry arc distance	mm
Open gap dry arc distance	mm
5. Dimensioned drawing attached?	Yes/No

Signature _____

As representative for _____

Address _____

Date _____





20. PVC Insulated Cable

Description	Queries
1. Manufacturer	
2. Governing Standard	
3. Copies of Governing Standard attached?	Yes/No
4. Copies of tests required by standard attached?	Yes/No
5. Rating of insulation	Volts.

Signature _____

As representative for _____

Address _____

Date _____

[Handwritten signature]



19. LV ABC

<i>Description</i>	<i>Queries</i>
1. Manufacturer	
2. Catalogue/ drawings	Yes/No
3. Governing Standards	
4. Copies of Standards Attached:	Yes/No
5. Copies of type test attached?	Yes/No
6. Rated Voltage	kV
7. No. of Cores	
8. Conductor	
9. Nominal cross-sectional area	mm ² 95 50 25
10. Diameter of conductor	
-minimum	mm
-maximum	mm
11. Minimum breaking load of conductor	kN
12. Minimum breaking load of cable	kN
13. Min. thickness of XLPE insulation at any point (excluding ribs)	mm
14. Max. thickness of XLPE insulation at any point (excluding ribs)	mm
15. Maximum overall diameter of the core (Excluding ribs)	mm
16. Approximate net weight per meter	kg
17. Max. Continuous current carrying capacity per phase	A
18. Maximum conductor dc resistance at 20 deg. C	Ω/km



- | | | |
|-----|---|----------------------------|
| 19. | Maximum conductor ac resistance at 80 deg. C | Ω/km |
| 20. | Positive sequence reactance of cable at 50 Hz | Ω/km |
| 21. | Minimum insulation resistance | $\text{M}\Omega\text{-km}$ |

Signature _____

As representative for _____

Address _____

Date _____

[Handwritten signature]



21. ABC Fittings

<i>Description</i>	<i>Queries</i>
1. Manufacturer	
2. Catalogue/ Dimensional drawings	Yes / No
3. Governing Standards for Fabrication And Testing	
4. Copies of Standards Attached	Yes / No
5. Copies of Test performed	Yes / No

Signature _____

As representative for _____

Address _____

Date _____

[Handwritten signature]



22. Steel Tubular Pole

Description	Queries	
Overall Length	10m	8m

SECTION

1. (I) **TOP**
Length
Out side Diameter
Thickness
- (II) **MIDDLE**
Length
Out side Diameter
Thickness
- (III) **BOTTOM**
Length
Out side Diameter
Thickness
2. Application of Load from top
3. Approximate weight (*Without the weight of Base Plate which is 4.2 kg approx.*)
4. Crippling Load
5. Load for Permanent set test
6. Load for temporary deflection test
7. Breaking Load

Signature _____

As representative for _____

Address _____

Date _____



Inspection, Testing and Commissioning

1. Inspection and Test

A. Line Materials

1.1 The whole of the Works supplied under the Contract shall be subject to inspection and tests by the Employer or its representatives during manufacture, erection and after completion. The inspections and tests shall include, but not limited to, the requirements of this section of the technical specifications. Each of the material and equipment to be manufactured, supplied and erected specified in the Price Schedule with Technical Preamble shall be inspected, tested and commissioned as specified in the Technical Specification under the contract. NEA shall notify the CONTRACTOR in writing of the identity of any representatives retained for these purposes.

1.2 The inspections and tests shall be conducted on the premises of the Manufacturers/Contractor or its subcontractor(s) and at the item of materials & equipment's final destination in Nepal if required. If the inspection and test of the items of materials & equipment are to be conducted on the premises of the Manufacturers/Contractor or its subcontractor(s), all reasonable facilities and assistance within the premises of the manufacturer, including access to drawings and production data, shall be furnished to the inspectors at no charge to NEA. Items which are not physically tested in the manufacturer's premises the sample of such items shall be provided for the approval from the department.

The costs associated with inspection/tests including the Local transportation and accommodation, for goods to be supplied from third countries or to be supplied from/ within Nepal for inspector/s shall be seven days and Inspectors' expenses shall be borne by the Manufacturers/Contractor. Travelling and Daily allowances of inspector shall be borne by the Employer.

1.3 Should any inspected or tested items of materials and equipment fail to conform to the specifications, the inspectors can reject them, and the CONTRACTOR shall either replace the rejected items of materials and equipment or make all alterations necessary to meet the requirements of the specifications as directed by NEA, free of cost to NEA.

1.4 NEA'S right to inspect, test and, where necessary, reject the items of materials and equipment after their arrival in Nepal shall in no way be limited or waived by reasons of the items of materials and equipment having previously been inspected, tested and passed by NEA or its representatives prior to the shipment from the country of origin.

1.5 Nothing in this Clause 1.4 shall in anyway release the contractor from any Warranty or other obligations regarding specifications, quality and general terms and conditions under the Contract.

1.6 The Employer may waive the inspection and test of some of the items of material & equipments. But the test report of such items (which are not physically tested in the



manufacturer's premises in presence of Employer's Inspectors) must be sent to the Employer for approval.

B. Construction Works

- 1.6 The Contractor shall, by means of continuing inspection/supervision by his staff, ensure that all works constructed and installed comply with the Technical Specifications, Price Schedule with Technical Preambles, Construction Standards, and any amending instructions thereto issued by the Authorized Personnel of Employer.
- 1.7 The Authorized Personnel shall, by means of continuing inspection by his staff, ensure that all works completed by the Contractor conforms to the requirements of the Contract Documents and that high standards of Workmanship are maintained by the Contractor. Such inspections shall be fully documented in accordance with the procedures determined by the Director or Authorized Personnel of NEA. Local transportation facility for the staff of NEA for the periodic construction supervision of distribution works shall be provided by the contractor.
- 1.8 The Contractor shall perform all tests required by the General Specifications, under the supervision of the Authorized Personnel. Such tests shall be fully documented by the Contractor in a form provided by the Authorized Personnel. The Contractor shall provide copies of test documentation to the Authorized Personnel.
- 1.9 The Contractor shall provide all personnel, test equipment, and other materials or equipment required to conduct the tests in accordance with the Technical Specification, Price Schedule with Technical Preambles, Construction Standard etc.

C Quality Assurance

To assure that the supply and services under the scope of this Contract whether manufactured or performed within the Contractor's works or at his subcontractor's premises or at the Site or at any other place of work, are in accordance with the Specifications, the Contractor shall adopt suitable quality assurance program to control such activities at all points necessary. Such program shall be outlined by the Contractor and shall be finally accepted by the Employer after discussions before the award of the Contract. A quality assurance program of the Contractor shall generally cover, but not be limited to the following:

- i. His organization structure for the management and implementation of the proposed quality assurance program.
- ii. Documentation control system.
- iii. Qualification data for bidder's key personnel.



- iv. The procedure for purchases of materials, parts, components, and selection of sub-contractors' services including vendor analysis, source inspection, incoming raw materials inspection, and verification of materials purchases.
- v. System for shop manufacturing including process controls and fabrication and assembly controls.
- vi. Control of non-conforming items and system for corrective actions.
- vii. Control of calibration and testing of measuring and testing equipment.
- viii. Inspection and test procedure for manufacture.
- ix. System for indication and appraisal of inspection status.
- x. System for quality audits.
- xi. System for authorizing release of manufactured products to the Employer.
- xi. System for maintenance of records.
- xii. System for handling storage and delivery.
- xiii. A quality plan detailing out the specific quality control procedure adopting for controlling the quality characteristics relevant to each item of supply.

The quality plan shall be mutually discussed and approved by the Employer after incorporating necessary corrections by the Contractor as may be required.

Quality Assurance Documents

The Contractor shall be required to submit all the Quality Assurance Documents as stipulated in the Quality Plan at the time of Employer's inspection of material/equipment.

The Employer, through his duly authorized representatives, reserves the right to carry out Quality Audit and Quality Surveillance of the systems and the procedures of the Contractor's and the subcontractor's Quality Management and Control Activities.



SECTION - VII
General Conditions of Contract

[Name of Employer]

[Name of Contract]



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संस्थापक
महानिदेशक

General Conditions of Contract

A. General	
<p>1. Definitions</p>	<p>1.1 Boldface type is used to identify defined terms.</p> <p>(a) The Accepted Contract Amount means the amount accepted in the Letter of Acceptance for the execution and completion of the Works and the remedying of any defects.</p> <p>(b) The Activity Schedule is a schedule of the activities comprising the construction, installation, testing, and commissioning of the Works in a lump sum contract. It includes a lump sum price for each activity, which is used for valuations and for assessing the effects of Variations and Compensation Events.</p> <p>(c) The Adjudicator is the person appointed jointly by the Employer and the Contractor to resolve disputes in the first instance, as provided for in GCC 23.2 hereunder.</p> <p>(d) Bill of Quantities means the priced and completed Bill of Quantities forming part of the Bid.</p> <p>(e) Compensation Events are those defined in GCC 42 hereunder.</p> <p>(f) The Completion Date is the date of completion of the Works as certified by the Project Manager, in accordance with GCC 53.1.</p> <p>(g) The Contract is the Contract between the Employer and the Contractor to execute, complete, and maintain the Works. It consists of the documents listed in GCC 2.3 below.</p> <p>(h) The Contractor is the party whose Bid to carry out the Works has been accepted by the Employer.</p> <p>(i) The Contractor's Bid is the completed bidding document submitted by the Contractor to the Employer.</p> <p>(j) The Contract Price is the Accepted Contract Amount stated in the Letter of Acceptance and thereafter as adjusted in accordance with the Contract.</p> <p>(k) Days are calendar days; months are calendar-months.</p> <p>(l) Day works are varied work inputs subject to payment on a time basis for the Contractor's employees and Equipment, in addition to payments for associated Materials and Plant.</p> <p>(m) A Defect is any part of the Works not completed in accordance with the Contract.</p> <p>(n) The Defects Liability Certificate is the certificate issued by Project Manager upon correction of defects by the Contractor.</p> <p>(o) The Defects Liability Period is the period calculated from the Completion Date where the Contractor remains responsible for</p>



	<p>remediating defects.</p> <p>(p) Drawings include calculations and other information provided or approved by the Project Manager for the execution of the Contract.</p> <p>(q) The Employer is the party who employs the Contractor to carry out the Works, as specified in the SCC.</p> <p>(r) Equipment is the Contractor's machinery and vehicles brought temporarily to the Site to construct the Works.</p> <p>(s) Force Majeure means an exceptional event or circumstance: which is beyond a Party's control; which such Party could not reasonably have provided against before entering into the Contract; which, having arisen, such Party could not reasonably have avoided or overcome; and, which is not substantially attributable to the other Party.</p> <p>(t) The Initial Contract Price is the Contract Price listed in the Employer's Letter of Acceptance.</p> <p>(u) The Intended Completion Date is the date on which it is intended that the Contractor shall complete the Works. The Intended Completion Date is specified in the SCC. The Intended Completion Date may be revised only by the Project Manager by issuing an extension of time or an acceleration order.</p> <p>(v) Letter of Intent is the letter of the Employer expressing his intention to award the contract.</p> <p>(w) Letter of Acceptance means the formal acceptance by the Employer of the Bid and denotes the formation of the contract at the date of acceptance.</p> <p>(x) Materials are all supplies, including consumables, used by the Contractor for incorporation in the Works.</p> <p>(y) "Party" means the Employer or the Contractor, as the context requires.</p> <p>(z) SCC means Special Conditions of Contract</p> <p>(aa) Plant is any integral part of the Works that shall have a mechanical, electrical, chemical, or biological function.</p> <p>(bb) The Project Manager is the person named in the SCC (or any other competent person appointed by the Employer and notified to the Contractor, to act in replacement of the Project Manager) who is responsible for supervising the execution of the Works and administering the Contract.</p> <p>(cc) Retention Money means the aggregate of all monies retained by the Employer pursuant to GCC 46.1.</p> <p>(dd) The Site is the area defined as such in the SCC.</p> <p>(ee) Site Investigation Reports are those that were included in the</p>
--	---



	<p>bidding documents and are factual and interpretative reports about the surface and subsurface conditions at the Site.</p>
	<p>(ff) Specification means the Specification of the Works included in the Contract and any modification or addition made or approved by the Project Manager.</p> <p>(gg) The Start Date is given in the SCC. It is the latest date when the Contractor shall commence execution of the Works. It does not necessarily coincide with any of the Site Possession Dates.</p> <p>(hh) A Subcontractor is a person or corporate body who has a Contract with the Contractor to carry out a part of the work in the Contract, which includes work on the Site.</p> <p>(ii) Temporary Works are works designed, constructed, installed, and removed by the Contractor that are needed for construction or installation of the Works.</p> <p>(jj) A Variation is an instruction given by the Project Manager which varies the Works.</p> <p>(kk) The Works are what the Contract requires the Contractor to construct, install, and turn over to the Employer, as defined in the SCC.</p>
<p>2.Interpretation</p>	<p>2.1 In interpreting these GCC, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning under the language of the Contract unless specifically defined. The Project Manager shall provide instructions clarifying queries about these GCC.</p> <p>2.2 If sectional completion is specified in the SCC, references in the GCC to the Works, the Completion Date, and the Intended Completion Date apply to any Section of the Works (other than references to the Completion Date and Intended Completion Date for the whole of the Works).</p> <p>2.3 The documents forming the Contract shall be interpreted in the following order of priority:</p> <ol style="list-style-type: none"> (a) Contract Agreement, (b) Letter of Acceptance, (c) Contractor's Bid, (d) Special Conditions of Contract, (e) General Conditions of Contract, (f) Specifications, (g) Drawings, (h) Bill of Quantities (or Schedules of Prices for lump sum



	contracts), and (i) Any other document listed in the SCC as forming part of the Contract.
3. Language and Law	3.1 The language of the Contract and the law governing the Contract are stated in the SCC.
4. Project Manager's Decisions	4.1 Except where otherwise specifically stated, the Project Manager shall decide contractual matters between the Employer and the Contractor in the role representing the Employer.
5. Delegation	5.1 The Project Manager may delegate any of his duties and responsibilities to other people, except to the Adjudicator, after notifying the Contractor, and may cancel any delegation after notifying the Contractor.
6. Communications	6.1 Communications between parties that are referred to in the Conditions shall be effective only when in writing. A notice shall be effective only when it is delivered.
7. Subcontracting	7.1 The Contractor may subcontract with the approval of the Project Manager, but may not assign the Contract without the approval of the Employer in writing. Subcontracting shall not alter the Contractor's obligations.
8. Other Contractors	8.1 The Contractor shall cooperate and share the Site with other contractors, public authorities, utilities, and the Employer between the dates given in the Schedule of Other Contractors, as referred to in the SCC. The Contractor shall also provide facilities and services for them as described in the Schedule. The Employer may modify the Schedule of Other Contractors, and shall notify the Contractor of any such modification.
9. Personnel and Equipment	9.1 The Contractor shall employ the key personnel and use the equipment identified in its Bid to carry out the Works, or other personnel and equipment approved by the Project Manager. The Project Manager shall approve any proposed replacement of key personnel and equipment only if their relevant qualifications or characteristics are substantially equal to or better than those proposed in the Bid. 9.2 If the Project Manager asks the Contractor to remove a person who is a member of the Contractor's staff or work force, stating the reasons, the Contractor shall ensure that the person leaves the Site within seven days and has no further connection with the work in the Contract.
10. Employer's and Contractor's Risk	10.1 The Employer carries the risks which this Contract states are Employer's risks, and the Contractor carries the risks which this Contract states are Contractor's risks.



<p>11. Employer's Risks</p>	<p>11.1 From the Start Date until the Defects Liability Certificate has been issued, the following are Employer's risks:</p> <ul style="list-style-type: none"> (a) The risk of personal injury, death, or loss of or damage to property (excluding the Works, Plant, Materials, and Equipment), which are due to <ul style="list-style-type: none"> (i) use or occupation of the Site by the Works or for the purpose of the Works, which is the unavoidable result of the Works or (ii) negligence, breach of statutory duty, or interference with any legal right by the Employer or by any person employed by or contracted to him except the Contractor. (b) The risk of damage to the Works, Plant, Materials, and Equipment to the extent that it is due to a fault of the Employer or in the Employer's design, or due to war or radioactive contamination directly affecting the country where the Works are to be executed. <p>11.2 From the Completion Date until the Defects Liability Certificate has been issued, the risk of loss of or damage to the Works, Plant, and Materials is an Employer's risk except loss or damage due to</p> <ul style="list-style-type: none"> (a) a Defect which existed on the Completion Date, (b) an event occurring before the Completion Date, which was not itself an Employer's risk, or (c) the activities of the Contractor on the Site after the Completion Date.
<p>12. Contractor's Risks</p>	<p>12.1 From the Starting Date until the Defects Liability Certificate has been issued, the risks of personal injury, death, and loss of or damage to property (including, without limitation, the Works, Plant, Materials, and Equipment) which are not Employer's risks are Contractor's risks.</p>
<p>13. Insurance</p>	<p>13.1 The Contractor shall provide insurance in the joint names of the Employer and the Contractor from the Start Date to the end of the Defects Liability Period, in the amounts and deductibles stated in the SCC for the following events which are due to the Contractor's risks:</p> <ul style="list-style-type: none"> (a) loss of or damage to the Works, Plant, and Materials; (b) loss of or damage to Equipment; (c) loss of or damage to property (except the Works, Plant, Materials, and Equipment) in connection with the Contract; and (d) Personal injury or death.
	<p>13.2 Policies and certificates for insurance shall be delivered by the Contractor to the Project Manager for the Project Manager's approval before the Start Date. All such insurance shall provide for compensation to be payable in the proportions of Nepalese Rupees</p>



	<p>required to rectify the loss or damage incurred.</p> <p>13.3 If the Contractor does not provide any of the policies and certificates required, the Employer may affect the insurance which the Contractor should have provided and recover the premiums the Employer has paid from payments otherwise due to the Contractor or, if no payment is due, the payment of the premiums shall be a debt due.</p> <p>13.4 Alterations to the terms of insurance shall not be made without the approval of the Project Manager.</p> <p>13.5 Both parties shall comply with any conditions of the insurance policies.</p>
14. Site Investigation Reports	14.1 The Contractor, in preparing the Bid, shall rely on any Site Investigation Reports referred to in the SCC, supplemented by any information available to the Bidder.
15. Contractor to Construct the Works	15.1 The Contractor shall construct and install the Works in accordance with the Specifications and Drawings.
16. The Works to Be Completed within intended Completion Date	16.1 The Contractor may commence execution of the Works on the Start Date and shall carry out the Works in accordance with the Program submitted by the Contractor, as updated with the approval of the Project Manager, and complete them within the Completion Date specified in SCC.
17. Design by contractor and Approval by the Project Manager	<p>17.1 The Contractor shall submit Specifications and Drawings showing the proposed Temporary Works to the Project Manager, for his approval.</p> <p>17.2 The Project Manager's approval shall not alter the Contractor's responsibility for design of temporary works.</p>
18. Safety	18.1 The Contractor shall be responsible for the safety of all activities on the Site.
19. Discoveries	19.1 Anything of historical or other interest or of significant value unexpectedly discovered on the Site shall be the property of the Employer. The Contractor shall notify the Project Manager of such discoveries and carry out the Project Manager's instructions for dealing with them.
20. Possession of the Site	20.1 The Employer shall give possession of all parts of the Site to the Contractor. If possession of a part is not given by the date stated in the SCC, the Employer shall be deemed to have delayed the start of the relevant activities, and this shall be a Compensation Event.
21. Access to the Site	21.1 The Contractor shall allow the Project Manager and any person authorized by the Project Manager access to the Site and to any place where work in connection with the Contract is being carried




	out or is intended to be carried out.
22. Instructions, Inspections and Audits	<p>22.1 The Contractor shall carry out all instructions of the Project Manager which comply with the applicable laws where the Site is located.</p> <p>22.2 The Contractor shall permit the GoN/DP and/or persons appointed by the GoN/DP to inspect the Site and/or the accounts and records of the Contractor and its sub-contractors relating to the performance of the Contract, and to have such accounts and records audited by auditors appointed by the GoN/DP if required by the GoN/DP. The Contractor's attention is drawn to Sub-Clause 58.2 which provides, inter alia, that acts intended to materially impede the exercise of the GoN's/DP's inspection and audit rights provided for under this Sub-Clause constitute a obstructive practice subject to contract termination.</p>
23. Dispute Settlement	<p>23.1 The Employer and the Contractor shall attempt to settle amicably by direct negotiation any disagreement or dispute arising between them under or in connection with the Contract.</p> <p>23.2 Any dispute between the Parties as to matters arising pursuant to this Contract which cannot be settled amicably within thirty (30) days after receipt by one Party of the other Party's request for such amicable settlement may be referred to the Adjudicator or Dispute Resolution Committee (DRC) by either Party as specified in the SCC within 15 days after the expiration of amicable settlement period.</p>
24. Appointment of the Adjudicator/ DRC Members	<p>24.1 The adjudicator shall be as specified in SCC if identified and agreed by the Employer and the Contractor during the contract agreement. If not identified in the SCC, the adjudicator shall have to be agreed and appointed whenever the dispute arises; by the consensus of the Employer and the Contractor. If the parties cannot reach an agreement on the appointment of the Adjudicator, either party may request the Appointing Authority designated in the SCC, to appoint the Adjudicator within 15 days of receipt of such request.</p> <p>24.2 DRC shall be formed which comprise of three members. Each Party shall appoint one member each and the third member who shall act as the Chairman shall be appointed by the two members appointed by the Parties.</p>
25 Procedures for Disputes	<p>25.1 If a dispute is referred to the Adjudicator or the DRC then the adjudicator or the DRC shall give a decision in writing within 30 days of receipt of a reference of the dispute.</p> <p>25.2 Either party may refer a decision of the Adjudicator or DRC to an Arbitrator within 30 days of the Adjudicator's or DRC's written decision. If either party refers the dispute to arbitration within the above 30 days, the Adjudicator's or the DRC's decision shall be</p>



	<p>final and binding.</p> <p>25.3 The Adjudicator or the DRC Members shall be paid by the hour at the rate specified in the SCC, together with reimbursable expenses of the types specified in the SCC, and the cost shall be divided equally between the Client and the Contractor, whatever decision is reached by the Adjudicator or DRC. Either party may refer a decision of the Adjudicator or DRC to an Arbitrator within 30 days of the Adjudicator's or DRC's written decision. If either party refers the dispute to arbitration within the above 30 days, the Adjudicator's or the DRC's decision shall be final and binding.</p> <p>25.4 In case of arbitration, the arbitration shall be conducted in accordance with the arbitration procedures published by the Nepal Council of Arbitration (NEPCA) at the place given in the SCC.</p>
B. Time Control	
26. Program	<p>26.1 Within the time stated in the SCC, after the date of the Letter of Acceptance, the Contractor shall submit to the Project Manager for approval a Program showing the general methods, arrangements, order, and timing for all the activities in the Works. In the case of a lump sum contract, the activities in the Program shall be consistent with those in the Activity Schedule.</p> <p>26.2 An update of the Program shall be a program showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work, including any changes to the sequence of the activities.</p> <p>26.3 The Contractor shall submit to the Project Manager for approval an updated Program at intervals no longer than the period stated in the SCC. If the Contractor does not submit an updated Program within this period, the Project Manager may withhold the amount stated in the SCC from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Program has been submitted. In the case of a lump sum contract, the Contractor shall Provide an updated Activity Schedule within 15 days of being instructed to by the Project Manager.</p> <p>26.4 The Project Manager's approval of the Program shall not alter the Contractor's obligations. The Contractor may revise the Program and submit it to the Project Manager again at any time. A revised Program shall show the effect of Variations and Compensation Events.</p>
27. Extension of the Intended Completion Date	<p>27.1 The Project Manager shall extend the Intended Completion Date if a Compensation Event occurs or a Variation is issued which makes it impossible for Completion to be achieved by the Intended Completion Date without the Contractor taking steps to accelerate the remaining work, which</p>




	<p>would cause the Contractor to incur additional cost.</p> <p>27.2 The Project Manager shall decide whether and by how much to extend the Intended Completion Date within 21 days of the Contractor asking the Project Manager for a decision upon the effect of a Compensation Event or Variation and submitting full supporting information at least 7 days prior to the intended completion date. If the Contractor has failed to give early warning of a delay or has failed to cooperate in dealing with a delay, the delay by this failure shall not be considered in assessing the new Intended Completion Date.</p>
28. Acceleration	<p>28.1 When the Employer wants the Contractor to finish before the Intended Completion Date, the Project Manager shall obtain priced proposals for achieving the necessary acceleration from the Contractor. If the Employer accepts these proposals, the Intended Completion Date shall be adjusted accordingly and confirmed by both the Employer and the Contractor.</p> <p>28.2 If the Contractor's priced proposals for acceleration are accepted by the Employer, they are incorporated in the Contract Price and treated as a Variation.</p>
29. Delays Ordered by the Project Manager	<p>29.1 The Project Manager may instruct the Contractor to delay the start or progress of any activity within the Works.</p>
30. Management Meetings	<p>30.1 Either the Project Manager or the Contractor may require the other to attend a management meeting. The business of a management meeting shall be to review the plans for remaining work and to deal with matters raised in accordance with the early warning procedure.</p> <p>30.2 The Project Manager shall record the business of management meetings and provide copies of the record to those attending the meeting and to the Employer. The responsibility of the parties for actions to be taken shall be decided by the Project Manager either at the management meeting or after the management meeting and stated in writing to all who attended the meeting.</p>
31. Early Warning	<p>31.1 The Contractor shall warn the Project Manager at the earliest opportunity of specific likely future events or circumstances that may adversely affect the quality of the work, increase the Contract Price, or delay the execution of the Works. The Project Manager may require the Contractor to provide an estimate of the expected effect of the future event or circumstance on the Contract Price and Completion Date. The estimate shall be provided by the Contractor as soon as reasonably possible.</p> <p>31.2 The Contractor shall cooperate with the Project Manager in making and considering proposals for how the effect of such an event or circumstance can be avoided or reduced by anyone involved in the work and in carrying out any resulting instruction of the Project Manager.</p>



C. Quality Control	
32. Identifying Defects	32.1 The Project Manager shall check the Contractor's work and notify the Contractor of any Defects that are found. Such checking shall not affect the Contractor's responsibilities. The Project Manager may instruct the Contractor to search for a Defect and to uncover and test any work that the Project Manager considers may have a Defect.
33. Tests	33.1 If the Project Manager instructs the Contractor to carry out a test not specified in the Specification to check whether any work has a Defect and the test shows that it does, the Contractor shall pay for the test and any samples. If there is no Defect, the test shall be a Compensation Event.
34. Correction of Defects	34.1 The Project Manager shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins at Completion, and is defined in the SCC. The Defects Liability Period shall be extended for as long as Defects remain to be corrected. 34.2 Every time notice of a Defect is given, the Contractor shall correct the notified Defect within the length of time specified by the Project Manager's notice.
35. Uncorrected Defects	35.1 If the Contractor has not corrected a Defect within the time specified in the Project Manager's notice, the Project Manager shall assess the cost of having the Defect corrected, and the Contractor shall pay this amount.
D. Cost Control	
36. Contract Price	36.1 In the case of a Unit Rate contract, the Bill of Quantities shall contain priced items for the Works to be performed by the Contractor. The Bill of Quantities is used to calculate the Contract Price. The Contractor will be paid for the quantity of the work accomplished at the rate in the Bill of Quantities for each item. 36.2 In the case of a lump sum contract, the Activity Schedule shall contain the priced activities for the Works to be performed by the Contractor. The Activity Schedule is used to monitor and control the performance of activities on which basis the Contractor will be paid. If payment for Materials on Site shall be made separately, the Contractor shall show delivery of Materials to the Site separately on the Activity Schedule.
37. Changes in the Contract Price	37.1 In the case of an Unit Rate contract: (a) If the final quantity of the work done differs from the quantity in the Bill of Quantities for the particular item by more than 25 percent, provided the change exceeds 2 percent of the Initial Contract Price, the Project Manager shall adjust the rate to allow for the change.



	<p>(b) The Project Manager shall not adjust rates from changes in quantities if thereby the Initial Contract Price is exceeded by more than 15 percent, except with the prior approval of the Employer.</p> <p>(c) If requested by the Project Manager, the Contractor shall provide the Project Manager with a detailed cost breakdown of any rate in the Bill of Quantities.</p> <p>37.2 In the case of a lump sum contract, the Activity Schedule shall be amended by the Contractor to accommodate changes of Program or method of working made at the Contractor's own discretion. Prices in the Activity Schedule shall not be altered when the Contractor makes such changes to the Activity Schedule.</p>
38. Variations	<p>38.1 All Variations shall be included in updated Programs, and, in the case of a lump sum contract, also in the Activity Schedule, produced by the Contractor.</p>
	<p>38.2 The Contractor shall provide the Project Manager with a quotation for carrying out the Variation when requested to do so by the Project Manager. The Project Manager shall assess the quotation, which shall be given within seven (7) days of the request or within any longer period stated by the Project Manager and before the Variation is ordered.</p> <p>38.3 If the Contractor's quotation is unreasonable, the Project Manager may order the Variation and make a change to the Contract Price, which shall be based on the Project Manager's own forecast of the effects of the Variation on the Contractor's costs.</p> <p>38.4 If the Project Manager decides that the urgency of varying the work would prevent a quotation being given and considered without delaying the work, no quotation shall be given and the Variation shall be treated as a Compensation Event.</p> <p>38.5 The Contractor shall not be entitled to additional payment for costs that could have been avoided by giving early warning.</p> <p>38.6 In the case of an Unit Rate contract, if the work in the Variation corresponds to an item description in the Bill of Quantities and if, in the opinion of the Project Manager, the quantity of work above the limit stated in GCC 37.1 or the timing of its execution do not cause the cost per unit of quantity to change, the rate in the Bill of Quantities shall be used to calculate the value of the Variation. If the cost per unit of quantity changes, or if the nature or timing of the work in the Variation does not correspond with items in the Bill of Quantities, the quotation by the Contractor shall be in the form of new rates for the relevant items of work.</p>
39. Cash Flow Forecasts	<p>39.1 When the Program, or, in the case of a lump sum contract, the Activity Schedule, is updated, the Contractor shall provide the Project Manager with an updated cash flow forecast. The cash</p>



	flow forecast shall include as defined in the Contract in Nepalese Rupees.
40. Payment Certificates	<p>40.1 The Contractor shall submit to the Project Manager monthly statements of the estimated value of the work executed less the cumulative amount certified previously.</p> <p>40.2 The Project Manager shall check the Contractor's monthly statement and certify the amount to be paid to the Contractor within 30 days of submission by contractor.</p> <p>40.3 The value of work executed shall be determined by the Project Manager.</p> <p>40.4 The value of work executed shall comprise:</p> <p>(a) In the case of an Unit Rate contract, the value of the quantities of work in the Bill of Quantities that have been completed; or</p> <p>(b) In the case of a lump sum contract, the value of work executed shall comprise the value of completed activities in the Activity Schedule.</p> <p>40.5 The value of work executed shall include the valuation of Variations and Compensation Events.</p> <p>40.6 The Project Manager may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information.</p>
41. Payments	<p>41.1 Payments shall be adjusted for deductions for advance payments and retention. The Employer shall pay the Contractor the amounts certified by the Project Manager within 30 days of the date of each certificate. If the Employer makes a late payment, the Contractor shall be paid interest as indicated in the SCC on the late payment in the next payment. Interest shall be calculated from the date by which the payment should have been made up to the date when the late payment is made at the prevailing rate of interest for commercial borrowing.</p> <p>41.2 If an amount certified is increased in a later certificate or as a result of an award by the Adjudicator or an Arbitrator, the Contractor shall be paid interest upon the delayed payment as set out in this clause. Interest shall be calculated from the date upon which the increased amount would have been certified in the absence of dispute.</p> <p>41.3 Items of the Works for which no rate or price has been entered in BOQ shall not be paid for by the Employer and shall be deemed covered by other rates and prices in the Contract.</p>
42. Compensation Events	<p>42.1 The following shall be Compensation Events:</p> <p>(a) The Employer does not give access to a part of the Site by the</p>



	<p>Site Possession Date pursuant to GCC 20.1.</p> <ul style="list-style-type: none">(b) The Employer modifies the Schedule of Other Contractors in a way that affects the work of the Contractor under the Contract.(c) The Project Manager orders a delay or does not issue Drawings, Specifications, or instructions required for execution of the Works on time.(d) The Project Manager instructs the Contractor to uncover or to carry out additional tests upon work, which is then found to have no Defects.(e) The Project Manager unreasonably does not approve a subcontract to be let.(f) Ground conditions are substantially more adverse than could reasonably have been assumed before issuance of the Letter of Acceptance from the information issued to bidders (including the Site Investigation Reports), from information available publicly and from a visual inspection of the Site.(g) The Project Manager gives an instruction for dealing with an unforeseen condition, caused by the Employer, or additional work required for safety or other reasons.(h) Other contractors, public authorities, utilities, or the Employer does not work within the dates and other constraints stated in the Contract, and they cause delay or extra cost to the Contractor.(i) The advance payment is delayed.(j) The effects on the Contractor of any of the Employer's Risks.(k) The Project Manager unreasonably delays issuing a Certificate of Completion. <p>42.2 If a Compensation Event would cause additional cost or would prevent the work being completed before the Intended Completion Date, the Contract Price shall be increased and/or the Intended Completion Date shall be extended. The Project Manager shall decide whether and by how much the Contract Price shall be increased and whether and by how much the Intended Completion Date shall be extended.</p> <p>42.3 As soon as information demonstrating effect of each Compensation Event upon the Contractor's forecast cost has been provided by the Contractor, it shall be assessed by the Project Manager, and the Contract Price shall be adjusted accordingly. If the Contractor's forecast is deemed unreasonable, the Project Manager shall adjust the Contract Price based on the Project Manager's own forecast. The Project Manager shall assume that the Contractor shall react competently and promptly to the event.</p> <p>42.4 The Contractor shall not be entitled to compensation to the extent that the Employer's interests are adversely</p>
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	affected by the Contractor's not having given early warning or not having cooperated with the Project Manager.
43. Tax	43.1 The Project Manager shall adjust the Contract Price if taxes, duties, and other levies are changed between the date 30 days before the submission of bids for the Contract and the date of the last Completion certificate. The adjustment shall be the change in the amount of tax payable by the Contractor, provided such changes are not already reflected in the Contract Price or are a result of GCC 45.
44. Currency	44.1 The currency of Contracts shall be Nepalese Rupees.
45. Price Adjustment	<p>45.1 Prices shall be adjusted for fluctuations in the cost of inputs only if provided for in the SCC. If so provided, the amounts certified in each payment certificate, before deducting for Advance Payment, shall be adjusted by applying the respective price adjustment factor to the payment amounts due.</p> <p>45.2 Adjustment Formulate¹: "The adjustment to the Interim Payment Certificates in respect of changes in cost and legislation shall be determined from separate formulae for each of the types of construction work to be performed and Plant to be supplied. The formulae will be of the following general type:</p> $= + - + - + - + .$ <p>Where:</p> <p>pn is a price adjustment factor to be applied to the amount for the payment of the work carried out in the subject month, determined in accordance with Sub-Clause 41;</p> <p>A is a constant, specified in the Bidding Forms- Table of Price Adjustment data, representing the nonadjustable portion in contractual payments;²</p> <p>b, c, d, etc., coefficients representing the estimated proportion of each cost element (labor, materials, equipment usage, etc.) in the Works or sections thereof, net of Provisional Sums, as specified in the SCC;</p> <p>Ln, Mn, En, etc., are the current cost indices or reference prices of the cost elements for month "n," determined pursuant to Sub-Clause 45.4, applicable to each cost element; and</p>

¹ For complex Works involving several types of construction work with different inputs, a family of Formulae will be necessary. The various items of Day work may also require different formulae, depending on the nature and source of the inputs

² Insert a figure for factor A only where there is a part of the Contractors' expenditures which will not be subject to fluctuation in cost or to compensate for the unreliability of some indices. A should normally be 0.15. The sum of A, b, c, d, etc., should be one.



	<p>Lo, Mo, Eo, etc., are the base cost indices or reference prices corresponding to the above cost elements at the date specified in Sub-Clause 45.4</p>
	<p>45.3 Sources of Indices and Weightings: The sources of indices shall be those listed in the Bidding Forms- Table of Price Adjustment data, as approved by the Project Manager and stated in SCC. Indices shall be appropriate for their purpose and shall relate to the Contractor's proposed source of supply of inputs on the basis of which his Contract shall have been computed. As the proposed basis for price adjustment, the Contractor shall have submitted with his bid the tabulation of Weightings and Source of Indices in the Bidding Forms, which shall be subject to approval by the Project Manager.</p> <p>45.4 Base, Current and Provisional Indices: The base cost indices or prices shall be those prevailing on the day 30 days prior to the latest date for submission of bids. Current indices or prices shall be those prevailing on the day 30 days prior to the last day of the period to which a particular Interim Payment Certificate is related. If at any time the current indices are not available, provisional indices as determined by the Project Manager will be used, subject to subsequent correction of the amounts paid to the Contractor when the current indices become available.</p> <p>45.5 Adjustment after Completion: " If the Contractor fails to complete the Works within the time for completion prescribed under Clauses 1.1 (u), adjustment of prices thereafter until the date of completion of the Works shall be made using either the indices or prices relating to the prescribed time for completion, or the current indices or prices, whichever is more favorable to the Employer, provided that if an extension of time is granted pursuant to Clause 27, the above provision shall apply only to adjustments made after the expiry of such extension of time."</p> <p>45.6 Weightings: The weightings for each of the factors of cost given in the Bidding Forms shall be adjusted if, in the opinion of the Project Manager, they have been rendered unreasonable, unbalanced or inapplicable as a result of varied or additional work already executed or instructed under Clause 38 or for any other reason.</p> <p>45.7 Subsequent Legislation: If, after the date 30 days prior to the latest date for submission of bids for the Contract, there occur changes to any National Statute, Ordinance, Decree, or other Law or any regulation or by-law of any local or other duly constituted authority, or the introduction of any such Statute, Ordinance, Decree, Law, regulation or by-law which causes additional or reduced cost to the Contractor, other than under the preceding sub-clauses of this clause, in the execution of the Contract, such additional or reduced cost shall, after due consultation with the Employer and the Contractor, be determined by the Project Manager and shall be added to or deducted from the Contract Price and the Project Manager shall notify the Contractor accordingly, with a copy to the Employer. Notwithstanding the foregoing, such additional or reduced cost shall not be separately paid or credited if the same shall already have taken into account in the indexing of any inputs to the Price Adjustment Formulae in accordance with the provisions of Sub-Clauses 45.2</p>
	<p>45.8 Where, price adjustment provision is not applicable pursuant to</p>



	<p>Sub-clause 45.1 then the Contract is subject to price adjustment only for construction material in accordance with this clause. If the prices of the construction materials stated in the contract is increased or decreased in an unexpected manner in excess of ten (10%) percent in comparison to the base price construction material stated in Section –IV, Bidding Forms-Table of Price Adjustment Data, then the price adjustment for the increase or decrease of price of the construction material beyond 10% shall be made by applying the following formulas:</p> <p>For unexpected increase in price $P = [R_1 - (R_0 \times 1.10)] \times Q$</p> <p>For unexpected decrease in price P $= [R_1 - (R_0 \times 0.90)] \times Q$</p> <p>Where:</p> <p>“P” is price adjustment amount</p> <p>“R₁” is the present price of the construction material (Source of indices shall be those listed in the Bidding forms)</p> <p>“R₀” is the base price of the construction material</p> <p>“Q” is quantity of the construction material consumed in construction during the period of price adjustment consideration</p> <p>If the Base price and source is to be proposed by the Bidder as per the provision made in Section –IV, Bidding Forms-Table of Price Adjustment Data then the Base price and source filled by Bidder for the construction material stated in the Bidding Form shall be subject to the approval of the Project manager and shall be as stated in SCC..</p> <p>45.9 The Price Adjustment amount shall be limited to a maximum of 25% the initial Contract Amount as specified in the SCC.</p> <p>45.10 The Price Adjustment provision shall not be applicable for delayed period if the contract is not completed in time due to the delay caused by the contractor or the contract is a Lump sum Contract or a Fixed Budget Contract.</p>
<p>46. Retention</p>	<p>46.1 The Employer shall retain from each payment due to the Contractor the proportion stated in the SCC until Completion of the whole of the Works.</p> <p>46.2 Upon the issue of a Defects Liability Certificate by the Project Manager, in accordance with GCC 55.1, half the total amount retained shall be repaid to the Contractor and half when the</p>



	<p>Contractor has submitted the Tax evidence document issued by the concerned Internal Revenue Office that the contractor has submitted his Income Returns . On completion of the whole works,the Contractor may substitute retention money with an “on demand” bank guarantee.</p>
47. Liquidated Damages	<p>47.1 The Contractor shall pay liquidated damages to the Employer at the rate per day stated in the SCC for each day that the Completion Date is later than the Intended Completion Date. The total amount of liquidated damages shall not exceed the amount defined in the SCC. The Employer may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages shall not affect the Contractor’s liabilities.</p> <p>47.2 If the Intended Completion Date is extended after liquidated damages have been paid, the Project Manager shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment certificate. The Contractor shall be paid interest on the overpayment, calculated from the date of payment to the date of repayment, at the rates specified in GCC.41.1</p>
48. Bonus	<p>48.1 The Contractor shall be paid a Bonus calculated at the rate per calendar day stated in the SCC for each day (less any days for which the Contractor is paid for acceleration) that the Completion is earlier than the Intended Completion Date. The Project Manager shall certify that the Works are complete, although they may not be due to be complete.</p>
49. Advance Payment	<p>49.1 The Employer shall make advance payment to the Contractor of the amounts stated in the SCC by the date stated in the SCC, against provision by the Contractor of an unconditional bank guarantee from 'A' class commercial Bank in a form and by a bank acceptable to the Employer in amounts equal to the advance payment. The guarantee shall remain effective until the advance payment has been repaid, but the amount of the guarantee shall be progressively reduced by the amounts repaid by the Contractor. Interest shall not be charged on the advance payment.</p>
	<p>49.2 The Contractor is to use the advance payment only to pay for Equipment, Plant, Materials, and mobilization expenses required specifically for execution of the Contract. The Contractor shall demonstrate that advance payment has been used in this way by supplying copies of invoices or other documents to the Project Manager.</p>

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	49.3 The advance payment shall be repaid by deducting proportionate amounts, as stated in SCC, from payments otherwise due Contractor, following the schedule of completed percentages of the Works on a payment basis. No account shall be taken of the advance payment or its repayment in assessing valuations of work done, Variations, price adjustments, Compensation Events, Bonuses, or Liquidated Damages.
50. Securities	<p>50.1 The Performance Security shall be provided to the Employer no later than the date specified in the Letter of Acceptance and shall be issued in an amount specified in the SCC, by a 'A' class commercial bank acceptable to the Employer, and denominated in Nepalese Rupees. The Performance Security shall be valid until a date 30 days from the date of issue of the Defect Liability Certificate in the case of a bank guarantee.</p> <p>50.2 The performance security issued by any foreign Bank outside Nepal must be counter guaranteed by an "A" class commercial Bank in Nepal.</p>
51. Day works	<p>51.1 If applicable, the Day works rates in the Contractor's Bid shall be used for small additional amounts of work only when the Project Manager has given written instructions in advance for additional work to be paid for in that way.</p> <p>51.2 All work to be paid for as Day works shall be recorded by the Contractor on forms approved by the Project Manager. Each completed form shall be verified and signed by the Project Manager within two days of the work being done.</p> <p>51.3 The Contractor shall be paid for Day works subject to obtaining signed Day works forms.</p>
52. Cost of Repairs	52.1 Loss or damage to the Works or Materials to be incorporated in the Works between the Start Date and the end of the Defects Correction periods shall be remedied by the Contractor at the Contractor's cost if the loss or damage arises from the Contractor's acts or omissions.
E. Finishing the Contract	
53. Completion	53.1 The Contractor shall request the Project Manager to issue a certificate of Completion of the Works, and the Project Manager shall do so upon deciding that the work is completed.
54. Taking Over	54.1 The Employer shall take over the Site and the Works within seven days of the Project Manager's issuing a certificate of Completion.
55. Final Account	55.1 The Contractor shall supply the Project Manager with a detailed account of the total amount that the Contractor considers payable under the Contract before the end of the Defects Liability Period. The Project Manager shall issue a Defects Liability Certificate and certify any final payment that is due to the Contractor within 60



	<p>days of receiving the Contractor's account if it is correct and complete. If it is not, the Project Manager shall issue within 60 days a schedule that states the scope of the corrections or additions that are necessary. If the Final Account is still unsatisfactory after it has been resubmitted, the Project Manager shall decide on the amount payable to the Contractor and issue a payment certificate.</p>
<p>56. Operating and Maintenance Manuals</p>	<p>56.1 If "as built" Drawings and/or operating and maintenance manuals are required, the Contractor shall supply them by the dates stated in the SCC.</p> <p>56.2 If the Contractor does not supply the Drawings and/or manuals by the dates stated in the SCC pursuant to GCC 55.1, or they do not receive the Project Manager's approval, the Project Manager shall withhold the amount stated in the SCC from payments due to the Contractor.</p>
<p>57. Termination</p>	<p>57.1 The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract.</p> <p>57.2 Fundamental breaches of Contract shall include, but shall not be limited to, the following :</p> <ul style="list-style-type: none"> (a) the Contractor stops work for 30 days when no stoppage of work is shown on the current Program and the stoppage has not been authorized by the Project Manager; (b) the Project Manager instructs the Contractor to delay the progress of the Works, and the instruction is not withdrawn within 30 days; (c) the Employer or the Contractor is made bankrupt or goes into liquidation other than for a reconstruction or amalgamation. (d) a payment certified by the Project Manager is not paid by the Employer to the Contractor within 90 days of the date of the Project Manager's certificate; (e) the Project Manager gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Project Manager; (f) the Contractor does not maintain a Security, which is required; and (g) the Contractor has delayed the completion of the Works by the number of days for which the maximum amount of liquidated damages can be paid, as defined in the SCC. (h) If the Contractor, in the judgment of the Employer has engaged in corrupt or fraudulent practices in competing for or in executing the Contract, pursuant to GCC 58.1. <p>57.3 When either party to the Contract gives notice of a breach of Contract to the Project Manager for a cause other than those listed under GCC 57.2 above, the Project Manager shall decide whether</p>



	<p>the breach is fundamental or not.</p> <p>57.4 Notwithstanding the above, the Employer may terminate the Contract for convenience.</p> <p>57.5 If the Contract is terminated, the Contractor shall stop work immediately, make the Site safe and secure, and leave the Site as soon as reasonably possible.</p>
<p>58. Fraud and Corruption</p>	<p>58.1 If the Employer determines that the Contractor has engaged in corrupt, fraudulent, collusive, coercive or obstructive practices, in competing for or in executing the Contract, then the Employer may, after giving 14 days notice to the Contractor, terminate the Contractor's employment under the Contract and expel him from the Site, and the provisions of Clause 56 shall apply as if such expulsion had been made under Sub-Clause 56.5 [Termination by the Employer].</p> <p>58.2 Should any employee of the Contractor be determined to have engaged in corrupt, fraudulent, collusive, coercive, or obstructive practice during the execution of the Works, then that employee shall be removed in accordance with Clause 9.</p> <p>58.3 Without prejudice to any other rights of the Employer under this Contract, GoN may blacklist the Contractor for its conduct up to three (3) years on the following grounds and seriousness of the act committed by the Contractor:</p> <p>(a) If it is established that the Contractor has committed substantial defect in implementation of the Contract or has or has not substantially fulfilled its obligations under the Contract.</p> <p>For the purposes of this Sub-Clause;</p> <p>(i) "corrupt practice" is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party.</p> <p>(ii) "fraudulent practice"⁸ is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;</p> <p>(iii) "collusive practice"⁹ is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;</p> <p>(iv) "coercive practice"¹⁰ is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;</p> <p>(v) "obstructive practice" is</p> <p>(aa) deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a investigation into allegations of a</p>



	<p>corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or</p> <p>(bb) acts intended to materially impede the exercise of the GON's/DP's inspection and audit rights provided for under Sub-Clause 22.2.</p>
59. Black Listing	<p>59.1 Without prejudice to any other rights of the Employer under this Contract, GoN, Public Procurement Monitoring Office (PPMO), on the recommendation of procuring entity, may blacklist a Bidder for its conduct for a period of one (1) to three (3) years on the following grounds and seriousness of the act committed by the bidder.</p> <p>(a) if it is established that the Contractor has committed substantial defect in implementation of the contract or has not substantially fulfilled its obligations under the contract or the completed work is not of the specified quality as per the contract.</p>
60. Payment upon Termination	<p>61.1 If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Project Manager shall issue a certificate for the value of the work done and Materials ordered less advance payments received up to the date of the issue of the certificate and less the percentage to apply to the value of the work not completed, as indicated in the SCC. Additional Liquidated Damages shall not apply. If the total amount due to the Employer exceeds any payment due to the Contractor, the difference shall be a debt payable to the Employer.</p> <p>61.2 If the Contract is terminated for the Employer's convenience or because of a fundamental breach of Contract by the Employer, the Project Manager shall issue a certificate for</p>

8a "party" refers to a public official; the terms "benefit" and "obligation" relate to the procurement process or contract execution; and the "act or omission" is intended to influence the procurement process or contract execution.

9 "parties" refers to participants in the procurement process (including public officials) attempting to establish bid prices at artificial, non competitive levels.

10a "party" refers to a participant in the procurement process or contract execution.

	<p>the value of the work done, Materials ordered, the reasonable cost of removal of Equipment, repatriation of the Contractor's personnel employed solely on the Works, and the Contractor's costs of protecting and securing the Works, and less advance payments received up to the date of the certificate.</p>
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61. Property	62.1 All Materials on the Site, Plant, Equipment, Temporary Works, and Works shall be deemed to be the property of the Employer if the Contract is terminated because of the Contractor's default.
62. Release from Performance	63.1 If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of either the Employer or the Contractor, the Project Manager shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it and for any work carried out afterwards to which a commitment was made.
63. Suspension of DP Loan/Credit/Grant	63.1 In the event that the Donor Agency suspends the loan/ credit/grant to the Employer from which part of the payments to the Contractor are being made: a. the Employer is obligated to notify the Contractor of such suspension within 7 days of having received the Donor Agency's suspension notice; and b. if the Contractor has not received sums due him within the 30 days for payment provided for in Sub-Clause 41.1, the Contractor may immediately issue a 15-day termination notice.
64. Project Manager's Duties and Authorities	64.1 The Project Manager's duties and authorities are restricted to the extent as stated in the SCC.
65. Quarries and Spoil Dumps	65.1 Any quarry operated as part of this Contract shall be maintained and left in a stable condition without steep slopes and be either refilled or drained and be landscaped by appropriate planting. Rock or gravel taken from a river shall be removed over some distance so as to limit the depth of material removed at any one location, not disrupt the river flow or damage or undermine the river banks. The Contractor shall not deposit excavated material on land in Government or private ownership except as directed by the Project Manager in writing or by permission in writing of the authority responsible for such land in Government ownership, or of the owner or responsible representative of the owner of such land in private ownership, and only then in those places and under such conditions as the authority, owner or responsible representative may prescribe.
66. Local Taxation	66.1 The prices tendered by the Contractor shall include all taxes that may be levied in accordance to the laws and regulations in being in Nepal on the date 30 days prior to the closing date for submissions of Bids on the Contractor's equipment, plant and materials acquired for the purpose of the Contract and on the services performed under the Contract. Nothing in the Contract shall relieve the Contractor from his responsibility to pay any tax that may be levied in Nepal on profits made by him in respect of the Contract.



67. Value Added Tax	67.1 The Contract is not exempted from value added tax. An amount specified in the schedule of taxes shall be paid by the Contractor in the concerned VAT office within time frame specified in VAT regulation.
68. Income Taxes on Staff	68.1 The Contractor's staff, personnel and labor will be liable to pay personal income taxes in Nepal in respect of their salaries and wages, as are chargeable under the laws and regulations for the time being in force, and the Contractor shall perform such duties in regard to such deductions as may be imposed on him by such laws and regulations. 68.2 The issue of the Final Account Certificate pursuant to clause 55 shall be made only upon submittal by the Contractor of a certificate of income tax clearance from the Government of Nepal.
69. Duties, Taxes and Royalties	69.1 Any element of royalty, duty or tax in the price of any goods including fuel oil, and lubricating oil, cement, timber, iron and iron goods locally procured by the Contractor for the works shall be included in the Contract rates and prices and no reimbursement or payment in that respect shall be made to the Contractor. 69.2 The Contractor shall familiarize himself with GON the rules and regulations with regard to customs, duties, taxes, clearing of goods and equipment, immigration and the like, and it will be necessary for him to follow the required procedures regardless of the assistance as may be provided by the Employer wherever possible. 69.3 The Contractor shall pay and shall not be entitled to the reimbursement of cost of extracting construction materials such as sand, stone/boulder, gravel, etc. from the river beds or quarries. Such prices will be levied by the local District Development Committee (DDC) as may be in force at the time. The Contractor, sub-contractor(s) employed directly by him and for whom he is responsible, will not be exempted from payment of royalties, taxes or other kinds of surcharges on these construction materials so extracted and paid for to the DDC.
70. Member of Government, etc, not Personally Liable	70.1 No member or officer of GoN or the Employer or the Project Manager or any of their respective employees shall be in any way personally bound or liable for the act or obligations of the Employer under the Contract or answerable for any default or omission in the observance or performance of any of act, matter or thing which are herein contained.
71. Approval of Use of Explosives	71.1 No explosives of any kind shall be used by the Contractor without the prior consent of the Employer in writing and the Contractor shall provide, store and handle these and all other items of every kind whatsoever required for blasting operations, all at his own expense in a manner approved in writing by the Employer.



<p>72. Compliance with Regulations for Explosives</p>	<p>72.1 The Contractor shall comply with all relevant ordinances, instructions and regulations which the Government, or other person or persons having due authority, may issue from time to time regarding the handling, transportation, storage and use of explosives.</p>
<p>73. Permission for Blasting</p>	<p>73.1 The Contractor shall at all times maintain full liaison with and inform well in advance, and obtain such permission as is required from all Government authorities, public bodies and private parties whatsoever concerned or affected, or likely to be concerned or affected by blasting operation.</p>
<p>74. Records of Explosives</p>	<p>74.1 Before the beginning of the Defects Liability Period, the Contractor shall account to the satisfaction of the Project Manager for all explosives brought on to the Site during the execution of the Contract and the Contractor shall remove all unused explosives from the Site on completion of works when ordered by the Project Manager.</p>
<p>75. Traffic Diversion</p>	<p>75.1 The Contractor shall include the necessary safety procedures regarding and pedestrian traffic diversion that is needed in execution of the works. The Contractor shall include in his costing of works, any temporary works or diversion that are needed during the construction period. All traffic diversion should be designed for the safety of both the motoring public and the men at work. It shall ensure the uninterrupted flow of traffic and minimum inconvenience to the public during the period concerned. As such, adequate warning signs, flagmen and other relevant safety precautionary measures shall be provided to warn motorists and pedestrians well ahead of the intended diversion as directed by the Project Manager. All traffic devices used shall be designed in accordance with the instruction of Project Manager.</p>






SECTION VIII

SPECIAL CONDITIONS OF CONTRACT



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A. General	
GCC 1.1 (q)	The Employer is NEA
GCC 1.1 (u)	The Intended Completion Date for the whole of the Works shall be 12 Month from the date of contract effectiveness.
GCCs 1.1 (bb) & 4.1	The Project Manager is: DCS Chief
GCC 1.1 (dd)	The Site is located at different places of Rukum District.
GCC 1.1 (gg)	<p>The Start Date shall be:</p> <p>The effective date, upon which the period until the time for completion of the facilities shall be counted from, is the date when all of the following conditions have been fulfilled:</p> <ul style="list-style-type: none"> (a) This Contract Agreement has been duly executed for and on behalf of the Employer and the Contractor; (b) The Contractor has submitted to the Employer the performance security. (c) The Employer has paid the Contractor the advance payment.
GCC 1.1 (kk)	The Works consist of [insert the name of the Project to be completed by the Contractor] on turnkey basis as defined in the bidding data and scope of work.
GCC 1.1 (kl)	<p>Add the following terms and definitions after 1.1 (kk).</p> <p>The terms “Facilities” and “Works” are used interchangeably.</p> <p>The terms “Final Acceptance Certificate” and “Defect Liability Certificate” are used interchangeably.</p> <p>Add new definition as follows:</p> <p>Final Acceptance means the acceptance by the Employer of the facilities, which certifies the Contractor’s fulfillment of the entire contract. The “Final Acceptance Certificate” shall be issued to the Contractor after the expiry of the last Defect Liability Period provided the Contractor has also fulfilled all its obligation towards the Income Tax Department and the Customs Department of Government of Nepal.</p>
GCC 2.2	Sectional Completions are:
GCC 2.3(i)	<p>The following documents also form part of the Contract:</p> <ul style="list-style-type: none"> (a) Minutes of Meeting as agreed upon



	<p>(b) Value Added Tax (VAT) Certificate</p> <p>(c) PAN Certificate</p> <p>(d) Tax clearance Certificate</p>																				
GCC 3.1	<p>The language of the contract is ENGLISH/NEPALI</p> <p>The law that applies to the Contract is the LAW OF NEPAL</p>																				
GCC 8.1	Schedule of other contractors:																				
GCC 13.1	<p>The minimum insurance covers shall be:</p> <p>(a) <u>Cargo Insurance:</u></p> <p>Covering loss or damage occurring, while in transit from the supplier's or manufacturer's works or stores until arrival at the Site, to the Facilities (including spare parts therefore) and to the construction equipment to be provided by the Contractor or its Subcontractors.</p> <table border="1"> <thead> <tr> <th>Amount</th> <th>Deductible Limits</th> <th>Parties Insured</th> <th>From</th> <th>To</th> </tr> </thead> <tbody> <tr> <td>110% of CIP Cost</td> <td>(*)</td> <td>Contractor</td> <td>Dispatch Certificate</td> <td>Arrival to Site</td> </tr> </tbody> </table> <p>(*) Excess 5% of claimed amount subjected to minimum of NRs. 20,000 for normal and NRs. 80,000 for act of God/major perils and collapse.</p> <p>(b) <u>Installation All Risk Insurance:</u></p> <p>Covering physical loss or damage to the Facilities at the Site, occurring prior to completion of the Facilities, with extended maintenance coverage for the Contractor's liability in respect of any loss or damage occurring during the defect liability period while the Contractor is on the Site for the purpose of performing its obligation during the defect liability period.</p> <table border="1"> <thead> <tr> <th>Amount</th> <th>Deductible Limits</th> <th>Parties Insured</th> <th>From</th> <th>To</th> </tr> </thead> <tbody> <tr> <td>110% of Contract Value</td> <td>(*)</td> <td>Contractor</td> <td>Dispatch Certificate</td> <td>Final Acceptance Value</td> </tr> </tbody> </table> <p>(*) Excess 5% of claimed amount subjected to minimum of NRs. 10,000 for normal period and NRs. 30,000 for testing period.</p> <p>(c) <u>Third Party:</u></p> <p>Covering bodily injury or death suffered by third parties (including the</p>	Amount	Deductible Limits	Parties Insured	From	To	110% of CIP Cost	(*)	Contractor	Dispatch Certificate	Arrival to Site	Amount	Deductible Limits	Parties Insured	From	To	110% of Contract Value	(*)	Contractor	Dispatch Certificate	Final Acceptance Value
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110% of Contract Value	(*)	Contractor	Dispatch Certificate	Final Acceptance Value																	



Employer's personnel) and loss of or damage to property (including the Employer's property and any parts of the Facilities that have been accepted by the Employer) occurring in connection with the supply and installation of the Facilities.

Amount	Deductible Limits	Parties Insured	From	To
NRs. 1 Million	As in (b) above	Contractor's Employees	Commencement of Works	Defect Liability Certificate
NRs. 1 Million	As in (b) above	Employer's Personnel	Commencement of Works	Defect Liability Certificate
NRs. 4 Million	As in (b) above	Third Party Personnel	Commencement of Works	Defect Liability Certificate

Automobile Liability Insurance:

Covering use of all vehicles used by the Contractor or its Subcontractors (whether or not owned by them) in connection with the supply and installation of the Facilities. Comprehensive insurance in accordance with statutory requirements.

Worker's Compensation:

In accordance with the statutory requirements applicable in any country where the Facilities or any part thereof is executed.

Employer's Liability:

In accordance with the statutory requirements applicable in any country where the Facilities or any part thereof is executed.

Other Insurances:

The Contractor is also required to take out and maintain at its own cost the following insurances:

Details: None

Amount	Deductible Limits	Parties Insured	From	To

The Employer shall be named as co-insured under all insurance policies taken out by the Contractor except for the third party liability, Workers' Compensation and Employer's Liability Insurances, and the Contractor's Subcontractors shall be named as co-insured's under all insurance policies taken out by the Contractor, except for the Cargo, Worker's Compensation and Employer's



	<p>Liability Insurances. All insures's rights of subrogation against such co-insured's for losses or claims arising out of the performance of the Contract shall be waived under such policies.</p> <p>The minimum cover for personnel injury or death insurance shall, however, be not less than as per requirement of the Labor Act of Nepal.</p>
GCC 14.1	Site Investigation Reports are:
GCC 16.1	The completion date shall be Refer SCC 1.1
GCC 17.1	The following shall be designed by the Contractor: As applicable
GCC 20.1	The Site Possession Date(s) shall be: as agreed during Contract signing
GCC 23.2	A dispute of the procurement contract having contract price valuing up to one hundred million Rupees shall be resolved by the adjudicator and a dispute of the procurement contract having contract price more than that shall be resolved by a three-member dispute resolution committee.
GCC 24.1	Appointing Authority for the Adjudicator: Nepal Council of Arbitration (NEPCA)
GCC 24.2	Note: If the adjudicator is identified an agreed during the contract agreement, insert the name of the Adjudicator or DRC Members. If not identified, the Adjudicator or DRC Members shall have to be agreed and appointed whenever the dispute arises.
GCC 25.1	<p>Delete the Sub-Clause 25.1 and replace it with the following:</p> <p><i>If any dispute of any kind whatsoever shall arise between the Employer and the Contractor in connection with or arising out of the Contract, including without prejudice to the generality of the foregoing, any question regarding its existence, validity or termination, or the execution of the Facilities - whether during the progress of the Facilities or after their completion and whether before or after the termination, abandonment or breach of the Contract- the parties shall seek to resolve any such dispute or difference by mutual consultation, then the dispute shall be referred in writing by either party to the DRB, with a copy to the other party.</i></p>
GCC 25.2	<p>Add the following at the end of 25.2:</p> <p><i>If the DRB has done so, and no notice of intention to commence arbitration has been given by either the Employer or the Contractor within fifty-six (56) days of such reference, the decision shall become final and binding upon the Employer and the Contractor. Any decision that has become final and binding shall be implemented by the parties forthwith.</i></p>



GCC 25.3	<p>Institution whose arbitration procedures shall be used: Council of Arbitration (NEPCA)</p> <p>Sub-Clause 25.3: Any dispute between the Employer and the Contractor arising in connection with the present Contract shall be referred to arbitration in accordance with the rule of Nepal Council of Arbitration.</p> <p>The place of arbitration shall be: Kathmandu, Nepal.</p>
B. Time Control	
GCC 26.1	The Contractor shall submit for approval a Program for the Works within 30 days from the date of the Letter of Acceptance.
GCC 26.3	<p>The period between Program updates is 60 days.</p> <p>The amount to be withheld for late submission of an updated Program is: All due bills shall be withheld.</p>
GCC 27.3	<p>Add this new Sub-Clause:</p> <p>If the Contractor intends to apply for an extension of the Time for Completion, the Contractor shall give notice to the Employer's Representative of such intention as soon as possible and in any event within 14 days of the start of the event giving rise to delay. Within 28 days of the start of the event giving rise to the delay, the Contractor shall submit full supporting details of his application.</p>
C. Quality Control	
GCC 33.1	<p><i>Add following before Clause 32.1</i></p> <ol style="list-style-type: none"> 1. The inspections and tests may be conducted on the premises of the Contractor of its subcontractor(s), at point of delivery, and/or at the Good's final destination. If conducted on the premises of the Contractor or its subcontractor(s), all reasonable facilities and assistance, including access to drawings and production data, shall be furnished to the inspectors at no charge to the Employer. 2. Should any inspected or tested Goods fail to conform to the Specifications, the Employer may reject the Goods, and the Contractor shall either replace the rejected Goods or make alternations necessary to meet specification requirements free of cost to the Employer. 3. The Employer's right to inspect, test and, where necessary, reject the Goods after the Goods arrival in Nepal shall in no way be limited or waived by reason of the Goods having previously been inspected, tested and passed by the Employer or its representative prior to the Goods shipment from the country of origin. Nothing in Clauses here above shall in any way release the Contractor from any warranty or other obligations



	under this Contract.
GCC 34.1	The Defects Liability Period is: 365 days
D. Cost Control	
GCC 37.1(d)	<p><i>Add this new sub-clause:</i></p> <p>The quantities entered in the Price Schedule are only estimated quantities. After detailed site investigation and design, the Contractor shall prepare a final Price Schedule within 3 months from the date of Contract Signing and submit to the Project Manager for approval. The Contractor shall agree to make no claims to anticipated profit or alleged losses because of any difference between the quantities actually furnished and erected and the estimated quantities from Contract.</p> <p>NEA reserves the right at the time of award of contract or within six months from the effective date of contract to increase or decrease the quantities of the Price Schedule by up to fifteen percent (15%) of the contract price. Taking this into consideration, the Bidder shall present a fairly balanced price on Bill of Quantities.</p>
GCC 41	<p><i>Delete sub-clause 41.1, 41.2 and 41.3 and replace with the following:</i></p> <p>General</p> <p>Payments for material, insurance, clearing, forwarding and transportation up to site, construction and installation shall be made only in local currency, i.e. in Nepali Rupees.</p> <p>(i) Advance Payment: Ten (10) percent of the Contract Price shall be paid within thirty (30) days of signing of the Contract, and upon submission of claim and a bank guarantee for equivalent amount valid until the Goods are delivered and in the form provided in the bidding documents or another form acceptable to the Purchaser. Should the supplier fails to claim the advance payment amount within 15 days of signing of contract, the 10% of contract value will be paid after all the goods are delivered to and accepted by the Purchaser.</p> <p>In case, the Supplier fails to submit the Advance Payment Guarantee within 15 days of signing of Contract or does not require Advance Payment, the Contract shall be effective 15 days after the signing of Contract.</p>



Advancement Payment security shall be in the sample form specified in the Contract. The advance payment security shall be valid up to the validity of the Contract Period or an extension thereof. Such advance payment shall be deducted at an amount of Ten percent (10%) from each progress payment as an advance recovery deduction till the full advance payment is repaid.

Payment for Materials:

- i. Fifty Five (55%) of the Contract Price for supply portion will be paid against delivery of Materials at the Site and submission of shipping documents comprising of clean on-board bill of loading for goods supplied from outside the country or delivery list/truck receipt for goods supplied from within the Country, detailed invoice, inspection and test certificates issued by the Employer's inspector/nominated inspection agency (where applicable), factory test report, packing list, insurance certificate, certificates of origin, manufacturer's or supplier's warranty certificate and certificate issued by the Employer's Representative evidencing delivery of Plants and Materials at Site. The provisions of advance recovery deduction and retention as specified below under this clause shall also be taken into account during such payments.
- ii. Balance Forty Five percent (45%) of the price of materials shall be paid after testing and commissioning of equipment and issuance of taking over certificate. The provisions of advance recovery deduction and retention as specified below under this clause shall be taken into account during such payments.

Payments for Construction and Installations

- i. Ninety percent (90%) of the price for construction and Installations works shall be paid against progress bill according to the progress



report, approved by the employer. The provisions of advance recovery deduction and retention as specified below under this clause shall be also taken into account during such payments.

Progress payments shall be made only after the completion of works under any construction unit complete as mentioned in BOQ as per standard drawing, specification and as directed by the Manager.

- i. Balance Ten percent (10%) of the price for Construction and Installations works shall be paid against issuance of Completion Certificate or taking over certificate by the Employer's Representative as mentioned here under. The provisions of advance recovery deduction and retention as specified below under this clause shall also be taken into account during such payment.

Retention Amount

Five percent (5%) from each progressive and final payment for supply of Materials; Insurance, Clearing, Forwarding and Inland Transportation to Site; and Construction and Installation works shall be retained. The following conditions shall be fulfilled for the payment of such retained amount:

- (a) 5% retention amount shall be paid against issuance of Defect Liability Certificate. This certificate shall be issued upon receipt of income tax clearance certificates by the Government of Nepal (GoN), Internal Revenue Department (IRD) and custom clearance documents showing the re-export of all the returnable items or tax payment certificate for items disposed in the Country including fulfillment of all outstanding obligations. If the Contractor fails to clear all the required taxes, custom clearances and all outstanding obligations as mentioned above, such money shall be deducted from this portion of the Retention money. The Employer shall pay the Contractor the amounts certified by the Manager within 45 days from the date of approval of each certificate.



	<p style="text-align: center;">Income Tax Deduction</p> <p>From each progressive bill, an amount, as determined by the prevalent rules and regulation of GOVERNMENT OF NEPAL, shall be deducted and deposited with the concerned Tax Department in the country as a deposit towards Contractor's income tax.</p>
GCC 42.1	<i>Delete sub-clause 42.1 (e),(f), (g) & (i)</i>
GCC 43	<p><i>Delete sub-clause 43.1 and replace with the following:</i></p> <p>1. In the country of Origin</p> <p>The prices bid by the Contractor shall include all taxes, duties and other charges imposed outside the Employer's country on the production, manufacture, sale and transport of the Contractor's Equipment, Plant, Materials and supplied to be used on or furnished under the Contract, and on the services performed under the Contract.</p> <p>2. In Nepal</p> <p>General:</p> <p>(a) Unless otherwise specifically declared in the contract documents, the prices bid by the Contractor and its suppliers and subcontractors shall include business taxes and other taxes that may be levied in accordance with the laws and regulations in force or in effect in Nepal as of 28 days prior to the closing date for submission of tenders in the Employer's country on the Equipment, Plant, Materials and Supplies (permanent, temporary and consumables) acquired for the purpose of Contract and on the services performed under the Contract. Whatsoever provisions made in the Contract document shall not relieve the Contractor, its suppliers and subcontractors from their responsibility to pay income tax that may be levied in the Employer's country on profits made by the Contractor,</p>



its suppliers and subcontractors in respect of the Contract.

- (b) Value Added Tax (VAT): if not included in the costs while submitting bids by the contractor, subcontractor or its nominated sub contractor, shall be eligible for refund on all imported equipment and materials to be supplied and delivered exclusively for use in the Project.
- (c) In the event that the origin of any of the contractor's or its subcontractor's or the nominated subcontractor's plant, equipment and materials is India or third country, the provisions for the exemption of customs duties and VAT as per regulation of GoN, as mentioned in this clause shall be applied. For such provision, the Contractor must submit the request for the Custom, VAT exemption along with all supporting documents as required by GoN.
- (d) The Employer will bear custom duty, VAT, any license fee and contribution levied by the Tax Department of GOVERNMENT OF NEPAL on above imported materials and VAT (13%) on materials procured directly from local manufacturers.
- (e) Thirteen percent (13%) VAT will be levied on Construction and Installation. The Employer will pay this VAT to the Contractor on each bill and the Contractor shall be responsible for payment of the same to the concerned tax authority in the Country.

Failure to comply with this regulation may result in imposition of full customs duties, VAT etc. as per prevalent rules and regulations of GOVERNMENT OF NEPAL. In such case, the additional taxes and duties, including VAT, shall be borne by the Contractor.

Staff Income Tax:

The Contractor's staff, personnel and laborers, and those of its subcontractors, will be liable to pay personal income tax in the Employer's country, irrespective of whether they are local or foreign



nationals on income earned including salaries and wages as applicable under the laws and regulation of Nepal. The Contractor shall perform such duties in regard to Tax Deduction at Source (TDS) thereof as may be applicable by such laws and regulations.

Import License:

The Contractor shall inform the Employer and the project Manager in writing the details of the equipment and materials to be imported into Nepal for use on the Works at least 56 days prior to arrival of shipment at disembarkation port, and shall submit a formal written request for assistance from the Employer for importation processing. The Employer will assist the Contractor to obtain necessary permits for import of such equipment and materials into Nepal. Import license fees or any other charges shall be at the cost of the Contractor. The Contractor shall be responsible for transport from the Port of disembarkation to the Site or location of the Works. The Contractor shall be fully responsible to determine these rates and the amount payable at the time of preparing tender document and include such costs in its bids. In failing to do so, the Employer shall not be liable to pay such costs and the Contractor shall pay such charges as local or any customs authorities' en-route may impose will not be an eligible item for refund from the Employer.

Duties on Equipment, Plant, Materials and Supplies:

- (a) Notwithstanding the provisions of this document, the Contractor's plant and Equipment, including essential tools thereof, imported for the sole purpose of executing the Contract on condition of re-export upon completion of the works, shall be exempted from payments of custom duties, VAT and applicable taxes. However, the Contractor shall deposit the amount or provide a Bank Guarantee to the GoN Customs office equal to amount of custom duties and other taxes as per the prevailing laws, rules and regulations of Nepal for those imported equipment, plant,



materials and supplies at the Time of import. Such deposited amounts shall be refunded, or the Bank guarantee cancelled by the Custom Offices after Re-export of those import equipment, plant, materials and supplies.

- (b) Any plant, materials or supplies imported by the Contractor for the performance of the works but not incorporated in the Works shall be taken out of Nepal within 90 (Ninety) days from the date of issuance of the Performance Certificate. If the Contractor disposes off or consumes any equipment, spare parts, materials or supplies within Nepal, it shall pay all custom duties, VAT, income tax on the sales proceeds and taxes applicable on such items under the laws and regulation of Nepal in force.
- (c) Equipment, plant, materials and supplies, imported by the Contractor for execution of the Works, shall be subjected to payment of customs duty at a special rate of one percent (1%) of CIP or Customs entire point value. This customs duty shall be paid by the Contractor at the time of import and will be reimbursed by the customs Department.
- (d) VAT shall be exempted on all imported materials & equipment purchased for the use in the Works (shall be reimbursed by the Employer in case the Employer is unable to avail exempt facility.)
- (e) VAT applicable on plant & equipment supplied directly from manufacturing plant in the Employer's country shall be reimbursed.
- (f) The Contractor shall maintain records satisfactory to the Employer documenting use of all Plant, Materials and Supplies imported into and/or procured for the performance of the Works. If any of such Plant, Materials and/or supplies, imported into Nepal or otherwise supplied to the project at a special or preferential rate of Custom duties or taxes, are misused or found to be used or appropriated for any purpose other than the Project, the Contractor shall be held fully responsible, and liable to



pay customs duties, VAT and other taxes and/or penalties as may be imposed in accordance with the prevailing laws and regulations of Nepal.

- (g) Income tax assessed in accordance with the prevailing Income tax Act of Nepal and as per the provision of any specific Double Taxation Agreement, shall be imposed on the Contractor, its subcontractors and nominated subcontractors. An advance income tax as per the prevailing Income Tax Act and Finance Act shall be deducted from the monthly progress payment of the Contractor.
- (h) The Contractor shall pay all duties, taxes, fees and contributions levied in Nepalese Rupees as directed by the relevant governmental department or office, or any other local statutory agency or body in accordance with the relevant rules and regulations.
- (i) The provisions of this clause shall apply equally to foreign subcontractors or nominated subcontractors of the Contractor employed for the Works.
- (j) The Contractor and any foreign subcontractors or nominated subcontractors employed on the Works, if not already registered in Nepal, shall be required to get registered with the Inland Revenue Department (IRD) for the purpose of the contract, which shall be undertaken within 28 days after signing of the Contract Agreement. The Contractor, sub-contractor or the nominated subcontractor shall submit certificate copies of the Registration Certificate(s) to the Manager within 14 days of registration.
- (k) Other local fees and charges (toll taxes) shall be applied in accordance with the prevailing laws and regulations of Nepal.

The Contractor shall pay all applicable customs & taxes and the Employers shall reimburse the same at the earliest.



	Locally available goods, construction materials including fuel, lubricating oil, cement, timber, iron and steel goods etc. shall be procured locally. All taxes for such goods procured from the local market shall be included in the Contract Rates and Prices and no reimbursement or payment in that respect shall be made to the Contractor.
GCC 44	Payments shall be made in Nepalese Currencies.
GCC 45.2	The Contract... subject to price adjustment in accordance with GCC Clause 45, and the following information regarding coefficients Apply. [Not Applicable]
GCC 45.9	[Not Applicable]
GCC 46.1	The proportion of payments retained is: 5 (FIVE) PERCENT
GCC 47.1	The liquidated damages for the whole of the Works are 0.05 PERCENT of the final Contract Price per day. The maximum amount of liquidated damages for the whole of the Works is 10 PERCENT of the final Contract Price.
GCC 48.1	The Bonus for the whole of the Works is 0% per day. The maximum amount of Bonus for the whole of the Works is 0%of the final Contract Price.
GCC 49.1	The Advance Payments shall be limited to Ten percent (10%) of the initial Contract price excluding the provisional sums, day works and VAT and shall be made to the Contractor upon submission of acceptable Bank Guarantee for advance payment.
GCC 49.3	The Advance Payment will be recovered as follows: Deduction will be at the rate of at least 10% of respective invoices until such time as the advance payment has been repaid.
GCC 50.1	The Performance Security shall be for the following minimum amounts equivalent as a percentage of the Contract Price: Five percent (5%) (Clause ITB 38.1) and an additional amount of 8% of the Contract price if the Employer has increased the Performance Security amount pursuant to ITB Sub Clause ITB 32.5. The Standard form(s) of Performance Security acceptable to the Employer shall be “an Unconditional Bank Guarantee” acceptable to the Employer of the type presented in section IX of the Bidding Documents.
E. Finishing the Contract	
GCC 53.1	Replace the whole clause with the following: The Contractor shall request the Project Manager to issue a certificate of



	<p>Completion of the Works, after completion of the Works in accordance with the Contract, including Tests on Completion. A pre-requisite for such request is that the entire Work has been subjected to normal operating stresses for at least two (2) weeks and that no defects or elements of danger have developed during this period (except for minor outstanding work that does not affect the use of the Works or Section for their intended purpose). The Employer's right to subject part of the Work to normal operating stresses during the course of execution is not affected by the provisions of this article.</p> <p>When the Employer/Employer's Representative is satisfied that the whole Works have been completed and has established that the individual components are impeccable in all respects and fulfill the stipulated conditions, and after any defects that may have come to light have been remedied, a Taking-Over Certificate will be issued by the Employer's Representative with copy to the Employer. The right to determine whether or not the whole Work is completed rests with the Employer/Employer's Representative.</p> <p>If the Works are divided into Sections, the Contractor shall be entitled to apply for a Taking-Over Certificate for each Section.</p> <p>The issuance of the Taking-Over Certificate marks the beginning of the Defect Liability Period.</p> <p>The Employer can reject the application, giving his reason and specifying the work required to be done by the Contractor to enable the Taking-Over Certificate to be issued: the Contractor shall then complete such work before issuing a further notice under this Sub-Clause.</p>
GCC 56.1	<p>The date by which operating and maintenance manuals are required is: Prior to the issuance of the Certificate of Completion.</p> <p>The date by which "as built" drawings are required is: Prior to Completion Certificate. Moreover, should any change is required in the "as-built" drawings because of rectification of any defects within the Defects Liability Period, such changes shall be incorporated and "as-built" drawing shall be updated accordingly before issuance of the Final Acceptance Certificate.</p>
GCC 56.2	<p>The amount to be withheld for failing to produce "as built" drawings and/or Operating and maintenance manuals by the date required in GCC 58.1 is: Full value of last invoice.</p>
GCC 57.2 (g)	<p>The maximum number of days is: 200</p>
GCC 61.1	<p>The percentage to apply to the value of the work not completed, representing the Employer's additional cost for completing the Works, is: 50%</p>
GCC 64	<p>The Manager has to obtain the specific approval of the Employer for taking any of the following actions:</p> <ol style="list-style-type: none"> a. Approving subcontracting of any part of the work under General Conditions of Contract Clause 7; b. Certifying additional costs determined under General Conditions of Contract Clause 42;





	<p>c. Determining the extension of the intended Completion Date under General Conditions of Contract Clause 27;</p> <p>d. Issuing a Variation under General Conditions of Contract Clause 1 and 38, except in an emergency situation, as reasonably determined by the Manager; emergency situation may be defined as the situation when protective measures must be taken for the safety of life or of the works or of adjoining property.</p> <p>e. There shall be no changes in unit rates quoted by the contractor pursuant to clause 37 of General Conditions of Contract.</p> <p>Add the Clause 64 in GCC with the following Sub Clauses:</p> <p>64.1 Inspection and Tests</p> <p>(A) general</p> <p>The quality, workmanship and performance of all items and the Works or Equipment (raw materials, components, intermediate assemblies and end products) shall be subject to inspections and tests by the Employer/Employer's Representative to the extent practicable, at the relevant locations and in any event prior to Taking Over. Unless otherwise directed, testing and inspection shall be done according to the best commercial method for the particular type and class of work.</p> <p>The Employer/Employer's Representative shall be entitled at all reasonable times before and during the periods of design, manufacture, shipment, site erection, commissioning and guarantee period to inspect, examine and test the design work, materials and workmanship of all work and equipment to be supplied under the Contract, and if part of the Work or equipment is being manufactured on other premises, the Contractor shall obtain for the Employer/Employer's representative permission to inspect, examine and test as if the said Works or equipment were being manufactured on the Contractor's premises. The inspection, examination or testing, if made, shall not release the Contractor from any responsibility and obligation under the Contract. Work and equipment not manufactured or erected in accordance with the Contract shall be removed by the Contractor at his own expense.</p> <p>Inspectors and other properly authorized representatives of the Employer/Employer's Representative shall be free at all times to perform their duties and any intimidation or attempted intimidation of any one of them by the Contractor or by any of his employees or Sub-Contractor shall be sufficient reason, if the Employer so decides, for the termination of Contract.</p> <p>The Contractor shall furnish all reasonable aid and assistance required by the Employer/Employer's Representative, or inspectors, for the proper inspection and examination of the Work and all parts thereof. For tests on the premises of the Contractor or of any Sub-Contractor or at Site (unless otherwise stated in the Specifications), the Contractor shall provide at his expense such as means of access, space, vehicles, machine, labor, materials, electricity, fuel, stores, apparatus and instruments, as well as make availability the use of all Contractor's facilities as may be required and as may be demanded reasonably to</p>
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	<p>perform these tests efficiently.</p> <p>The Contractor shall analyze and test all materials and equipment, which the Employer/Employer's Representative requires to be analyzed or tested. Selection of samples for testing material or equipment shall be made by the Employer/Employer's Representative. The Contractor shall analyze and test these materials and equipment in the manner and at the time and place stated in the Contract Documents or required by the Employer/Employer's Representative in accordance with the provisions of the Contract.</p> <p>Under completion of manufacture at the factory, the Employer will depute his personnel to the Contractor's factory to witness the fabrication, assembly and testing of any or all parts of the equipment and materials as specified in Sub-Clause 64.2 of SCC.</p> <p>Unless waived in writing by the Employer/Employer's Representative or unless otherwise stated in Specifications, all inspections and tests shall be made in the presence of the Employer / Engineer or inspector authorized by the Employer. Only those materials and parts of the Work and equipment, which have been approved by the Employer/Engineer shall be used and shipped.</p> <p>(B) Cost of tests borne by the Contractor</p> <p>Unless otherwise specified, all costs related to the fabrication, assembly and test or tests shall be arranged and borne by the Contractor at its own cost. This shall apply to tests performed at the Site or elsewhere.</p> <p>(C) Dates for inspection and testing</p> <p>The Contractor shall agree with the Employer/Employer's Representative the date on and the place at which any Work will be ready for testing as provided in the Contract and if the Employer/Employer's Representative fails to attend at the place so named on the date agreed the Contractor may proceed with the tests, which shall be deemed to have been made in the Employer/Employer's Representative presence, and shall forthwith forward to the Employer/Engineer duly certified copies of the test readings.</p> <p>(D) Facilities for testing</p> <p>Where the Contract provides for tests on the premises of the Contractor or of any Sub-Contractor the Contractor shall provide such assistance, labor, materials, electricity, fuel, stores, apparatus and instruments as may be requisite and as may be reasonably demanded to carry out such tests efficiently.</p> <p>(E) Rejection</p> <p>If as a result of such inspection, examination or test of the Work the Employer/Employer's Representative shall decide that such Work is defective or not in accordance with the Contract he shall notify the Contractor accordingly stating in writing his objection and reasons therefore, the Contractor shall with all speed make good the defect</p>
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	<p>free or ensure that the Work complies with the Contract.</p> <p>Thereafter, if required by the Employer/Employer's Representative, the tests shall be repeated under the same terms and conditions and all expenses borne by the Contractor.</p> <p>All costs incurred by the Employer by the repetition of the tests or false calls shall borne by the Contractor. Any delay in delivery due to retest or false call shall not constitute a release of the Contractor for his responsibilities for delay.</p> <p>(F) Commissioning</p> <p>Commissioning shall be defined as those parts of the tests on completion which include the trial runs and operational tests to be carried out in order to put equipment into service under real operating conditions. Commissioning shall take place in accordance with instructions of the manufacturers of the relevant parts of equipment.</p> <p>64.2 Inspection and Test at Factory</p> <p>Whenever the Contractor is ready to carry out any such test and inspection, it shall give reasonable advance notice, including the place and time, to the Employer. The Contractor shall obtain from any relevant third party or manufacturer any necessary permission or consent to enable the Employer or its designated representative to attend the test / or inspection. Upon Contractor's such notification, the Employer shall notify the Contractor in writing of the identity of any representatives retained for these purposes. The Employer shall bear all its own costs and expenses incurred in connection with such attendance including, but not limited to, travelling and board and lodging expenses.</p> <p>Inspection Schedule shall be finalized during Contract Negotiation.</p> <p>Following plant, equipment and material shall be witnessed and tested by the Employer's representatives at the manufacturer's factory before dispatching it to the Site.</p> <ul style="list-style-type: none">-Steel Tubular pole & fittings- 0.1 sq.inch. ACSR Conductor-Insulator and Hardware-Stay Set
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SECTION IX

CONTRACT FORMS

Handwritten signature or mark



Table of Clauses

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Handwritten signature



Letter of Intent
[on letterhead paper of the Employer]

Date: ...

To:name and address of the Contractor ...

Subject: Issuance of letter of intent to award the contract ...

This is to notify you that, it is our intention to award the contract [insert date] ...
for execution of the ... [insert name of the contract and identification number, as
given in the Contract Data/SCC] to you as your bid price ... [insert amount in figures and
words in Nepalese Rupees] as corrected and modified in accordance with the Instructions
to Bidders is hereby selected as substantially responsive lowest evaluated bid.

Authorized Signature:

Name: ...

Title:

CC:

[Insert name and address of all other Bidders, who submitted the bid]



Letter of Acceptance
[on letterhead paper of the Employer]

Date: ...

To: name and address of the Contractor ...

Subject:..... Notification of Award

This is to notify that your Bid dated ... date ... for execution of the ...name of the contract and identification number, as given in the Contract Data/SCC ... or the Contract price of Nepalese Rupees [insert amount in figures and words in Nepalese Rupees], as corrected in accordance with the Instructions to Bidders is hereby accepted in accordance with the Instruction to Bidders.

You are hereby instructed to contract this office to sign the formal contract agreement within 15 days. As per the Conditions of Contract, you are also required to submit Performance Security, as specified in SCC, consisting of a Bank Guarantee in the format included in Section IX (Contract Forms) of the Bidding Document.

The Employer shall forfeit the bid security, in case you fail to furnish the Performance Security and to sign the contract within specified period.

Authorized Signature:

Name and Title of Signatory:



Contract Agreement

THIS AGREEMENT made the day of,
between. name of the Employer (hereinafter “the Employer”), of the one
part, and name of the Contractor.....
(hereinafter “the Contractor”), of the other part:

WHEREAS the Employer desires that the Works known as name
of the Contract
should be executed by the Contractor, and has accepted a Bid by the Contractor for
the execution and completion of these Works and the remedying of any defects in the
sum of NRs[insert amount of contract price in words and figures including
taxes] (hereinafter “the Contract Price”).

The Employer and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are
respectively assigned to them in the Contract documents referred to.

2. The following documents shall be deemed to form and be read and construed as
part of this

Agreement.

- (a) the Letter of Acceptance;
- (b) the Letter of Bid;
- (c) the Addenda Nos insert addenda numbers if any ...
- (d) the Special Conditions of Contract;
- (e) the General Conditions of Contract;
- (f) Bills of Quantities (BOQ);
- (g) the Specification;
- (h) the Drawings;
- (i) the Activity Schedules; and
- (j) Bidding Forms -Table of Price Adjustment Data
- (k)[Specify if there are any other document]

3. In consideration of the payments to be made by the Employer to the Contractor as
indicated in this Agreement, the Contractor hereby covenants with the Employer to
execute the Works and to remedy defects therein in conformity in all respects with the
provisions of the Contract.

4. The Employer hereby covenants to pay the Contractor in consideration of the
execution and completion of the Works and the remedying of defects therein, the
Contract Price or such other sum as may become payable under the provisions of the
Contract at the times and in the manner prescribed by the Contract.



IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of Nepal on the day, month and year indicated above.

Signed by ...
for and on behalf the Contractor
in the presence of

Signed by. ..
for and on behalf of the Employer
in the presence of

Witness, Name, Signature, Address, Date
Date

Witness, Name, Signature, Address,



Performance Security
(On letterhead paper of the 'A' class commercial Bank)

... Bank's Name, and Address of Issuing Branch or Office ...

Beneficiary: Name and Address of Employer ...
Date: ...

Performance Guarantee No.:

We have been informed that [insert name of the Contractor] (hereinafter called "the Contractor") has been notified by you to sign the Contract No. [insert reference number of the Contract] for the execution of [insert name of contract and brief description of Works] (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Contractor, we [insert name of the Bank] hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of ... [insert name of the currency and amount in figures] (..... **insert amount in words**) such sum being payable in Nepalese Rupees, upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the Day of , and any demand for payment under it must be received by us at this office on or before that date.

Seal of Bank and Signature(s)



Advance Payment Security
(On letterhead paper of the 'A' class commercial Bank)

... Bank's Name, and Address of Issuing Branch or Office ...

Beneficiary: ... Name and Address of Employer ...

Date:

Advance Payment Guarantee No.: ...

We have been informed that ... *name of the Contractor* ... (hereinafter called "the Contractor") has entered into Contract No. ... *reference number of the Contract* ... dated ... with you, for the execution of ... *name of contract and brief description of Works* ... (hereinafter called "the Contract").

Furthermore, we understand that, according to the Conditions of the Contract, an advance payment in the sum *name of the currency and amount in figures...* (... *amount in words* ...) is to be made against an advance payment At the request of the Contractor, we ... *name of the Bank* ... hereby irrevocably undertake to guarantee. pay you any sum or sums not exceeding in total an amount of ... *name of the currency and amount in figures...* (... *amount in words* ...) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation under the Contract because the Contractor used the advance payment for purposes other than the costs of mobilization in respect of the Works.

It is a condition for any claim and payment under this guarantee to be made that the advance payment referred to above must have been received by the Contractor on its account number ... *Contractor's account number* ... at *name and address of the Bank*

This guarantee shall expire on the ... day of Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

Seal of Bank and Signature(s)

