

**NOTICE INVITING RE-TENDER (E-TENDER)**

**E-Tender No: 01/2024-25/ Dtd 04/03/2025**

The Executive Engineer, Electrical Division, Kanhangad, for and on behalf of Kerala State Electricity Board Ltd. invites online bids from financially sound and well experienced contractors in this field for carrying the following work: **Supply of Materials ,Erection, Testing, and Commissioning of Work Construction of LT Three phase and Single phase line ,Conversion of single phase line to Three phase line and Reconductoring of Single phase and Three phase line by using Covered Conductor Rabbit 43 km ,at Various locations under Electrical Division Kanhangad -Dyuthi Special Scheme - 2024-25, Under Electrical circle Kasaragod.**

1	Name of Work	Supply of Materials ,Erection, Testing, and Commissioning of Work Construction of LT Three phase and Single phase line ,Conversion of single phase line to Three phase line and Reconductoring of Single phase and Three phase line by using Covered Conductor Rabbit 43 km ,at Various locations under Electrical Division Kanhangad -Dyuthi Special Scheme -2024-25, Under Electrical circle Kasaragod
2	Probable Amount of Contract	Rs . 6256445 /-
3	Earnest Money Deposit (EMD)	Rs 50000 /-
4	Tender Submission Fee	Rs 5900/- (including 18% GST)
5	Online Submission Start Date	25-04-2025, 10.00 A.M
6	Last Date and Time of Online Submission of Tenders	08-05-2025, 03.00 PM
7	Date and Time of Opening of Tender	09-05-2025, 04.00 PM
8	Period of Completion	90 Days

The bidder should quote the rate exclusive of GST, but inclusive of all other taxes, if any applicable. The contractor should indicate separately, applicable GST in the Bidder Details document submitted. If the bidder does not include the details of GST, the quote will be treated as inclusive of GST. Further details on GST are detailed in the Taxes and Duties section of the tender conditions.

**All the bidders must have valid PAN card.**

The EMD and a Non-refundable Tender/Bid submission fee shall be remitted online only through MOPS. No other mode of payment other than those mentioned will be allowed. Bidder should ensure that bid document fees and EMD are remitted as one single transaction and not separate. Separate or split remittance for bid document fee and EMD shall be treated as invalid transactions, and system will automatically reject the tender. The MOPS facility for online payment may be exercised at least 48Hrs before the closing date of the bid to ensure that payment towards tender document fee and EMD are credited and a confirmation is reflected in the e-procurement system.

The offers shall be submitted in single bid system. All bid documents are to be submitted online and in the designated covers/envelops on the above website. Bid shall be accepted only through online mode in the website and no manual submission shall be entertained.

The Original of the Preliminary Agreement in stamp paper for Rs.200/- signed by the Tenderer /Bidder and Bank Guarantee (if required) and other documents mentioned in the tender should be enclosed in a sealed envelope showing the Tender /Bid number should be submitted to the Office of **The Executive Engineer, Electrical Division Kanhangad, Thidil Complex TB Road, Puthiyakotta , Kanhangad- 671314**, before the Tender opening date and time.

All bidders participating in the tender should have a valid Digital Signature Certificate availed from an approved Certifying Authority. All communications shall be addressed to The Executive Engineer, Electrical Division Kanhangad, Vydhyuthi Bhavan, Vidhyanagar, Kasaragod - 671123, only. For any queries, the Executive Engineer, Electrical Division Kanhangad, **Thidil Complex TB Road, Puthiyakotta , Kanhangad**, can be contacted at 94960011435 or 0467-2204790. More details about the e-tendering procedure will be available from Kerala State IT Mission, Thiruvananthapuram on all working days from 10.30AM to 5 PM. (Phone No.0471-2577088, 2577188, 919995755177).

The contractor undertaking the work shall obtain an insurance coverage (All risk cover) in respect of workmen engaged by him from a Nationalized Insurance Company which shall be sufficient enough to cover all the expenses payable on behalf of fatal/non fatal accident victims including hospital expenses, HMC, funeral benefit/compensation (death and disablement total and partial) and other financial benefits payable as per provision of employees compensation Act, 1923. Any liability on the difference in compensation amount payable before the commissioner for workmen's compensation (Deputy Labour Commissioner) or the victim beyond the insurance claim amount sanctioned by the Insurance Company rest with the contractor who has engaged the victim.

All other terms and conditions existing in Kerala State Electricity Limited for similar

tenders are applicable to this also.

**Note:**(i) If any of the date/dates mentioned above happens to be a holiday, the actual dates for the same will be the next working day. No separate intimation in this regard will be issued.

(ii) Corrigendum, if any, will be uploaded in e-tender website only. No separate communication will be issued in any other form.

**Sd/-**

**Executive Engineer  
Electrical Division  
Kanhangad**

**KERALA STATE ELECTRICITY BOARD LIMITED**

*(Incorporated under the Indian Companies Act 1956)*

**Regd. Office: Vydyuthi Bhavanam, Pattom, Thiruvananthapuram – 695004**

website: [www.kseb.in](http://www.kseb.in), CIN:U40100KL2011SGC027424



**Office of the Executive Engineer, Electrical Division,  
Kanhangad**

**Thidil Complex TB Road, Puthiyakotta , Kanhangad- 671314**

**E-Tender No: 01/2024-25/ Dtd 04/03/2025**

**PART I  
BID DOCUMENTS**

**Supply of Materials ,Erection, Testing,and Commissioning of Work  
Construction of LT Three phase and Single phase line ,Conversion of single  
phase line to Three phase line and Reconductoring of Single phase and Three  
phase line by using Covered Conductor Rabbit 43 km ,at Various locations  
under Electrical Division Kanhangad -Dyuthi Special Scheme -2024-25, Under  
Electrical circle Kasaragod.**

**Containing General conditions of contract, Instructions, formats  
and Technical specifications**

# **BID DOCUMENT**

## **CONTENTS**

### **A) Notice Inviting Tender**

### **B) Part I - Tender Conditions and Technical Specification**

1. Invitation for Bids
2. Instruction to bidders
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### **C) Part II - Price bid or BoQ**

**Office of the Executive Engineer, Electrical Division,**  
**Kanhangad**  
**Thidil Complex TB Road, Puthiyakotta , Kanhangad- 671314**

**E-Tender No: 01/2024-25/ Dtd 04/03/2025**  
**KERALA STATE ELECTRICITY BOARD LIMITED**

**Notice Inviting Tender**

Competitive e-tenders are invited from experienced, qualified and eligible bidders having valid Electrical Contract License for the work of **Supply of Materials ,Erection, Testing, and Commissioning of Work -Construction of LT Three phase and Single phase line ,Conversion of single phase line to Three phase line and Reconductoring of Single phase and Three phase line by using Covered Conductor Rabbit 43KM,at Various locations under Electrical Division Kanhangad -Dyuthi Special Scheme -2024-25, Under Electrical circle Kasaragod** as detailed below:

Tender Reference No.	<b>E-Tender No. 01 /2024-25 04/03/2025</b>	
Probable Amount of Contract	RS 6256445/-	
Earnest Money Deposit	Rs.50000/- (By on-line payment Through e-Payment facility provided by the e-Procurement system)	As a single payment for Rs.55900/-
Bid submission fee	Rs. 5000/-+ GST @18% (Total=Rs.5900/-) (By on-line payment by Through e-Payment facility provided by the e-Procurement system)	
Tender document download/sale start date	<b>25/04/2025 at 10.00 AM</b>	
Starting date and time of online submission of bid	<b>25/04/2025 at 10.00 AM</b>	
Last date and time of online submission of bid	<b>08/05/2025at 03.00 PM</b>	
Date &Time of opening of Pre-Qualification Bids	<b>09-05-2025, 04.00 PM</b>	
Availability of bid forms	Can be downloaded from the website <a href="http://www.etenders.kerala.gov.in">www.etenders.kerala.gov.in</a>	

Kerala government public sector undertakings are exempted from furnishing EMD. All communications shall be addressed to the Executive Engineer, Electrical Division, Kanhangad only. The tender documents and other details may be downloaded from the website **etenders.kerala.gov.in**. The EMD of Rs. 50000/- and a non-refundable Bid document fee of Rs.5900/- (including GST) a total of Rs 55900/- (Rupees Fifty Five Thousand and Nine Hundred Only) shall be remitted online through e-Payment facility provided by the e-Procurement system. No other Modes of payment will be allowed. **Tenderer should ensure that tender document fee and EMD are remitted as one single transaction and not separate. Separate or split remittance for tender document fee and EMD shall be treated as invalid transaction.** The online payment may be exercised at least 48 hours before the closing date of the tender to ensure that payment towards tender document fee and EMD are credited and a confirmation is reflected in the e-tender system. All the Bid documents are to be submitted online only and in the designated covers/envelopes on the above website. Technical bid and financial bid shall be submitted in their designated online covers. Tenders/ bids shall be accepted only through online mode in the website and no manual submission shall be entertained. Late Tenders will not be accepted.

**The scanned copies of agreements as per Annexure VI and bid form mentioned in Annexure I - both executed in Kerala stamp paper worth Rs. 200/- each are to be attached along with the bid.** The bid shall be **opened online at the office of the Executive Engineer, Electrical Division, Kanhangad** in the presence of the bidders/ their representatives who wish to attend at the above address, on the date and time mentioned above or the date modified and communicated through the corrigendum. All other existing conditions related to the bids of KSEB Ltd will be applicable to this bid also. The bidding authority reserves the right to modify/cancel any or all bids without assigning any reasons for such decision. Such decision will not incur any liability whatsoever on the part of KSEB Ltd, consequently. KSEB Ltd will not be responsible for any errors like missing of schedule, data etc. while downloading by the bidder/non receipt of document/delay, if any.

**Hard copies of the following signed documents in original** may be submitted to the Executive Engineer, Electrical Division, KSEB Limited, Thidil Complex, TB Road, Puthiyakotta, kanhangad-671314 after the last date of online bid submission, but on or before the due date of opening of the bid in sealed and separate covers clearly super scribing the contents including the Bid number as mentioned below

- **“Bounden Agreement”- containing Original of Signed Agreement as per Annexure VI in Kerala Stamp Paper worth Rs. 200/-.**
- **“Bid Form” - Signed Bid form in Original as per Annexure I in Kerala Stamp Paper worth Rs. 200/-)**

**“Failure in submission of above documents in original will lead to the rejection of the tender. Price should not be mentioned in any other documents or anywhere else other than in online BOQ”.**

Also, the bidder shall submit the original of any of the documents uploaded in the bid, if so required at any stage of evaluation and award process. If any discrepancy is noticed in the tender submitted by the bidder through online and the hard copy, the tender will be summarily rejected.

**All Bidders participating in the Bid should have a valid Class – II or above Digital Signature Certificate procured from any Registration Authorities (RA) under the Certifying Agency of India.** Details of RAs will be available on [www.cca.gov.in](http://www.cca.gov.in). More details about the e-tendering procedure will be available from National Informatics Centre, Thiruvananthapuram on all working days from 10.30 am to 05.30 pm.

Clarifications/Pre-bid queries of the prospective bidders shall reach within 3 days before opening of bids prior to the pre-bid meeting through e-mail/post to the following address.

Office of the Executive Engineer, Electrical Division, Kerala State Electricity Board Limited, Thidil Complex , TB Road , Puthiyakotta,,Kanhangad Email: [exe.engineerkhd@gmail.com](mailto:exe.engineerkhd@gmail.com) Phone No.9496011435

EXECUTIVE ENGINEER

ELECTRICAL DIVISION KANHANGAD



## **TERMS AND CONDITIONS**

- All the tender documents are to be submitted online only and in the designated covers on the above website and no manual submission shall be entertained.
- The rate should remain firm for 6 months from the date of opening of bid as per clause no. 6.1.20 of SCC. The rate should be quoted as per format given in the e-tender portal. The bidder should quote the All Inclusive Rate. GST shall be quoted separately in BOQ.
- All communications regarding the tender including queries if any shall be done online within the e-procurement system at website **<http://etenders.kerala.gov.in>**.
- The bid shall be opened online at the office of the Executive Engineer, Electrical Division, Kanhangad on the date and time mentioned above. Those intending bidders/their representatives may present at the time of bid opening.
- The successful bidder shall execute an Agreement in Kerala Stamp Paper (value of Stamp paper is Rs 1/- for every 1000/- rupees or part thereof on the amount agreed in the Contract subject to a maximum of Rs 1,00,000 /-) in the format prescribed by the KSEB Ltd for the due fulfilment of the Contract within the period specified in the Work Order and shall furnish performance security deposit equal to 5 % of the Contract value before signing the Agreement.
- KSEB Ltd reserves the right to reject any or all tenders without assigning any reasons thereof.
- This notice can also be viewed in KSEBL website **[www.kseb.in](http://www.kseb.in)**. Further details if any required and all communication shall be addressed to the **Executive Engineer, Electrical Division, Kanhangad**.
- Kerala government public sector undertakings are exempted from furnishing of EMD. All MSME units having UDYOG AADHAR registration for the products for which registration is valid are exempted from remitting EMD on producing valid documents in support of the claim.

Note: - If any of the date / dates mentioned above happens to be a holiday, the actual dates for the same will be the next working day. No separate intimation in this regard will be issued.

Sd/-

**Executive Engineer**  
**Electrical Division Kanhangad**

**PART – I**  
**TENDER CONDITIONS AND TECHNICAL SPECIFICATION**

**SECTION- I**  
**INVITATION FOR BIDS**

**TABLE OF CLAUSES**

<b>Clause No.</b>	<b>Description</b>
1.1	Invitation for Bids
1.2	Eligibility and qualification of bidders
1.3	Earnest Money Deposit

**1. INVITATION FOR BIDS**

**1.1.1 Introduction**

Kerala State Electricity Board Ltd invites e-tenders under competitive bidding from eligible bidders for the work of **Supply of Materials ,Erection, Testing,and Commissioning of Work Construction of LT Three phase and Single phase line ,Conversion of single phase line to Three phase line and Reconductoring of Single phase and Three phase line by using Covered Conductor Rabbit 43 km ,at Various locations under Electrical Division Kanhangad -Dyuthi Special Scheme -2024-25, Under Electrical circle Kasaragod including erection of poles and stays wherever necessary and dismantling of existing LT line on TURNKEY basis at different locations under Electrical Division,Kanhangad**

1.1.2 The scope of Works to be carried out under this tender is supply, installation testing and commissioning of LT Covered conductor Rabbit and accessories for construction of LT lines including erection of poles and stays wherever necessary and dismantling of existing LT line as detailed in clause no. 2.2.

**1.2 Eligibility and qualification of bidders.**

1.2.1 This invitation for bid is open to all bidders who meet the criteria under 2.3.1. Electrical Contractor who may be an individual or firm, having an average annual turnover equivalent to 75% of PAC for any three years in the preceding five years and have experience in executing similar works and have adequate technical knowledge and practical experience in India in constructing 11KV or LT OH line with covered conducotor or ABC. The bidders shall produce a

solvency certificate in the format as per Annexure XIII obtained within a period of six months for an amount equivalent to 75 % of PAC or more obtained from Nationalized/ scheduled bank or Net worth Certificate issued by a Chartered Accountant along with their bid.

- 1.2.2 Capability for timely acquisition/procurement (own, lease, hire etc.) of the essential equipment such as (I) Construction machinery for Civil/Electrical works, (ii) Material handling facilities for erection, (iii) Equipment for testing and commissioning.
- 1.2.3 A list of qualified and experienced personnel having experience in the installation and commissioning of HT/ LT OH line with ABC/coverd conductor should be furnished.
- 1.2.4 The bidder shall not anticipate a change in ownership during the proposed period of execution of works.
- 1.2.5 The bidder shall furnish supporting documents in respect of experience as above.
- 1.2.6 The bidder shall utilize only those major materials having BIS /IEC standards procured from manufacturers having adequate manufacturing capacity.
- 1.2.7 The Bidder should clearly confirm that all the facilities exist in the factory from where material to be procured for inspection and testing and these will be made available to the Purchaser or his representative for inspection before any material dispatch for the works.
- 1.2.8 The Bidder should provide drawing and type test reports for LT covered conductor and all the required LT CC accessories tested as per the relevant standards at any of the labs like CPRI /ERDA or International Laboratory Accreditation Corporation (ILAC) accredited labs with the offer. **If the type test certificates are not readily available at the time of bidding, an undertaking shall be produced to the effect that the same will be submitted in the event of a firm order , before commencement of work.**

### 1.3 Earnest Money Deposit

Kerala government public sector undertakings are exempted from furnishing EMD. All MSME units having UDYOG AADHAR registration for the products for which registration is valid are exempted from remitting EMD on producing valid documents in support of the claim. The EMD of Rs. 50000/- and a non-refundable Bid document fee of Rs.5900/- (including GST) a total of Rs 55900/- (Rupees Fifty Five Thousand and Nine Hundred Only) shall be remitted online through e-payment facility provided by the e-procurement system. No other Modes of payment will be allowed. Tenderer should ensure that tender document fee and EMD are remitted as **one single transaction and not separate. Separate or split remittance for tender document fee and EMD shall be treated as invalid transaction.** The online payment may be exercised at least 48 hours before the closing date of the tender to ensure that payment towards tender document fee and EMD are credited and a confirmation is reflected in the e-tender system.

Sd/-

**Executive Engineer,  
Electrical Division,Kanhangad**

**SECTION 2**  
**INSTRUCTION TO BIDDERS**  
**TABLE OF CLAUSES**

<b>Clause No.</b>	<b>Description</b>
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2.2	SCOPE OF WORK
2.3	ELIGIBILITY & QUALIFICATION REQUIREMENT FOR BIDDERS
2.4	BIDDING DOCUMENTS
2.5	COST OF BIDDING
2.6	LOCAL CONDITIONS
2.7	PREPARATION OF BIDS
2.8	BID PRICE
2.9	BID VALIDITY
2.10	BID EARNEST MONEY DEPOSIT (EMD)
2.11	ALTERNATIVE PROPOSAL BY BIDDERS
2.12	PROCESS TO BE CONFIDENTIAL
2.13	CLARIFICATION OF BIDS
2.14	EXAMINATION OF BIDS AND DETERMINATION OF SUBSTANTIAL RESPONSIVENESS
2.15	CORRECTION OF ERRORS
2.16	EVALUATION AND COMPARISON OF BIDS
2.17	AWARD OF CONTRACT
2.18	KSEB'S RIGHT TO ACCEPT ANY BID AND REJECT ANY OR ALL BIDS
2.19	NOTIFICATION OF AWARD
2.20	PERFORMANCE SECURITY
2.21	AGREEMENT
2.22	GENERAL TENDER TERMS & CONDITIONS FOR E-TENDER

## **2. INSTRUCTION TO BIDDERS**

### **2.1 GENERAL INSTRUCTIONS**

KSEB Ltd hereinafter will receive bids in respect of materials/equipments to be furnished, erected and commissioned as set forth in the accompanying specifications. All bids shall be prepared and submitted in accordance with these instructions.

The technical specification and requirements contained herein cover only important and major items. Any material/work not specifically included here, but which are necessary for the satisfactory performance of the line for a long period shall be deemed to be included in the specification requirement. The contractor is not eligible for any additional claim for such works/supplies.

### **2.2 SCOPE OF WORK**

**Supply of Materials ,Erection, Testing,and Commissioning of Work Construction of LT Three phase and Single phase line ,Conversion of single phase line to Three phase line and Reconductoring of Single phase and Three phase line by using Covered Conductor Rabbit 43 km including erection of poles and stays wherever necessary and dismantling line, at Various locations under Electrical Division Kanhangad -Dyuthi Special Scheme -2024-25, Under Electrical circle Kasaragod. on TURNKEY basis including supplying the materials, testing and commissioning of the constructed line and handing over of the line to KSEB Ltd for the full satisfaction of KSEB Ltd as defined in the bid document as 'work' at the locations with details of line is attached as an **Appendix - 1** to the Bid and maintaining the line during performance guarantee period.**

**The bidders should take special care in visiting the location and should have an idea about the actual site condition. They should quote taking into account the actual length of conductor including provisions for loop and sag. Measurement would be made only on actual span length. No request for revision in length of conductor will be entertained later.**

SL.N O.	PARTICULARS	UNI T	QTY
A.1	Pole PSC 8 M	E	60
A.2	Dead End Clamp Assembly ( Anchoring Assembly) for Covered Conductor Up to 95 Sq.mm	No	467
A.3	CROSS ARM GI CHANNEL 4 LINE(4 Line channel cross arm) for PSC Poles 8M/200kg	E	71
A.4	Clamp GI for 2/4 line channel Cross Arm for PSC Poles 200kg	E	89
A.5	Composite polymeric pin insulator with pin 1.1 kV	No	523
A.6	Cable Tie UV Plastic Heavy Duty 300 mm Length	E	52
A.7	Covered CONDUCTOR ACSR Rabbit (XLPE INSULATED)	m	42620.5
A.8	Stay Insulator Porcelain 415/240 V	E	97
A.9	Stay Rod (Anchor Rod) GI 16 mm dia (LT Stay Rod)	E	93
A.10	Stay Wire 7/8 (7/3.15mm) GI (HT Stay Wire)	kg	388
A.11	Clamp GI For LT Stay/Strut	E	120
A.12	Turn Buckle ,Eye bolt with 2 Nuts 16 mm dia -GI (Stay tightner LT )	E	89
A.13	Bolt & Nut GI FT M 12 x 150 (6"x 1/2")	kg	55
A.14	Insulation Piercing Connector( IPC) -Main 16 to 70 Sq.mm; Tap 16 to 70 Sq.mm	No	408
A.15	Insulator Tie for Covered Conductor	E	381
A.16	Satellite connector â “ Main : 16 sq mm to 95 sq mm; Tap : 2.5 sq mm to 35 sq mm (4 way)	E	490
A.17	CROSS ARM GI CHANNEL 2 LINE(2 Line channel cross arm) for PSC Poles 8M/200kg	E	70
A.18	Insulation Piercing Connector( IPC) -Main 16 to 70 Sq.mm; Tap 4 to 35 Sq .mm	No	150
A.19	" Coil Earth set includes 1. Earthing Coil GI 115 Turns 50 mm internal Dia 2. Stainless Steel strap and Buckle Slot width 10.5 mm x 1.5 mm, Thickness 1.2 mm. 3. Ferrules 5 Sq.mm - GI etc as required as per technical specification, approved drawings and scope of work."	Set	35
A.20	STAY TIGHTNER LT	E	8
	<b>LABOUR</b>		
B.1	Erecting one LT PSC Pole in position incl. digging & back filling pit.	No	22
B.2	Loading LT PSC pole from the stacking place and unloading the same at work site (transport by vehicle).	No	60
B.3	Erection of Anchor clamp / dead end clamp for LT ABC of any size	E	412
B.4	Additional rate for excavation of one Pit for LT Pole/LT Stay in Soft Rock.	No	15
B.5	Stringing one km LT 3ph 4 wire line XLPE Insulated ACSR Rabbit or equivalent) incl. fitting cross arm etc. removing touchings and conveyance of materials.	m	1250
B.6	Providing Stay for LT poles incl. digging & back filling pit.	No	52
B.7	Additional rate for excavation of one Pit for LT Pole/LT Stay in Hard Laterite.	No	37
B.8	Providing Strut using LT PSC pole incl. digging & back filling pit.	No	6
B.9	Fitting one LT 4 line cross arm on HT or LT existing poles incl. fitting insulators and binding the same with LT Line.	No	4
B.10	Singe Phase Satellite connectors upto 4 service main connections (25-95 ABC/2.5-25 sqmm SM wire-2No)	E	486
B.11	Installation of Insulation piercing connector for main to service line main :16-95 sqmm, Tap 16-95 sqmm	E	504

B.12	Dismantling (without damage) one km LT Sph 2 wire OH line, cross arms, insulators and stacking the conductors in rolls.	km	12.97
B.13	Stringing one km LT Sph 3 wire line XLPE Insulated ACSR Rabbit or equivalent, incl. fitting cross arm etc. removing touchings and conveyance of materials.	m	5570
B.14	Providing Cable Tie	E	309
B.15	Dismantling (without damage) one km LT additional conductor line, cross arms, insulators and stacking the conductors in rolls.	km	6.47
B.16	Dismantling and reconnecting Sph service connection from the OH line incl. lowering down the WP portion.	No	385
B.17	Dismantling and reconnecting 3ph service connection from the OH line incl. lowering down the WP portion.	No	15
B.18	Installing One No. Insulation piercing connector of size Main :16 to 95 ,Tap:1.5 to 16 Sq.mm	E	31
B.19	Stringing one km LT 3ph 5 wire line XLPE Insulated ACSR Rabbit or equivalent, incl. fitting cross arm etc. removing touchings and conveyance of materials.	m	900
B.20	Dismantling (without damage) one km LT 3ph 4 wire OH line, cross arms, insulators and stacking the conductors in rolls.	km	0.9
B.21	Renewal of existing damaged/old LT PSC/RCC (Sph line) pole with new PSC pole in place and refitting of all items incl. conveyance (except pole).	No	26
B.22	Providing Fly stay for LT pole using LT PSC pole incl. digging & back filling pit.	No	2
B.23	Additional rate for excavation of one Pit for LT Pole/LT Stay in Laterite.	No	6
B.24	Renewal of existing damaged/old LT stay with new stay in place and refitting of all items and conveyance of all materials.	No	41
B.25	Renewal of existing damaged/broken old LT stay with existing stay rod.	No	4
B.26	Stringing one km LT 1ph 2 wire line XLPE Insulated ACSR Rabbit or equivalent, incl. fitting cross arm etc. removing touchings and conveyance of materials.	m	7000
B.27	Providing one Coil Earth using GI earth wire, digging separate pit at standard distance away from the pole/structure & backfilling.	No	35
B.28	Installation of Insulation piercing connector for main to service line main :16-95 sqmm, Tap : 4-35 sqmm	E	110
B.29	Insertion of one LT PSC pole in existing Sph OH line incl. digging & back filling pit, fitting cross arm, insulator, binding etc.	No	4

**The quantity of materials shown here is only tentative quantity; however the Contractor should assess the final quantity after conducting field survey within 15days of Award of Contract.** The bidder shall include all materials, consumables etc. required for the complete and satisfactory construction and commissioning of the line, even if they are not specifically mentioned in these specifications. Additional loops for future shall be provided as per site requirement in consultation with Assistant Engineer. LT heat shrinkable Sleeve shall be provided for all exposed and bare portions.

The successful bidder shall complete the works within **90 days** from the date



of detailed Work order.

The lead member in the case of a Consortium shall be the sole responsible party in fulfilling the obligations as per this tender. The following are included in the major scope of work.

- Design, Manufacture and supply of LT CC of size equivalent to ACSR Rabbit and all the accessories of approved type required for the complete work.
- Design, Manufacture and supply of 8Mtr PSC poles as per specification.
- Design, Manufacture and supply of cross arm and insulators as per specification.
- Submission of Drawings of all materials required for the work for approval of KSEBL before proceeding with the manufacture of the materials.
- Arrange inspection / testing of any/all materials at manufacturer's works for officer deputed by KSEBL for such inspection/testing.
- Insurance & Transportation of materials from the manufacturer's works, unloading, storage and handling of materials at the site.
- Construction of LT lines with Covered Conductor equivalent to ACSR Rabbit as per standard at the locations said in this document.
- Testing & commissioning of constructed LT lines with CC.
- Supply of necessary spares and accessories. Spares shall be handed over to the Assistant Engineers of concerned Electrical sections, under the jurisdiction of which work is being executed.
- Dismantling of existing LT line at the locations said in this document.
- All services & activities required to be given contractually, by the bidder, during the warranty period 1 year.

**Bids not covering the entire scope of the work shall be treated as incomplete and hence are liable to be rejected.**

## 2.3 ELIGIBILITY & QUALIFICATION REQUIREMENT FOR BIDDERS

This section covers the minimum requirement with respect to experience, capability and other particulars of the Bidder to be considered eligible for participation in the bid for the proposed work. The Bidder must possess the requisite experience, strength and capabilities necessary to meet the requirements as described in the bid document.

The Bid may be submitted by Single Bidder **OR** by a valid consortium of maximum three members.

### 2.3.1 QUALIFICATION CRITERIA FOR BIDDER

Clause No.	Qualification Criteria	Supporting Documents Required
<b>General Qualification Criteria</b>		
G.1	<p>a. Bidder shall be a Company incorporated /registered under the Companies Act 1956/2013 engaged in the manufacture of AB Cable.</p> <p style="text-align: center;"><b>OR</b></p> <p>Turnkey Contractors</p> <p style="text-align: center;"><b>OR</b></p> <p>A valid consortium of maximum three members.</p> <p>b. Bidder must be registered with appropriate authorities for all applicable statutory duties/taxes.  <i>[In case of Consortium all the members of the Consortium need to satisfy this Condition].</i>            Companies incorporated/registered in India under relevant legislation and authorised to carry out business in India may also Participate.</p>	<p>Valid Documentary Proof of:</p> <ul style="list-style-type: none"> <li>▪ Certificate of incorporation/ registration.</li> <li>▪ Certificate consequent to change of name if applicable.</li> <li>▪ GST Registration Certificate</li> <li>▪ A copy of consortium agreement clearly showing the consortium leader in case of bidder being consortium</li> </ul>
G.2	The Bidder shall not be under a Declaration of Ineligibility for corrupt	Declaration in this regard by the authorised signatory of

	or fraudulent practices or blacklisted with any of the Central/State Government agencies. <i>[In case of Consortium all the members of Consortium need to satisfy this condition.]</i>	the Bidder is to be furnished.
G.3	The Bidder/ Sub contractor/ Employee shall possess a valid Electrical Contractor License issued by Electrical Inspectorate of Govt. of Kerala <i>[In case of consortium any one of the partner may satisfy this condition].</i>	Valid certificate copy to be submitted or undertaking has to be submitted at bidding stage. Successful bidder has to produce the license within 15 days of issue of Letter of Award.
<b>Qualification Criteria- Financial</b>		
F1.	Minimum Average Annual Turnover (MAAT) for best three years out of last five financial years (as on 31 <sup>st</sup> March 2024) of the bidder should not be less than an amount equivalent to 75 % of PAC. <i>In case of a consortium, the consortium as a whole should meet this requirement of turnover.</i>	Copy of audited statement of account with profit and loss account & Balance sheet duly certified by CA.
F2.	Solvency in the format as per annexure XIII or Net Worth certificate for an amount equivalent to 75 % of PAC or more (Kerala Government Public Sector Undertakings are exempted from this clause.)	Solvency Certificate obtained from Nationalised/ Scheduled Bank or Turn over/ Net worth certificate issued by CA.
<b>Qualification Criteria- Technical</b>		

T1.	<p>The bidder should have experience in executing turnkey works of 1.1KV and above OH Line Construction with AB Cable or CC.</p> <p>(a) The bidder must have completed at least 50% of equivalent quantity of 'work' in this bid in during the previous five years in the case of Turnkey Contractor.</p> <p>(b) The manufacturer of Covered Cable, who is not having Construction experience of Covered Cable line can propose sub-contractors who have completed at least 50% of equivalent quantity of 'work' in this bid in during the previous five years. Change of subcontractor after award of work shall be permitted only on specific request with all relevant details and only if such details satisfy the tender conditions</p>	<p>Copies of Work Orders / Performance Certificates to be submitted as proof.</p>
T2	Type Test Certificate	<p>Type Test Certificate of specified LT CC and its Accessories from any of the labs like CPRI/ERDA or NABL accredited lab under state/central Govt or International Laboratory Accreditation Corporation (ILAC) accredited labs to be furnished along with the bid.</p>

2.3.2 The bidder should furnish brief write-up backed with adequate data, explaining his available capacity and experience (both technical and commercial) for the manufacture and supply of the required materials within the specified time of completion after meeting all his current commitment.

2.3.3 Even though the bidder meets the above qualifying criteria he is subject to be disqualified if he has made:- misleading or false representations in the statements and attachments submitted in proof of qualification requirements and/or record of poor performance such as not properly completing the contract, inordinate delay in supply completion, litigation history of financial

failure.

- 2.3.4 Notwithstanding anything stated above, KSEB Ltd. reserves the right to assess bidder's capability and capacity to perform the contract.

## **2.4 CLARIFICATIONS ON BID DOCUMENTS**

Any clarification and information shall be obtained from Executive Engineer, Electrical Division, Kanhangad either as Email or in written form. Verbal clarification and information given by KSEB Ltd or his employee(s) or his representative(s) shall not in any way be binding on KSEB Ltd.

## **2.5 COST OF BIDDING**

The bidder shall bear all costs and expenses associated with the preparation and submission of the bid and KSEB Ltd will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the contract.

## **2.6 BIDDER'S RESPONSIBILY on assessment of work as per site condition**

- 2.6.1 The Bidders are advised to visit and examine the site of works and its surroundings and obtain for himself on his own responsibility all information that may be necessary before preparing the bid and entering into a Contract. The cost of visiting the site shall be at Bidder's own expense. Once the bidder has submitted his bid, it shall be assumed that he has fully familiarized himself with site conditions. KSEB Ltd shall not entertain any request for clarifications from the Bidders, regarding such local conditions.
- 2.6.2 It must be understood and agreed that such factors have properly been investigated and considered while submitting the proposals. Kerala State Electricity Board Limited will not entertain any claim at any stage from the bidder on the plea of having not acquainted sufficiently to the site conditions and other details. Neither any change in the time schedule of the Contract nor any financial adjustments arising thereof shall be permitted by the Employer, which are based on the lack of such clear information or its effect on the cost of the Works to the Bidder.
- 2.6.3 Availability for No Deviation Certificate- If any deviation is found, the bid shall be declared as non-responsive

## **2.7 PREPARATION OF BIDS**

### **2.7.1 LANGUAGE OF BID**

The bid prepared by the Bidder and all correspondences and documents relating to the bid, exchanged by the Bidder and KSEB Ltd shall be written in English language.

### **2.7.2 DOCUMENTS COMPRISING THE BID**

The bid submitted by bidder shall comprise the following. This bid is a single cover bid

#### Cover I

- a. Bid agreement and Bid form in stamp papers as instructed.
- b. Experience Certificates
- c. Tender specifications signed as acceptance and scanned.
- d. Guaranteed Technical Parameters
- e. Bid questionnaire
- f. Power of Attorney
- g. Declarations (No relative, Non blacklisting and No deviation)
- h. Type test certificates
- i. Certificate to prove bidder eligibility conditions
- j. Valid Electrical Contractor License issued by Electrical Inspectorate of Govt. of Kerala or undertaking
- k. Price bid form BOQ in excel sheet completed.

## **2.8 BID PRICE**

2.8.1 The contract shall be for " the Works" as described in General terms and conditions of contract.

2.8.2 The bidder shall indicate bid prices in Indian rupees only.

2.8.3 The bidder should quote the price as per format provided.

2.8.4 Price variation during the subsistence of the Contract is not allowed.

2.8.5 Discount offered, if any, shall be prominently indicated on the Bid Form.

2.8.6 As regards Income Tax, surcharge on Income Tax and any other Corporate Tax, Kerala Construction Workers Welfare Fund, KSEB Ltd. shall not bear

any tax liability whatsoever irrespective of the mode of contracting. The bidder shall be liable and responsible for the payment of such taxes attracted under the provision of law. Tax will be deducted at source.

- 2.8.7 Any fees / liasoning with the Govt. /Public sector authorities like BSNL; Inspectorate shall be levied from the bidder.
- 2.8.8 Price of the spares to be supplied is to be included in the rate quoted for supply and drawal of LT CC per km rate.

## **2.9 BID VALIDITY**

- 2.9.1 Bid shall remain valid for a period of 6 months from the date of opening of bid.
- 2.9.2 In exceptional circumstances, KSEB Ltd. may request the bidders to extend the period of validity for a specified additional period. The request and the Bidders responses shall be made in writing or by email. A bidder may refuse the request without forfeiting his bid EMD. A bidder agreeing to the request will not be required or permitted to modify his bid but will be required to extend the validity of his bid EMD for the period of the extension, and in compliance with Clause 2.10 in all respects.

## **2.10 BID EARNEST MONEY DEPOSIT (EMD)**

- 2.10.1 The bidder shall furnish as part of his bid, a bid EMD.
- 2.10.2 The EMD of Rs. 50000/- and a non-refundable Bid document fee of Rs.5900/- (including GST) a total of Rs 55900/- (Rupees Fifty Five Thousand and Nine Hundred Only) shall be remitted online by on-line payment by Through e-Payment facility provided by the e-Procurement system. No other Modes of payment will be allowed. Tenderer should ensure that tender document fee and EMD are remitted as one single transaction and not separate. Separate or split remittance for tender document fee and EMD shall be treated as invalid transaction. The online payment may be exercised at least 48 hours before the closing date of the tender to ensure that payment towards tender document fee and EMD are credited and a confirmation is reflected in the e-procurement system. Kerala government public sector undertakings are exempted from furnishing EMD.
- 2.10.3 Any bid not accompanied by an original Bid Form and adequate EMD with correct Bid reference in original shall be rejected by KSEB Ltd. The bid shall also be rejected if the provisions of Clause 2.10.2 above are not complied with by the Bidder.

2.10.4 The EMD of unsuccessful bidders will be returned as early as possible.

2.10.5 The EMD of the successful bidder will be discharged when the bidder has signed the Agreement and furnished the required performance security deposit.

2.10.6 The EMD will be forfeited

- a. If the Bidder does not accept the correction of his Bid price pursuant to Clause 2.15.
- b. In the case of successful Bidder, if he fails within the specified time limit to sign the Agreement and furnish required performance security.

2.10.7 MSME with Udyog Aadhaar Registration are exempted from furnishing EMD.

## **2.11 ALTERNATIVE PROPOSAL BY BIDDERS- Not Admissible**

Bidders shall submit offers which comply with the requirements of bidding document, including the basic technical design as indicated the drawings and specifications. Alternatives will not be considered.

## **2.12 PROCESS TO BE CONFIDENTIAL**

Information relating to the examination, clarification, evaluation, comparison of Bids and recommendations for the award of Contract shall not be disclosed to bidders or any other persons not other than officers concerned with such process until the award to the successful bidder has been announced. Any effort by a bidder to influence KSEB Ltd. in processing of Bids or award decision shall result in the rejection of bid.

## **2.13 CLARIFICATION OF BIDS**

To assist in the examination, evaluation and comparisons of bids, KSEB Ltd may, at its discretion, ask any bidder for clarification of his including breakdown of the prices in the Price Schedule. Request for clarification and the response shall be in writing, no change in price or substance of the bid shall be sought, offered or permitted except as required to confirm the correction of arithmetic errors noted by KSEB Ltd in the evaluation of the bid in accordance of Clause 2.16.



## **2.14 EXAMINATION OF BIDS AND DETERMINATION OF SUBSTANTIAL RESPONSIVENESS.**

2.14.1 Bids containing deviations from provisions relating to the following clauses will be considered as non-responsive.

- a) EMD
- b) Performance Security
- c) Liquidated damages
- d) Guarantee
- e) Payment.

KSEB Ltd's determination of a bid's responsiveness is to be based on the contents of the bid itself without recourse to extrinsic evidence

2.14.2 Prior to the detailed evaluation of bids, KSEB Ltd will determine whether each Bid

- (a) Has been properly signed.
- (b) Is substantially responsive to the requirements of the bidding documents and
- (c) Provides any clarification and/or substantiation that KSEB Ltd. may require.

2.14.3 A substantially responsive bid is one, which conforms to all the terms, conditions and specifications of the bidding documents, without material deviation or reservation. A material deviation or reservation is one (a) which affect any substantial way, the scope, quality or performance of work (b) which limits in any substantial way, inconsistent with the Bidding documents, KSEB Ltd.'s right or the bidder's obligations under the Contract; or (c) whose rectification would affect unfairly the competitive position of the other bidders presenting substantially responsive bids.

2.14.4 If a Bid is not substantially responsive, it will be rejected by KSEB Ltd. and may not subsequently be made responsive by correction or withdrawal of the non-conforming deviation or reservation.

## **2.15 CORRECTION OF ERRORS**

2.15.1 Bids determined to be substantially responsive will be checked by KSEB Ltd. for any arithmetic errors. Errors will be corrected by KSEB Ltd. as follows:  
*Where there is a discrepancy between the amount in figures and in word, the amount in words will govern.*

2.15.2 The amount stated in the form of Bid will be adjusted by KSEB Ltd. in accordance with the above procedure for the correction of errors and shall be considered as binding upon the Bidder. If the bidder does not accept the corrected amount of Bid, his Bid shall be rejected and the bid security (EMD) will be forfeited.

## **2.16 EVALUATION AND COMPARISON OF BIDS**

All the bidders participating in the bid will be evaluated for their financial capability, technical soundness and previous experience in executing works of similar nature.

### **2.16.1 Qualification and Technical Evaluation of the Bidders**

- a. Qualification Requirement- Each bid shall be evaluated to ascertain the qualification of bidder with respect to the requirements laid down in this tender document.
- b. Technical details and proposals submitted by the bidders shall be critically examined.

### **2.16.2 Financial Bid Evaluation**

- a. Only those Bidders who qualify the Qualification Requirements shall be considered for Financial (Price Bid) evaluation.
- b. The Purchaser will correct arithmetical errors during evaluation of Financial Bids.

2.16.3 KSEB Ltd's evaluation of Bid will be taken into account, in addition to the Bid price as referred in clause 2.8 above, incidental services, cost of other factors detailed below in the manner and to the extent indicated in the technical specification.

- a) Completion Schedule offered in the Bid
- b) Deviations in payment schedule from that specified in Conditions of Contract.

2.16.4 Completion Schedule: KSEB Ltd. desires to have completion of the works at the time specified i.e. **90 days**. Bid offering completion beyond 90 days of period specified in Bid Document will be treated as non-responsive.

2.16.5 Deviation in payment schedule: Bidders shall state their Bid Price considering the payment terms outlines in the Conditions of Contract. Bids

will be evaluated on the basis of this price. No alternative payment terms will be accepted. Bids will be rejected if there is any deviation in the payment terms of the Bid Document.

- 2.16.6 KSEB Ltd. reserves the right to accept or reject any variation or deviation. Variation and deviation and other factors which are in excess of the requirements of the bidding documents or otherwise result in unsolicited benefits for KSEB Ltd. shall not be taken into account in bid evaluation.

## **2.17 AWARD OF CONTRACT**

KSEB Ltd. will award the Contract to the Bidder whose Bid has been determined to be substantially responsive to the bidding documents and who has offered the Lowest Evaluated Price, provided that such Bidder has been determined to be qualified in accordance with provisions of bid.

## **2.18 KSEB'S RIGHT TO ACCEPT ANY BID AND REJECT ANY OR ALL BIDS**

Notwithstanding Clause 2.19, KSEB Ltd reserves the right to accept or reject any bid, and to cancel the bidding process and reject all Bids at any time prior to award of Contract, without thereby incurring any liability to the affected bidder or bidders or any obligation to inform affected bidder on the grounds for KSEB Ltd's action.

## **2.19 NOTIFICATION OF AWARD**

- 2.19.1 Prior to the expiration of bid validity prescribed by KSEB Ltd, KSEB Ltd will notify the successful bidder by, his bid has been accepted. This letter (hereinafter called the "Letter of Acceptance") shall include the sum which KSEB Ltd will pay the Contractor in consideration of Works by the Contractor as prescribed by the Contract (hereinafter in the Contract called the "Contract Price").
- 2.19.2 The notification of the award will constitute the formalities of contract subject to the furnishing of performance security in accordance with the provisions of Clause 2.20 and signing of agreement.

## **2.20 PERFORMANCE SECURITY**

- 2.20.1 Within 15 calendar days of the notification of award from KSEB Ltd, the successful bidder shall furnish to KSEB Ltd. a performance guarantee amounting to 5% of the contract value in the form of Demand Draft or in the form of a Bank Guarantee in favour of The Executive Engineer, Electrical Division from Nationalised Banks/Scheduled Banks on Stamp paper of

respective State Government worth Rs. 200/-. The Contract Performance Bank Guarantee shall remain valid for a period not less than 90 days over and above the guarantee period, based on stipulated completion period in the work order towards security and acceptance thereof, failing which the works orders (W.O) will be liable for cancellation without any further notice with forfeiture of E.M.D. The performance bank guarantee shall be returned on deduction of retention amount as per Cl. 3.3.1.2

2.20.2 Failure of the successful bidder to comply with the requirements of this Clause 2.20.1 shall constitute sufficient grounds for cancellation of the award and forfeiture of the Bid EMD and other appropriate penal action.

2.20.3 In the event of any dispute arising between KSEB Ltd and the contractor, KSEB Ltd shall be entitled to deduct from the performance guarantee or the balance thereof until such dispute is determined, the amount of such damages caused, charges and expenses as may be claimed.

## **2.21 AGREEMENT**

In the event of acceptance of particular bid for award of Contract such successful Bidder has to execute Contract Agreement as per Annexure V within 15 days along with the Performance Security as per Clause 2.20.1.

## **2.22 GENERAL TENDER TERMS & CONDITIONS FOR E-TENDERING**

This is an e-Tender and is being published online for **Supply of Materials ,Erection, Testing,and Commissioning of Work Construction of LT Three phase and Single phase line ,Conversion of single phase line to Three phase line and Reconductoring of Single phase and Three phase line by using Covered Conductor Rabbit 43 km ,at Various locations under Electrical Division Kanhangad -Dyuthi Special Scheme -2024-25, Under Electrical circle Kasaragod. on TURNKEY basis at various locations under the jurisdiction of Electrical Division,Kanhangad**

The tender is invited in single cover system from reputed firms/ contractor through e-procurement portal of **Supply of Materials ,Erection, Testing,and Commissioning of Work Construction of LT Three phase and Single phase line ,Conversion of single phase line to Three phase line and Reconductoring of Single phase and Three phase line by using Covered Conductor Rabbit 43 km ,at Various locations under Electrical Division Kanhangad -Dyuthi Special Scheme -2024-25, Under Electrical circle Kasaragod.**

Government of Kerala (<https://www.etenders.kerala.gov.in>). Prospective bidders willing to participate in this tender shall necessarily register themselves with above mentioned e-tender portal.

The tender time line is available in the critical date section of this tender

published in [www.etenders.kerala.gov.in](http://www.etenders.kerala.gov.in).

**A) Online Bidder registration process:**

Bidders should have a Class II or above Digital Signature Certificate (DSC) to be procured

from any Registration Authorities (RA) under the Certifying Agency of India. Details of RAs will be available on [www.cca.gov.in](http://www.cca.gov.in). Once, the DSC is obtained, bidders have to register on [www.etenders.kerala.gov.in](http://www.etenders.kerala.gov.in) website for participating in this tender. Website registration is a one-time process without any registration fees. However, bidders have to procure DSC at their own cost.

Bidders may contact e-Procurement support desk of Kerala State IT Mission over telephone at 0471-2577088/188/388 or 0484-2336006, 2332262 or 0497-2764788, 2764188 or 0483-273294 or through email: [etendershelp@kerala.gov.in](mailto:etendershelp@kerala.gov.in) or [helpetender@gmail.com](mailto:helpetender@gmail.com) for assistance in this regard.

**B) Online Tender Process:**

The tender process shall consist of the following stages:

**i. Downloading of tender document:**

Tender document will be available for free download on [www.etenders.kerala.gov.in](http://www.etenders.kerala.gov.in). However, tender document fees shall be payable at the time of bid submission as stipulated in this tender document.

**ii. Pre-bid meeting:**

NIL

**iii. Publishing of Corrigendum:**

All Corrigendum will be published on [www.etenders.kerala.gov.in](http://www.etenders.kerala.gov.in) and will not be available elsewhere.

**iv. Bid submission:**

Bidders have to submit their bids along with supporting documents to support their eligibility, as required in this tender document on [www.etenders.kerala.gov.in](http://www.etenders.kerala.gov.in). No manual submission of bid is allowed and manual bids shall not be accepted under any circumstances.

**v. In case bidder encounters any technical issues pertaining to e-Procurement system while acting on the tender, computer screen shot of the error message with date & time stamp on the web-browser along with the query shall be e-mailed by the bidder to the help desk ([helpetender@gmail.com](mailto:helpetender@gmail.com)/ [etendershelp@kerala.gov.in](mailto:etendershelp@kerala.gov.in)), for resolution of the problem. At the same time, problem must be intimated to the concerned Tender Inviting Authority via email.**

- vi. The time taken to ascertain, evaluate and suggest a solution for the problem reported by bidder may vary from case to case. Hence bidders are advised to submit the bid **at least 2 working days before the due date** and time of bid submission to avoid any last-minute issues that may come up.
- vii. **Opening of Technical Bid and Bidder short-listing:** The technical bids will be opened, evaluated and shortlisted as per the eligibility and technical qualifications. All documents in support of technical qualifications shall be submitted (online). Failure to submit the documents online will attract disqualification. Bids shortlisted by this process will be taken up for opening the financial bid.
- viii. **Opening of Financial Bids:** Bids of the qualified bidder's shall only be considered for opening and evaluation of the financial bid on the date and time mentioned in critical date's section.

### **C) Documents Comprising Bid:**

- a) Bidders shall submit the bid documents and compliance to the specifications in giving all desired information therein.
- b) Bids shall be submitted in the following designated online covers:

#### **Cover-I**

- Scanned copies of Bounden Agreements as per Annexure VI and bid form as per Annexure I - both executed in Kerala stamp paper worth Rs 200/-.
- Complete Technical Bid comprising information in specified formats and schedules (Except the price schedule) including details & design of the proposed system(s) to meet out the work requirement together with its capabilities.
- Supporting documents to ascertain the eligibility /qualification as per the qualification requirements of this tender as a single **pdf** document.  
Bidders shall take special care to ensure that the scanned copy of uploaded shall be clear & legible. Furnishing multiple copies of documents like Purchase Order shall be avoided.

The department doesn't take any responsibility for any technical snag or failure that has taken place during document upload.

- BOQ (Price Bid)

**The Bidder shall complete the Price bid as per format given for download along with this tender.**

**Note:** The blank price bid format should be downloaded and saved on bidder's computer without changing file name otherwise price bid will not get uploaded. The bidder should fill in the details in the same file and upload the

same back to the website.

**Fixed price:** Prices quoted by the Bidder shall be fixed during the bidder's performance of the contract and not subject to variation on any account. A bid submitted with an adjustable/ variable price quotation will be treated as non-responsive and rejected.

**D) Tender Document Fees and Earnest Money Deposit (EMD)**

The Bidder shall pay a tender document fee of Rs. 5900/- (Including GST@18%) and Earnest Money Deposit or Bid Security of Rs.50000/-. The Bid security is required to protect the purchaser against risk of Bidder's conduct, which would warrant the forfeiture of security.

**Online Payment modes:** The tender document fees and EMD can be paid in the following manner through e-Payment facility provided by the e-Tender system. Total amount has to be made as (Rs. 55900/-) a single payment through online payment (SBI MOPS Gateway).

**State Bank of India Multi Option Payment System (SBI MOPS Gateway):**

Bidders are required to avail Internet Banking Facility in any of below banks for making tender remittances in e-Tender System.

<b>A) Internet Banking Options (Retail)</b>			
1	Allahabad Bank	32	Kotak Mahindra Bank
2	Axis Bank	33	Lakshmi Vilas Bank
3	Andhra Bank	34	Mehsana Urban Co-op Bank
4	Bandan Bank	35	NKGSB Co-operative Bank
5	Bank of Bahrain and Kuwait	36	Oriental Bank of Commerce
6	Bank of Baroda	37	Punjab and Maharashtra Cooperative Bank
7	Bank of India	38	Punjab National Bank
8	Bank of Maharashtra	39	Punjab and Sind Bank
9	Bassein Catholic Co-	40	RBL Bank

	operative Bank		
10	BNP Paribas	41	Saraswat Cooperative Bank
11	Canara Bank	42	ShamraoVithal Cooperative Bank
12	Catholic Syrian Bank	43	South Indian Bank
13	Central Bank of India	44	Standard Chartered Bank
14	City Union Bank	45	State Bank of India
15	Corporation Bank	46	Syndicate Bank
16	Cosmos Bank	47	Tamilnad Mercantile Bank
17	DCB Bank	48	Tamilnadu Cooperative Bank
18	Dena Bank	49	The Kalyan Janata Sahakari Bank
19	Deutsche Bank	50	TJSB Bank (Erstwhile Thane Janata Sahakari Bank)
20	Dhanalaxmi Bank	51	UCO Bank
21	Federal Bank	52	Union Bank of India
22	HDFC Bank	53	United Bank of India
23	ICICI Bank	54	Vijaya Bank
24	IDBI Bank	55	YES Bank
25	Indian Bank		
26	Indian Overseas Bank		
27	IndusInd Bank		
28	Jammu & Kashmir Bank		
29	Janata Sahakari Bank		
30	Karnataka Bank		
31	KarurVysya Bank		
<b>B) Internet Banking Options (Corporate)</b>			
1	Bank of Baroda	21	Laxmi Vilas Bank
2	Bank of India	22	Oriental Bank of Commerce
3	Bank of Maharashtra	23	Punjab & Maharashtra Coop Bank



4	BNP Paribas	24	Punjab & Sind Bank
5	Canara Bank	25	Punjab National Bank
6	Catholic Syrian Bank	26	RBL Bank
7	City Union Bank	27	Shamrao Vitthal Co-operative Bank
8	Corporation Bank	28	South Indian Bank
9	Cosmos Bank	29	State Bank of India
10	Deutsche Bank	30	Syndicate Bank
11	Development Credit Bank	31	UCO Bank
12	Dhanalaxmi Bank	32	Union Bank of India
13	Federal Bank	33	UPPCL
14	HDFC Bank	34	Vijaya Bank
15	ICICI Bank	35	Axis Bank
16	Indian Overseas Bank		
17	Janta Sahakari Bank		
18	Jammu & Kashmir Bank		
19	Karur Vysya Bank		
20	Kotak Bank		

During the online bid submission process, bidder shall select **SBI MOPS** option and submit the page, to view the **Terms and Conditions** page. On further submitting the same, the e-tender system will re-direct the bidder to MOPS Gateway, where two options namely **SBI** and **Other Banks\*** will be shown. Here, Bidder may proceed as per below:

- SBI Account Holders shall click **SBI** option to with its Net Banking Facility., where bidder can enter their internet banking credentials and transfer the Tender Fee and EMD amount.
- Other Bank Account Holders may click **Other Banks** option to view the bank selection page. Here, bidders can select from any of the 54 Banks to proceed with its Net Banking Facility, for remitting tender payments.

*\*Transaction Charges for Other Banks vide SBI Letter No. LHO/TVM/AC/2016-17/47 – 1% of transaction value subject to a minimum of Rs. 50/- and maximum of Rs. 150/-*

*\* Bidders who are using Other Banks option under SBI MOPS Payment Gateway, are advised by SBI to make online payment 72 hours in advance before tender closing time.*

Any transaction charges levied while using any of the above modes of online payment has be borne by the bidder. The supplier/contractor's bid will be evaluated only if payment status against bidder is showing “Success” during bid opening.

**E) SUBMISSION PROCESS:**

For submission of bids, all interested bidders have to register online as explained above in this document. After registration, bidders shall submit their Technical bid and financial bid online on [www.etenders.kerala.gov.in](http://www.etenders.kerala.gov.in) along with online payment of tender document fees and EMD.

**It is necessary to click on “Freeze bid” link/ icon to complete the process of bid submission otherwise the bid will not get submitted online and the same shall not be available for viewing/ opening during bid opening process.**

**Sd/-**

**Executive Engineer,**

**Electrical Division, Kanhangad**

### **SECTION - 3**

#### **GENERAL CONDITIONS OF CONTRACT**

##### **TABLE OF CLAUSES**

<b>CLAUSE No.</b>	<b>DESCRIPTION</b>
3.1	INTRODUCTION
3.2	GUARANTEES & LIABILITIES
3.3	PAYMENTS
3.4	RISK DISTRIBUTION
3.5	RESOLUTION OF DISPUTES

### **3. GENERAL CONDITIONS OF CONTRACT**

#### **3.1 INTRODUCTION**

##### **3.1.1 DEFINITION OF TERMS**

**‘Contract’** means the agreement entered into between the Employer and the Contractor as per the Contract Agreement signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.

**‘Employer’** shall mean KSEB Ltd. and shall include its legal representatives,

successors and assigns.

**‘Contractor’ / ‘Supplier’** shall mean the Bidder whose bid will be accepted by the Employer for the award of the Works and shall include such successful Bidder’s legal representatives, successors and permitted assigns.

**‘Sub-Contractor’** shall mean the person named in the Contract for any part of the Works or any person to whom any part of the Contract has been sublet by the Contractor with the consent in writing of the Engineer and will include the legal representatives, successors and permitted assigns of such person.

**‘Engineer in charge’** shall mean the officer appointed in writing by the Employer to act as Engineer from time to time for the purpose of the Contract.

**‘Consulting Engineer’/‘Consultant’** shall mean any firm or person duly appointed as such from time to time by the Employer.

**‘Equipment’, ‘Stores’ and ‘Materials’** shall mean and include equipment, stores and materials to be provided by the Contractor under the Contract.

**‘Works’** shall mean and include the furnishing of equipment, labour and services, as per the Specifications and complete erection, testing and putting into satisfactory operation including all transportation, handling, unloading and storage at the Site as defined in the Contract.

**‘Specifications’** shall mean the Specifications and Bidding Document forming a part of the Contract and such other schedules and drawings as may be mutually agreed upon.

**‘Site’** shall mean and include the land and other places on, into or through which the works and the related facilities are to be erected or installed and any adjacent land, paths, street or reservoir which may be allocated or used by the Employer or Contractor in the performance of the Contract.

**‘Contract Price’** shall mean the lump-sum price quoted by the Contractor in his bid with additions and/or deletions as may be agreed and incorporated in the Letter of Award, for the entire scope of the works.

**‘Erection Portion/Installation’** of the Contract price shall mean the value of field activities of the works including erection, testing and putting into

satisfactory operation including successful completion of performance and guarantee tests to be performed at Site by the Contractor including cost of insurances.

**‘Manufacturer’s Works’ or ‘Contractor’s Works’** shall mean the place of work used by the manufacturer, the Contractor, their collaborators/associates or Sub-Contractors for the performance of the Contract.

**‘Inspector’** shall mean the Employer or any person nominated by the Employer from time to time, to inspect the equipment; stores or Works under the Contract and/or the duly authorized representative of the Employer.

**‘Notice of Award of Contract’/‘Letter of Award’** shall mean the official notice issued by the Employer notifying the Contractor that his bid has been accepted.

**‘Date of Contract’** shall mean the date on which Notice of Award of Contract/Letter of Award has been issued.

**‘Month’** shall mean the calendar month. ‘Day’ or ‘Days’ unless herein otherwise expressly defined shall mean calendar day or days of 24 hours each.

**‘Week’** shall mean continuous period of seven (7) days.

**‘Writing’** shall include any manuscript, type written or printed statement, under or over signature and/or seal as the case may be.

‘Approved’, ‘Subject to Approval’, ‘Satisfactory’, ‘Equal to’, ‘Proper’, ‘Requested’, ‘As Directed’, ‘Where Directed’, ‘When Directed’, ‘Determined by’, ‘Accepted’, ‘Permitted’, or words and phrases of like importance are used the approval, judgment, direction etc. is understood to be a function of the Employer/Engineer.

**Test on completion** shall mean such tests as prescribed in the Contract to be performed by the Contractor before the work is taken over by the Employer.

**‘Operation’** shall mean the integral operation of the complete equipment covered under the Contract with the sub-system and supporting equipment in service or available for service. The length of operation shall be as determined by the Engineer, unless otherwise specified elsewhere in the Contract.

**‘Performance and Guarantee Tests’** shall mean all operational checks and

tests required to determine and demonstrate capacity, efficiency, and operating characteristics as specified in the Contract Documents.

**‘Final Acceptance’/‘Taking Over’** shall mean the Employer’s written acceptance of the Works performed under the Contract, after successful commissioning/completion of Performance and Guarantee Tests, as specified in the accompanying Technical Specifications or otherwise agreed in the Contract.

**‘Guarantee Period’/‘Maintenance Period’** shall mean the period during which the Contractor shall remain liable for repair or replacement of any defective part of the works performed under the Contract.

**‘Latent Defects’** shall mean such defects caused by faulty designs, material or work-man-ship which cannot be detected during inspection, testing etc, based on the technology available for carrying out such tests.

**‘Drawing’, ‘Plans,** shall mean all:

- Drawings furnished by the Employer/Consultant as a basis of Bid/Proposals.
- Supplementary drawings furnished by the Employer/Consultant to clarify and to define in greater detail the intent of the Contract.
- Drawings submitted by the Contractor with his bid provided such drawings are acceptable to the Employer/Consultant.
- Drawings furnished by the Employer/Consultant to the Contractor during the progress of the work; and
- Engineering data and drawings submitted by the Contractor during the progress of the work provided such drawings are acceptable to the Engineer/Employer.

**‘Codes’** shall mean the following including the latest amendments and/or replacements, if any:

- (a) Electricity Act 2003 and Rules and CEA Regulations made there under.
- (b) Indian Factory Act, 1948 and Rules and Regulations made there under.
- (c) Indian Explosives Act, 1884 and Rules and Regulations made there under.
- (d) Indian Petroleum Act, 1934 and Rules and Regulations made there under.

- (e) A.S.M.E. Test Codes.
- (f) A.I.E.E. Test Codes.
- (g) American Society of Materials Testing Codes.
- (h) Standards of the Indian Standards Institution.
- (i) Other Internationally approved standards and/or rules and regulations touching the subject matter of the Contract.

Words imparting the singular only shall also include the plural and vice –versa where the context so requires.

Words imparting ‘Person’ shall include firms, companies, corporations and associations or bodies of individuals, whether incorporated or not.

Terms and expressions not herein defined shall have the same meaning as are assigned to them in the Indian Sale of Goods Act (1930), failing that in the Indian Contract Act (1872) and failing that in the General Clauses Act (1897) including amendments thereof, if any.

In addition to the above the following definitions shall also apply:

- a) ‘All equipment and materials’ to be supplied shall also mean ‘Goods’.
- b) ‘Constructed’ shall also mean ‘erected and installed’.

‘**Contract Performance Guarantee**’ shall also mean ‘Contract Performance Security’.

### 3.1.2 APPLICATION

These General Conditions shall apply to the extent that they are not superseded by provisions in other parts of the Contract.

### 3.1.3 STANDARDS

The goods supplied under this Contract shall conform to the standards mentioned in the Technical Specifications, and when no applicable standard is mentioned; to the authoritative standard appropriate to the goods and such standards shall be the latest issued by the concerned institution.

### 3.1.4 LANGUAGE AND MEASURES

All documents pertaining to the Contract including specifications, schedules, notices, correspondences, operating and maintenance instructions, drawings or any other writing shall be written in English language. The Metric System of

measurement shall be used exclusively in the Contract.

### **3.1.5 CONTRACT DOCUMENTS**

The term Contract Documents shall mean and include the following, which shall be deemed to form an integral part of the Contract:

1. Invitation to Bid
2. Instruction to Bidders
3. General Terms and conditions of contract
4. Technical Field requirement and Technical Specification
5. Tender Agreement
6. Contractor's tender proposal including clarification letter
7. Letter of acceptance
8. Work Order
9. Agreement

In the event of any conflict between the above mentioned documents, the work order shall be treated as final and for further clarification if any required, the matter shall be referred to the Deputy Chief Engineer, Electrical Circle, Kasaragod whose decision will be final and binding upon the parties.

### **3.1.6 USE OF CONTRACT DOCUMENTS AND INFORMATION**

The Contractor shall not, without the Employer's prior written consent, disclose the Contract, or any provision thereof, or any specification, plan, drawing, pattern, sample or information furnished by or on behalf of the Employer in connection therewith, to any person other than a person employed by the Contractor in the performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only as far as may be necessary for the purpose of such performance.

The Contractor shall not, without the Employer's prior written consent, make use of any document or information enumerated in various Contract documents except for the purpose of performing the Contract.

The Contractor shall not communicate or use in advertising, publicity, sales releases or in any other medium, photographs or other reproduction of the Works under this Contract, or descriptions of the site, dimensions, quantity,



quality or other information, concerning the works unless prior written permission has been obtained from the Employer.

Any document, other than the Contract itself, enumerated in various Contract documents shall remain the property of the Employer and shall be returned (in all copies) to the Employer on completion of the Contractor's performance under the Contract if so required by the Employer.

### **3.1.7 JURISDICTION OF CONTRACT**

The court situated at the place where the Head Quarter of Executive Engineer, Electrical Division, Kanhangad is situated alone will have jurisdiction to entertain civil suits and legal proceedings pertaining to this contract.

The contract shall in respect will be construed and governed according to Indian Laws.

### **3.1.8 MANNER OF EXECUTION OF CONTRACT**

The Employer, after the issue of the Letter of Award to the Contractor, will send one copy of the final agreement to the Contractor for his scrutiny and approval.

The Agreement, unless otherwise agreed to, shall be signed within 15 days of the acceptance of the Letter of Award, at the office of the Employer on a date and time to be mutually agreed. The Contractor shall provide for signing of the Contract, Performance Guarantee, appropriate power of attorney and other requisite materials. In case the Contract is to be signed beyond the stipulated time, the Bid Guarantee submitted with the Proposal will have to be extended accordingly.

### **3.1.9 ENFORCEMENT OF TERMS**

The failure of either party to enforce at any time any of the provisions of this Contract or any rights in respect thereto or to exercise any option therein provided, shall in no way be construed to be a waiver of such provisions, rights or options or in any way to affect the validity of the Contract. The exercise by either party of any of its rights herein shall not preclude or prejudice either party from exercising the same or any other right it may have under the Contract.

### **3.1.10 COMPLETION OF CONTRACT**

The contractor shall complete the work within 100 days from the date of

work order. Any dispute occurs in between, the work shall be terminated at the risk and cost of the contractor.

### **3.2 GUARANTEES & LIABILITIES**

#### **3.2.1 TIME – THE ESSENCE OF CONTRACT**

The time and the date of completion of the Contract as stipulated in the Contract by the Employer without or with modifications, if any, and so incorporated in the Letter of Award, shall be deemed to be the essence of the Contract. The Contractor shall so organize his resources and perform his work as to complete it not later than the date agreed to.

#### **3.2.2 EFFECTIVENESS OF CONTRACT**

The Contract shall be considered as having come into force from the date of the notification of Letter of Award unless otherwise provided in the notification of award.

#### **3.2.3 LIQUIDATED DAMAGES**

##### **3.2.3.1 For Supply and Erection Portion**

If the Contractor fails to successfully complete the commissioning within the time fixed under the Contract, the Contractor shall pay to the Employer as liquidated damages and not as penalty a sum specified for each specified period of delay.

If the contractor fails to complete the works by the scheduled period or any extension granted thereby, the contractor shall be liable for payment of liquidated damages amounting to 0.5% (half percent) of the contract price per week subject to force majeure conditions. Extension of completion of work period could be with / without levy of liquidated damages with the discretion of Owner.

Equipment and materials shall be deemed to have been delivered only when all its components, parts are also delivered. If certain components are not delivered in time the equipment and materials will be considered as delayed until such time the missing parts are also delivered.

3.2.3.2 Total amount of liquidated damages for delay under the Contract will be subject to a maximum of 10% of the Contract price.

#### **3.2.4 GUARANTEE**

The Contractor shall warrant that Coverd conductor rabbit , accessories and

other items if any including spares used for the work on turnkey basis shall be new, unused and in accordance with the Contract documents and free from defects in material and workmanship for a period of **Three years (Thirty six months)** from the date of commissioning. The Contractor's liability shall be limited to the replacement of any defective material of his own manufacture or those of his Sub-Contractors under normal use and arising solely from faulty design, materials and/or workmanship provided always that such defective parts are repairable at the site and are not in meantime essential in the commercial use of the equipment. Such replaced/defective parts shall be returned to the Contractor unless otherwise arranged. No repairs or replacement shall normally be carried out by the Engineer when the equipment is under the supervision of the Contractor's supervisory Engineer.

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

If it becomes necessary for the Contractor to replace or renew any defective portions of the works, the provision of this clause shall apply to portion of the works so replaced or renewed until the expiry of **Three years (Thirty six months)** from the date of such replacement or renewal. If any defects are not remedied within a reasonable time, the Engineer may proceed to do the work at the Contractor's risk and cost but without prejudice to any other rights, which the Employer may have against the Contractor in respect of such defects.

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

The cost of any special or general overhaul rendered necessary during the maintenance period due to defects in the equipment or defective work carried out by the Contractor, the same shall be borne by the Contractor.

The acceptance of the materials by the Engineer shall in no way relieve the Contractor of his obligations under this clause.

In the case of those defective parts, which are not repairable at site but are essential for the commercial operation of the line, the Contractor and the

Engineer shall mutually agree to a programme of replacement or renewal, which will minimize interruption to the maximum extent in the operation of the line.

In respect of goods supplied by Sub-Contractors to the Contractor, where a longer guarantee (more than 36 months) is provided by such Sub-Contractor, the Employer shall be entitled to the benefits of such longer guarantee.

The provisions contained in this clause will not be applicable:

- a) If the Employer has not used the equipment according to generally approved industrial practice and in accordance with the conditions of operations specified and in accordance with operating manuals, if any.
- b) In cases of normal wear and tear of the parts to be specifically mentioned by the Contractor in the offer.

### **3.2.5 TAXES**

The price offered by the contractor shall include all taxes, duties. The prices/rates quoted by the Bidder shall remain firm (fixed) during the entire Contract Period and shall not be subject to any escalation/variation on any account, unless otherwise explicitly provided. The prices for the purpose of firmness include insurance, GST, duties and freight charges which are or become payable by the contractor under existing or future laws and rules. A Bid submitted with an adjustable/variable price quotation will be treated as non-responsive and hence will be rejected.

### **3.2.6 REPLACEMENT OF DEFECTIVE PARTS AND MATERIALS**

If during the performance of the Contract, the Engineer shall decide and inform in writing to the Contractor that the Contractor has manufactured any equipment, material or part of equipment unsound and imperfect or has furnished any equipment inferior to the quality specified, the Contractor on receiving details of such defects or deficiencies shall at his own expense within **seven (7) days** of his receiving the notice, or otherwise, within such time as may be reasonably necessary for making it good, proceed to alter, reconstruct or remove such works and furnish fresh equipment/materials up to the standards of the specifications. In case, the Contractor fails to do so, the Engineer may on giving the Contractor **seven (7) days** notice in advance of his intentions to do so, proceed to remove the portion of the works so complained of and at the cost of the Contractor perform all such Works or furnish all such equipment/ material provided that nothing in this clause shall be deemed to deprive the Employer of or affect any rights under the Contract which the Employer may otherwise have in respect of such defects and

deficiencies.

### **3.2.7 PATENT RIGHTS AND ROYALTIES**

Royalties and fees for patents covering materials, articles, apparatus, devices, equipment or processes used in the works shall be deemed to have been included in the Contract Price. The Contractor shall satisfy all demands that may be made at any time for such royalties or fees and he alone shall be liable for any damages or claims for patent infringements and shall keep the Employer indemnified in that regard. The Contractor shall, at his own cost and expense, defend all suits or proceedings that may be instituted for alleged infringement of any patents involved in the Works, and, in case of an award of damages, the Contractor shall pay for such award. In the event of any suit or other proceedings instituted against the Employer, the same shall be defended at the cost and expense of the Contractor who shall also satisfy/comply with any decree, order or award made against the Employer. But it shall be understood that no such machine, plant, work, material or thing has been used by the Employer for any purpose or any manner other than that for which they have been furnished and installed by the Contractor and specified under these specifications. Final payment to the Contractor by the Employer will not be made while any such suit or claim remains unsettled. In the event any apparatus or equipment, or any part thereof furnished by the Contractor is in such suit or proceedings held to constitute infringement, and its use is enjoined, the Contractor shall at his option and at his own expense, either procure for the Employer, the right to continue the use of said apparatus, equipment or part thereof, replace it with non-infringing apparatus or equipment or modify it, so it becomes non-infringing.

### **3.2.8 DEFENCE OF SUITS**

If any action in court is brought against the Employer or Engineer or an officer or agent of the Employer, for the failure, omission or neglect on the part of the Contractor to perform any acts, matters, covenants or things under the Contract, or for damage or injury caused by the alleged omission or negligence on the part of the Contractor, his agents, representatives or his Sub-Contractors, or in connection with any claim based on lawful demands of Sub-Contractors, workmen, suppliers or employees, the Contractor shall in all such cases indemnify and keep the Employer, and the Engineer and/or his representative, harmless from all losses, damages, expenses or decrees arising of such action.

### **3.2.9 LIMITATION OF LIABILITIES**

The final payment by the Employer in pursuance of the Contract shall mean

the release of the Contractor from all his liabilities under the Contract. Such final payment shall be made only at the end of the Guarantee/Warranty period, and till such time as the Contractual liabilities and responsibilities of the Contractor, shall prevail. All other payments made under the Contract shall be treated as on-account payments.

#### **3.2.10 ENGINEER'S DECISION**

In respect of all matters which are left to the decision of the Engineer including the granting or with-holding of the certificates, the Engineer shall, if required to do so by the Contractor, give in writing a decision thereon.

If, in the opinion of the Contractor, a decision made by the Engineer is not in accordance with the meaning and intent of the Contract, the Contractor may file with the Engineer, within fifteen (15) days after receipt of the decision, a written objection to the decision. Failure to file an objection within the allotted time will be considered as an acceptance of the Engineer's decision and the decision shall become final and binding.

It is the intent of the Agreement that there shall be no delay in the execution of the works and the decision of the Engineer as rendered shall be promptly observed.

#### **3.2.11 POWER TO VARY OR OMIT WORK**

No alterations, amendments, omissions, suspensions or variations of the Works (hereinafter referred to as 'variation') under the Contract as detailed in the Contract Documents, shall be made by the Contractor except as directed in writing by the Engineer, but the Engineer shall have full powers subject to the provisions hereinafter contained, from time to time during the execution of the Contract, by notice in writing to instruct the Contractor to make such variation without prejudice to the Contract. The Contractor shall carry out such variation and be bound by the same conditions as far as applicable as though the said variations occurred in the Contract Documents. If any suggested variations would, in the opinion of

the Contractor, if carried out, prevent him from fulfilling any of his obligations or guarantees under the Contract, he shall notify the Engineer thereof in writing and the Engineer shall decide forthwith whether or not, the same shall be carried out and if the Engineer confirms his instructions, the Contractor's

obligations and guarantees shall be modified to such an extent as may be mutually agreed. Any agreed difference in cost occasioned by any such variation shall be added to or deducted from the Contract Price as the case may be.

In the event of Engineer requiring any variation, a reasonable and proper notice shall be given to the Contractor to enable him to work his arrangement accordingly, and in cases where goods or materials are already prepared or any design, drawings or pattern made or work done requires to be altered, a reasonable and agreed sum in respect thereof shall be paid to the Contractor.

In any case in which the Contractor has received instructions from the Engineer as to the requirement of carrying out the alterations or additional or substituted work which either then or later on, will in the opinion of the Contractor, involve a claim for additional payment, the Contractor shall immediately after receipt of the instructions aforesaid and before carrying out the instructions, advise the Engineer to that effect. But the Engineer shall not become liable for payment of any charges in respect of any such variations, unless the instructions for the performance of the same shall be confirmed in writing by the Engineer.

If any variation in the Works results in reduction of Contract Price, the parties shall agree in writing, so to the extent of any change in the price before the Contractor proceeds with the change.

In all the above cases, in the event of a disagreement as to the reasonableness of the said sum, the decision of the Engineer shall prevail.

Notwithstanding anything stated above in this clause, the Engineer shall have the full power to instruct the Contractor, in writing, during the execution of the Contract to vary the quantities of the items or groups of items. The Contractor shall carry out such variations and be bound by the same conditions as though the said variations occurred in the Contract Documents.

### **3.2.12 ASSIGNMENT AND SUB-LETTING OF CONTRACT**

The Contractor may, after informing the Engineer and getting his written approval, assign or sub-let the Contract or any part thereof other than or raw material, for minor details or for any part of the plant for which makes are identified in the Contract. Suppliers of the equipment not identified in the Contract or any change in the identified suppliers shall be subjected to approval by the Engineer. The experience list of equipment vendors under consideration by the Contractor for this Contract shall be furnished to the Engineer for approval prior to procurement of all such items/equipment. Such assignment/sub-letting shall not relieve the Contractor of any obligation, duty

or responsibility under the Contract. Any assignment as above, without prior written approval of Engineer, shall be void.

For components/equipment procured by the Contractor for the purposes of the Contract, after obtaining the written approval of the Employer, the Contractor's purchase specifications and enquiries shall call for quality plan to be submitted by the suppliers along with their Proposals. The quality plans called for from the Vendors shall set out, during the various stages of manufacture and installation, the quality practices and procedures followed by the Vendors' quality control organization, the relevant reference document /standard used, acceptance level, inspection documentation raised, etc. Such quality plans of the successful vendors shall be discussed and finalized in consultation with the Engineer and shall form a part of the Purchase Order/ Contract between the Contractor and the Vendor. Within three weeks of the release of the Purchase Orders/Contracts for such bought out items/components a copy of the same without price details but together with detailed purchase specifications, quality plans and delivery conditions shall be furnished to the Engineer by the Contractor.

### **3.2.13 CHANGE OF QUANTITY**

During the execution of the Contract, the Employer reserves the right to increase or decrease the quantities of items under the Contract but without any change in unit price or other terms & conditions.

The Contract price shall accordingly be adjusted based on the unit rates available in the Contract for the change in quantities as above. The base unit rates, as identified in the Contract shall however remain constant during the currency of the Contract. In case the unit rates are not available for the change in quantity, the same shall be subjected to mutual agreement.

### **3.2.14 NO WAIVER OF RIGHTS**

Neither the inspection by the Employer or the Engineer or any of their officials, employees, or agents nor any order by the Employer or the Engineer for payment of money or any payment for or acceptance of, the whole or any part of the Works by the Employer or the Engineer, nor any extension of time, nor any possession taken by the Engineer shall operate as a waiver of any provision of the Contract, or of any power herein reserved to the Employer or any right to damages herein provided nor shall any waiver of any breach in the Contract be held to be a waiver of any other or subsequent breach.



### **3.2.15. CERTIFICATE NOT TO AFFECT RIGHT OF EMPLOYER AND LIABILITY OF THE CONTRACTOR.**

No interim payment certificate of the Engineer, nor any sum paid on account by the Employer, nor any extension of time for execution of the Works granted by the Engineer shall affect or prejudice the rights of the Employer against the Contractor or relieve the Contractor of his obligation for the due performance of the Contract, or be interpreted as approval of the Works done or of the equipment furnished and no certificate shall create liability for the Employer to pay for alterations, amendments, variations or additional works not ordered, in writing , by the Engineer or discharge the liability of the Contractor for the payment of damages whether due, ascertained, or certified or not or any sum against the payment of which he is bound to indemnify the Employer, nor shall any such certificate nor the acceptance by him of any sum paid on account or otherwise affect or prejudice the rights of the Employer against the Contractor.

### **3.2.16 COOPERATION WITH OTHER CONTRACTORS AND CONSULTING ENGINEER**

The contractor shall agree to cooperate with the Employers, other contractors and freely exchange with them such technical information as it is necessary to obtain the most efficient and economical design to avoid unnecessary duplication of efforts.

### **3.2.17 TRAINING OF EMPLOYER'S PERSONNEL**

The Contractor shall impart one or two days training on free of cost in O&M of line constructed with ABC to the field staff selected by the Employer.

### **3.2.18 TAKING OVER**

Upon successful completion of all the tests to be performed at Site on equipment furnished and erected by the Contractor, the Engineer shall issue to the Contractor a Taking Over Certificate as a proof of the final acceptance of the equipment. Such certificate shall not be unreasonably withheld nor will the Engineer delay the issuance thereof on account of minor omissions or defects, which do not affect the commercial operation and/or cause any serious risk to the equipment. Such certificate shall not relieve the Contractor of any of his obligations which otherwise survive, by the terms and conditions of the Contract after issue of such certificate.

### 3.3 PAYMENT TERMS

#### 3.3.1 PAYMENT

3.3.1.1 50% of the contract value shall be released on successful completion of inspection, testing and despatch of the material, receipt and verification of full quantity of LT CC and all accessories at site/store & on the certified quantity of the Assistant Engineer of the concerned Electrical Section, under the jurisdiction of which the work is being executed . If material not supplied in full quantum, 50% of the cost of the proportionate work will be considered for payment, subject to supply of minimum quantity of 75% of the awarded quantity. However ,payment of full GST for the supply will be effected.

3.3.1.2. Upto 95% (Ninety Five) of the contract value shall be released on completion ,inspection of KSEB Ltd, testing & commissioning of work including supply of spares and taking over of the line by KSEB Ltd ,on the certified quantity of the Assistant Engineer of the concerned Electrical Section, under the jurisdiction of which the work is being executed . The balance 5% (**Five percent**) shall be retained for the guarantee period or up to the production of Performance Bank Guarantee.( **the retention amount shall be retained as per the prevailing rates, vide the relevant Board Orders, at the time of completion of work**). This shall be consolidated at Electrical Division, under the jurisdiction of which the work is being executed , to release payment. The income tax, Kerala construction workers welfare fund and other taxes if any will be deducted from the bill as per prevailing rules, clear invoices under GST regime should be produced for effecting payment.

**Mode of payment**– Payment will be made by the Executive Engineer, Electrical Division, under the jurisdiction of which the work is being executed, using the fund of KSEB Ltd . KSEB Ltd. has all liberty to change the type of payment depending on the then prevailing condition.

#### 3.3.2 CURRENCY OF PAYMENT

All payments under the Contract shall be in Indian Rupees only.

#### 3.3.3 DEDUCTIONS FROM CONTRACT PRICE

All costs, damages or expenses which the Employer may have paid, for which under the Contract the Contractor is liable, will be claimed by the Employer. All such claims shall be billed by the Employer to the Contractor regularly as and when they fall due. Such bills shall be supported by appropriate and certified vouchers or explanations, to enable the Contractor

to properly identify such claims. Such claims shall be paid by the Contractor within thirty (30) days of the receipt of the corresponding bills and if not paid by the Contractor within the said period, the Employer may then deduct the amount, from any moneys due or becoming due to the Contractor under the Contract or may be recovered by sections of Law or otherwise.

### **3.4 RISK DISTRIBUTION**

#### **3.4.1 TRANSFER OF TITLE**

Transfer of title in respect of equipment and materials supplied by the Contractor to the Employer pursuant to the terms of the Contract shall pass on to the Employer with negotiation of dispatch documents.

This Transfer of Title shall not be construed to mean the acceptance and the consequent “Taking Over” of equipment and materials upon energization of each works under the section. The Contractor shall continue to be responsible for the quality and performance of such equipment and materials and for their compliance with the specifications until “Taking Over” and the fulfilment of guarantee provisions of this Contract.

This Transfer of Title shall not relieve the Contractor from the responsibility for all risks of loss or damage to the equipment and materials as specified under the clause entitled “Insurance” of this Section.

#### **3.4.2 INSURANCE**

The Contractor at his cost shall arrange, secure and maintain all insurance as may be pertinent to the Works and obligatory in terms of law to protect his interest and interests of the Employer against all perils detailed herein. The form and the limit of such insurance as defined herein together with the underwriter in each case shall be acceptable to the Employer. However, irrespective of such acceptance, the responsibility to maintain adequate insurance coverage at all time during the period of Contract shall be of Contractor alone. The Contractor’s failure in this regard shall not relieve him of any of his contractual responsibilities and obligations. The insurance covers to be taken by the Contractor shall be in the joint name of the Employer and the Contractor. The Contractor shall, however, be authorized to deal directly with Insurance Company or Companies and shall be responsible in regard to maintenance of all insurance covers. Further the insurance should be in freely convertible currency.

Any loss or damage to the equipment during handling, transportation, storage, erection, putting into satisfactory operation and all activities to be performed till the successful completion or commissioning of the equipment shall be to the account of the Contractor. The Contractor shall be responsible for preference of all claims and make good the damages or loss by way of repairs and/or replacement of the equipment, damaged or lost. The transfer of title shall not in any way relieve the Contractor of the above responsibilities during the period of Contract. The Contractor shall provide the Employer with copy of all insurance policies and documents taken out by him in pursuance of the Contract. Such copies of documents shall be submitted to the Employer immediately after such insurance coverage. The Contractor shall also inform the Employer in writing at least sixty (60) days in advance regarding the expiry/cancellation and/or change in any of such documents and ensure revalidation, renewal etc., as may be necessary well in time.

The perils required to be covered under the insurance shall include, but not be limited to fire and allied risks, miscellaneous accidents (erection risks) workman compensation risks, loss or damage in transit, theft, pilferage, riot and strikes and malicious damages, civil commotion, weather conditions, accidents of all kinds, etc. The scope of such insurance shall be adequate to cover the replacement/reinstatement cost of the equipment for all risks up to and including delivery of goods and other costs till the equipment is delivered at Site. The insurance policies to be taken should be on replacement value basis and/or incorporating escalation clause. Notwithstanding the extent of insurance cover and the amount of claim available from the underwriters, the Contractor shall be liable to make good the full replacement/rectification value of all equipment/materials and to ensure their availability as per project requirements.

All costs on account of insurance liabilities covered under the Contract will be on Contractor's account and will be included in Contract Price, However, the Employer may from time to time, during the pendency of the Contract, ask the Contractor in writing to limit the insurance coverage, risks and in such a case, the parties to the Contract will agree for a mutual settlement, for reduction in Contract price to the extent of reduced premium amount. The Contractor, while arranging the insurance shall ensure to obtain all discounts on premium, which may be available for higher volume or for reason of financing arrangement of the project.

### **3.4.3 LIABILITY FOR ACCIDENTS AND DAMAGES**

Under the Contract, the Contractor shall be responsible for loss or damage to

the plant and accident to the workers engaged until the successful completion of commissioning as defined, elsewhere in the Bid document.

#### **3.4.4 DELAYS BY EMPLOYER OR HIS AUTHORISED AGENTS**

In case the Contractor's performance is delayed due to any act of omission on the part of the Employer or his authorized agents, then the Contractor shall be given due extension of time for the completion of the Works, to the extent such omission on the part of the Employer has caused delay in the Contractor's performance of the Contract. Regarding reasonableness or otherwise of the extension of time, the decision of the Engineer shall be final. In addition, the Contractor shall be entitled to claim demonstrable and reasonable compensation if such delays have resulted in any increase in cost. The Employer shall examine the justification for such a request for claim and if satisfied, the extent of compensation shall be mutually agreed depending upon the circumstances at the time of such an occurrence.

#### **3.4.5 DEMURRAGE, WHARFAGE, ETC.**

All demurrage, wharfage and other expenses incurred due to delayed clearance of the material or any other reason shall be to the account of the Contractor.

#### **3.4.6 FORCE MAJEURE**

Force majeure is herein defined as any cause which is beyond the control of the Contractor or the Employer as the case may be, which they could not foresee or with a reasonable amount of diligence could not have foreseen and which substantially affects the performance of the Contract, such as:

- a. Natural phenomena, including but not limited to floods, droughts, earthquakes and epidemics;
- b. Acts of any Government, domestic or foreign, including but not limited to war, declared or undeclared, priorities, on the guarantees and embargoes.

Provided either party shall within fifteen (15) days from the occurrence of such a cause notify the other in writing of such causes.

The Contractor or the Employer shall not be liable for delays in performing his obligations resulting from any force majeure cause as referred to and/or defined above. The date of completion will, subject to hereinafter provided, be extended by a reasonable time even though such cause may occur after

Contractor's performance of obligation has been delayed due to other causes.

#### **3.4.7 SUSPENSION OF WORK**

The Employer reserves the right to suspend and reinstate execution of the whole or any part of the Works without invalidating the provisions of the Contract. Orders for suspension or reinstatement of the Works will be issued by the Engineer to the Contractor in writing. The time for completion of the works will be extended for a period equal to duration of the suspension.

Any necessary and demonstrable cost incurred by the Contractor as a result of such suspension of the works will be paid by the Employer, provided such costs are substantiated to the satisfaction of the Engineer. The Employer shall not be responsible for any liabilities if suspension or delay is due to some default on the part of the Contractor or his Sub-Contractor.

#### **3.4.8 CONTRACTOR'S DEFAULT**

If the Contractor shall neglect to execute the works with due diligence and expedition or shall refuse or neglect to comply with any reasonable order given to him, in writing by the Engineer in connection with the works or shall contravene the provisions of the Contract, the Employer may give notice in writing to the Contractor to make good the failure, neglect or contravention complained of. Should the Contractor fail to comply with the notice within thirty (30) days from the date of serving the notice, then and in such case the Employer shall be at liberty to employ other workmen and forthwith execute such part of the works as the Contractor may have neglected to do or if the Employer shall think fit, without prejudice to any other right he may have under the Contract to take the work wholly or in part out of the Contractor's hands and re-contract with any other person or persons to complete the works or any part thereof and in that event the Employer shall have free use of all Contractor's equipment that may have been at the time on the Site in connection with the works without being responsible to the Contractor for fair wear and tear thereof and to the exclusion of any right of the Contractor over the same, and the Employer shall be entitled to retain and apply any balance which may otherwise be due on the Contract by him to the Contractor, or such part thereof as may be necessary, to the payment of the cost of executing the said part of the Works or of completing the Works as the case may be. If the cost of completing of works or executing part thereof as aforesaid shall exceed the balance due to the Contractor shall pay such excess. Such payment of excess amount shall be independent of the liquidated damages for delay, which the Contractor shall have to pay if the completion of works is delayed.

In addition, such action by the Employer as aforesaid shall not relieve the Contractor of his liability to pay liquidated damages for delay in completion of Works as defined in Clause 3.2.3 of this Section.

Such action by the Employer as aforesaid the termination of the Contract under this clause shall not entitle the Contractor to reduce the value of the Contract Performance Guarantee nor the time thereof. The Contract Performance Guarantee shall be valid for the full value and for the full period of the Contract including guarantee period.

#### **3.4.9 TERMINATION OF CONTRACT ON EMPLOYER'S INITIATIVE**

The Employer reserves the right to terminate the Contract either in part or in full due to reasons other than those mentioned under clause entitled 'Contractor's Default'. The Employer shall in such an event shall give fifteen (15) days notice in writing to the Contractor of his decision to do so.

The Contractor upon receipt of such notice shall discontinue the work on the date and to the extent specified in the notice, make all reasonable efforts to obtain cancellation of all orders and Contracts to the extent they are related to the work terminated and terms satisfactory to the Employer, stop all further sub-contracting or purchasing activity related to the work terminated, and assist Employer in maintenance, protection, and disposition of the works acquired under the Contract by the Employer.

In the event of such a termination the Contractor shall be paid compensation, equitable and reasonable, dictated by the circumstances prevalent at the time of termination.

If the Contractor is an individual or a proprietary concern and the individual or the proprietor dies and if the Contractor is a partnership concern and one of the partners dies, then unless the Employer is satisfied that the legal representatives of the individual Contractor or of the proprietor of the propriety concern and in the case of partnership, the surviving partners, are capable of carrying out and completing the Contract the Employer shall be entitled to cancel the Contract as to its incomplete part without being in any way liable to payment of any compensation to the estate of deceased Contractor and/or to the surviving partners of the Contractor's firm on account of the cancellation of the Contract. The decision of the Employer that the legal representatives of the deceased Contractor or surviving partners of the Contractor's firm cannot carry out and complete the Contract shall be final and binding on the parties. In the event of such cancellation the Employer

shall not hold the estate of the deceased Contractor and/or the surviving partners of the estate of the deceased Contractor and/or the surviving partners of the Contractor's firm liable to damages for not completing the Contract.

#### **3.4.10 GRAFTS AND COMMISSIONS ETC.**

Any graft, commission, gift or advantage given, promised or offered by or on behalf of the Contractor or his partner(s), agent(s), officer(s), director(s), employee(s) or servant(s) or any one on his or their behalf in relation to the obtaining or to the execution of this or any other Contract with the Employer, shall in addition to any criminal liability which it may incur, subject the Contractor to the cancellation of this and all other Contracts and also to payment of any loss or damage to the Employer resulting from any cancellation. The Employer shall then be entitled to deduct the amount so payable from any amount otherwise due to Contractor under the Contract.

### **3.5 RESOLUTION OF DISPUTES**

#### **3.5.1 SETTLEMENT OF DISPUTES**

Any dispute(s) or difference(s) arising out of or in connection with the Contract shall, to the extent possible, be settled amicably between the parties. If any dispute or difference of any kind, whatsoever, shall arise between the Employer and the Contractor, arising out of the Contract for the performance of the Works whether during the progress of the Works or after its completion or whether before or after the termination, abandonment or breach of the Contract, it shall, in the first place, be referred to and settled by the Engineer, who, within a period of thirty (30) days after being requested by either party to do so, shall give written notice of his decision to the Employer and the Contractor.

**Sd/-**

**Executive Engineer,  
Electrical Division Kanhangad**



## **SECTION - 4**

### **SAFETY REQUIREMENTS**

#### **TABLE OF CLAUSES**

Clause No.	Description
4.1	WORK AND SAFETY
4.2	SITE SAFETY
4.3	SAFETY OFFICER
4.4	RESPONSIBILITIES
4.5	AUTHORISATION
4.6	FIRE AND SAFETY & PROTECTION
4.7	WORKMAN COMPENSATION
4.8	RESTRICTIONS ON WORKING HOURS
4.9	ACCIDENT REPORTS, RECORD & INVESTIGATION
4.10	DOCUMENTATION

### **4. SAFETY REQUIREMENTS**

#### **4.1 WORK AND SAFETY:**

Safety of Contractor's employees and the general public during the execution of contract work is the responsibility of the Contractor. The Contractor shall ensure safety of all the workmen, materials, plant and equipment belonging to him or to the others, working at the Site.

The bidder shall comply with all the statutory rules and regulations prevailing in the state including those related to safety of equipment and human beings.

The Contractor shall also provide all safety notices and safety equipment required by the relevant legislations and deemed necessary by the KSEB Ltd. In addition the Contractor shall ensure that its employees are adequately trained in safety matters.

All equipment used in the project shall meet Indian Standards and where such standards do not exist, the Contractor shall ensure these to be absolutely safe. All equipment shall be strictly operated and maintained by the Contractor in accordance with manufacturer's operation manual and safety instructions and as per any existing Guidelines/rules in this regard.

The Contractor shall provide suitable safety equipment of prescribed standard to all employees and workmen according to the need and as may be directed by KSEB Ltd. who will also have the right to examine these safety equipment to determine their suitability, reliability, acceptability and adaptability.

In case of any accident of any sort, the Contractor shall be responsible to:

- 1) extend all medical assistance to the injured
- 2) make compensation for any damages claimed in respect of the accident.
- 3) intimate the KSEB Ltd and to all the authorities as per law regarding the accident and loss of property.

The Contractor, in addition, shall indemnify the KSEB Ltd and cover the risk by insurance as required in Clause 3.4.2, Section 3 of this Volume,

The Contractor shall not continue if the work is being carried out in such a way as may cause accidents and endanger the safety of the persons and /or property.

The Contractor shall follow all the safety procedures stipulated by KSEB Ltd. after award of Contract which will form part of the Contract.

#### **4.2 SITE SAFETY**

Adequate safety equipments shall be provided to all the workers, like hand gloves, head gear, etc. Meggers & testers shall be provided in sufficient quantity.

Only persons having qualifications specified by KSEB Ltd. shall be engaged to carry out all types of electrical works.

In order to maintain safety, it is necessary to work to a framework of rules to suit the wide range of site situations. The effect of human factors, as well the physical environment in which work takes place should be considered in the application of these rules.

The bidder/Contractor shall have a documented electrical safety management

policy. The policy shall contain information on:

- a. The application of electrical safety rules
- b. Training and competency
- c. Written authorisation of people
- d. Review and audit of compliance

The Contractor shall have suitable written procedures to ensure that electrical safety rules are applied to all site operations.

#### **4.3 SAFETY OFFICER**

It shall be the duty of Supervisor employed by the Contractor to ensure safety aspects of the equipment, workmen and workplace. He shall be nodal person in respect of safety.

The name and address with his telephone Nos., mobile Nos., Fax Nos. and E-Mail id for contact of such Safety Officer of the Contractor will be promptly informed in writing to the KSEB Ltd. before he starts work or immediately after any change of the incumbent is made during currency of the Contract.

#### **4.4 RESPONSIBILITIES**

Safety Officer is responsible for:

- Contacting the Authorised Person in KSEB Ltd. to avail the applicable permit and subsequently hand over the same to the site supervisor.
- Coordinating equipment conditions & work activities with all job site supervisors.
- Communicating the conditions of lines or equipment to all crews/Job site supervisors.
- Informing the authorised person in KSEB Ltd. of any permit transfers to other authorized personnel.
- Notifying the authorised person in KSEB Ltd. if there is a change in the scope of work or job conditions.
- Contacting the authorised person in KSEB Ltd. to report clear of the applicable permit as soon as the work is completed.
- Advising the authorised person in KSEB Ltd. of any special circumstances as a result of the work performed that may affect the operation of the system.
- Ensuring that it is safe for the circuit/equipment to be re-energized.
- Returning all switching devices & equipment back to the configurations

found when accepting the permit.

- Reviewing & answering that all applicable work practices are followed.
- Responsible for the safety of all personnel at the work location & for the overall coordination & supervision of the job.

#### **4.5 AUTHORIZATION**

The key to ensure the safe operation and maintenance of the electrical equipment in KSEB Ltd. network is that the charge of the equipment should lie with the individual who is formally authorized by the turnkey Contractor to perform the required tasks on the electrical equipment / systems.

The turnkey Contractor will have to forward the list of the Supervisors (Engineering degree holders / Diploma Holders / ITI Certificate Holders) whom they deem fit (based upon the work experience / knowledge of the system level) to guide /supervise the working teams on the electrical equipment of KSEB Ltd. network. These supervisors will be authorized for Permit-to-Work (PTW).

The list thus furnished has to be kept at the office premises of the Contractor and in the respective Electrical Divisions of work site locations.

#### **4.6 FIRE AND SAFETY & PROTECTION**

The work procedures that are to be used during the erection shall be those which minimize fire hazards to the extent practicable. Combustible materials, combustible waste and rubbish shall be collected and removed from the site at least once each day. Fuels, oils and volatile or flammable materials shall be stored away from the construction site and equipment and material stores in safe containers.

All the contractor's supervisory personnel and sufficient number of workers shall be trained for fire-fighting and shall be assigned specific fire protection duties. Enough of such trained personnel must be available at the site during the entire period of the contract.

The contractor shall provide enough fire protection equipment of the requisite type and quantity for the ware house, office, temporary structures, labour colony area etc. Access to such fire protection equipment, shall be easy and kept open at all time.

#### **4.7 WORKMAN COMPENSATION:**

The Contractors shall take out a comprehensive insurance policy under the Workman compensation Act 1923, to cover such workers, who will be

engaged to undertake the jobs covered under this Work Order and a copy of this insurance policy will be given to Employer solely for its information, reference and records. The contractor shall ensure that such insurance policies are kept at all times. The Contractor shall keep the Employer indemnified at all times, against all claims that may arise under this Work Order, including claims of compensation under the provisions of Workmen Compensation Act. The prices for the purpose of firmness include insurance, GST, duties and freight charges which are or become payable by the contractor under existing or future laws and rules and as amended from time to time or any compensation payable under any other law for the time being in force by any workman engaged by the Contractor/Sub-contractor/Sub-agent in carrying out the job involved under this work order and against costs and expenses, if any, incurred by the Employer in connection therewith and without prejudice to any of the Employer's rights make recovery.

The Employer shall be entitled to deduct from any money due to or to become due to the Contractor under this work order or under other contract, moneys paid or payable by way

of compensation as aforesaid or cost or expenses in connection with any claims thereto. The Contractor shall abide by the decision of the Employer as to the sums payable by the Contractor under the provisions of this Clause.

In case the Employer becomes liable to pay any wages or dues to the labour, Government agency under any of the provisions of the Minimum wages Act, Workmen Compensation Act, Contract Labour Regulation Act or any other law due to act of omission of the Contractor, the Employer may make payments and shall recover the same from the Contractor's invoices.

#### **4.8 RESTRICTIONS ON WORKING HOURS:**

No work shall be carried out on the Site outside normal working hours or on the locally recognized holidays or rest, unless the Employer gives his consent.

#### **4.9 ACCIDENT REPORTS, RECORDS AND INVESTIGATION**

All accidents, which result in injury or not, shall be promptly reported to the Executive Engineer of Electrical Division, having the jurisdiction of the work site location.

All accidents to the public involving company personnel, equipment or property shall be reported promptly to Executive Engineer, Electrical Division, having the jurisdiction of the work site location. Accidents shall be

reported to Executive Engineer, Electrical Division, having the jurisdiction of the work site location, in writing by concerned Safety Officer of the Contractor.

Every accident should be investigated to determine the cause and what steps are needed to prevent a recurrence.

It shall be the responsibility of the Assistant Engineer in charge of the work to get complete details of the accident as soon as possible after it occurs.

All accidents, whether they result in personal injury or not, shall be promptly investigated by the Executive Engineer, Electrical Division, who is having the jurisdiction of the work sites or his representative.

#### **4.10 DOCUMENTATION**

An Electrical Safety Manual providing guidelines on safety procedures and practices, especially focusing on electrical work, with sketches/ photographs wherever possible, shall be prepared by the Contractor, to promote an electrically safe workplace free from unauthorized exposure to electrical hazards for all employees and outsourced personnel, so as to prevent accidents to themselves, the public (community) and to the property of KSEB Ltd. For every work site the following minimum documentation must be produced by the Safety Officer prior to commencing work:

- Safety check sheet
- Safety permit to work

These documents must be retained in job files for verification and audit.

The following documents shall be maintained for safety audit:

1. Incident Report
2. Information of Accident
3. Accident Investigation Report
4. Tool Kit List
5. First Aid Box Record
6. Fire Extinguisher Record.

Sd/-

## **SECTION – 5**

### **WARRANTY MANAGEMENT**

#### **TABLE OF CLAUSES**

CLAUSE No.	DESCRIPTION
5.1	WARRANTY
5.2	MANAGEMENT
5.3	SCOPE
5.4	TIME LIMIT TO ATTEND THE FAULT

### **5. WARRANTY MANAGEMENT**

#### **5.1 WARRANTY**

- 5.1.1 The complete supply and works shall be deemed to be covered under warranty. Warranty Services shall commence from the date of operational acceptance of such works.
- 5.1.2 Total duration of warranty shall be **3 years (36 months)** from the date of commissioning of the works. At the end of the warranty period, the contractor's liability ceases except for latent defects.
- 5.1.3 During the Warranty period, as per the Contract, any defects or damages which require repairs/ replacement shall be done at the cost of the Bidder. The contractor shall provide necessary manpower and spares for repair/ replacement. No separate payment will be given for this activity.

#### **5.2 Management**

- 5.2.1 Warranty Services provided by the Contractor shall ensure minimum downtime and maximum performance levels of systems installed. For this purpose, the Contractor may need to interact, coordinate and collaborate with KSEB Ltd personnel and the other Service Providers as required. The Contractor will act as the Single Point of Contact for all issues relating to the Service Levels.
- 5.2.2 The Contractor will have the responsibility to deal with the other vendors during warranty period, to provide the services at agreed service levels. Warranty Management shall start immediately after systems are installed, commissioned and handed over to KSEB Ltd. by the Contractor.

### **5.3 SCOPE**

- 5.3.1 The bidder shall be responsible for round the clock maintenance and management of all the systems as per scope of work. Scope does not include management of physical security for access to said facilities, disaster management & business continuity. KSEB Ltd. will provide appropriately secured lockable storage/setup area at the start of contract to the bidder for keeping spares.
- 5.3.2 The bidder will assign a Manager who has the responsibility for managing the complete service delivery during the contractual arrangement and will be responsible for preparation and delivery of all monthly/weekly reports.
- 5.3.3 The manager shall provide Maintenance and Repair Support for all equipment covered under warranty. This will include incident logging, assigning incident numbers and dispatching the appropriate support personnel to rectify a problem.
- 5.3.4 The manager shall be the single point contact for KSEB Ltd. in respect of the works under warranty.
- 5.3.5 The Contractor must adhere to well-defined procedures to deliver consistent quality services throughout its contractual period.
- 5.3.6 The Contractor shall deploy adequate number of personnel for providing warranty services round the clock. The personnel deployed for the job must have suitable qualification, experience and certification for the assigned job. If the service of particular personnel is not satisfactory, KSEB Ltd will ask for the suitable replacement and the Contractor shall provide the replacement on the next working day.
- 5.3.7 KSEB Ltd may on its part
  - i Guide the manager in prioritizing the work
  - ii Provide a list of offices and staff to be contacted
  - iii Help in resolving problems caused by Consumers
  - iv Help in developing a procedure for attending and resolving problems

### **5.4. Time Limit to attend the faults**

- 5.4.1 Repair and replacement Work of Accessories within the warranty period shall be done within the time limit as per Standards of Performance of KSERC amended from time to time.
- 5.4.2 In case the repair/replacement work of accessories is delayed and restoration of supply exceeds the limit prescribed, the Contractor shall be liable to pay to KSEB Ltd the amount of compensation payable to the Consumer.



Sd/-  
**Executive Engineer,  
Electrical Division,  
Kanhgad**

**SECTION – 6**  
**SPECIAL CONDITIONS OF CONTRACT**  
**TABLE OF CLAUSES**

Clause No.	Description
6.1	GENERAL
6.2	REGULATION OF LOCAL AUTHORITIES &STATUTES
6.3	KSEB Ltd.'s LIEN ON EQUIPMENT
6.4	INSPECTION, TESTING &INSPECTION CERTIFICATES
6.5	CONTRACTORS SITE OFFICE ESTABLISHMENT
6.6	DISCIPLINE OF WORKMEN
6.7	CONTRACTORS FIELD OPERATION
6.8	MAN-POWER REPORT
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6.12	FIRE PROTECTION
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6.23	TESTING AND COMMISSIONING
6.24	GUARANTEED TECHNICAL PARTICULARS
6.25	QUANTITY VARIATION
6.26	SPARES
6.27	TOOLS AND TACKLES
6.28	WARRANTY

## 6. SPECIAL CONDITIONS OF CONTRACT

### 6.1. GENERAL

- 6.1.1 The following special conditions shall be read in conjunction with the “General Conditions of Tender” given above and amendments/corrections thereto. If there are provisions in this special conditions of contract which are at variance with the provisions in the above mentioned documents, the provisions in these special conditions shall take precedence.
- 6.1.2 Bidders possessing valid PAN cards only shall be qualified.
- 6.1.3 The bidder shall carefully study in detail the Bid document especially the technical specifications before submission of the bid.
- 6.1.4 The tender documents should be submitted online only, after digitally signing with a valid Digital Signature Certificate (DSC) availed from an approved Certifying Authority. By submitting digitally signed Bid documents, the Bidder accepts that he/she has clearly understood and agreed all the terms and conditions of this Tender.
- 6.1.5 Mentioning of price details at any place other than in the space designated in the **BoQ (Price bid)** shall disqualify the bid and the bid shall be summarily rejected.
- 6.1.6 The bidder is advised to submit the bids well before the last date and time specified to avoid any kind of last minute network issues, traffic congestion etc. The KSEB Ltd shall not be responsible for any kind of such issues.
- 6.1.7 The bidder shall fill up all the data to be entered in the on line documents correctly.
- 6.1.8 No alterations shall be made in the bid form or schedule or the specifications annexed hereto, except to the extent of filling in the bid forms and schedules

as indicated.

6.1.9 If the bidder has any doubt about any portion of the conditions of contract or the specifications, he should get it clarified from the office of the Executive Engineer, Electrical Division, KSEB Ltd., Kanhangad /email ID: exe.engineerkhd@gmail.com in order that the doubt may be got cleared before the online submission of the bid.

6.1.10 Offers sent through Fax / E-mail/ courier/ post will not be considered.

6.1.11 The bidder shall quote the lowest rate so as to avoid negotiation after opening of bid.

6.1.12 All the materials that are ordered have to be fully insured from the time of Despatch from the Manufacturer's works to the destination station and for one-month storage thereafter at the cost of the bidder.

6.1.13 The bidders shall be governed by the general conditions of contract and schedule for the work and the special conditions mentioned herein. In case there are any contradictions or non-conformity between the two, the special conditions mentioned herein will prevail.

6.1.14 Bidder must declare the sub-contractors name, if any, who will execute the work. The sub-contractor must have labour license. All staff and labours shall be covered under Insurance.

Mode of payment – Payment will be made from the Electrical Division, which is having jurisdiction of the work location using the fund of KSEB Ltd. KSEB Ltd. has all liberty to change the type of payment depending on the then prevailing condition.

In case of failure of supply of spares as specified, the same will be adjusted in the retention amount available with KSEB Ltd.

6.1.15 Within 15 calendar days of the notification of award from KSEB Ltd, the successful bidder shall furnish to KSEB Ltd. a performance guarantee amounting to 5% of the contract value in the form of Demand Draft or in the form of a Bank Guarantee in favour of the Executive Engineer, Electrical Division, Kanhangad from Nationalised Banks/Scheduled Banks on Stamp paper of respective State Government worth Rs. 200/-. The Contract Performance Bank Guarantee shall remain valid for a period not less than 90

days over and above the guarantee period, based on stipulated completion period in the work order towards security and acceptance thereof, failing which the works orders (W.O) will be liable for cancellation without any further notice with forfeiture of E.M.D.

6.1.16 The work covered by this tender document shall be carried out with the conditions of contract attached with this part of the tender and as per the tender documents issued along with this. Wherever any condition in the instructions to bidders or general conditions of contract or technical specification embodied herein conflict with any part of the conditions of contract the later will prevail.

6.1.17 Before undertaking the construction works in the given line, the bidder shall make assessment of quantity of the required materials in consultation with the Engineer in charge. Accordingly, the BOQ of the works may be prepared and get it approved from Engineer In charge.

6.1.18 The following shall supplement the conditions already contained in the parts of these specifications and document shall govern the portion of the work of this contract to be performed at site.

6.1.19 All fitting accessories, apparatus or item of work which may not have been mentioned in these specifications, but which are essential for the completion and proper working of the network and fulfilment of the contract, shall also be provided/carried out by the contractor at no extra cost. He shall foresee, plan and quote covering all such items.

6.1.20 Prices shall be firm for a period of 180 days from the date of opening bid. The prices for the purpose of firmness include insurance, GST, duties and freight charges which are or become payable by the contractor under existing or future laws and rules. Price schedule shall be given in the Price bid and shall be carefully filled to avoid any ambiguity. Fixed price offers shall only be accepted. Statutory levies shall be paid at actual. Any increase in statutory levy shall be paid by the contractor in case of delay in completion of supply/work after the scheduled period of completion. Necessary deductions will be made from the contractor's bill and deposited in the construction workers welfare fund as per the statutory orders of the Kerala State Government.

6.1.21 The bidder should have a minimum turnover equivalent to 75% of PAC for any three years in the preceding five years and have experience in executing similar works and have adequate technical knowledge and practical experience. The bidders shall produce a solvency certificate obtained within a period of six months for an amount equivalent 75 % of the PAC or more obtained from

Tahsildar or Nationalized/ scheduled bank or Net worth Certificate issued by a Chartered Accountant along with their bid.

## **6.2 REGULATION OF LOCAL AUTHORITIES AND STATUTES**

- 6.2.1 The Contractor shall comply with all the rules and regulations of local authorities during the performance of his field activities. He shall also comply with the Minimum Wages Act, 1948, the Payment of Wages Act, Contract Labour Regulation Abolition Act and the Workmen's Compensation Act (both of the State and Government of India) and the rules made hereunder in respect of any employee or workman employed or engaged by him.
- 6.2.2 All registration and statutory inspection fees, if any, in respect of his work pursuant to this Contract shall be to the account of the KSEB Ltd. Should any such inspection or registration need to be rearranged due to the fault of the Contractor, the additional fees to such inspection and/or registration shall be borne by the Contractor.
- 6.2.3 Necessary deduction will be made from the contractor's bill and deposited in the Construction Worker's Welfare Fund as per the statutory orders of the Kerala State Government.

## **6.3 KSEB Ltd's LIEN ON EQUIPMENT**

- 6.3.1 KSEB Ltd. shall have lien on all equipment including those of the Contractor brought to the Site for the purpose of erection, testing and commissioning of the equipment to be supplied & erected under the Contract. KSEB Ltd shall continue to hold the lien on all such equipment throughout the period of Contract. No material brought to the Site shall be removed from the Site by the Contractor without the prior written approval of the Engineer in charge.

## **6.4 INSPECTION, TESTING AND INSPECTION CERTIFICATES**

### **PRE-DISPATCH INSPECTION AND TESTING**

- 1. All the materials which will be supplied shall undergo pre- dispatch inspection by KSEB Ltd. officers. Before supply of items, clearance from KSEBL is required. The contractor will have offered the materials in writing for material inspection.
- 2. The designated officer/ representative of KSEBL shall on giving seven days, notice in writing to the contractor setting out any grounds of objections which

he may have in respect of the work, be at liberty to reject any drawing and all or any plant, or workmanship connected with such work which in his opinion are not in accordance with the contract or are in his opinion defective for any reason whatsoever.

The bidder shall state in his tender the places of inspection.

3. The contractor shall intimate at least 10 days in advance through notice(s) about the readiness of material for dispatch commensurate with specific delivery schedule so as to enable the purchaser to depute his representative for inspection testing and checking of the material/equipment. For this purpose the date of receipt of the letter in the office of the purchasing authority shall be deemed as the date of call for inspection and not the date mentioned in the letter and the date of dispatch. In case, material/equipment is not found ready by the representative of the purchaser deputed for inspection to with tolerance of (-) 10% or if the inspection is not got carried out by any, the extent of the quantity indicated in the inspection call reasons on account of the supplier an amount of Rs.7500/- only for the supplier's work located in Kerala and an amount of Rs.15000/- only for the Supplier's works located outside Kerala will become payable by the supplier on this account to KSEBL.
4. The purchaser reserve to him the right of having any inspection of special test of a reasonable nature at contracts premises or at sites in addition to those prescribed in applicable standards and the enclosed technical specification.  
Unless the inspection is specifically waived no material shall be dispatched without inspection and clearance for dispatch by the representative of the purchaser.
5. The purchaser reserves the right to reject all or any part of the material being manufactured or awaiting dispatch, due to any defect or deviations from the standard specifications prescribed as observed during the Inspection. In case of any dispute/difference in this regard the decision of the Executive Engineer, Electrical Division, Kanhangad shall be final and binding.
6. The purchaser also reserves the right to get the material/equipment tested in any recognized Government Laboratory & claiming any compensation or rejecting the material/equipment, if not found in accordance with the specification. All charges consequent to such rejection and replacement/rectification shall be borne by the supplier.
- 6.4.1 The provisions of the clause entitled towards Inspection, Testing and Inspection Certificates under Technical Specification etc. shall also be applicable to the erection portion of the Works. The Engineer shall have the right to re-inspect any work / equipment though previously inspected and

approved by him at the Contractor's works, before and after the same are erected/commissioned at Site. If by the above inspection, the engineer rejects any equipment/work, the Contractor shall make good for such rejections either by replacement or modification / repairs as may be necessary to the satisfaction of the Engineer. Such replacements will also include the replacements or re-execution of such of those works/equipment of other Contractors and/or agencies, which might have got damaged or affected by the replacements or re-work done to the Contractor's work.

## **6.5 CONTRACTORS SITE OFFICE ESTABLISHMENT**

6.5.1 The Contractor shall establish a Site Office at the Site and keep posted authorised representative for the purpose of the Contract. Any written order or instruction of the Engineer or his duly authorised representative shall be communicated to the said authorised resident representative of the Contractor and the same shall be deemed to have been communicated to the Contractor at his legal address.

## **6.6 DISCIPLINE OF WORKMEN**

6.6.1 The Contractor shall adhere to the disciplinary procedure set by the Engineer in respect of his employees and workmen at Site. The Engineer shall be at liberty to object to the presence of any representative or employee of the Contractor at the Site, if in the opinion of the Engineer such employee has behaved improperly or is incompetent or negligent or otherwise undesirable and then the Contractor shall remove such a person objected to and provide in his place a competent replacement.

## **6.7 CONTRACTORS FIELD OPERATION**

6.7.1 The Contractor shall keep the Engineer informed in advance regarding his field activity plans and schedules for carrying out each part of the works. Any review of such plan or schedule or method of work by the Engineer shall not relieve the Contractor of any of responsibilities towards the field activities. Such reviews shall also not be considered as an assumption of any risk or liability by the Engineer or the KSEB Ltd. or any of his representatives and no claim of the Contractor will be entertained because of the failure or inefficiency of any such plan or schedule or method of work reviewed. The Contractor shall be solely responsible for the safety, adequacy and efficiency of plant and equipment and his erection methods.

6.7.2 The Contractor shall have the complete responsibility for the conditions of the work site including the safety of all persons employed by him and all the properties under his custody during the performance of the work. This requirement shall apply continuously till the completion of the Contract and shall not be limited to normal working hours. The construction review by the Engineer is not intended to include review of Contractor's safety measures in,

or of near the Work-Site, and their adequacy or otherwise.

## **6.8 MANPOWER REPORT**

- 6.8.1 The Contractor shall submit to the Engineer, a man hour schedule for the contract period, detailing the man hours scheduled for the work, skill-wise and area-wise.
- 6.8.2 The Contractor shall also submit to the Engineer, a manpower report detailing the number of persons scheduled to be employed, skill-wise and the areas of employment of such labour.

## **6.9 PROTECTION OF WORK**

The Contractor shall have total responsibility for protecting his works till it is finally taken over by the Engineer. No claim will be entertained by the KSEB Ltd. or the Engineer for any damage or loss to the Contractor's works and the Contractor shall be responsible for complete restoration of the damaged works to original conditions to comply with the specification and drawings. Should any such damage to the Contractor's Works occur because of other party not being under his supervision or control, the Contractor shall make his claim directly with the party concerned.

## **6.10 FACILITIES TO BE PROVIDED BY THE CONTRACTOR**

- 6.10.1 **First-Aid:** The Contractor shall provide necessary first-aid facilities for all his employees, representatives and workmen working at the Site. Enough number of the Contractor's personnel shall be trained in administering first-aid.
- 6.10.2 **Cleanliness:** The Contractor shall be responsible for keeping the entire area allotted to him clean and free from rubbish, debris etc. during the period of Contract. The Contractor shall employ enough number of special personnel to thoroughly clean his work-area. All such rubbish and scrap material shall be stacked or disposed in a place to be identified by the Engineer. Materials and stores shall be so arranged to permit easy cleaning of the area. In areas where equipment might drip oil and cause damage to the floor surface, a suitable protective cover of a flame resistant, oil proof sheet shall be provided to protect the floor from such damage.
- 6.10.3 **Protection to Life and Property and existing facilities:** The Contractor is fully responsible for taking all possible safety precautions during preparation for and actual performance of the works and for keeping the construction site in a reasonable safe condition. The contractor shall protect all life and property from damage or losses resulting from his construction operations and shall minimize the disturbance and Inconvenience to the public.

## **6.11 INTEGRATION WITH EXISTING NETWORK**



- 6.11. Wherever connections with the existing network/replacement of existing network/equipment are required, written permission from Engineer or his authorized field officer should be obtained.

## **6.12 FIRE PROTECTION**

- 6.12.1 The work procedures that are to be used during the erection shall be those, which minimise fire hazards to the extent practicable. Combustible materials, combustible waste and rubbish shall be collected and removed from the Site. Volatile or flammable materials shall be stored away from the construction equipment and materials storage areas in safe containers. Untreated canvas, paper, plastic or other flammable flexible materials shall not at all be used at site for any other purpose unless otherwise specified. If any such materials are received with the equipment at the site, the same shall be removed and replaced with acceptable material before moving into the construction or storage area.

## **6.13 PACKING AND TRANSPORTATION**

- 6.13.1 All materials shall be packed adequately for protection against mechanical damage, including due to rough handling, during transport to its final destination.
- 6.13.2 The materials shall also be protected against damage due to ingress of moisture, moulds, insects or rodents. Items that include materials liable to be damaged by moisture shall be packed in hermetically sealed containers in which silica gel, or some other approved desiccant has been inserted.
- 6.13.3 All Cases shall be marked in large letters with “THIS SIDE UP”, “FRAGILE”, place of destination, gross weight and, position of slings for lifting, etc., appropriately.
- 6.13.4 Special steps shall be taken to guard against theft during transport. No small items such as padlocks nameplates and so forth that could be torn off or unscrewed shall be accessible.

## **6.14 MATERIAL HANDLING AND STORAGE**

- 6.14.1 All materials and equipment required for this contract arriving at site shall be promptly received, unloaded, transported and stored in the storage spaces by the Contractor. The contractor shall examine each shipment and intimate KSEB Ltd. about shipment arrival, inspection, damages and defects. The Contractor shall arrange suitable indoor and outdoor storage facilities required.
- 6.14.2 All equipment shall be handled very carefully to prevent any damage or loss.

No insulated wire ropes, slings, etc. shall be used for unloading and/or handling of the equipment without the specific written permission of the Engineer. The equipment stored shall be properly protected to prevent damage either to the equipment or to the floor where they are stored. The equipment from the store shall be moved to the actual location at the appropriate time so as to avoid damage of such equipment at Site.

6.14.3 The consumables and other supplies likely to deteriorate due to storage must be thoroughly protected and stored in a suitable manner to prevent damage or deterioration in quality during storage.

6.14.4 The contractor shall arrange labour, vehicles, lifting tools to load and transport materials to work site. All the packing materials and protection devices used during transit and storage shall be removed before the equipments are erected.

6.14.5 The Contractor shall maintain an accurate and exhaustive record, detailing out the list of all equipment received by him for the purpose of erection and keep such record open for the inspection of the Engineer.

6.14.6 Materials shall not be stored for long periods along the routes of lines, roads or public places. The construction materials placed at the worksites shall not impede pedestrian or vehicular traffic. The contractor shall correct and make good any loss or damage to materials stored at the worksites.

## **6.15 INSTALLATION MANAGEMENT**

6.15.1 The field activities of the various contractors executing different contracts for the project will be coordinated by the Engineer and the Engineer's decision shall be final in resolving any disputes or conflicts between the Contractor and other Contractors and tradesmen of KSEB Ltd. regarding scheduling and coordination of work. Such decision by the Engineer shall not be a cause for extra compensation or extension of time for the Contractor.

6.15.2 The Engineer shall hold weekly meetings with the key personnel of the contractor working at site, at a time and place to be designated by the Engineer. The Contractor shall attend such meetings and take notes of discussions during the meeting and the decisions of the Engineer shall be strictly adhered to in performing his Works. In addition to the above weekly meeting, the Engineer may call for other meetings also if warranted.

6.15.3 Time is the essence of the Contract and the Contractor shall be responsible for performance of his works in accordance with the specified construction schedule. If at any time, the Contract is falling behind the schedule, he shall take necessary action to make good for such delays by increasing his work force or by working overtime or otherwise accelerate the progress of the work to comply with the schedule in consultation with the Engineer. The Contractor shall not be allowed any extra compensation for such action. The Engineer shall however not be responsible for provision of additional labour and/or

materials or supply or any other services to the Contractor.

## **6.16 FIELD OFFICE RECORDS**

6.16.1 The Contractor shall maintain at his Site Office, up-to-date copies of all drawings, specifications and other Contract Documents and any other supplementary data complete with all the latest revisions thereto. The Contractor shall also maintain in addition, the continuous record of all changes to the above Contract Documents, drawings, specifications, supplementary data, etc. effected at the field and on completion of his total assignment under the Contract shall incorporate all such changes on the drawings and other Engineering data to indicate as erection conditions of the equipment furnished and erected under the Contract. Such drawings and engineering data shall be submitted to the Engineer in required number of copies.

## **6.17 TECHNICAL DOCUMENTS AND DRAWINGS**

6.17.1 The contractor shall make all design calculations, prepare all technical documents in English. The drawings, documents and calculations shall be subject to approval of KSEB Ltd. Before acceptance. The manufacturing work and purchase of materials shall confirm to the approved documents.

## **6.18 MANUFACTURING SCHEDULE**

6.18.1 The Contractor shall submit to KSEBL his manufacturing, testing and delivery schedules of various items within fifteen **(15) days** from the date of the Letter of Award in accordance with the delivery requirements stipulated. Schedules shall also include the materials and items purchased from outside Contractors, if any.

## **6.19 REFERENCE STANDARDS**

6.19.1 The Codes and / or Standards referred to in Specifications shall govern, in all cases wherever such references are made. In case of a conflict between such Codes and or Standards and the specifications, later shall govern. Such Codes and or Standards, referred to shall mean the latest revisions, amendments / changes adopted and published by the relevant agencies.

## **6.20 QUALITY ASSURANCE**

6.20.1 The contractor will be primarily responsible for ensuring quality of materials supplied and quality of works done under this contract. To ensure quality of equipment manufactured or purchased, the contractor shall adopt a suitable ISO based Quality Assurance Programme (QAP) to control all such activities at all points necessary.

6.20.2 A Quality Assurance Programme of the Contractor shall generally cover but not limited to

1. The organization structure for implementation of the proposed Quality Assurance Programme,
2. Documentation control system
3. Qualification data for key personnel
4. The procedure for purchases of materials, parts / components selection of Sub
5. Contractor's services including vendor analysis, source inspection, incoming raw material inspection, verification of material purchases etc.,
6. System for shop manufacturing including process controls,
7. Control of non-conforming items and system for corrective action,
8. Control of calibration and testing of all measuring & testing equipment.
9. Inspection and test procedure for manufacture, System for indication and appraisal of inspection status
10. System for quality audits
11. System for authorizing release of manufactured product to the Purchaser,
12. System for maintenance of records
13. System for handling storage and delivery and
14. A Quality Plan detailing out the specific quality control procedure adopted for controlling the quality characteristics of the product.

6.20.3 The Quality Plan shall be mutually discussed and approved by the KSEB Ltd.

6.20.4 The contractor shall carefully study the technical requirements of this project and confirm categorically that the QAP will meet the requirement satisfactorily. QAP shall have all the checks and tests done in design calculation (i) the list of items manufactured and (ii) list of items procured with source of the items, standards adopted, quality checks done during manufacturing process among other necessary details.

6.20.5 Individual MQP (Manufacturing Quality Plans) and FQP (Field Quality Plan) pertaining to each equipment shall be submitted by the contractor after the award of Order, for review and approval by KSEBL. The contractor shall strictly adhere to the provisions of approved MQP & FQPs.

6.20.6 The Manufacturing Quality Plans for each equipment submitted by supplier shall cover detailed checks at various stages of raw material, bought out items, in process, final testing, etc. and packing, prior to dispatch. All the supplied equipment shall be type tested by reputed Laboratories like CPRI, ERDA or NABL accredited labs under state or central government or International Laboratory Accreditation Corporation (ILAC) accredited labs etc. The bid shall include a copy of such type tests).

6.20.7 Field Quality Plan for each equipment shall be in line with the manufacturer's practices, national/standards, manuals, approved data sheet and contract specification. This shall also contain statutory testing requirements, if any. Field Quality Plan shall cover all activities at site from material receipt and storage, handling, pre-assembly, assembly up to completion of erection

activities of equipment.

6.20.8 The contractor shall employ a qualified and experienced Quality Engineer (QE) who shall be responsible for quality assurance as per QAP and keep all record related to quality. QE shall submit the QAP for KSEB Ltd approval. QE shall witness all tests and inspections by KSEB Ltd or an appointed third party. QE shall submit a certificate to KSEB Ltd. ensuring quality of material before KSEB Ltd inspection. FQP certificate shall be supported photographs as required by KSEB Ltd.

6.20.9 Quality Engineer (QE) shall arrange for soil testing, earth resistance measurement, OH line and cable route finalization etc. Recurring adverse quality failure will entail withholding of funds. QE shall also furnish monthly quality report as required by KSEB Ltd. Engineer.

## **6.21 QUALITY ASSURANCE DOCUMENTS**

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

6.21.2 KSEB Ltd. reserves the right to carry out Quality Audit and Quality surveillance of the systems and procedures of the Contractor's / vendor's Quality Management and Control Activities.

## **6.22 PROJECT MANAGEMENT AND SUPERVISION**

6.22.1 The Contractor shall be responsible for the overall management and supervision of works. The contractor shall provide experienced, skilled, knowledgeable, and competent personnel during all the phases of the project.

## **6.23 TESTING AND COMMISSIONING**

6.23.1 The scope includes testing and commissioning of all equipment, sub- systems and systems of the project and putting them into successful commercial operation. The scope shall include but not limited to the requirements given elsewhere in the specification.

6.23.2 The Contractor shall be responsible to provide all necessary testing and commissioning personnel, tools and plant, test equipment, etc.

6.23.3 Any deviation or variation from the scope requirement and/or intent of this specification shall be clearly mentioned under Deviation Schedule of the Bid Proposal Sheets irrespective of the fact that such deviations/variations may be standard practice or a possible interpretation of the specification by the Bidder. Except for the deviations/variations which are accepted by KSEB Ltd. before the award of the contract, it will be the responsibility of the Bidder to fully meet the intent and the requirements of the specification within the quoted price. No other departure from the specification except for the declared deviation indicated by the Bidder in his proposal shall be considered. The interpretation of KSEB Ltd. in respect of the scope, details and services to be

performed by the Bidder shall be binding, unless specifically clarified otherwise by KSEB Ltd. in writing before the award of contract.

- 6.23.4 Failure of any equipment to meet the specified requirements of tests carried out at works or at site shall be sufficient cause for rejection of the equipment. Rejection of any equipment will not be held as a valid reason for delay in the completion of the works as per schedule. Contractor shall be responsible for removing all deficiencies, and supplying the equipment that meet the requirement.

#### **6.24 GUARANTEED TECHNICAL PARTICULARS**

- 6.24.1 The Guaranteed Technical Particulars of the various items should be furnished by the bidders along with type test certificate and previous experience in the supply of materials, from the manufacturer. Bidders are instructed to submit GTPs of all items, duly signed along with the bid as per the formats provided. The Bidder shall also furnish any other schedule information as in their opinion is needed to give full description and details to judge the item(s) offered by.
- 6.24.2 The data furnished in Guaranteed Technical Particulars should be the minimum or maximum value (as per the requirement of the specification) required. A bidder may guarantee a value more stringent than the specification requirement. However, for testing purpose or from performance point of view, the material shall be considered performed successfully if it achieves the minimum / maximum value required as per the technical specification. No preference whatsoever shall be given to the bidder offering better / more stringent values than those required as per specification.
- 6.24.3 The bidder shall furnish the authorisation of Manufacturer
- 6.24.4 Bidder shall enclose with his bid one set of technical documents, for each of the material under his scope, comprising of guaranteed technical particulars & data sheets, engineering drawings, type and routine tests reports etc. which shall be in confirmation with the type, make & rating of the equipment indicated in the offer.
- 6.24.5 In case of successful bidder, the Guaranteed Technical Particulars and Data Sheets furnished in the bid shall be firmed up at the time of award. Bidder shall furnish design documents and engineering drawings of individual equipment as applicable for the subject package, for review and approval by KSEB Ltd. A drawing submission / approval schedule, keeping in view the overall work schedule, shall be finalised at the time of award.
- 6.24.6 All engineering data submitted by the Contractor after final process including review and approval by the KSEB Ltd. shall form part of the Contract Document and the entire works performed under these specifications shall be performed in strict conformity, unless otherwise expressly requested by the KSEB Ltd in writing.

6.24.7 The Works shall comply with the technical guarantee data stated in the Bid. The contractor shall be responsible for any discrepancies, errors and omissions in the particulars and guarantees, whether KSEB Ltd. has approved such particulars and guarantees or not.

6.24.8 Successful bidder shall complete the guarantee data sheet, duly signed by his authorised representative during finalisation of contract documents. The data shall form part of contract agreement and shall be refused, in case of any variation of parameter, during testing, inspection and final commissioning checks.

6.24.9 Responsibility of the Contractor shall be on total basis for all the items and at no instance of the Contract, the responsibility shall pass on as to Sub-Vendor/Sub- Supplier.

## **6.25 QUANTITY VARIATION**

KSEB Ltd. reserves the right to increase or decrease the quantity of materials and/or works up to 25% of the contract value. The quantities of individual item may vary beyond the limit above.

## **6.26 SPARES**

6.26.1 **Commissioning Spares:** The Contractor shall supply all spares required during installation, testing and commissioning of system. The quantity of these spares shall be such that site works shall not be hampered due to non-availability of spares.

6.26.2 **Safety Spares:** The Bidder shall maintain an adequate stock of major items at site stores for replacement during the Warranty period. Contractor shall submit a complete list of such spares along with the bid, the cost of which shall be deemed to have been included in the lump sum proposal price of the package.

## **6.27 TOOLS AND TACKLES**

6.27.1 The Supplier shall supply in lockable boxes, any special tools that may be required for assembly, dismantling and adjustments to the equipment for KSEB Ltd.'s future use. The Contractor shall also supply at site one set of all special tool & tackles, etc., which are required by maintenance staff of KSEB Ltd. to maintain the works successfully at no extra cost (Binding Tool -2 Nos. per work & Piercing connector tool – 2 Nos. per work). In case of failure of supply of tools as specified, the same will be adjusted in the retention amount available with KSEB Ltd.

6.27.2 The tools shall be unused and in new condition at the time of handing over.

## **6.28 WARRANTY**

The complete supply and works under this contract shall be covered under warranty. Warranty services shall commence from the date of successful commissioning and taking over of such works. Total duration of warranty shall be **36** months from the date of commissioning. During the Warranty period, as per the Contract, any defect which requires repair/ replacement shall be done

as detailed in Section-5.

## **SECTION-7**

### **GENERAL TECHNICAL SPECIFICATIONS**

Clause No.	Description
7.1	SCOPE OF WORK.
7.2	TECHNICAL SPECIFICATION OF LT COVERED CONDUCTOR(CC)
7.3	TECHNICAL SPECIFICATION FOR LT COVERED CONDUCTOR ACCESSORIES
7.4	TECHNICAL SPECIFICATION OF PSC POLES
7.5	STRINGING OF CC ,FIXING OF SUSPENSION & TENSION/ DEAD END FITTINGS TO THE POLES.
7.6	EARTHING
7.7	FINAL CHECKING, TESTING AND COMMISSIONING.

### **7. GENERAL TECHNICAL SPECIFICATIONS**

#### **7.1 SCOPE OF WORK**

**Supply of Materials ,Erection, Testing,and Commissioning of Work Construction of LT Three phase and Single phase line ,Conversion of single phase line to Three phase line and Reconductoring of Single phase and Three phase line by using Covered Conductor Rabbit 43 km ,at Various locations under Electrical Division Kanhangad -Dyuthi Special Scheme -2024-25, Under Electrical circle Kasaragod. to the full satisfaction of KSEBL and dismantling of existing bare conductor LT lines on Turnkey Contract Basis at different locations under the jurisdiction of Electrical Division, Kanhangad.The details of LT Coverd conductor line construction locations are appended to this bid document as Appendix-1. Erection of poles wherever necessary for the construction of LT covered conductor line is also included in the estimate . Where HT pole**



**insertion is required that can be done by ksebltd.**

The various activities of scope of work shall among other related aspects includes the following,

- Detailed route survey for pole spotting, optimization of pole location etc. at the locations for erection of poles by KSEBL.
- Design, Manufacture and supply of LT covered conductor of **size 50 sq.mm rabbit and** all the accessories of approved type required for the work.
- Design, Manufacture and supply of 8mtr PSC poles of 200kg working strength approved type required for the work.
- Submission of Drawings of all materials required for the work for approval of KSEBL before proceeding with the manufacture of the materials.
- Arrange inspection / testing of any/all materials at manufacturer's works for officer deputed by KSEBL for such inspection/testing.
- Insurance & Transportation of materials from the manufacturer's works, unloading, storage and handling of materials at the site.
- Construction of LT lines with covered conductor as per standard at the locations said in this document.
- Testing & commissioning of constructed LT lines.
- Dismantling of existing LT line at the locations said in this document.
- Supply of necessary spares as specified.
- All services & activities required are to be given contractually, by the bidder, during warranty period of 3 years.

Above all, the Bidder shall be responsible for providing all material, equipment and services specified or otherwise which are required to ensure operability, maintainability and the reliability of the complete work of Constructing of LT line with covered conductor rabbit on turnkey basis covered under this specification and as binding requirement.

Contractor shall clearly indicate in their offer, the sources from where they propose to procure 43 km Covered Rabbit and the required accessories.

In addition to the requirements indicated in this section, all the requirements as stated in other sections shall also be considered as a part of this specification as if completely bound herewith.

## **7.2 TECHNICAL SPECIFICATIONS FOR LT COVERED CONDUCTOR**

# RABBIT

## 721 Scope:

### ACSR Covered Rabbit Conductor – Specifications

The **ACSR Covered Rabbit Conductor** is an **Aluminum Conductor Steel Reinforced (ACSR)** with **XLPE/PVC insulation** used in **low-tension (LT) overhead distribution networks**. It provides **better mechanical strength, corrosion resistance, and electrical performance** compared to bare conductors.

## 1. General Construction

- **Conductor Type:** ACSR (Aluminum Conductor Steel Reinforced)
- **Size:** Equivalent to **Rabbit Conductor** (6 Aluminum + 1 Steel)
- **Stranding:** 6/1 (6 Aluminum strands, 1 Steel strand)
- **Nominal Cross-Sectional Area:** 50 mm<sup>2</sup> (Aluminum area)

## 2. Electrical Properties

- **Rated Voltage:** Up to 1.1 kV
- **DC Resistance at 20°C:** 0.552 Ω/km (Aluminum)
- **Current Carrying Capacity:** 150–200 A (Varies with installation conditions)

## 3. Mechanical Properties

- **Ultimate Tensile Strength (UTS):** 8.42 kN (approx.)
- **Weight:** approx. 162 kg/km
- **Breaking Load:** Higher due to steel reinforcement

## 4. Insulation Specifications

- **Material:** Cross-Linked Polyethylene (XLPE) or Polyvinyl Chloride (PVC)
- **Thickness:** Typically 1.4 – 1.8 mm (as per standard)
- **Color:** Black (UV-resistant)
- **Dielectric Strength:** ≥ 3 kV/mm

## 5. Environmental & Durability Factors

- **Weather Resistance:** UV & moisture-resistant
- **Thermal Stability:** Withstands temperatures from -40°C to +90°C
- **Fire Retardant:** Low smoke, halogen-free options available

## 6. Standards & Compliance

- **IS 398 (Part 2) – 1996** (ACSR Conductors)
- **IS 14255** (Covered Conductors)
- **IEC 61109** (Insulation properties)

### (c) XLPE Insulation:

The insulation shall generally conform to IS:14255-1995

Sl.No.	Property	Requirement
1.	Tensile Strength	$12.5 \text{ N/mm}^2$ Min
2.	Elongation at break	200% Min.
3.	Ageing in air oven	
	a. Treatment: Temperature & duration	$135 \pm 3^\circ\text{C}$ & 7 days
	b. Tensile strength variation	$\pm 25\%$ Max.
	c. Elongation variation	$\pm 25\%$ Max.
4.	Hot Set	
	a. Treatment temperature	$200 \pm 3^\circ\text{C}$ ,
	Time Under load	15 minute
	Mechanical stress	$20 \text{ N/cm}^2$ .
	b. Elongation under load	175 % max.
	c. Permanent elongation (set) after cooling	15 % Max
5.	Shrinkage	
	a. Treatment temperature	$130 \pm 3^\circ\text{C}$
	duration	For 1 hour
	b. Shrinkage	4% Max
6.	Water absorption (Gravimetric)	
	a Treatment—Temp.	$85 \pm 2^\circ\text{C}$
	Duration	14 days
	b Water absorbed	$1 \text{ mg./cm}^2$ max.

### 7.2.7 Tests

#### (a) Type tests:

All the type tests are detailed below in accordance with relevant IS , amended upto date, shall be performed on cable samples drawn by the purchaser.

All the cables offered should have been fully type tested as per the relevant standards at any of the labs like CPRI /ERDA/KERI or Central/ State Govt owned NABL accredited lab. The following Type tests shall be carried out on the cables as per Relevant IS & Type tests certificates shall be furnished invariably shall be carried out on the cables as per Relevant IS & Type tests certificates shall be furnished invariably with the offer.

Supplier, however, can claim exemption from carrying out type tests as above, provided such type tests were already conducted in the past 5 years as prescribed in IS:14255 from any NABL Accredited testing laboratory or a International Laboratory Accreditation Corporation accredited lab like COFRAC certified laboratory, and the test certificates thereof submitted along with the bid document, the tendering authority may grant waiver from carrying out type tests, if the type test certificates are acceptable.

#### **TYPE TESTS :**

##### **I. Tests on phase/street light conductor**

- Tensile test (IS:8130)
- Wrapping test (IS:8130)
- Resistance Test ( IS : 8130 )

##### **III. Physical tests for XLPE insulation**

- Tensile strength and elongation at break (IS:14255)
- Ageing in air oven (IS:14255)
- Hot set test (IS:14255)
- Shrinkage test (IS:14255)
- Water absorption test (Gravimetric)
- Carbon black content and dispersion

##### **IV. Test for thickness of insulation ( IS : 14255 )**

##### **V. Insulation Resistance Test ( IS : 14255 )**

##### **VI. High voltage test ( IS : 14255 )**

##### **(b) Acceptance tests :**

- a) Tensile test IS: 10810 pt -2 (For phase/street light conductor)
- b) Wrapping test IS: 10810 pt -3 (For phase/street light conductor)
- c) Conductor Resistant Test IS: 10810 pt - 5
- d) Test for thickness of insulation IS: 10810 pt -6
- e) Tensile strength & Elong at break test (for XLPE insulation)

- ƒ) Hot set test ( For XLPE insulation)
- g) Insulation Resistance test
- h) High voltage test
- i) Dimensional test as per the parameters specified in the technical particulars

#### **7.2.8 Tests for Messenger(Not Applicable)**

##### **(a) TYPE TESTS :**

- Breaking load test ( to be made on the finished conductors ) ( IS:398- PART-IV )
- Elongation test ( IS:398-PART-IV )
- Resistance test ( IS:398-PART-IV )

##### **(b) ACCEPTANCE TESTS :**

All tests indicated in clause 7.3.1 above. In addition, check of diameter values as per clause 6.2

#### **7.2.9 Bending tests on complete cables :(NA)**

The test shall be performed on a sample of complete cable. The sample shall be bent around a test mandrel at room temperature for at least one complete turn. It shall then be unwound and the process shall be repeated after turning the sample around its axis by 180 deg. The cycle of these operations shall then be repeated twice more. The diameter of the mandrel shall be  $10 ( D + d )$  where  $D$  = actual diameter of the cable ( i.e. the minimum circumscribing circle diameter ), in mm and  $d$  = actual diameter of the conductor, in mm. No cracks visible to the naked eye are allowed.

#### **7.2.10 Packing and marking**

##### **(a) Cable identification**

The phase conductors shall be provided with one, two or three ridges and outer insulated neutral conductor shall have four ridges for quick identification. The steel light conductor shall not have any identification and shall be provided throughout the length of all cables,

The cables shall be wound on non-returnable wooden drums conforming to relevant IS (specification for Reels & Drums for Insulated wire). The drum shall be marked with the following.

- Manufacturer's name.
- Trade mark, if any.
- Drum number or identification number.
- Size of conductors.
- Size of messenger
- Voltage grade.
- Number and lengths of pieces of cable in each drum.

- Gross mass of the packing .
- Net mass of cable.
- IS1 mark.

The drums shall be of such construction as to ensure delivery of conductor in the field free from displacement and damage and should be able to withstand all stresses due to handling and the stringing operation so that cable surface is not dented, scratched or damaged in any way during transport and erection. The cable shall be properly lagged on the drum.

The cable drum should be suitable for wheel mounting.

#### **(b) Standard Length(NA)**

The standard length of drum shall be 500metre with +5% tolerance or length is acceptable

#### **(c) Non standard length**

Non standard length not less than 50% of the standard length shall be accepted to the extent of 10% of the ordered quantity.

### **7.2 .11 Inspection :**

All tests and inspection shall be made at the place of manufacture unless otherwise especially agreed upon by the manufacture and purchaser at the time of purchase. The manufacturer shall afford the inspector representing the purchaser all reasonable facilities without charge, to satisfy him that the material is being furnished in accordance with this specification.

Notwithstanding any confirmatory report issued by KSEBL or Supplier, KSEBL reserves the right to collect samples for testing from any lot received in the Contractor's Store. The sample collected at the area stores will be forwarded to a laboratory for testing. KSEBL will have the sole discretion to select a NABL accredited Laboratory for this purpose. Then if the test fails, KSEBL shall reject the lot and shall recover the cost of testing fees by way of deduction from bills of the Contractor.

### **7.2.12 Quality Assurance Plan**

A detailed list of bought out items which got into the manufacture of cables should be furnished indicating name of the firms from whom these items are procured. The bidder shall also give the details of quality assurance plan followed by him in respect of the raw materials, in process, final inspection, packing and marking. KSEB may at its option order the verification of these plans at manufacturer's works as a pre qualification for technically accepting the bid. During verification if it is found that firm is not meeting with quality assurance plan submitted by the firm, the offer shall be liable for rejection.

### **7 . 2 . 13 Submission of ISI License for IS 14255:1995**

The tenderer/s are required to submit duly attested photo copy of the valid ISI

License up to the date of delivery for supply of these AB cables/wires along with tender and they should submit GTP along with the tender failing which, the offer would be ignored.

**7.2.14 IMPORTANT:**

In absence of valid ISI License/GTP duly filled in/and copy of type test certificate of Govt. approved Laboratory, duly attested by authorized person, offer will be liable to be ignored without any further correspondence.

**7.2.15 ISI MARKING:**

The material supplied shall be confirming to Indian Standard Specification and also with ISI marking as applicable and even after inspection of the lot, if the materials received at site is found without ISI marking, the lot shall be rejected and no further correspondence shall be entertained in this regard.

**7.2.16 TECHNICAL AND GUARANTEED PARTICULARS:**

The bidder shall furnish all Guaranteed Technical Particulars, as called for, in Appendix – 3 of this Specification. Particulars, which are subject to guarantee, shall be clearly identified. Offer not containing this information will not be considered for acceptance.

**7.2.17 PERFORMANCE CERTIFICATE:**

Bidders shall also submit performance reports for the specified size of cable supplied to other State Electricity Boards / reputed firms, with the clear indication of the period the cables have performed satisfactory service.

### 7.3 TECHNICAL SPECIFICATIONS FOR LT COVERED CONDUCTOR ACCESORIES

(The drawings attached are for reference)

#### Scope:

This specification covers the design, manufacture, assembly, testing and supply of Accessories for anchoring, suspending & making connections to LT Covered conductor of size 50mm<sup>2</sup> equivalent to covered rabbit .

The accessories should be of proven design as per *NFC standard / IEC /REC Spec.* with minimum 3 years record of satisfactory operation with a major utility. Order copies and Performance Certificates should be enclosed with the offer.

Since accessories are to be used with covered conductor , their design should incorporate specific features to prevent damage to the insulation which meeting the required electrical, mechanical & thermal requirements as per standards.

The accessories should provide “Double Insulation” so that a single point failure of insulation will not result in the system tripping.

All mechanical, electrical & thermal ratings should meet or exceed 90% of the corresponding ratings of the cable, or the values specified herein, whichever are more stringent.

Bidder should provide type test reports for all the required LT Covered conductor accessories tested as per the relevant standards at any of the labs like CPRI /ERDA or NABL accredited labs under state /central Govt, or International Laboratory Accreditation Corporation (ILAC) accredited labs with the offer. These type test must have been conducted within 5 years prior to date of Bid opening.

The Drawings of all accessories required for the work shall be submitted in the tender for approval of KSEBL before proceeding with the manufacture of the same.

#### LT ABC ACCESSORIES USED FOR COVERED CONDUCTOR

The LT ABC Accessories shall consist of the following:

Sl. No.	Accessory name	Application
a	Insulation Piercing connectors (IPC)	For making tap-off/branch connectors/service connector to an ABC line.
b	Anchoring Assembly (AA)	For fitting onto a pole for anchoring the end of a length of ABC, or for a major change in direction.
c	Suspension Assembly (SA)	For supporting a length of ABC at an intermediate pole in a length, with small angle of deviation.
d	Stainless Steel strap &	For fixing clamps to pole through aluminium



	Buckles	bracket for dead end, suspension and service clamp pole brackets.
g	4 Way Multi Port Connector (Satellite Connector)	For Distribution of multiple No. of Service Connections from Main AB cable.

## STANDARDS:

The fittings, hardware and equipment shall be fabricated in accordance with International recognized standards such as IEC, NFC for Fittings and Associated Apparatus for use with LT ABC of latest revision, and all referenced standards therein, or latest revision thereof or other recognized international standards that ensures at least a substantially equal quality to the standard mentioned above, will also be acceptable.

The design, performance and test requirements shall confirm to this specification and the following standards. However in case of any conflict, the requirements of this specification shall prevail.

- i) NFC 33-020-1998 / REC:83 / 2010 - Insulation Piercing Connectors
- ii) NFC 20-540 / REC:84 / 2010 - Environment Testing for Outdoor
- iii) NFC 33-004/ REC:84 / 2010 - Electrical Ageing Test
- iv) NFC 33-040/ REC:84 / 2010 - Suspension Equipments
- v) NFC 33-041/ REC:84 / 2010 - Anchoring Devices
- vi) NFC 33-209 - LT Aerial Bunched Cables
- vii) IS .7098 (Part 2) 2011/ IS 14255 - LT Aerial Bunched Cables
- viii) NFC 33-003 – Corrosion Resistance
- ix) ASTM A 480 - Stainless Steel

### 7.3.1. Insulation Piercing Connectors (IPC)

Insulated Insulation Piercing Connectors (IPC) are used for making Tee/Tap-off/Service connectors to an *ABC to ABC & insulated cables /ABC to Bare Overhead Line*. 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 possible even after breaking of the shear head. The connector shall be provided with end cap for tapping end. The IPCs for the network application shall withstand at least 5 kA fault current for 1s without damage.

Insulation Piercing Connectors are designed to make a connection between the uncut main conductor and a branch cable conductor without having to strip either cable to expose the conductor instead the tightening action of the IPC will first pierce the insulation, then make good electrical contact between the main end and branch conductor while simultaneously insulating and sealing the connection.

#### 7.3.1.1 Constructional Features of IPC

- The housing shall be made entirely of mechanical and weather resistant plastic insulation materials and no metallic part outside the housing is acceptable except for the tightening bolt.
- Any metallic part that is exposed must not be capable of carrying a potential during or after connector installation.
- Screws or nuts assigned for fitting with IPC (Insulating Piercing Connector), must

be fitted with torque limiting shear heads to prevent over tightening or under tightening (min & max torque values to be specified by Manufacturer)

- The IPC must perform piercing and connection on Main and Branch cable simultaneously.
- The IPCs shall be water proof and the water tightness shall be ensured by appropriate elastomeric materials and not by grease, gel or paste alone.
- Design of IPC should be such as to not cause damage to insulation of adjacent conductors due to vibration and relative movement during service.
- The connector shall have a rigid removable end cap which can be slide fitted onto the main connector body on either right or left by the installer (depending on site requirement) for sealing the cut end of the branch cable. Once the connector is fitted, it should not be possible to remove the cap without removing the connector.
- All the metallic parts of the connector should be corrosion resistant and there should not be any appreciable change in contact resistance & temperature after overloads & load cycling.
- The contact plates should be made of tinned copper
- Connector teeth should be factory greased & sealed to retard water or moisture ingress & corrosion.
- The insulation material should be made of weather & UV resistant reinforced polymer.
- The outer metallic part should have potential free tightening bolts to allow safe installation on live lines.

The following features of Insulation Piercing Connectors of Type A. IPC, and Type B IPMC to be met for the qualification criteria.

#### **7.3.1.2 Type A Insulation Piercing Connector (IPC)**

1. The connector bodies shall be made entirely of mechanical and weather resistant plastic insulation material made of weather & UV resistant reinforced polymer and no metallic part outside the housing is acceptable except for the tightening bolt or nuts.
2. Any metallic part that is exposed must be free from potential during or after connector installation.
3. Screws or nuts assigned for fitting with IPC (Insulating Piercing Connector), must be fitted with torque limiting shear heads to prevent over tightening or under tightening. While the min & max torque values are to be specified by Manufacturer, these should not exceed 20N Mtr for IPC for main conductor <95 Sqmm and 30 N Mtr for main conductor >95, but < 150 Sqmm.
4. The IPC must perform piercing and connection on Main and Branch cable simultaneously using single bolt for tightening as multiple bolts do not ensure even tightening. The shear bolt / nut shall be suitable for tightening with a hexagonal socket of 13mm.
5. The contact blade of the connector is made of tinned copper.
6. The IPCs shall be water proof and the water tightness shall be ensured by appropriate elastomer materials and not by grease, gel or paste alone. Grease can be applied to protect the contact blade alone and shall not be visible on the outer surface of the connector. Connector should not be dipped in grease.

7. Each IPC should be provided with a cap to seal the cut end of the Branch cable. It should be of a design that once the connector is installed, it shall not be possible to remove the cap without dismantling the connector.
8. Design of IPC should be in such a way not to cause damage to insulation of adjacent conductors due to vibration and relative movement during service.
9. All the metallic parts of the connector should be corrosion resistant and there should not be any appreciable change in contact resistance & temperature after overloads & load cycling and should conform to the long duration tests specified in this standard.
10. There should be protective cap for ports to close the ports in case of non-usage and disconnection.

#### **7.3.1.3 Type B Insulation Piercing Multi Tap Satellite Connector (IPMC)**

1. The connector bodies shall be made entirely of mechanical and weather resistant plastic insulation material made of weather & UV resistant reinforced polymer and no metallic part outside the housing is acceptable except for the tightening bolt or nuts.
2. Any metallic part that is exposed must not be capable of carrying a potential during or after connector installation.
3. Screws or nuts assigned for fitting with IPMC (Insulating Piercing Multi Connector), must be fitted with torque limiting shear heads for the main piercing to prevent over tightening or under tightening. While the min & max torque values are to be specified by Manufacturer, these should not exceed 20N Mtr for IPC for main conductor <95 Sq mm and 30 N Mtr for main conductor >95, but < 150 Sqmm.
4. The branch / service cable connections are to be of piercing type. Satellite service connections should have shear off provision to ensure reliable and consistent connection.
5. There should be protective cap for ports to close the ports in case of non-usage and disconnection.
6. The IPMC must perform piercing of Main cable to satellite adaptor simultaneously using single bolt for tightening as multiple bolts do not ensure even tightening. The shear bolt / nut shall be suitable for tightening with a hexagonal socket of 13mm.
7. The contact blade of the connector is made of tinned copper.
8. The IPMCs shall be water proof and the water tightness shall be ensured by appropriate elastomer materials and not by grease, gel or paste alone. Grease can be applied to protect the contact blade alone and shall not be visible on the outer surface of the connector. Connector should not be dipped in grease.
9. Design of IPMC should be such as to not cause damage to insulation of adjacent conductors due to vibration and relative movement during service.
10. All the metallic parts of the connector should be corrosion resistant and there should not be any appreciable change in contact resistance & temperature after overloads & load cycling and should conform to the long duration tests specified in this standard.

#### 7.3.1.4 Mechanical Tightening and Electrical Continuity

Connectors shall be tightened up to 70% of the minimum torque indicated by the Manufacturer. At this torque electrical contact should have occurred between conductors to be joined. Then connectors shall be tightened up to the breakdown of the shear heads and lastly, up to 1.5 times the maximum torque indicated by the manufacturer.

At 1.5 times the maximum torque indicated by the manufacturer, there shall be no breakdown of any part of the connector or the core conductor.

Maximum rated torque shall not exceed 20N Mtr for conductor <95 Sqmm and 30 N Mtr for main conductor >95, but < 150 Sqmm.

Tightening of screws shall have hex.heads of 10mm, 13mm or 17mm only.

#### 7.3.1.5 Effect of Tightening on Main Core of IPC

The connector shall be fitted approx. at the centre of the main core, which is secure between two anchoring points 0.5 mtr. to 1.5 mtr. apart. At the time of fitting the connectors, the main core shall be under longitudinal tension at 20% of the load indicated in Table 1.

**Table 1**

<b>Nominal Cross Section (Sqmm)</b>	<b>Tensile Strength (Newton)</b>
16	1200
25	1800
35	2500
50	3500
70	5000
150	10000

Tensile strain shall be increased to the full value indicated in the Table 1 and held minute. There should be no breakdown of the core conductor.

#### 7.3.1.6 Effect of Tightening on Branch Core of IPC

Test specimen shall be made up as in Clause 1.5 above except that this shall be do the smallest cross sections of main and branch conductors within its range.

An increasing tensile load shall be applied to the Branch Conductor along the axis of the recess for the Branch cable. Load shall increase at 100 – 500—N / minute until it reaches the value specified in the Table 2 and maintained for 1 minute.

**Table 2**

<b>Nominal Cross Section (Sqmm)</b>	<b>Tensile Strength (Newton)</b>
16 (Alu)	290
25	450
35 & above	500

No slippage or breaking of conductor shall occur.

#### **7.3.1.7 Dielectric & Water Tightness Test of IPC**

1. The connector is tightened up to the minimum torque indicated by the manufacturer.
2. Connectors are mounted on
  - Minimum cross section of main core
  - Maximum cross section of main core

In each case, Branch is of minimum cross section.

3. Protection caps for the branch cable are to be used. An additional water tight cap of any design may be used to seal one end of the main cable if it is immersed under water. No additional gel or any protection is to be provided while installing connector.
4. The entire assembly shall be immersed at a depth of approx. 30 cms. for 30 minutes with the free ends of main and branch cable out of the water.
5. An AC voltage of 6kV shall be applied between the water bath and each of the cores in turn for 1 minute. There shall be no flashover or electrical tripping with a trip setting of 10mA + 0.5mA.

#### **7.3.1.8 Electrical & Ageing Test of IPC as per NFC - 33020**

Two test configurations are used according to Table 3 with the connections tightened to the minimum torque specified by their manufacturers and resistance recorded.

**Table 3**

<b>Configuration</b>	<b>Main Core cross section</b>	<b>Branch Core cross section Tensile Strength (KN)</b>
1st Configuration	Maximum	Maximum
2nd Configuration	Minimum	Minimum

The configurations are subject to 200 heat cycles by injecting suitable current into them. In each cycle the temperature of the conductor shall be raised from ambient to  $120 + 5^{\circ}\text{C}$  as measured by a thermocouple.

The duration of each heating cycle is chosen to maintain a sufficiently steady temperature of  $120 + 5^{\circ}\text{C}$  for 15 minutes. The duration of each cooling cycle is chosen to bring the conductor temperature to within  $2^{\circ}\text{C}$  of ambient.

Nominal heating current is indicated in the Table 4. It shall be permissible to accelerate the

temperature rise by using a current up to 1.5 times the nominal current and to accelerate the cooling period by use of a fan or air blower.

**Table 4**

Nominal Cross Section (Sqmm)	Nominal Heating Current (A)
16	102
25	139
35	175
50	225
70	283
95	350
120	412
150	480
185	545
240	670

The over current test of Clause 1.10 shall be done after 50 cycles if the connector is a safety connector designated to ground a phase connector while the line is being worked on. At the end of the 200 cycles the resistance shall again be measured. It shall not differ from the initial value by more than 12%.

#### **7.3.1.9 Over Current Test of IPC**

Over current test is required to establish the performance of safety Connectors that are intended to provide a safe path to ground for the phases while the line is de-energised for working. It establishes the performance of the connector under short term over load conditions.

After the first 50 cycles of Clause 1.9, the connectors are subject to 4 over currents of 1 sec duration each. The conductor temperature at the start of the over current test should be not

more than 35<sup>o</sup> C. Current density during over current shall be 100A / Sq mm for Aluminium and 95A / Sq mm for Aluminium Alloy Conductor.

Variation in time of over current is permissible between 0.85sec & 1.15sec provided

If maintains the relationship  $I^2 t = K$  where,

I = rms value of over current in Amps.

T = Time in seconds

K = Constant

After the over current test, the electrical ageing test of Clause 1.9 shall be resumed.

#### 7.3.1.10 Type Test of IPC

Type test reports should be submitted from CPRI or any NABL accredited laboratory or the Works Laboratory in case of a foreign manufacturer covering the following (on any convenient size of fitting of same design made from the same materials).

The installation of the connectors shall be done in the laboratory and should be witnessed by the Lab Technicians following instructions provided by the manufacturer.

The test report shall record the embossing and marking on the connector.

The following shall constitute Type Tests for IPC

1. Electrical Ageing Test.
2. Dielectric and Water Tightness Test.
3. Mechanical Tightening test
  - . Effect of Tightening on Main Core
  - . Effect of Tightening on Branch Core
4. Over current test (if applicable)

#### 7.3.1.11 Acceptance Tests

The following shall constitute Acceptance Tests for Insulation Piercing Connectors (IPC):

- i) Visual \*
- ii) Dimensional \*
- iii) Electrical Ageing Test \*\*\*
- iv) Dielectric and Water Tightness Test. \*\*
- v) Mechanical Tightening Test \*\*
- vi) Effect of Tightening on Main Core \*\*
- vii) Effect of Tightening on Branch Core \*\*

The above tests are to be carried out as per sampling plan below. However electrical ageing test on IPC (marked\*\*\*) is to be done on only one connector of each type and size.

In case of random failure/defect, double the sample lot is to be drawn and there should be no failure/defect exceeding half the permissible defects shown in the table below.

Lot Size	For tests Marked*		For Tests Marked **	
	Sample Size	Max. permissible Defects	Sample Size	Max. permissible Defects
Up to 100	2	Nil	2	Nil
101 to 1000	6	Nil	4	Nil
>1001	0.01% subject to min. 6 pieces	0.1% of pieces checked	4	Nil

### 7.3.2. Anchoring Assembly

Anchoring assemblies are used to firmly attach the messenger of ABC to a support and transmit the mechanical tension:

§At the end of a run or to the supporting structures

§At a major change in direction.

Each anchoring assembly shall include

§One number tension bracket / eye hook.

§ One number wedge type tension clamp.

§Flexible rope for fixing tension clamp to bracket.

Anchoring assemblies shall be supplied in sets to ensure compatibility of the materials against corrosion or wear of moving parts

The AA should be designed to Anchor LT – AB cable with insulated messenger. It should consist of an Aluminium Alloy corrosion resistant weather proof body, bail of stainless steel and self-adjusting plastic wedges which shall anchor / hold the neutral messenger without damaging the insulation.

- No losable part in the process of clamping arrangement
- The clamp should conform to the standard NFC 33041 and cable connection clamp of AA should conform to NFC 33042 or equivalent I. S., if any.
- The clamp body should be made of corrosion resistant Aluminium Alloy, belt should be of stainless steel and wedges should be weather and UV resistant polymer.
- Ultimate tensile strength of the clamp should not be less than 15 to 20 KN for 50 / 70 Sq mm insulated messenger wire and 10 KN for 25 / 35 Sq mm insulated messenger wire.
- No breakdown of any part of the clamp, no permanent slippage in respect to clamp and no slippage of insulating messenger, when in contact to the clamp part shall occur after applying & increasing strength up to UTS as per NFC standard.

#### 7.3.2.1. Tension Bracket of AA

The Tension bracket shall be made out of a single piece of aluminium alloy suitable for attachment to pole either by.

- a) 16mm galvanized steel bolts or
- b) Two stainless steel straps of 20x0.7mm.

The tension bracket should be designed to ensure the flexible rope cannot slip out at any angle.

The tension bracket should be rated and tested for the loads specified in Table 5. The load shall be applied at an angle of  $45^\circ$  from the normal to the surface of mounting of the bracket.

**Table 5**

Conductor Size (Sqmm)	Rating	Load for deformation < 10mm (Newton)	Load for deformation <30mm & no break (Newton)
25 - 35	1500 Kg	12000	15000



### 7.3.2.2 Flexible Rope of AA

The anchoring assembly shall be supplied with a stainless steel flexible rope to connect the tension clamp to the tension bracket.

The rope should have sufficient flexibility to ease the torsional movement of the ABC system.

The rope should be pre-fitted with compression type end fittings to secure the tension clamp.

A wear resistant moveable saddle should be un-loosably fitted on the rope to prevent abrasion at the point of fitting into the tension bracket.

The rope should have sufficient mechanical strength to withstand the mechanical test for the complete assembly tests in this specification.

### 7.3.2.3 Wedge Type Tension Clamp of AA

Wedge type clamps shall be used for clamping the messenger without damaging the insulation.

The clamp shall be capable of clamping an uncut messenger so that it can continue without break to the connecting point or next span.

The clamp shall be fully insulating type of mechanical and weather resisting thermoplastic.

No bolts or loose parts are allowed as part of the clamping system.

No tools shall be needed for fitting the messenger into the clamp.

The clamp shall be self tightening and capable of holding without slippage the load specified in the Table 6.

**Table 6**

Conductor Size		Rating	T Start (1 Minute)	T Final (1 Minute)
Sqmm	Dia (mm)	(Kg)	(Newton)	(Newton)
25 - 35	8 - 11	1000	8000	10000
50 - 54	12 - 14	1500	12000	15000
70 -95	13.5 - 16	2000	12000	15000

After fitting the insulated messenger in the clamp, load T start will be held for 1 minute & then load increased to T final at rate between 5000 – 7500 N/mtr.

In each case there shall be no breakdown of any part of clamp and slippage of messenger in relation to the clamp.

The following shall be Type tests for Anchoring Assemblies (AA)

1. Mechanical Test
2. Voltage Test
3. Dynamic Test

4. Climatic Ageing Test
  5. Corrosion Test
- Endurance Test under Thermal & Mechanical Stresses

#### **Voltage Test on Clamp of AA**

Voltage test is carried out on anchor clamps to ensure no damage is caused to the insulated messenger.

A conductive rod of dia corresponding to the average dia that can be accommodated in the clamp is fitted into the clamp, protruding by approx. 50mm at each end of the tightening piece.

The rod and clamp is subject to tensile load as stated in Table 7 below when fixed to a support in its normal manner.

The sample is subjected to 500 cycles of 90 minutes each as described below.

Messenger temperature is raised by passing an AC current to  $60 + 3^{\circ}\text{C}$  within 15 minutes. This temperature is maintained for at least 30 minutes to give a total heating period of 45 mts per cycle.

Messenger is allowed to cool naturally to ambient for further 45 minutes to complete 90 mts cycle time.

Mechanical load is applied during the cycle as per table 8 below. Load F1 is applied throughout the cycle, except for a short period of 5 sec to 60 sec, when it is gradually increased from F1 to F2 at any time during the last 15 minutes of the 90 minutes cycle

**Table 8**

Conductor Size		Rating	F1	F2
25 - 35	8 - 11	1000	2200	5000
50 - 54	12 - 14	1500	4000	7500

There should be no slippage greater than 4mm after 2 cycles or greater than 8mm after 500 cycles. Voltage test is done at the end of the 500 cycles by immersing the test specimen of neutral messenger and clamps in water of resistivity not less than 200 ohm mtr. for 30 minutes.

A voltage of 10kV AC is applied for 1 minute between messenger and water bath using a trip setting of  $10 + 0.5\text{am}$ . There should be no breakdown or tripping.

**7.3.3.** The **1.1 kV Composite Polymeric Insulator** is used in **Low-Tension (LT) distribution networks** to provide insulation and mechanical support for conductors. Below are the key specifications:

#### **1. General Specifications:**

- **Application:** LT overhead lines (up to 1.1 kV)
- **Material:** Composite polymer with a fiberglass core and silicone rubber/housing
- **Insulation Type:** Hydrophobic, UV-resistant polymer
- **Color:** Commonly gray or red

## 2. Electrical Properties:

- **Rated Voltage:** 1.1 kV
- **Power Frequency Withstand Voltage (Dry):**  $\geq 3$  kV
- **Power Frequency Withstand Voltage (Wet):**  $\geq 2$  kV
- **Impulse Withstand Voltage:**  $\geq 9$  kV (positive & negative polarity)
- **Creepage Distance:** As per IS 1445 / IEC standards

## 3. Mechanical Properties:

- **Tensile Strength:**  $\geq 5$  kN (varies by design)
- **Cantilever Strength:**  $\geq 1$  kN
- **Torsional Strength:** As per standard requirements
- **Impact Resistance:** Designed for mechanical shocks & vibrations

## 4. Environmental & Durability Factors:

- **Weather Resistance:** UV & ozone resistant
- **Pollution Class:** Suitable for medium to high pollution areas
- **Hydrophobicity:** Self-cleaning surface prevents moisture accumulation
- **Fire Retardant:** Designed to withstand extreme temperatures

## 5. Standards & Compliance:

- **IS 1445** – Indian Standard for LT insulators
- **IEC 61109** – International standard for polymeric insulators
- **IS 14255 / IS 731** – Additional mechanical and electrical tests

### 7.3.3.2 Movable (Articulated) Link of SA (NA)

Movable Links are used between the Suspension Bracket and Suspension Clamp to allow a degree of movement and flexibility between the two.

Movable Links should be made fully of insulating type of mechanical and weather resistant thermoplastic. A metallic wear resistant ring should however be fitted at point of contact between the Suspension Bracket and the movable link.

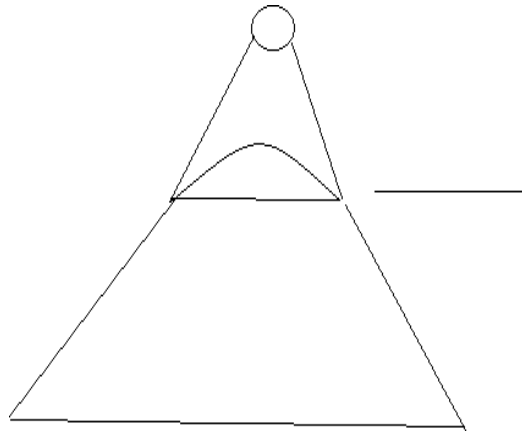
The Movable Link should be unloosably fitted to the Bracket and the Clamp.

### 7.3.3.4. Mechanical Test on Clamp of SA

The Sub Assembly shall be subjected to a vertical load applied as per drawing in accordance with Table 10. There shall be no breakdown or permanent deformation at load T initial for 1 minute or when the load is increased to T final and released.

**Table 10**

Conductor Size		Rating	T Start (1 Minute)	T Final (1 Minute)
(Sqmm)	Dia (mm)	(Kg)	(Newton)	(Newton)
24 - 54	8 - 15	1500	9600	12000
70 - 95	13 - 17	2000	12800	16000



A sample messenger shall be fitted in to a fixed suspension clamp and subjected to a gradually applied longitudinal load of 300N. there shall be no permanent slippage.

#### 7.3.3.5. Voltage Test of SA

A copper foil is wrapped at the clamping point around the maximum size of messenger allowed in that clamp. An AC voltage of 6 KV is applied between the copper foil and nearest conductive point of the clamp or into its absence to the point of fixation. The voltage should be withstood for 1 minute without breakdown or flashover.

#### 7.3.6. Test under Mechanical & Thermal Stress

The test specimen is made up of approx. 10mts of messenger wire strung between two anchor clamps with a Suspension Clamp fixed in the middle. Masses of 40Kg are suspended at a distance of 1-2mtr on either side of the Suspension Clamp with a fixing mechanism of mass 2 + 1 Kg.

The specimen is subjected to 500 cycles of 90 minutes each. Each cycle consists of the following.

- For first 75 minutes a constant longitudinal tension of 4000 N is applied to the messenger for rating of 1500Kg and of 4500N rating of 2000Kg while 64 cycles right and left oscillation are produced on the clamp  $32^{\circ}$  on either side of the vertical.
- During the first 45 minutes an intermittent current of 4-5 A/Sqmm is applied to maintain the conductor temperature at  $60 + 30^{\circ}$  C.
- During the next 45 minutes of the cycle, the conductor is allowed to cool down naturally to the ambient.

- d. At the 75<sup>th</sup> minute, after having completed 64 oscillations, the oscillations are stopped and the longitudinal tension is increased to 7500N for 1500Kg rating and 10000N for 2000Kg rating.

No messenger slippage should occur within the Suspension Clamp during the 500 cycles. At the end of the 500 cycles, the messenger is immersed in water for 30 minutes. It is then tested to withstand 10KV AC for 1 minute with a trip setting of 10 + 0.5 mA. There should be no breakdown or flashover.

### 7.3.3.7. Acceptance Tests

The following shall constitute Acceptance Tests for Insulation Piercing Connectors (IPC)

- Visual \*
- Dimensional (as per SCD and overall dimensions submitted with Tender Offer) \*
- Electrical Ageing Test \*\*\*
- Dielectric and Water Tightness test \*\*
- Mechanical Tightening Test \*\*
- Effect of Tightning on Main Core \*\*
- Effect of Tightening on Branch Core \*\*

The above tests are to be carried out as per sampling plan below. However electrical ageing test on IPC (marked\*\*\*) is to be done on only one connector of each type and size.

In case of random failure / defect, double the sample lot is to be drawn and there should be no failure / defect exceeding half the permissible defects (rounded down) shown in the chart

Lot Size	For Tests marked *		For Tests Marked **	
	Sample Size	Maximum Permissible Defects	Sample Size	Maximum Permissible Defects
Up to 100	2	Nil	2	Nil
101 to 1000	6	Nil	4	Nil
> 1001	0.01% subject to min. 6 pieces	0.1 % of pieces checked	4	Nil

The following shall constitute acceptance tests for Anchor Assemblies

- Visual \*
- Dimensional (as per SCD and overall dimensions submitted with Tender Offer) \*
- Mechanical Test on Bracket \*\*
- Mechanical Test on Clamp \*\*
- Voltae Test \*

The following shall constitute acceptance tests for Suspension Assemblies

- Visual \*
- Dimensional (as per SCD and overall dimensions submitted with Tender Officer) \*
- Mechanical Test on Bracket \*\*
- Mechanical test on Clamp \*\*
- Voltage test \*

The above tests (for AA & SA) are to be carried out as per sampling plan below. In case of random failure / defect, double the sample lot is to be drawn and there should be no failure / defect exceeding half the permissible defects (rounded down) shown in the chart.

	For Tests marked *		For Tests Marked **	
	Sample Size	Maximum Permissible Defects	Sample Size	Maximum Permissible Defects
Up to 100	2	Nil	1	Nil
101 to 500	5	1	2	Nil
501 - 2500	10	2	2	Nil
2501 & above	10 +0. 2%	2 + 10% of additional sample quantity	4	1

#### 7.3.4. Transformer Connection

- The connection to the transformer should be made with Pre-Insulated lugs for phase and street lighting conductors and with an Aluminium Lug for neutral Messenger. If the Bus Bars, bars are of copper, the lugs should be preferably Bi Metallic type. Aluminium & Tinned Copper. The sample shall be submitted and approved by agreement authority before proceeding the installation at site.
- The Barrel of the lug normally insulated with an Anti UV black Thermoplastic tube sealed with a flexible ring. Die reference, size and strip length are to be indicated on the plastic.
- Sizes covered 16-70 & up to 150mm<sup>2</sup> Aluminium XLPE insulated cable.
- Reference standard NFC 33021 or equivalent IS if any.

#### 7.3.5. Cable Tie

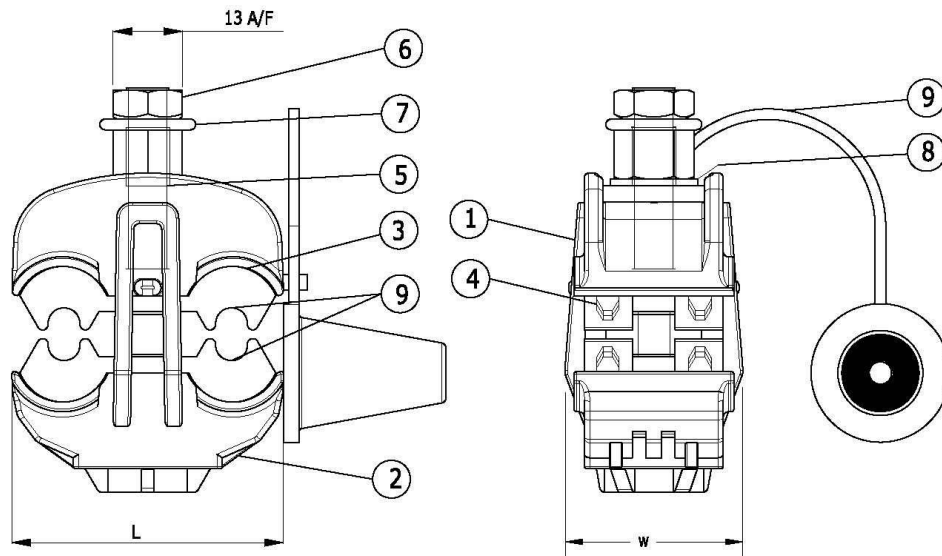
Cable tie shall have sufficient strength for building cable with messenger at a certain distance throughout stringing and shall be of weather proof material. The same shall have locking arrangement.

#### 7.3.6. Cable End Cap

LT AB Cable end cap shall be made up of weather proof thermoplastic material shall withstand voltage test according to NFC standard.

#### 7.3.7. SS Strip & Buckle

Corrosion resistant weather-proof stainless-steel strap in rolls with buckles shall be provided for fixing anchor and suspension clamp.



STANDARD: NF C33-020

CABLE RANGE:

SUITABLE FOR 16 TO 95 SQ.MM MAIN & 16 TO 95 SQ.mm TAP

WEIGHT : "W" GMS ( Approx. ) RATED TIGHTENING TORQUE : "X" ±2 Nm

MARKING : 'BRAND / MAKE'  
'REFERENCE'  
Run : 16 - 95  
Tap : 16 - 95

10	-	PROTECTIVE GREASE	SILICON BASED
9	1	CAP	T.P.ELASTOMER
8	1	WASHER	STEEL
7	1	SEAL RING	NITRILE RUBBER
6	1	SHEAR OFF NUT	AL. ALLOY
5	1	SCREW	STEEL
4	4	CONNECTING BRIDGE	AL. ALLOY
3	2	GUSSET	T.P.ELASTOMER
2	1	LOWER BODY	THERMOPLASTIC
1	1	UPPER BODY	THERMOPLASTIC
REP	QTY	DESCRIPTION	MATERIAL

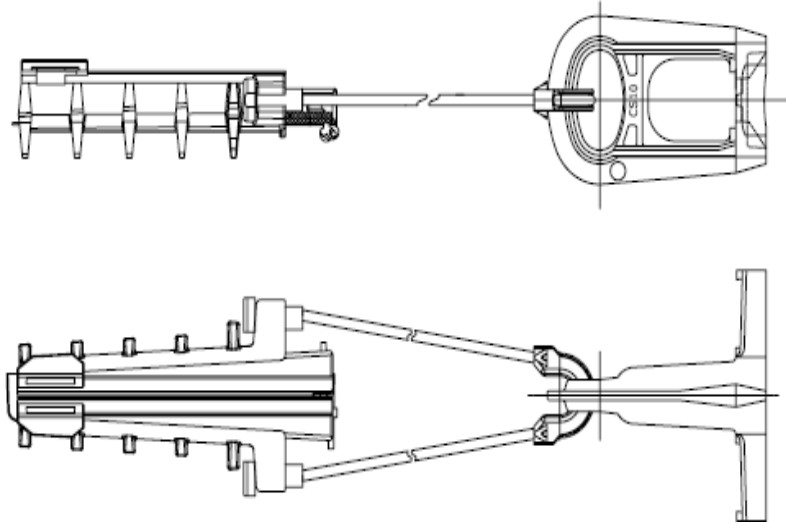
# INSULATION PIERCING CONNECTOR SUITABLE FOR MAIN 16-95mm<sup>2</sup> AND TAP 16-95mm<sup>2</sup>

MATERIAL:---	TREATMENT:---
VOLUME mm3:---	GENERAL TOLERANCE: /
SCALE: NTS	
A4	ALL DIMENSIONS IN MM





**WedWedge Type Anchoring Clamp with Bracket**



**Suspension Assembly  
DELETED**



#### 7.4. TECHNICAL SPECIFICATIONS FOR PSC POLES

This document contains all the relevant Technical Specifications for use by prospective bidders for participation in tender process of Pre-Stressed Concrete Poles used by KSEB Limited predominantly for Distribution Lines

##### DISCLAIMER :

THE SPECIFICATIONS CONTAINED HEREIN ARE INDICATIVE IN NATURE AND KSEBL REPRESENTED BY THE CHIEF ENGINEER (SCM) RESERVES THE RIGHT TO ALTER THESE SPECIFICATIONS EITHER IN PART OR IN WHOLE. KSEBL SHALL NOT BE RESPONSIBLE FOR ANY LOSS OR DAMAGE WHATSOEVER CAUSED TO ANYONE DUE TO ANY CHANGE IN SPECIFICATIONS CONTAINED HEREIN OR ITS NON-AD- HEREENCE, IN FUTURE TENDERS.

#### CONTENTS

1. Section A : Technical Specifications
2. Section B : Drawings

#### SECTION A

##### TECHNICAL SPECIFICATIONS

	<b>Clause No.</b>	<b>Clause C 01. Design</b>
<b>C 02.</b>	<b>Materials</b>	
	<b>a. Cement</b>	
	<b>b. Coarse Aggregate</b>	
	<b>c. Fine Aggregate</b>	
	<b>d. Water</b>	
	<b>e. Pre-stressing steel</b>	
	<b>C. 03 Details of Poles</b>	
	<b>04 Concrete</b>	<b>C 05. Composition</b>
	<b>C 06. Proportioning and Batching</b>	<b>A – General</b>

**B – Mixing**

**C – Conveying**

**D –Placing of ConcreteE – Finishing**

**C 07. Placing of SteelC 08.**

**Manufacture C 09. Lapping of steelC**

**10. Stripping**

**C 11. Holes**

**C 12. Marking**

**C 13. Curing**

**C 14. De-Tensioning**

**C 15. Stacking**

**C 16. Loading**

**C 17. Test**

#### **DESIGN.**

The poles shall be manufactured according to REC standard design and specifications 15/1979 (designed, tested and approved by the Cement Research Institute of India) as per as per drawing no.4 attached as annexure IV . **The poles are to be manufactured with- out providing GI earthing wire.**

#### **MATERIALS.**

##### **a. Cement**

The cement shall be ordinary or rapid hardening and low heat Portland cement conforming to IS 269-1989 or Portland blast furnace slag cement conforming to IS 455-1989 or Portland pozzolana cement conforming to IS 1489/1991. Cement required for the work shall be procured by the contractor at his own cost.

#### **b. Coarse Aggregate**

The coarse aggregate for concrete shall be obtained by breaking granite rocks. The nominal/maximum size of coarse aggregates shall in no case exceed 12mm and conform to the quality of manufactured coarse aggregate in IS specifications (IS 383- 1970). The aggregate should be thoroughly washed before use to get rid of all dirt and other particles.

#### **c. Fine Aggregate**

Sand for use on this work shall be furnished by the contractor from approved sources. Sand can be M sand or river sand. The quality and gradation of sand shall be as specified in IS specification (IS 383- 1970). It shall have a fineness modulus ranging between 2.6 and 3.2. It should be properly washed/ sieved to remove impurities and fines. The specification relating to storage of coarse aggregate shall hold good for sand also.

#### **d. Water**

Water for mixing concrete and for curing poles and for other purposes shall be clean and free from injurious oils, acids, alkalis, organic matter, salt or other impurities.

#### **e. Pre-Stressing steel**

The steel for pre-stressing the concrete shall be hard drawn high tensile steel wire of dia 4mm and having tensile and other properties as specified in IS 6003-1983. **Steel**

**for pre- stressing shall be from the Principal/Genuine manufacturers like TATA steel/ JIN- DAL/ SAIL/ RINL/ JSW steel /ISPAT/ESSAR, etc.** The HTS wire required for the work shall be procured by the contractor at his cost. 4 mm dia. HTS wire cut bits shall be used as stirrups to hold un-tensional steel in position.

The samples of HTS wire shall be made available to KSEBL's Engineer as and when required for conducting test on the same for assuring quality. The cost of such test should be borne by the contractor.

The quantity of cement and HTS wire required for each type of pole are given below.

	Size of poles	Cement in Kg	HTS wire in Kg
a	8m Pole	70.65	10.25kg g

Tenderer are expected to make a study of tender conditions and visit yards, which are functioning at present and acquaint themselves fully of all aspects on setting up and functioning of the yard. All the materials required for the work, will have to be procured by the

Contractor at his cost. All materials shall in general be of the best and most suitable quality for the class of work required, according to standard specifications.

Aggregates used for the manufacture of PSC pole shall conform to IS 383/1970. 12.0mm graded aggregates shall be used. All materials and articles that are used for the work shall be of best quality and shall be approved by KSEBL's Engineer. The contractor shall at his own expense furnish storage sheds and bins and yard for sufficient capacities for the storage of materials arranged by him.

#### **DETAILS OF POLES.**

Technical particulars of 8m PSC poles with working load 200 kg to be manufactured are as follows:

Category	Working load	Cross section		No. of steel wires	
		Bottom	Top	Tensioned  4mm dia	Un-tensioned  4mm dia
8m	200kgs	290mm x90mm	145mm x 90mm	12	2 (3.95m long)

## CONCRETE

The design of concrete mix shall conform to the requirements laid down for controlled concrete in IS 1343/1980 and IS 456/2000. They are also subject to the following special conditions.

Minimum work cube strength at 28 days shall not be less than  $420\text{kg/cm}^2$  and the strength at transfer shall not be less than  $210\text{kg/cm}^2$ .

The mix shall contain low water content as is consistent with adequate workability. If it becomes necessary to add water to increase the workability the cement content should be raised to retain the water cement ratio. The work covered by this item consists of furnishing all labour, materials and equipment and performing all work of manufacture, transporting/conveying, placing and finishing of concrete involved in the work and furnishing and testing samples as per standards and as specified elsewhere.

## COMPOSITION.

Concrete shall be composed of cement, water, fine and coarse aggregate and if considered necessary Air Entraining Agents and Admixtures. Sample of cement, HTS wire, aggregates and concrete used on the works will be taken by the KSEBL's

inspecting officers periodically and tested as per standard specifications to find out their acceptability, strength etc. The cement, which has become caked or clogged or in any way damaged shall not be used. The cement for the work shall be stored properly in a dry place and the contractor should be responsible for this.

#### **C.06 PROPORTIONING AND BATCHING.**

a. **General.** All the batches of concrete shall be proportioned on the basis of the weight of the ingredients. Necessary measuring devices for measuring ingredients of concrete shall be provided by the contractor at his cost.

##### **b. Mixing.**

The contractor shall use mixer for concrete mixing. Mixing of concrete and mortar using concrete mixers shall be governed by the following specifications.

The mixing shall be done in mixers of suitable capacity. The mixing time shall be 2 minutes after all materials have been put into the mixer.

The ingredients (cement, sand, and broken stone) shall be fed in to the mixer simultaneously and in such a manner that the period of flow of each is about the same.

A portion of the water required say about 10% shall precede and a like quantity should follow the introduction of the other materials.

The remaining water should be added uniformly and simultaneously with other materials.

The mixing of concrete, manufacturing of poles, curing, handling, dumping of waste, loading, unloading etc are to be carried out without any form of pollution to atmosphere water etc and disturbance or inconvenience to neighbors.

##### **c. Conveying.**

Concrete shall be conveyed from the mixers to moulds as rapidly as possible/practicable by methods, which will prevent segregation or loss of ingredients. There shall be no vertical drop of greater than 1.0m. The contractor shall use only such equipments, which will avoid segregation.

Placing of concrete.



No concrete shall be placed except in the presence of duly authorised representative of KSEBL. No concrete shall be placed until the moulds are placed in proper position, wires tensioned etc. and the clearance of the KSEBL's Engineer obtained.

Concrete shall be worked readily into the corners, angles of the mould and around the HTS wires. Concrete shall be compacted by spinning, vibrating, shocking or other suitable mechanical means, but without permitting the materials to segregate. Hand compaction shall not be permitted. The concrete shall be placed before the initial set of the cement.

All the concrete shall be placed upon clean damp moulds free from standing or running water, mud etc., before starting placing of concrete, it should be made certain that the transporting and placing equipments are clean and in proper working condition and that the equipment along with operating forces is sufficient and properly arranged to deliver the concrete in its final position, without undue delay and objectional segregation.

The placement of concrete shall be carried on at such a rate, that all concrete surfaces shall not have reached their initial set before additional concrete is placed therein. No pole should be left in a half cast condition during any period. Such poles and all other concrete which is not hard, dense and durable shall be demolished at contractor's own cost.

The methods and equipment used for transporting and placing concrete shall be such as will permit the delivery of concrete of the required consistency in the work without objectionable segregation, porosity or excessive loss of slump. Concrete shall be deposited directly in its final position, and shall not be cast to flow in a manner that will permit or cause segregation. Excessive vibration sufficient to cause segregation and laitance tending to bring an excessive amount of water to the surface shall be avoided.

The concrete work must be discontinued during rains, unless the yard and mixing plant has an overhead covering with permanent structures.

Cube moulds of size 150mm x 150mm x 150mm shall be provided by the contractor for making concrete cubes. A minimum no. of 9 cubes shall be made per day per line of casting at suitable intervals. The cubes cast for the purpose of determining the strength should be cured as far as possible, under conditions similar to those under which the poles are cured. The cubes shall be tested in the field laboratory setup by the contractor at his own cost in the presence of KSEBL Engineer. Poles not conforming to the required strength will be rejected.

#### d. Finishing.

All exposed concrete shall be cleaned of cement mortar or grout and finished neatly. Projections if any, on the pole when it is removed from the mould should be chipped off and finished.

#### **C.07. PLACING OF STEEL.**

Before the steel is placed, the surface of the bars and moulds shall be cleared of all rust, scale, dirt, grease or other foreign substance and after the pre-stressing of the bars shall be maintained in a clean condition until they are completely embedded in concrete. The steel wires shall be accurately placed and secured in position, so that they will not be displaced during the placing of concrete. Wire for tying the reinforcement shall be of soft annealed steel. The wire may be 16 or 18 BWG. Sufficient concrete coverage should be provided to protect the reinforcement from corrosion as shown in the drawings.

#### **C.08 MANUFACTURE.**

The poles shall be cast in the long line 'Pretension method'.

All reinforcement and pre-stressing wires shall be accurately placed and maintained in position as shown in the drawing during manufacture. The untensioned reinforcement shown in the drawing shall be held in position by tying them to stirrups of dia 4mm HTS wire, as directed by the Engineer, which should go round all the wires. All HTS wires shall be accurately stretched with uniform pre-stress in each wire.

The central line of the poles should be perfectly horizontal. Each wire or group of wires shall be anchored positively during casting. Care should be taken to see that anchors do not yield before the concrete attains the required strength.

The bits of HTS wires available at the ends of the beds and shorter length from coils may also be utilized for making the untensioned steel by lapping.

The cover of concrete measured from the outside of the pre-stressing tendon shall be at least 20mm.

#### **C.09. LAPPING OF STEEL.**

The HTS wire shall be continuous over the entire length of the pole. Welding shall not be allowed in any case. Jointing or coupling in the case of indented or crimped wires may be permitted by approved methods other than welding provided the strength of the joint of coupling is not less than the strength of each

individual wires joined.

#### **STRIPPING.**

Under no circumstances shall the forms be struck until the concrete reaches strength of  $210\text{kg/cm}^2$

#### **Holes.**

In the case of 8m poles , if instructions are received during manufacture for providing holes, the contractor is bound to do it at no extra cost. Additional 4 mm HTS wire/helical re- inforcement is to be provided near the holes at the top of 8m PSC poles.

#### **MARKING.**

The poles shall be clearly and indelibly marked with the following particulars during the manufacture, but before testing, at a suitable position so as to be easily read after erection in position.

- a. Month and Year of manufacture
- b. Maker's serial number and mark
- c. **KSEBL**
- d. Class of pole
- e. Mark or line to indicate depth of planting

#### **CURING.**

While in the mould, concrete shall be covered with a layer of canvas, Hessian or similar absorbent materials and kept constantly wet. Such continuous curing of the cast poles shall be arranged by the contractor until the concrete attains a minimum strength of  $210\text{Kg / cm}^2$ . Thereafter, the poles may be removed from the mould and cured so that the total number of days of curing is not less than 7 after the concrete is poured.

Curing outside the mould shall be done keeping the poles submerged in the water in curing tanks. Manual curing will not be allowed.

#### **DE- TENSIONING.**

The pre-stressed wires shall be de-tensioned only after the concrete has attained strength of at least  $210\text{kg/cm}^2$  but in no case should be done before 72 hours of after pouring. The transfer stage shall be determined based on daily test carried out on concrete cubes taken. The contractor shall supply, whenever required by the KSEBL authorities, the results of cube test conducted in accordance with IS 456/2000 on concrete cubes made from the concrete used for the poles. If the purchaser desires, the manufacturer shall supply cubes for testing and each cube shall be tested in accordance with IS: 456-2000. The charges for

testingshall be met by the contractor. The test cubes shall be cast and tested at the site laboratory setup by the contractor. Poles not conforming to the required strength will be rejected.

#### **STACKING.**

Poles shall be stacked in lots in the order of casting on level ground. Each stack shall be given identification board indicating the category of poles, date of casting and the number of poles in the lots. The maximum number of poles in a lot shall be 500. Stacking of untested poles over tested ones shall not be permitted. Stacking should be done in such a manner that the broad side of the pole is vertical. Each tier in the stack should be supported on timber sleepers located at 0.15 times the overall length, measured from the end. The timber supports in the stack should be aligned in a vertical line.

#### **LOADING.**

Loading of poles to vehicles shall be arranged in the order of casting and in no case new poles will be allowed to be loaded when old poles remain unloaded. In case of urgency of work, necessary modifications, adjustments etc, in loading procedure will be intimated by the Engineer.

#### **TESTS.**

Readiness of poles for testing shall be intimated to the Engineer-in-charge concerned who will authorize the officers for testing and approval for dispatch.

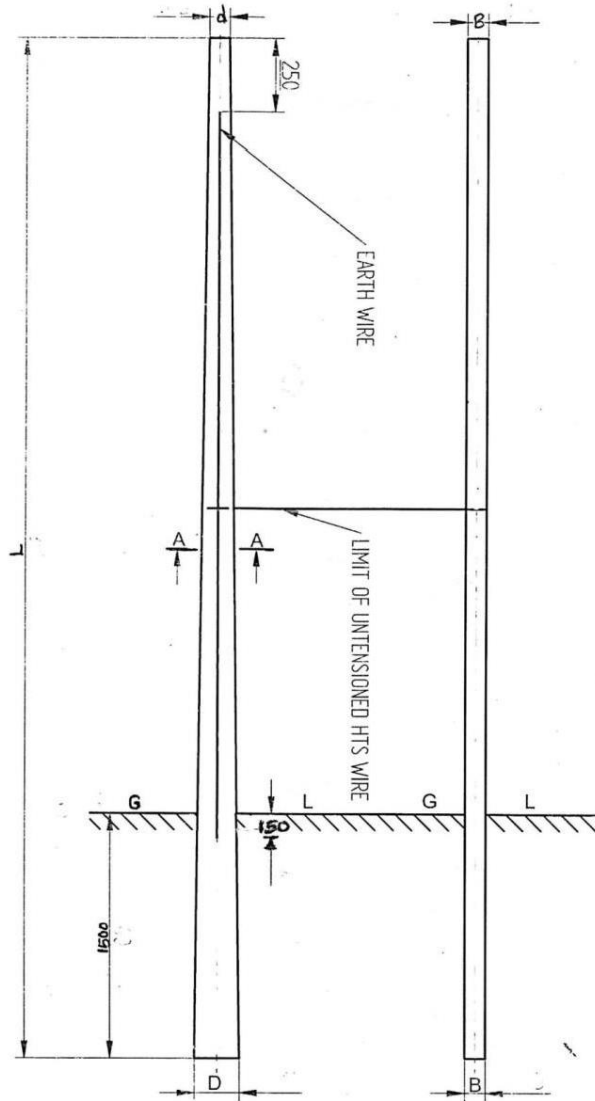
The poles are to be tested for a factor of safety of 2.5.

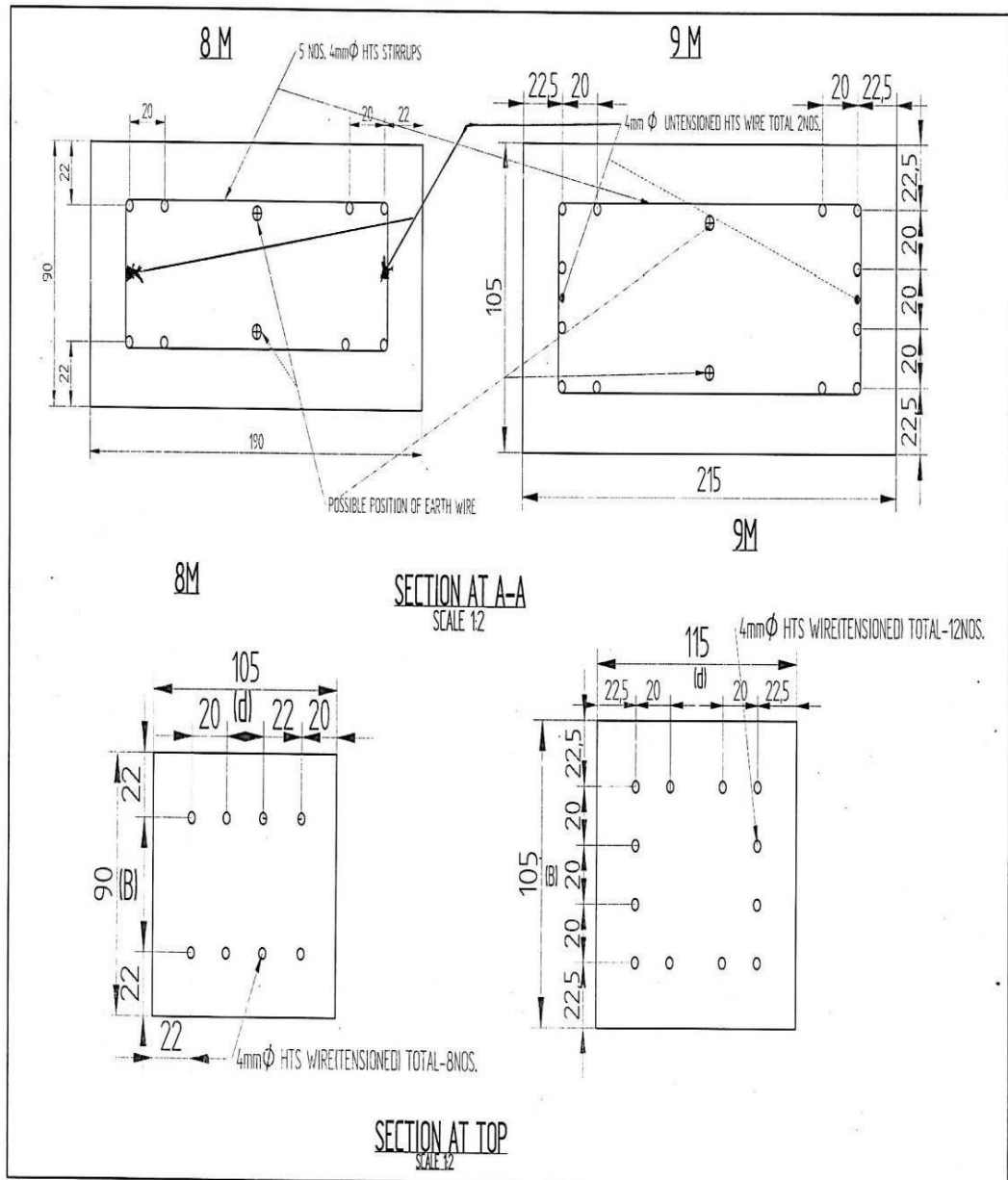
1. Poles made from ordinary Portland cements or blast furnace slag cement shall not be tested until after 28 days from the date of manufacture.
2. Poles shall be **tested for** transverse strength, covers etc. and testing procedures as per IS 1678-1998 and IS 2905-1989. For sub lots up to 100 the number of poles to be tested for transverse strength shall be  
2. A PSC pole shall be deemed not to have passed  
the test if cracks wider than 0.1mm appear at a stage prior to the application of the design transverse load at first crack or the observed ultimate transverse load is less than the de- signed ultimate transverse load.
3. The cost of rejected poles, poles broken during transportation and poles tested to de struction shall be met by the contractor.

4. A **laboratory** with necessary devices for testing of poles, tensioning of wire, testing of cubes etc, (compression testing machine, dynamo meter winch etc.) shall be set up at the site by the contractor at his cost. Periodical calibration and testing of these devices should be arranged by the contractor, at his cost, as and when instructed by the Engineer.
5. The responsibility of arranging the testing shall be with the contractor. Destructive testing as per IS:1678-1998 and IS:2905-1989 subject to a minimum of one pole per month in each category shall be conducted by the contractor. The costs of carrying out the tests have to be borne by the contractor.
6. Handling, loading, transportation and unloading should be done in accordance with IS 7321/1974.

## SECTION B— Drawings

TYPICAL TRANSVERSE FACE & LONG FACE ELEVATION  
FOR 8M & 9M P.S.C POLES



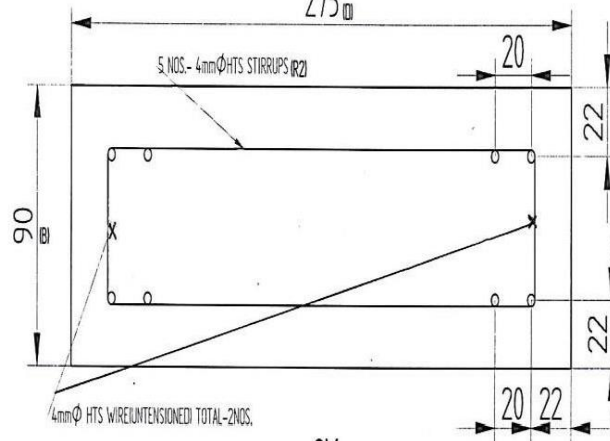


# SECTION AT BOTTOM

SCALE 1:2

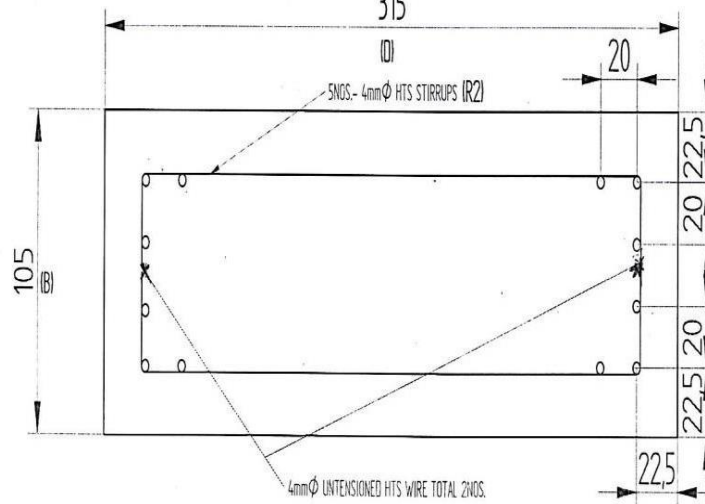
8M

275

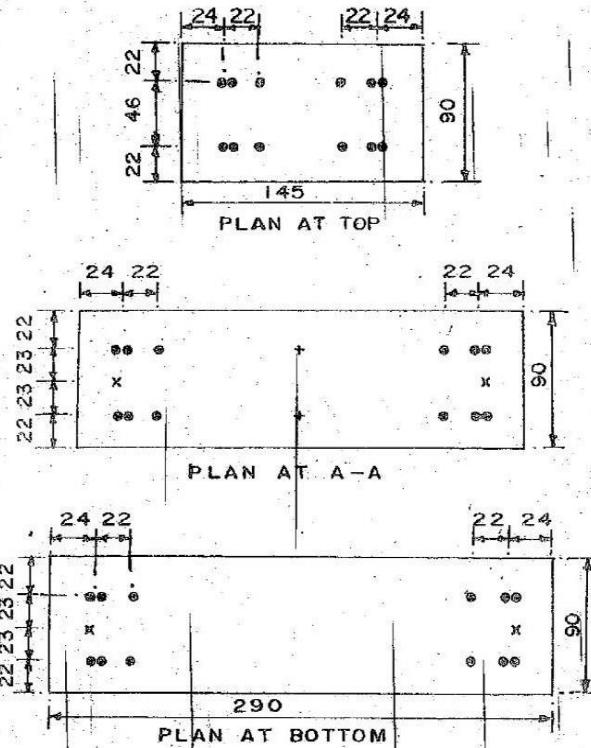
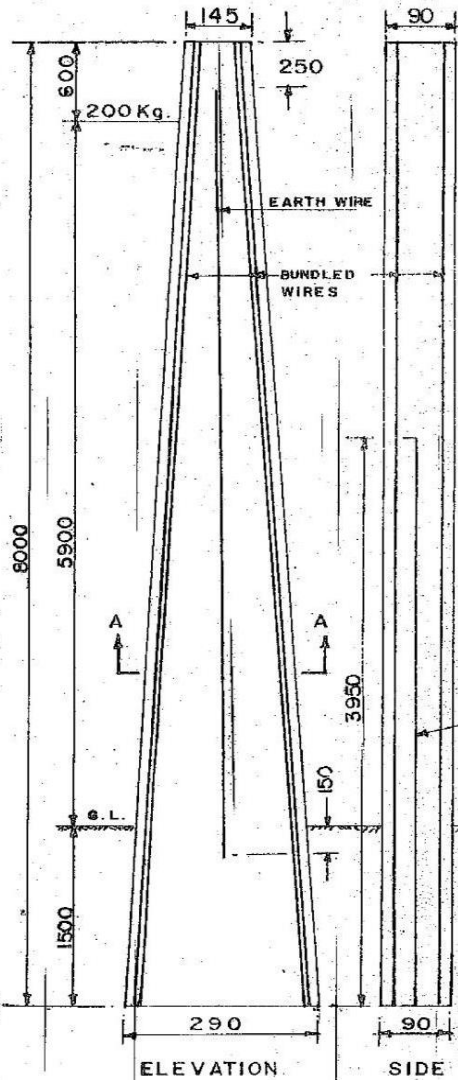


9M

315







FACTOR OF SAFETY	= 2.5
CONCRETE GRADE	= M-420
DIAMETER OF PRESTRESSING WIRE	= 4 mm
ULTIMATE TENSILE STRENGTH OF PRESTRESSING WIRE	= 17500 Kg./cm <sup>2</sup>
NUMBER OF TENSIONED WIRES	= 12
NUMBER OF UNTENSIONED WIRES	= 2
CONCRETE QUANTITY PER POLE	= 0.157 M <sup>3</sup>
STEEL QUANTITY PER POLE	= 10.25 Kg.
WEIGHT OF POLE	= 380 Kg.
CLEAR COVER TO WIRES	= 20 mm
LOCATION OF HOLES AS PER REC STANDARDS	
○ DENOTES TENSIONED WIRES	
× DENOTES UNTENSIONED WIRES	
→ POSSIBLE POSITION OF EARTH WIRE	

ALL DIMENSIONS ARE IN mm  
DRAWING NOT TO SCALE

#### NOTES :-

1. FOR HOLDING PART LENGTH UNTENSIONED WIRES IN POSITION, 4mm Ø M.S. STIRRUPS MAY BE USED WITH SUITABLE SPACING.
2. IF ANY PRACTICAL DIFFICULTY IS EXPERIENCED IN USING PART LENGTH UNTENSIONED WIRES, FULL LENGTH WIRES MAY BE USED INSTEAD. BUT THE TENSION IN THESE WIRES SHOULD NOT EXCEED 5% OF THEIR U.T.S. VALUE. HOWEVER IT MAY BE NOTED THAT USE OF PART LENGTH UNTENSIONED WIRES WILL BE MORE ECONOMICAL.
3. THE ALTERNATIVE OF USING FULL LENGTH WIRES INSTEAD OF PART LENGTH UNTENSIONED WIRES IS NOT FEASIBLE IF THE POLE IS TO BE USED FOR L.T. LINES WITH VERTICAL CONFIGURATION. THIS IS BECAUSE OF NON-AVAILABILITY OF SUFFICIENT CLEARANCE BETWEEN THE EXTENDED FULL LENGTH WIRES AND THE HOLES TO BE PROVIDED IN THE POLE FOR FIXING THE SHACKLE INSULATORS.

चित्र संख्या ४ :- पूर्वबलित कंकरीट स्तम्भ का विवरण  
DRG. NO.4 :- REINFORCEMENT DETAILS OF 8.0 M / 200 Kg.  
PRESTRESSED CONCRETE POLE ( FACTOR OF SAFETY = 2.5 )

## **7.5 Stringing of Covered conductor(CC) Fixing of Tension/ Dead end fittings to the Poles.**

The suspension clamp is to be hung on eye hook/ suspension hook, which is fixed to the pole at a minimum distance of 0.15M from top end of the pole. The messenger wire of bunched cable resting on a pulley is separated from the cable by separating wedges and inserted in the conductor groove of the suspension clamp. The bolt is tightened to a torque of 20 N after which the pulley and wedges are to be removed. The cable is tied to the messenger wire with nylon tie on both sides of clamps. Pole clamps 50 x 8 mm flat shall be used. Eye hook of 20mm diameter MS rod is to be used. The pole clamp shall be made to suite the pole width and the same shall be installed as per REC Construction Standard. All ferrous items shall be hot dip galvanized with zinc coating of 610gms / m<sup>2</sup>.

### **7.5.1 Fittings & Accessories**

The following hardware fittings and accessories shall be used to install, erect & join the aerial bunched cable.

- a) Suspension Clamp with SS strap & Buckle – The Contractor shall install the suspension clamp with SS strap & Buckle. This shall be used to attach the AB cable on the pole by means of a dead-end clamp in terminal poles and for attaching a suspension clamp suitable for holding AB cables in straight lines and angle up to 90 Deg.
- b) Suspension fittings & the corresponding eye hook shall be as per REC Construction Standard No. E – 34. The eye hooks shall be made from minimum 20mm dia MS rods with eye on one end and the other end being suitably flattened with two holes for M16 bolt & nut to fix with the back clamps made from minimum 50x8mm flats. The eye hook, back clamp and bolts & nuts are to be hot dip galvanized.
- c) Dead End fittings shall be bolted type as per REC Construction Standard No. E-35 & the corresponding eye hook shall be as specified above. The dead clamps are to be anchored with the pole with similar arrangement of eye hook & back clamp. In this case, the back clamp shall have two Nos. of holes on both sides for M16 bolts. One side of the clamp shall be used for holding the eye hook with dead end clamp and the other side shall be used for anchoring the Stay.
- d) Nylon Tie- The nylon ties shall be used for tying the conductors with the messenger wire to prevent the phase conductors from chatting against suspension clamp. The nylon tie is made of weather resistant black nylon.

### **7.5.2 Installation of Cable**

The contractor shall be fully responsible for all activities related to installation of AB cable. His responsibilities consist of handling, pulling, stringing & jointing of the cable and connecting transformers and tapping lines as per direction of the Engineer-in-charge.

### **7.5.3 Handling of COVERED CONDUCTOR**

The contractor shall observe following precautions while handling the insulated conductor :

- The cable drums must be stored and transported in an upright position.

- While loading/unloading, the drums shall not be thrown from transport vehicles.
- Cable contact with sharp articles shall be avoided.
- In order to prevent damage to the insulation, the cable shall not be dragged on the ground. Pulleys shall be used for this purpose.
- In order to prevent strands from spreading, always cut the cable with a cutter.
- Use nylon ties or electrical tape to prevent the cable from spreading away from messenger wire after the cutting. Staple the end of the cable on to the drum in order to prevent loosening.
- Do not remove the protective boards from the cable drum before the cable is pulled off the drum. While moving the drum by rolling it on ground, always roll the drum in the direction indicated by the arrow on the flange. When pulling the cable, the spinning direction must be opposite.
- Do not store the drums on wet soil, sandy or humid places.
- Store the accessories in good order for quick easy and correct handling

#### **7.5.4 Pulling the Cable**

The principle is to pull the cable under mechanical tension so that contact with the ground or any other obstacles is avoided. The cable drum should be perfectly in alignment with line to be strung and fixed about 15-20M from the holding the first pulley. Open the cover of the drum to check and ensure that the insulation is not damaged. The pulling which is sent up to the cable drum is about 15-20 M from the pole holding to the last pulley. The pulleys are directly hung to such hook on the poles. The pulley tandem is to be used on angle poles if the line is deviating more than 60°. Pull the guiding rope through all the pulleys. Normal care shall be taken to assume a smooth passage of whole cable through the pulleys, especially in the first pole and on angle poles. One worker should act as brakeman at the cable drum so that the cable is not loosened during the pulling. One worker should follow the cable going through the pulleys and stop the pulling if anything goes wrong.

#### **7.5.5 Stringing Operations.**

The contractor shall follow one of the following methods for stringing.

##### **1. Sag Method**

Fix a dead end clamp on the neutral messenger wire at the pole. The messenger shall be bent behind the clamp to ensure sufficient friction between the messenger and the clamp in the initial stays during stringing. Bind the conductor together beside the dead end clamp using a nylon tie. Hand the clamp on the hook at the end pole. Rewind simultaneously the slack cable length on the cable drum. Attach the come along on the neutral messenger wire at the first pole of the line. Tighten the cable by the shackle or the winch when required sag is obtained. Hand the dead end clamp on the hook and install it on the neutral messenger. Remove the come along. Bind the conductors together on the messenger wire using a nylon tie. Check the length of the cable needed and cut it at an appropriate point.

##### **2. Dynamometer Methods**

Start the operation as above up to the stage of attaching the neutral messenger wire. Install the dynamo meter on the come-along Tighten the cable at the required value by reading the Dynamo meter Finish the stringing as in the sag method operation.

### **7.5.6 Jointing of Cables**

Jointing of cable shall be in accordance with clause 12.3.3 of IS 1255:1993 and manufacturers special instructions. This joining is to be done by skilled personnel.

Cable Damage and Repairs: If the cable is damaged for whatever reasons, it shall be brought to the notice of the engineer in charge and shall not be used without his approval. No joint or splice shall be made in spans crossings over main roads, small rivers or in tension spans. Not more than one joint in the cable shall be allowed in one span. The stringing rate include rates for paving, stringing, clamping, jointing, tensioning and fitting of all necessary accessories.

### **7.5.7 Existing LT Branch Line.**

Existing LT Branch line OH/CC should be connected to the main LT CC using piercing connector/ 70 Sq mm ACC and should be terminated using aluminium cable lugs in the existing Fuse Unit.

### **7.5.8 Street light and Service Connection**

Street light and Service connections should be given using piercing connector / satellite connector of required rating.

### **7.5.9 Angle Point**

Two (2) numbers of tension clamps should be used with appropriate / sufficient loop wherever the angle points exceed above 30° along the drawing cable route on the existing OH line constructed using PSC Poles.

## **7.6 EARTHING:**

Necessary earthing of the constructed lines as per the standard is in the scope of the bidder.

1. Nine (9) Numbers of spiral earth should be provided for every kilometre.
2. Connection to earth should be joint free or GI Ferule double crimped at both ends

## **7.7 Final Checking, Testing and Commissioning**

After stringing have been done as approved by the engineer in charge, to ensure that everything is complete in all respects, the works shall be thoroughly inspected keeping in view the following main points.

All the bolts and nuts should be of hot dip galvanized materials as per relevant IS. The stringing of the cable has been done as per the approved sag and desired clearances are achieved. No damage, minor or major to the cable, messenger wire and accessories The contractor shall submit a report to the above effect to the Engineer in Charge, who shall inspect and verify the correctness of the report. In case it is noticed that some or any of the above is not fulfilled, the engineer in charge shall get such items rectified by the contractor at no extra cost to the purchaser. After final checking, the line shall be tested for insulation resistance in accordance with IS 1255:1983. All arrangements for such testing or any other test desired by the Engineer-in-charge shall be done by the contractor and necessary labour, transport and equipment shall be provided by him. Any defect found out as a result of such tests shall be rectified by the contractor, forthwith at no extra cost to the purchaser. In addition to the above, the contractor

shall be responsible for testing and ensuring that the total and relative sags of the cable as within the specified tolerance. Such tests shall be carried out at selected points along the route as required by the Engineer-in-charge and the contractor shall provide all necessary equipment and labour to enable the tests to be carried out. After satisfactory test on the line and approval by the Engineer in Charge, the line shall be energized at full operating voltage before handing over. The cable shall be megger tested before and after jointing. The AB cable shall be tested for.

- Continuity of messenger wire and conductors
- Absence of cross phasing
- Insulation resistance to earth
- Insulation resistance between conductors
- DC Resistance
- Capacitance As per IS 1255:1983 of the latest issue and as per manufacturer's instructions.

All conductor and messenger wire accessories are properly installed. The insulation of the line as a whole is tested by the Contractor through provision of his own equipment, labour etc., to the satisfaction of the purchaser.

Sd/-

Executive Engineer,  
Electrical Division,  
Kanhangad

## **SECTION – 8**

### **GENERAL CONSTRUCTIONAL PRACTICES**

#### **TABLE OF CLAUSES**

Clause No.	Description
8.1	CONSTRUCTION MANAGEMENT
8.2	DEMOLITION
8.3	TREE CUTTING AND TRIMMING
8.4	INTERRUPTIONS TO EXISTING SERVICE
8.5	GUIDELINES FOR QUALITY CONTROL DURING CONSTRUCTION
8.6	PROJECT MONITORING & SUPERVISION
8.7	SUPERVISION OF QUALITY OF MATERIALS USED, WORKS EXECUTED AND CONSTRUCTION STANDARDS ADOPTED DURING CONSTRUCTION.
8.8	ADHERENCE TO INDIAN ELECTRICITY REGULATIONS
8.9	EARTHING
8.10	DESIGN CONSIDERATION
8.11	PREAMBLE

## **8 GENERAL CONSTRUCTIONAL PRACTICES**

### **8.1 CONSTRUCTION MANAGEMENT:**

- 8.1.1 Time is the essence of the contract and the contractor shall be responsible for performance of his works in accordance with the specified construction schedule. If at any time, the contractor is falling behind the schedule for reasons attributable to him, he shall take necessary action to make good for such delays by increasing his work force or by working overtime or otherwise to accelerate the progress of the work and to comply with schedule and shall communicate such actions in writing to the KSEB Ltd. satisfying that his action will compensate for the delay. The contractor shall not be allowed any extra compensation for such action.
- 8.1.2 The design and workmanship shall be in accordance with the best engineering practices to ensure satisfactory performance throughout the service life. If at any stage during the execution of the contract, it is observed that the erected equipment(s) do not meet the above minimum clearances as required under existing laws and statutes, the contractor shall immediately proceed to correct the discrepancy at his risks and cost.
- 8.1.3 The specifications are intended for general description of work, quality and workmanship. The specifications are not however exhaustive to cover minute details and the work shall be executed according to relevant latest Indian Standards/REC Specifications. In the absence of the above, the work shall be executed according to the best prevailing practices in the trade, recommendations of relevant American or British Standards or to the instructions of Executive Engineer of the concerned Electrical Division, having jurisdiction of the work site location. The Bidder is expected to get himself clarified on any doubts about the specifications etc. before bidding, and the discussions recorded in writing in respect of interpretation of any portion of this document.
- 8.1.4 The nature of the work is such that the installation work shall be carried out promptly and in a minimum time to avoid undue interruption in supply to the existing consumers. The Contractor shall engage sufficient number of workers and supervisory staff to ensure that the installation work including the Commissioning of the Facility is done with minimum interruption time.
- 8.1.5 The contractor shall take all necessary precautions to protect all the existing equipment, structures, facilities & buildings etc. from damage. In case any damage occurs due to the activities of the Contractor on account of negligence, ignorance, accidental or any other reason whatsoever, the damage shall be made good by the Contractor at his own cost to the satisfaction of the Engineer.
- 8.1.6 During the progress of work, the Engineer will exercise supervision of the work to ensure that the technical provisions of the contract are being followed and the work is being executed

accurately and properly. However, such supervision shall in no way relieve the Contractor of the responsibility for executing the work in accordance with the specifications.

8.1.7 The Contractor shall clearly indicate in their offer, the sources from where they propose to procure ABC and the required accessories and / along the road.

8.1.8 The Contractor shall arrange at site all the equipment, instruments and auxiliaries required for testing and commissioning of equipment.

8.1.9 All the raw materials such as steel, zinc for galvanizing, reinforcement steel and cement for foundation, coke and salt for earthing, bolts, nuts, washers, danger plates, phase plate, number plate etc. required for lines & its structures shall be included in the scope of supply.

Bidders shall clearly indicate in their offer, the sources from where they propose to procure the raw materials and the components.

8.1.10 The Contractor shall ensure that the Supervisor appointed by him will observe the safety aspects before start of construction activities and the safety set-up chart shall be prepared and displayed at a conspicuous place.

8.1.11 Contractor shall follow statutory regulations stipulated in Electricity Act 2003 with all amendments till date, CEA (Measures relating to Safety and Electric Supply) Regulations, 2010, CEA (Safety Requirements for Construction, Operation and Maintenance of Electrical Plants and Electric Lines) Regulations, 2011 and also comply with all the statutory rules and regulations prevailing in the State of Kerala including those related to safety of equipment and human beings.

8.1.12 The Contractor shall be responsible for transportation to site of all the materials to be provided as well as proper storage and preservation of the same at his own cost, till such time the erected line is taken over by the KSEB Ltd.

8.1.13 The Contractor shall furnish KSEB Ltd. all drawings for review. He shall list the detailed requirements of interface between Contractor's work and the material and services to be supplied by Contractor.

8.1.14 The Contractor shall have to engage their skilled personnel to render Technical Assistance & Guidance to take care of the material guarantee throughout the erection programme.

Contractor shall make his own necessary arrangements for the following and for those not listed anywhere else:

a) Construction power supply at all work areas



- b) Construction water.
- c) Construction office and store (open & covered)
- d) Construction workshop and material/field testing laboratory
- e) Boarding & lodging arrangement for their personnel.
- f) Fire protection and security arrangements during construction stage

8.1.15 *KSEB Ltd. will not be responsible for any accident that occur at any stage of the work nor will be responsible for any payment of compensation in case of any mishap, and if any legal dispute arises, then Contractor will have to resolve it, at his risk and cost.*

## 8.2 **Demolition**

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 KSEB Ltd. and the Contractor shall deliver all salvaged materials to the KSEB Ltd Store, or as specifically directed by the Engineer in charge.

### 8.2.1 **Clean up:**

The Contractor shall ensure that all work sites shall be free of all manner of debris resulting from the construction activity.

8.2.2 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.

8.2.3 Site clean-up 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.

## 8.3 **Guidelines for quality control during construction:**

The supervision and inspection shall be carried out based on the following documents to be provided by the turnkey Contractor:-

- Approved route map with pole/ cable schedule.
- Quality assurance plan agreed upon by KSEB Ltd. and turnkey contractor
- Contract documents/Letter of award & special conditions of the contract
- Technical specifications of the turnkey contract, for supply and erection of all equipment and materials.
- Relevant drawings/ blue prints, area distribution maps and schematic diagrams.
- Material Specifications and Construction Standards.
- Bar chart/PERT network etc.

## 8.4 Supervision

8.4.1 Physical verification will be carried out by KSEB Ltd. at works which are reported to have been completed by the Contractor. Defects, delays and other discrepancies will be intimated to the Contractor as per procedure accepted by KSEB Ltd.

8.4.2 KSEB Ltd. Engineers may inspect rectification work carried out by the turnkey contractor.

## 8.5 Supervision of quality of material used & works executed and construction standards adopted during construction.

8.5.1 The supervision & inspection of quality of materials & equipment used and works executed and construction standards adopted during construction, should be guided by the relevant portions/ sections of following guidelines and documents in the sequence they are mentioned hereunder, for the type of works being undertaken as per the turnkey contract:-

- (i) Approved Drawings.
- (ii) The technical specifications of the turnkey contract for supply and erection of all equipment and materials including the scope of works etc.

## 8.6 Adherence to Indian Electricity regulations

The Contractor shall follow

- Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2010,
- Central Electricity Authority (Safety requirements for Construction, Operation and Maintenance of Electrical Plants and Electric Lines) Regulations, 2011
- Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010, and other existing laws, rules and statutes with regard to construction, erection and commissioning of electrical installations.

## 8.7 Earthing

### Objectives of Earthing

The basics of safe grounding are:

1. To design and construct system that is capable to carry current under normal and fault conditions to ground.
2. The earth path should be capable of handling magnitude and duration of current as per

the over-current protection of the system without any fire or flash or explosion.

3. Persons in the vicinity of earthed structures and installations shall not be exposed to the dangers of electrical shocks.

## **8.8 Design Consideration**

8.8.1 All medium voltage equipment shall be earthed by two separate and distinct connections. As far as possible, all earth connections shall be visible for inspection. Each earth system shall be so designed that testing of individual earth electrode should be possible. Resistance of earth system shall conform to degree of shock protection desired. Exact location of earthing conductor, earth electrodes and earth pits and earthing connections shall be designed to suit the site conditions. Soil resistivity measurements are to be taken. Size of earthing conductor shall be selected considering fault current, duration of fault and corrosion rate. Earthing conductor shall be of galvanised steel strip/wires. All non-current carrying metal parts shall be connected to earth system at two points, each of 100% rating. Metallic supports, fencing, etc. shall also be connected to earth system.

8.8.2 Pre-Commissioning Checks: Contractor shall perform any additional test based on specialties of the items as per the Field Quality Plan/ instructions of the equipments manufacturer or KSEB Ltd without any extra cost to the KSEB Ltd.

### **8.8.3 Functional Performance Testing (FPT)**

The objective of Functional Performance Testing (FPT) is to demonstrate that each system operates according to the Contract Documents through all specified modes of operation. The Contractor shall provide all documentation as requested by KSEB Ltd. for development of functional performance testing procedures. This documentation shall include, at a minimum, manufacturer's installation, start-up, operation and maintenance procedures. KSEB Ltd. may request further documentation as necessary for the development of functional performance tests. The Contractor shall review the functional performance test procedures developed by KSEB Ltd. and shall respond in writing to KSEB Ltd. regarding the acceptability of the proposed test procedures. The Contractor shall note any necessary modifications to the procedures due to the actual equipment/systems or safety concerns and shall submit these to KSEB Ltd for consideration. The Contractor shall place equipment and systems into operation and continue the operation as required of the testing activities.

The Contractor shall accomplish the functional performance testing of equipment based on procedures developed by KSEB Ltd. and as reviewed by the Contractor.

The Contractor shall provide skilled technicians to operate the systems during functional performance testing.

The Contractor shall correct any deficiencies identified during testing and re-test the equipment as required.

Functional performance testing is intended to begin upon completion of a system. Unless specifically agreed to by the Engineer-in-charge, all support systems shall be complete prior to FPT.

Functional Performance Testing can be requested by the Contractor only when there are no safety issues to the general public and where the works comply with the statutory requirements. Installation shall meet or exceed all applicable State and Local requirements, referenced standards and conform to codes and ordinances of authorities having jurisdiction.

Contractor shall inspect the installation and validate that all prerequisite work is complete.

All pre-commissioning checks, system testing and site testing has been completed and passed without any major deficiencies. Test documents of all equipments, complete in all respects, shall be handed over to KSEB Ltd prior to start of FPT.

The contractor shall be confident that the energisation of the electrical equipment/ network will be trouble free and that all controls and protective systems will function properly.

Contractor shall record results of Functional Performance Tests and report all deficiencies and non-conformance issues to KSEB Ltd.

At the sole discretion of the Engineer-in-charge, KSEB Ltd. may permit the Contractor to make corrections of minor deficiencies observed during a Functional Performance Test. However, the Contractor must document the deficiency and resolution on the appropriate report form.

Upon successful completion of all functional performance tests, the Contractor shall request for operation acceptance.

#### **8.8.4. Operational Acceptance Criteria**

A Certificate of Operational Acceptance can be requested by the Contractor only when

1. Functional Performance testing has been completed satisfactorily.
2. All open issues have been identified and a “punch list” has been prepared. Punch List shall indicate System and equipment or component name, Equipment location and identification number, identified deficiencies, work required, estimated date of rectification etc.
3. All essential training of personnel has been completed and any additional or supplemental training schedules are agreed to and in place.

The request for a Certificate of Operational Acceptance shall be accompanied by:

A Formal Request for a Certificate of Operational Acceptance.

The completed Site Inspection Report, as per approved Field Quality Plan (FQP), verifying that all work, for which operational acceptance is requested, has been inspected and validating that it has been constructed in accordance with the approved design and Standards.

A copy of the approved design & construction drawing along with a list of all approved and non-approved amendments.

All related system configuration and single line diagrams and documentation are in place, and have been approved by the Engineer-in-charge.

**An As-Built hard copy drawing highlighting and listing all outstanding works.**

Operation and Maintenance Manual of all equipment.

A Bill of Quantities with Costs prepared in accordance with KSEB Ltd.'s requirements for all works that are to become KSEB Ltd's asset.

The submission must be complete and include all the elements for the works. KSEB Ltd. will not accept incomplete submissions. Where KSEB Ltd considers the Submission to be incomplete, the Contractor will be advised by KSEB Ltd.

#### **8.8.5 Operational Acceptance Certificate**

Upon completion of the review process and the Submission assessed as complying with the Requirements, a Certificate of Operational Acceptance will be issued to the Contractor. KSEB Ltd. shall carry out the operation and maintenance of the system for which a certificate of operational acceptance has been issued.

#### **8.8.6 Handing over of Asset:**

After successful completion and charging of the line, the entire newly created network is to be handed over to the Engineer in charge. The handing over note, covering the details of all the total materials used and total work executed must be signed jointly by the Contractor and the Engineer in charge of the work. Copy of handing over note must be attached along with final bill.

#### **8.9 PREAMBLE:**

All the Technical Schedules shall be filled in and completed by the tenderer, and submitted with the Tender.

All documentation necessary to evaluate whether the equipment offered is in accordance with this Specification shall be submitted with the Tender.

All data entered in the Schedules of Technical Data are to be regarded as values guaranteed by the Tenderer and shall not be deviated from unless approval to do so is obtained from KSEB Ltd.

All data entered in the Schedules of Informative Data are also to be regarded as values guaranteed by the Tenderer. These data may only be deviated from if approved to do so is obtained from KSEB Ltd.

Necessary copies of the schedules format shall be used if necessary to provide space to submit data on all the equipment offered.

Equipment or Systems offered which are not in accordance with the Annexure Specification shall be listed and described in Schedule of Deviations from Technical Specifications.

Sd/-

**Executive Engineer,  
Electrical Division,**

**Kanhangad**

## SECTION – 9

### **BIDDING PROCEDURE**

#### **TABLE OF CLAUSES**

CLAUSE No.	DESCRIPTION
9.1	SUBMISSION OF BIDS
9.2	OPENING OF BIDS

### **9 BIDDING PROCEDURE**

#### **9.1 Submission of bids**

Submission of bids shall be in accordance with as detailed in section 2.22

#### **9.2 Opening of Bids**

The bid shall be opened online at the office of the Executive Engineer, Electrical Division Kanhangad on the date and time mentioned above, in the presence of bidders/their representatives who are present. If the tender opening date happens to be a holiday, the tender opening process will be carried out on the next working day. In case it is not possible to open the tender on the specified time and date due to any other reason, the revised time and date will be published on the **website.etenders.kerala.gov.in**

9.2.1 Cover No. 1 shall be opened first on the date mentioned in the tender notice.

9.2.2 The qualification of bidders shall be decided on the following grounds.

- Whether the bidder has remitted EMD and tender document fee.
- Whether the bidder satisfies the conditions specified for the financial capability.
- Whether the bidder satisfies the conditions specified for the technical capability.

9.2.3 All the bidders who satisfy all the above conditions shall be considered eligible for the opening of their price bids. The selection so made shall be final and no appeal shall lie against it. The KSEB Ltd reserves the right to disqualify any bidder without assigning any reason whatsoever.

9.2.4 The price bids of qualified bidders as per clause 9.2.2 above alone will be opened and considered.

9.2.5 Incomplete tenders are liable to be rejected without assigning any reason thereof.

9.2.6 All amendment(s) and corrigendum(s) shall be published on the website **www.etenders.kerala.gov.in** and KSEB Limited shall not be responsible for bidder's negligence

in checking the website regularly for any updates on this tender.

- 9.2.7 Acceptance of the bid rests with the Kerala State Electricity Board Limited, which is not bound to accept the lowest or any other bid. The KSEB Ltd will not be responsible for any expenses or losses that may be incurred by the bidder in the preparation of the bid.
- 9.2.8 The declaration by the bidder that they are not having any connection directly or indirectly with the concerned KSEB Ltd Employees, should be filled in.
- 9.2.9 Sufficient data and bank reference to permit an evaluation of the size and financial stability of the firm / bidder should be furnished.
- 9.2.10 There is no provision for correction of bids once submitted online. However, revised bids can be submitted by the bidder, in case of corrections, till the last date & time of bid submission and the most recent/latest bid submitted before the stipulated date & time of bid submission shall only be considered by [www.etenders.kerala.gov.in](http://www.etenders.kerala.gov.in) website for further processing.
- 9.2.11 The bidder shall produce the original copies of documents, in physical format, if asked by KSEB Limited for verification.
- 9.2.12 The formats may be used without any modifications. If it is found necessary to suit the purpose for which the tender is invited, any additional information shall be furnished in separate sheets in **pdf**.

Sd/-

**Executive Engineer,  
Electrical Division  
Kanhangad**



## **SECTION –10**

### **APPENDIX CONTENTS**

<b>APPENDIX</b>	<b>Description</b>
<b>1</b>	<b>Details of LT covered conductor line construction locations</b>
<b>2</b>	<b>Service Conditions.</b>
<b>3</b>	<b>Guaranteed Technical Particulars – Cable</b>
<b>4</b>	<b>Guaranteed Technical Particulars – Accessories</b>

## APPENDIX I

### DETAILS OF LT COVERED CONDUCTOR LINE CONSTRUCTION AND EXISTING LT LINE DISMANTLING LOCATIONS

#### Scope:-

SL.NO.	LOCATION	Quantity in Mtrs
1	[CW-6701-202425-45] LT LINE CONSTRUCTION AT VENNANNUR	550
2	[CW-6696-202425-67] Reconductoring LT 1 ph Line Of Convent 1, Convent 2 , St Peters and Pattena Junction Transformers	1850
3	[CW-6696-202425-69] Re conductoring LT 1 ph Line Of Puthukai I St,Puthukai Ii nd ,Naram Kulam and Chirapuram Transformer	2780
4	[CW-6696-202425-68] Re conductoring LT 1 Ph Line Of Ramkandam,Kavumbhagam,Sreenarayana,Kongot	940
5	[CW-6701-202425-52] RECONDUCTORING LT LINE SUB STATION TO MAVUNGAL	900
6	[CW-6697-202425-67] Reconductoring with LT covered conductor under Balal area	4000
7	[CW-6750-202425-86] Constructing/Conversion of LT OH line using ACSR Covered Rabbit for interlinking DTRs	700
8	[CW-6697-202425-69] Reconductoring using LT covered conductor under Kammadam and Kodankallu transformer	3000
	<b>Total</b>	14720

**Executive Engineer  
Electrical Division  
Kanhangad**



## **APPENDIX – 2**

### **Service Conditions**

Topographically the area has four Districts with three distinct regions — the sandy coastal belt, the rocky highlands formed by the hilly portion of the Western Ghats and lateritic midland.

The district has a humid climate with a very hot season extending from March to May. The maximum temperature in the month of May comes to 36°C and the lowest temperature is about 18°C in December. The most important rainy season is during the South West Monsoon which sets in the first week of June and extends up to September. The North-East Monsoon extends from the second half of October through November. The average annual rainfall is 3266 mm.

Bidders are, however, advised to visit & assess the site requirements before quoting.

All out door Equipment/material to be supplied against this specification shall be suitable for satisfactory continuous operation under tropical conditions as specified below:

1. Maximum ambient temperature 50°C
2. Minimum ambient temperature 10°C
3. Limits of variation of ambient temperature over a period of 24 hours 15°C
4. Maximum Relative humidity 100%
5. Maximum annual rainfall 4500 mm
6. Maximum wind pressure 130 kg/ m<sup>2</sup>
7. Isokeraunic level  
(Average number of Thunder storm days) 50 per annum
8. Average number of storm days 90 per annum
9. Altitude Up to 1000 m above MSL
10. Moderately hot and humid tropical, Yes climate, conducive to rust and fungus growth
11. Seismic level (horizontal acceleration) 0.3
12. Seismic Zone as per IS : 1893 —1984- III&IV

Note :

Any specific meteorological data other than those listed above applicable for a particular equipment/item will be available in the technical specification for that equipment/ item.

When value specified above contradicts with respective equipment Technical Specification, the later will prevail for that equipment.

The atmosphere in the area is laden with salt in coastal areas, and town gases and smoke with dust in suspension in urban areas.

Heavy lightning is usual in the area during the months from May to November.

The materials supplied and the work quality shall, therefore be, sufficient to withstand the climatic conditions stated above.

All parts of the work shall be protected against corrosion under service conditions. Except where otherwise specified all ferrous parts shall be galvanised.

For painted steel enclosures/ cubicles, manufacturer shall prove its resistance against pollution by passing 1000 hrs salt spray test in accordance with ASTM B117 Standard.

The protection shall also prevent corrosion during transport and handling. Damage to the protection during transport and handling shall be repaired to the same quality as specified for the object.

**APPENDIX -3**  
**GUARANTEED TECHNICAL PARTICULARS – LT CC**  
**(The product should meet the Technical Specifications )**  
***PART- A***

Sl No	Description	Requirement/Confir mation	Offered by the Bidder.
	Name & address of Manufacturer		

<p>1.</p> <p><b>ACSR Covered Rabbit Conductor – Specifications</b></p> <p>The <b>ACSR Covered Rabbit Conductor</b> is an <b>Aluminum Conductor Steel Reinforced (ACSR)</b> with <b>XLPE/PVC insulation</b> used in <b>low-tension (LT) overhead distribution networks</b>. It provides <b>better mechanical strength, corrosion resistance, and electrical performance</b> compared to bare conductors. <b>steel reinforcement</b></p> <p><b>4. Insulation Specifications</b></p> <ul style="list-style-type: none"> <li>• <b>Color:</b> Black (UV-resistant)</li> <li>• <b>Dielectric Strength:</b> <math>\geq 3 \text{ kV/mm}</math></li> </ul> <p><b>5. Environmental &amp; Durability Factors</b></p> <ul style="list-style-type: none"> <li>• <b>Weather Resistance:</b> UV &amp; moisture-resistant</li> <li>• <b>Thermal Stability:</b> Withstands temperatures from <b>-40°C to +90°C</b></li> <li>• <b>Fire Retardant:</b> Low smoke, halogen-free options available</li> </ul> <p><b>6. Standards &amp; Compliance</b></p> <ul style="list-style-type: none"> <li>• <b>IS 398 (Part 2) – 1996</b> (ACSR Conductors)</li> <li>• <b>IS 14255</b> (Covered Conductors)</li> <li>• <b>Thickness:</b> Typically <b>1.4 – 1.8 mm</b> (as per standard)</li> <li>• <b>IEC 61109</b> (Insulation properties)</li> </ul>	<p>Yes</p>	
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2	Cable drums/label shall bear ISI Mark <b>5. Environmental &amp; Durability Factors</b> <ul style="list-style-type: none"> <li>• <b>Weather Resistance:</b> UV &amp; moisture-resistant</li> <li>• <b>Thermal Stability:</b> Withstands temperatures from <b>-40°C to +90°C</b></li> <li>• <b>Fire Retardant:</b> Low smoke, halogen-free options available</li> </ul>	Yes	
2	Cable drums/label shall bear ISI Mark <b>5</b>	Yes	
3	ISI License shall remain valid till order is Completed	Yes	
4	Colour of XLPE Insulation	Black	
5	Shape	compacted	
6	Standard length in case 500 mtrs+ 5 % tolerance longer length acceptable	Yes	
7	Non-Standard length 50% of Std. length up to 10% of ordered quantity	Yes	
8	Packing shall contain only one Length.	Yes	
9	Packing material: Wooden drums as per IS: 10418/1982 duly painted	Yes	
10	Following shall be embossed on cable & Marking on drum shall be as per IS: 14255/1995		
10a	Purchaser (Employee)	Yes	



10b	1100 Volts	Yes	
10c	IS:14255/1995	Yes	
10d	Year of manufacture	Yes	
10e	Trade Mark	Yes	
11	Conductor	Yes	
14	Volume resistivity of insulation		14
a	At 27°C - $1 \times 10^{13}$ Ohm-cm. Min	Yes	
b	At 70°C - $1 \times 10^{11}$ Ohm-cm. Min	Yes	
15 .	Tensile strength of Insulation & 2 sheath -12.5 N/mm Min.	Yes	
17	Overall tolerance in supply of ordered total quantity shall be + 2 %( Plus and minus two %)	Yes	

Name and Address of the bidder

## **PART- B**

Manufacturer has to furnish below details about material for information

<b>Sr No</b>	<b>Particulars</b>	<b>Confirmation</b>
1	ISI License for IS:14255/1995	Yes
1a	Number	
1b	Date of expiry	

## **PART C**

<b>Sl. No</b>	<b>Particulars</b>	<b>Confirm- ation</b>	
1	ISI License	Yes	
2	Proof if applied for renewal of ISI License	Yes	

3	TYPE TEST CERTIFICATE:Type test certificate from Govt. of India approved Laboratory						Yes	
	Size of AB Cable							
	a	Name of Lab. & City Name						
	b	T.R. No.						
	c	Date						
4	List of plant and machinery						Yes	
5	List of testing facility available						Yes	
6	List of orders pending/executed						Yes	
6a	with Employer						Yes	
6b	with agencies other than Sr. no. 6(a)						Yes	

Name and Address of Bidder

#### APPENDIX -4

## **GUARANTEED TECHNICAL PARTICULARS – LT CABLE ACCESSORIES**

### **Dead end clamp Assembly suitable for 35 - 70 Sq.mm Insulated Messenger**

<b>Sl. No.</b>	<b>Particulars</b>	<b>Requirement / conformation</b>	<b>Offered by bidder</b>
1	Type of clamp	<b>Dead end clamp Assembly</b>	
2	Name & address of the Manufacturer		
3	<b>Standard</b>	NFC 33-041	
4	Range of messenger size	35 - 70 Sq.mm Insulated Messenger	
5	Type of design	As per NFC 33-041 Standard	
6	Installation(with/without disassembly)	Ready-to-use (without disassembly)	
7	Type & grade (metallic/non-metallic material)	Heat treated aluminium Alloy for Body and Weather & UV resistant reinforced polymer for wedge	
8	Flexible rope	Stainless steel	
9	Whether Bolts or loose parts provided with clamping system	No	
10	Colour of non-metallic parts	Black/Gray	
11	Dimensions (mm)	As per approved drawing	
12	Di-Electric test (Min 6 KV AC for 1 minute)	Yes. Withstand Min 6 KV AC for 1 minute	
13	Maximum load holding capacity (KN)	15 KN	
14	Is type test report enclosed as per NFC 33-041	Yes	

**Anchoring Bracket**

<b>Sl. no</b>	<b>Particulars</b>	<b>Requirement / conformation</b>	<b>Offered by bidder</b>
1	Type of Bracket	Anchoring Bracket	
2	Name of the Manufacturer		
3	Place of the Manufacturer		
4	Type of design	As per NFC 33-041 Standard	
5	Type & grade Metallic material	Heat treated aluminium Alloy	
6	Dimensions (MM)	As per approved drawing	
7	Ultimate Tensile Strength (KN)	15 KN	

**Suspension clamp assembly(NA)**

	<b>Particulars</b>	<b>Requirement / conformation</b>	<b>Offered by bidder</b>
1	Type of Clamp	<b>Suspension clamp assembly</b>	
2	Name of the Manufacturer		
3	Address of the Manufacturer		
4	Standard	NFC 33-040.	
5	Type of design	Boltless type	
6	Range of messenger size	35 to 95 Sq.mm Insulated Messenger	
7	Installation (with / without disassembly)	Without disassembling (Ready-to-use)	
8	Is bracket & movable link included	Yes	
9	Type & grade Metallic / Nonmetallic Material	Heat treated Aluminium Alloy for Bracket and Weather & UV resistant reinforced polymer for Suspension clamp body, movable link & lever	
10	Colour of Non metallic parts	Black	
11	Breaking Load (KN)	15 KN	
12	High voltage test (Acceptance test)	Yes. Withstand Min 6 KV AC for 1 minute	
13	Maximum Load holding capacity (KN)	15 N	
14	Are all type test reports as per NFC 33 040 enclosed	Yes	

### **INSULATION PIERCING CONNECTOR**

	<b>Particulars</b>	<b>Requirement / conformation</b>	<b>Offered by bidder</b>
1	Name of the Manufacturer		
2	Applicable Standard	NFC 33-020	
3	Type of Connection required	Main : 16 - 95 sq.mm Tap : 1.5 - 16 sq.mm	
4	Application	For Service connection / Street light connection./ Earthing	
5	Application in kV	1.1 kV	
6	Material Composition	a Body – Nylon b Contact plates – Tinned Copper c Bolt – Galvanized steel d Seals & End cap – Elastomers	e
7	Are end caps for branch cable A Slide on type B Rigid type	Rigid Type	
8	Are Torque limiting shear heads provided to tightening bolts	Yes	
9	Is any metallic part carrying potential in operations exposed during installations	No	
10	Range of cable sizes accommodated for Main and Branch	Main : 16 - 95 mm <sup>2</sup> Tap : 1.5 – 16 mm <sup>2</sup>	
11	Min and Max torque defined(Nm)	Minimum : 7 Nm Maximum : 9 Nm	
12	Rated tightening torque in Nm	7 Nm	
13	Max Tensile Load for no breakdown of main conductor (for each cross section)	In conformity with NFC 33020	
14	Max Tensile Load on Branch conductor for no break/ Slippage.	In conformity with NFC 33020	
15	Voltage withstand under water immersion.	6 KV AC for 1 minute	
16	Dimension	As per approved drawing	

### **INSULATION PIERCING CONNECTOR**

	<b>Particulars</b>	<b>Requirement / conformation</b>	<b>Offered by bidder</b>
1	Name of the Manufacturer		
2	Application standard	NFC 33 020	
3	Type of connection required	Main : 16 - 95 sq.mm Tap : 16 - 95 sq.mm	
4	Application	ABC to ABC	
5	Application	1.1 KV	
6	Is any metallic part carrying potential in operation exposed during installation	No	
7	Are end caps of branch cable a) Slide on type (b) Rigid	Slide on type	
8	Are torque limiting shear heads provided to tightening bolts	Yes.	
9	Range of cable sizes accommodate d for Main & Branch	Main : 16 - 95 sq.mm Tap : 16 - 95 sq.mm	
10	Minimum & Maximum torque defined	Minimum : 16 Nm Maximum : 20 Nm	
11	Torque for establishing connection between main and branch (Nm)	Less than 11.55 Nm	
12	Max. Tensile load for no breakdown of Main conductor (for each cross section)	In conformity with NFC 33020	
13	Max. Tensile load on branch conductor for nobreak/slippage	In conformity with NFC 33020	
14	Voltage withstand under water emersion	6 kV AC volatage for 1 min	



### **STEEL STRAP & BUCKLE(NA)**

	<b>Particulars</b>	<b>Requirement / conformation</b>	<b>Offered by bidder</b>
1	Material composition	SS 202	
2	Tensile strength per loop filled with one number buckle	Min 7.5 KN	
3	Width of Strap	20mm $\pm$ 0.2	
4	Thickness of Strap	0.7mm $\pm$ 0.05	
5	Marking on the Strap for manufacturing date, name of manufacturer and length of 250mm (yes/no)	Yes	
6	Supplied in a plastic dispensable casing for 50 meteres(yes/no)	Yes	
7	Whether type test certificates furnished	Yes	

### **BUCKLE**

	<b>Particulars</b>	<b>Requirement / conformation</b>	<b>Offered by bidder</b>
1	Material composition	SS 304	
2	Weight of the material	7.5 Grams	
3	Tensile strength (Buckle assembled with one loop of ss Strap)	Min 7.5 KN	
4	Supplied as a box of 100 nos weach	Yes	

## **PSC POLE 8MTR**

### **KSEB Standard Specifications**

The **8-meter Pre-Stressed Concrete (PSC) pole** is commonly used in **LT overhead power distribution** in Kerala State Electricity Board (KSEB) networks. It is designed for high durability, mechanical strength, and resistance to environmental factors.

## 1. General Specifications

- **Type:** Pre-Stressed Concrete (PSC) Pole
- **Height:** 8 meters
- **Cross-Section:** Rectangular
- **Load Class:** 200 kgf (as per application)
- **Concrete Grade:** M40 or M50
- **Reinforcement:** High Tensile Steel Wire / HT Strands
- **Prestressing Method:** Pretensioning
- **Taper:** Typically 1:100

## 2. Mechanical Properties

- **Ultimate Load Capacity:** 200 kgf (approx. 2 kN)
- **Factor of Safety (FoS):** 2.5 to 3 times working load
- **Bending Strength:** Designed to withstand wind loads & conductor tension

## 3. Electrical Properties

- **Insulation:** Concrete is non-conductive, preventing leakage currents

## 4. Durability & Environmental Resistance

- **Weatherproof:** Resistant to heat, rain, and corrosion
- **Life Expectancy:** More than 30 years under normal conditions
- **Resistant to:** Termites, moisture, and UV degradation

## 5. Standards & Compliance

- **IS 1678:** Specification for PSC poles
- **IS 2905:** Methods of testing for concrete poles
- **KSEB Technical Standards:** As per tender/approval requirements

## **CROSS ARMS AND HARDWARES**

AS PER KSEB SPECIFICATIONS

## **LT STAY MATERIALS**

AS PER KSEB SPECIFICATIONS

## **1.1KV POLYMERIC PIN INSULATORS**

AS PER TECHNICAL SPECIFICATIONS INDICATED

## **ANNEXURE-I**

### **TENDER AGREEMENT**

(Specimen form of Agreement to be signed and forwarded along with his tender by each tenderer on Kerala Government Stamp Paper worth Rs. 200/-)

Article of agreement executed on this .....  
Day of ..... Between the Executive Engineer, Electrical  
Division Kanhangad(hereinafter referred to as "The Board") on  
the one part and Sri .....  
(Hereinafter referred to as the "Bounden") of the other part.

Whereas in response to the Notification No .....  
..... dated ..... the Bounden has submitted to the Board  
specified therein subject to the terms and conditions contained in the said  
tender documents.

WHEREAS the Bounden has also deposited with the Board a sum of / furnished  
a demand draft for a sum of Rs. .... as Earnest Money for execution  
of an agreement undertaking the due fulfilment of the contract in case his tender  
is accepted by the Board.

Now these present witness and it is hereby mutually agreed as follows:

1. In case the tender submitted by the Bounden is accepted by the Board and the contract for supply/ works is awarded to the Bounden, the Bounden shall within fifteen days of acceptance of his tender execute an agreement with the Board incorporating all the terms and conditions under which Board accepts his tender.

2. In case the Bounden fails to execute the agreement as aforesaid Incorporating the terms and conditions governing the contract, the Board shall have power and authority to recover from the Bounden any loss or damages caused to the Board by breach as may be determined by the Board, appropriating the earnest money deposited by the Bounden and if the earnest money is found to be inadequate, the deficit amount may be recovered from the Bounden and his properties movable and immovable in the manner hereinafter contained. The bounden will have no claim or right over the moneys and /or securities and EMD appropriated by Board and these moneys and/ securities shall belong to the Board.

3. All sums found due to the Board under or by virtue of this agreement shall be

recoverable from the Bounden and his properties movable and immovable, under the provisions of the Revenue Recovery Act for the time being in force as though such sums are arrears of Land Revenue and also in such other manner as the Board may deem fit.

4. In witness whereof Sri .....  
..... (name and designation) for and on behalf of the Kerala  
State Electricity Board Ltd. and Sri.....  
.....  
..... the Bounden have hereunto set their hands the day and  
year shown against their respective signatures.

Signed by Sri.....

(Date)

CONTRACTOR

In the presence of witnesses:

1.

2.

Signed by Sri.....

(Date)

EXECUTIVE ENGINEER

In the presence of witnesses:

1.

2.

**ANNEXURE II**  
**POWER OF ATTORNEY**

(to be furnished in Government Stamp Paper worth INR 200/- and notarized)

Know all men by these presents, we, .....  
.....(name of  
firm and address of the registered office) do hereby constitute, nominate, appoint and authorize  
Mr./Ms/ Son/daughter/wife and presently residing at ..... presently employed with us and holding  
the position of ..... as our true and  
lawful attorney (hereinafter referred to as the "Authorised Representative") to do in our name  
**"Supply of Materials ,Erection, Testing, and Commissioning of Work Construction of LT Three phase  
and Single phase line ,Conversion of single phase line to Three phase line and Reconductoring of Single  
phase and Three phase line by using Covered Conductor Rabbit 43 km ,at Various locations under  
Electrical Division Kanhangad -Dyuthi Special Scheme -2024-25, Under Electrical circle Kasaragod."**  
including but not limited to signing and submission of all applications, proposals and other  
documents and writings, participating in pre-bid and other conferences and providing  
information/responses to the KSEB Ltd., representing us in all matters before the KSEB Ltd.,  
signing and execution of all contracts and undertakings consequent to acceptance of our  
proposal and generally dealing with the KSEB Ltd. in all matters in connection with or relating to  
or arising out of our proposal for the said project and/or upon award thereof to us till the  
entering into of the agreement with the KSEB Ltd.

AND we do hereby agree to ratify and confirm all acts, deeds and things lawfully done or caused  
to be done by our said Authorised Representative pursuant to and in exercise of the powers  
conferred by this Power of Attorney and that all acts, deeds and things done by our said  
Authorised Representative in exercise of the powers hereby conferred shall and shall always be  
deeded to have been done by us.

In            Witness            whereof            We,            .....  
.....  
..... The above named principal have executed this power of attorney on  
this.....Day of.....

For .....

(Signature, Name, Designation and Address)

Witnesses:

1.

2.

Attested by a Notary Public



## **ANNEXURE III**

### **LETTER OF ACCEPTANCE**

#### **SAMPLE FORM**

No.

To

Name and address of the contractor

Dear Sirs,

This is to notify you that your bid dated..... for the execution of works **“Supply of Materials ,Erection, Testing, and Commissioning of Work Construction of LT Three phase and Single phase line ,Conversion of single phase line to Three phase line and Reconductoring of Single phase and Three phase line by using Covered Conductor Rabbit 43 km ,at Various locations under Electrical Division Kanhangad -Dyuthi Special Scheme -2024-25, Under Electrical circle Kasaragod.”**

contract price Rs.....(amount in figures and words) as corrected modified in accordance with the instructions to bidders is hereby accepted by us. You are advised to submit the security deposit and sign a contract agreement within 15 days from the date of this letter.

You are hereby instructed to proceed with the construction of the works in accordance with contract documents.

Yours faithfully,

Executive Engineer

## ANNEXURE IV

### NOMINATION

I do hereby nominate and authorize Sri/Smt..... son/daughter of  
..... aged..... years  
..... house of .....  
Village.....Taluk.....district residing at  
..... to receive all or any sums at  
..... to receive all or any sums found due to me under the terms of the  
contract. (Agreement No and details of contract)  
.....  
..... in the event of my death before the amount has become  
payable or having become payable but has not been paid.

Signature of Tenderer

Name and Address

Signed in presence of witness:

Signature, Name & Address

Signature, Name & Address

**Kerala  
Tenders****eTendering System Government of Kerala****Tender Details**

Date : 23-Apr-2025 05:51 PM

Print

**Basic Details**

<b>Organisation Chain</b>	Kerala State Electricity Board  Chief Engineer (Distribution North)  Dpty Chief Engg Electrical Circle Kasargode  EE Electrical Div Kanhangad		
<b>Tender Reference Number</b>	01/2024-25 Dtd 04/03/2025		
<b>Tender ID</b>	2025_KSEB_745813_2	<b>Withdrawal Allowed</b>	Yes
<b>Tender Type</b>	Open Tender	<b>Form of contract</b>	Turn-key
<b>Tender Category</b>	Works	<b>No. of Covers</b>	1
<b>General Technical Evaluation Allowed</b>	No	<b>ItemWise Technical Evaluation Allowed</b>	No
<b>Payment Mode</b>	Online	<b>Is Multi Currency Allowed For BOQ</b>	No
<b>Is Multi Currency Allowed For Fee</b>	No	<b>Allow Two Stage Bidding</b>	No

**Payment Instruments**

<b>Online Bankers</b>	<b>S.No</b>	<b>Bank Name</b>
	1	SBI MOPS

**Cover Details, No. Of Covers - 1**

Cover No	Cover	Document Type	Description
1	Fee/PreQual /Technical/Finance	.pdf	Document to prove experience in similar works
		.xls	Bill of quantities
		.pdf	Bidder details
		.pdf	Copy of Aadar, Pan, Bank passbook, GST certificate
		.pdf	Copy of bounden agreement
		.pdf	Tender document

**Tender Fee Details, [Total Fee in ₹ \* - 5,900]**

<b>Tender Fee in ₹</b>	5,900		
<b>Fee Payable To</b>	Nil	<b>Fee Payable At</b>	Nil
<b>Tender Fee Exemption Allowed</b>	No		

**EMD Fee Details**

<b>EMD Amount in ₹</b>	50,000	<b>EMD Exemption Allowed</b>	No
<b>EMD Fee Type</b>	fixed	<b>EMD Percentage</b>	NA
<b>EMD Payable To</b>	Nil	<b>EMD Payable At</b>	Nil

[Click to view modification history](#)**Work /Item(s)**

<b>Title</b>	Supply of Materials ,Erection, Testing, and Commissioning of Work Construction of LT Three phase and Single phase line ,Conversion of 1PH line to 3PH line and Reconductoring of 1PH and 3PH line by using Covered Conductor Rabbit 43 km ,at Various loca
--------------	--

<b>Work Description</b>	Supply of Materials ,Erection, Testing, and Commissioning of Work Construction of LT Three phase and Single phase line ,Conversion of 1PH line to 3PH line and Reconductoring of 1PH and 3PH line by using Covered Conductor Rabbit 43 km ,at Various loca				
<b>Pre Qualification Details</b>	Please refer Tender documents.				
<b>Independent External Monitor/Remarks</b>	NA				
<b>Show Tender Value in Public Domain</b>	Yes				
<b>Tender Value in ₹</b>	62,56,445	<b>Product Category</b>	Electrical Works	<b>Sub category</b>	NA
<b>Contract Type</b>	Tender	<b>Bid Validity(Days)</b>	180	<b>Period Of Work(Days)</b>	NA
<b>Location</b>	KANHANGAD DIVISION	<b>Pincode</b>	671314	<b>Pre Bid Meeting Place</b>	NA
<b>Pre Bid Meeting Address</b>	NA	<b>Pre Bid Meeting Date</b>	NA	<b>Bid Opening Place</b>	KANHANGAD
<b>Should Allow NDA Tender</b>	No	<b>Allow Preferential Bidder</b>	No		

**Critical Dates**

<b>Publish Date</b>	24-Apr-2025 05:00 PM	<b>Bid Opening Date</b>	09-May-2025 04:00 PM
<b>Document Download / Sale Start Date</b>	25-Apr-2025 10:00 AM	<b>Document Download / Sale End Date</b>	08-May-2025 03:00 PM
<b>Clarification Start Date</b>	NA	<b>Clarification End Date</b>	NA
<b>Bid Submission Start Date</b>	25-Apr-2025 10:00 AM	<b>Bid Submission End Date</b>	08-May-2025 03:00 PM

**Tender Documents**

NIT Document	S.No	Document Name	Description	Document Size (in KB)	
	1	Tendernotice_1.pdf	Notice inviting tender	99.81	
Work Item Documents	S.No	Document Type	Document Name	Description	Document Size (in KB)
	1	BOQ	BOQ_1238731.xls	BOQ	371.00
	2	Other Document	NITKHD.pdf	NOTICE INVITING TENDER	835.82
	3	Tender Documents	TENDERDOCUMENTKHD.pdf	TENDER DOCUMENT	3846.88

**Bid Openers List**

S.No	Bid Opener Login Id	Bid Opener Name	Certificate Name
1.	rameshov33@gmail.com	Ramesh O V	RAMESH O V
2.	ashaaee@yahoo.co.in	Asha T P	Asha T P
3.	m.shyma@gmail.com	Shyma Mallakkara	SHYMA MALLAKKARA
4.	sanojpalakkat@gmail.com	Sanoj K	Sanoj K

**Tender Properties**

<b>Auto Tendering Process allowed</b>	No	<b>Show Technical bid status</b>	Yes
<b>Show Finance bid status</b>	Yes	<b>Stage to disclose Bid Details in Public Domain</b>	Technical Bid Opening
<b>BoQ Comparative Chart model</b>	Normal	<b>BoQ Compative chart decimal places</b>	2
<b>BoQ Comparative Chart Rank Type</b>	L	<b>Form Based BoQ</b>	No

**Tender Inviting Authority**

<b>Name</b>	EXECUTIVE ENGINEER
<b>Address</b>	Executive Engineer, Electrical Division Kanhangad, Thidil Complex TB Road, Puthiyakotta , Kanhangad

**Tender Creator Details**

<b>Created By</b>	Asha T P
<b>Designation</b>	Assistant Executive Engineer
<b>Created Date</b>	23-Apr-2025 05:22 PM