

Date 19 May 2023

Dear Sir / Madam,

Centre for Environment Education (CEE) is inviting quotation for the Electrical Work at “**Material Recycling Centre, Bandurakh, Kunjwani, Jammu**”. Please find all the details in the attached Annexure 1.

The Request for Quotation process shall be as follows:

The interested bidders may proceed to request for the RFQ document by sending an Email to [purchase@ceeindia.com](mailto:purchase@ceeindia.com).

The email must contain the following:

- The bid should be given on Company letter Head.
- The Company GST number to be mentioned.
- The bid should be signed and duly stamped.
- All the applicable taxes should be mentioned in bid.

You are requested to submit your bid with all necessary documents on 24 May 2023 till 05:00 PM.

Thanks & Regards,

Yogesh Kumar

9899988486

## ANNEXURE 1:

### Introduction:

Swachh Centre's (MRC's) Centres are defined as "integrated material recycling centres" for recycling all types of plastic waste; which is collected with support from City Municipal Corporations (CMCs) or equivalent and by the Waste Pickers (Safai Mitra's), Service Providers (SPs), in every city. The centres enable segregation of all types of plastics, adds product value, for increased incomes of Safai Mitra's. Links the waste collectors with recyclers along the value chain particularly for the low-grade, thin plastic litter bags, multi-layered plastics, PET, rigid plastics of all types in the city.

### A. Scope of work:

Centre for Environment Education (CEE) in partnership with Jammu Municipal Corporation (JMC) and HDFC Bank are establishing a Material Recycling Centre facility at the "**Bandurakh, Kunjwani, Jammu**" and Installing machines to promote recycling of plastic waste.

Before Installation of the machines, there is a requirement of electrical work to be done for the machines to be installed for recycling of plastic waste. The details of electrical work are attached herewith in **Annexure 2**.

### A. Bidder's Qualification:

- Bidder should have at least 5 years' experience in similar works.
- Bidder should have done minimum Rs. 50 Lac works in last 2 financial years.
- Bidder should submit related works completion certificates from minimum 3 parties in last financial year.

**B. Eligibility & Evaluation Process:** Evaluation of proposals will be based on **Quality-based competitive bidding Selection methodology** - that means the selection will be based on the **best quality proposal, experience in technical field** in particular will be given preference and the **lowest quoted budget** (as defined in the document, cannot exceed the given total budget amount and lowest quoted rate will be given L1) as per the below given marking system.

| S. No.      | Evaluation Criteria                                     | Maximum Points |
|-------------|---|----------------|
| 1           | Technical Experience based on work done in last 5 years | 60             |
|             | Turnover of Rs. 50 Lacs in last 02 financial years      |                |
|             |   |                |
| 2           | Budget quotation (L1)                                   | 40             |
| Grand Total |   | 100            |

**C. Duration:** The duration of said work in Annexure 1 shall be within a maximum period of **30 days** from the date of receipt of Work Order.

**D. Payment terms & Conditions:** The payment schedule is as follows

- a) CEE shall, upon a written request by the Vendor, allow maximum 40 % of the total Contract amount, after start of work, submission of work plan verified by CEE consultant/ official (architect/engineer).
- b) The vendor may submit a request for payment to be paid by Centre on completion of Electrical work up to the laying of cable trays and installation of earth pits, and we may allow 30% of the total Contract amount and certification of work done by Centre's consultant/ official (architect/engineer).
- c) Progress payment (remaining 30%) shall be adjusted by deducting the amount in Final Bill payment.

**A. Liquidated Damages:**

Failure to comply with the Terms & Conditions of the contract will result in the payment of corresponding penalties /liquidate damages in the amount equal to 100 % of the cost of the unperformed portion for every day of delay.

| PROJECT:- MRC AT JAMMU                     |  |                                  |
|--|--|----------------------------------|
| <u>SUMMARY OF COST OF ELECTRICAL WORKS</u> |  |                                  |
| SR. NO                                     | NAME OF SUB-HEAD                             | AMOUNT (₹)                       |
|  |  | <b>INTERNAL ELECTRICAL-JAMMU</b> |
| A  | POINT WIRING:-                               |                                  |
| B  | SUB-MAINS CABLE FOR DBs:-                    |                                  |
| C  | LIGHT FIXTURES AND FANS (INSTALATION ONLY):- |                                  |
| D  | LIGHT FIXTURES AND FANS (SUPPLY ONLY):-      |                                  |
| E  | DISTRIBUTION BOARDS:-                        |                                  |
| F  | SAFETY EQUIPMENTS :                          |                                  |
| G  | CABLE TRAYS & RACEWAYS:-                     |                                  |
| H  | EARTHING SYSTEM                              |                                  |
| I  | LT PANELS & DISTRIBUTION BOARDS              |                                  |
| J  | LT CABLES & TERMINATION :                    |                                  |
|  | <b>SUB TOTAL</b>                             |                                  |
|  | <b>GST @ 18%</b>                             |                                  |
|  | <b>GRAND TOTAL</b>                           | <b>₹ 15, 00, 000. 00</b>         |

| PROJECT:- Material Recycling Centre AT JAMMU     |  |      |      |      |        |
|--|--|------|------|------|--------|
| BILL OF QUNATITIES FOR INTERNAL ELECTRICAL WORKS |  |      |      |      |        |
| S.No.  | ITEM DESCRIPTION   | Unit | Qty. | Rate | Amount |
| A)   | POINT WIRING:-   |      |      |      |        |
| 1  | Supplying all materials, storing, handling, fixing, laying, wiring and testing for the following Light Point with 2 x 1.5 + 1 x 1.5 sq.mm FR insulated multi-stranded copper conductor 1100 volts grade stranded flexible wires in concealed/surface mounted PVC Conduit including cost of cutting & filling chases/ saddle, clamps, inspection/solid bends, sockets etc. and providing and fixing of 6 amps single pole modular flush mounted switch & switch plate in 1.2mm thick & 65mm deep GI box. The cost of circuit wiring with 2 x 2.5 + 1 x 1.5 Sq.mm FR insulated multi-stranded copper conductor 1100 Volts grade wires shall be included in the cost of point wiring. (Cost of fish wire also to be included in the item) |      |      |      |        |
| 1.1  | Controlled by one 6A Modular Switch:   |      |      |      |        |
| a)   | First Point  | Nos. | 1    |      |        |
| b)   | Loop Point   | Nos. | 1    |      |        |
|  |  |      |      |      |        |
| 1.2  | Same as above item no. 1.1 but controlled by two (2) Nos. two way switch.  |      |      |      |        |
| a)   | First Point  | Nos. | 1    |      |        |
| b)   | Loop Point   | Nos. | 1    |      |        |
|  |  |      |      |      |        |
| 1.3  | Same as above item no. 1.1 but directly controlled from MCB in DB (Cost of MCB not be included.)   |      |      |      |        |
| a)   | First Point  | Nos. | 12   |      |        |
| b)   | Loop Point   | Nos. | 18   |      |        |
|  |  |      |      |      |        |
| 2  | Supplying all materials, storing, handling, fixing, laying, wiring and testing for 6A, 5-pin light plug with FR insulated multi-stranded copper conductor wire in concealed/surface mounted PVC Conduit including cost of cutting and filling chases as required with fixing of plate, modular type switch socket (6A) and earthing complete with all accessories as required. The first point wiring shall be done with 2 x 2.5 + 1 x 1.5 Sq.mm wires and looping shall be done with 2 x 1.5 + 1 x 1.5 Sq.mm wires. Only one point to be looped (light plug). (Cost of fish wire also to be included in the item)   |      |      |      |        |
| a)   | First point  | Nos. | 2    |      |        |
| b)   | loop point   | Nos. | 2    |      |        |
|  |  |      |      |      |        |
| 4  | Supplying all materials, storing, handling, fixing, laying, wiring and testing for 2 x 6A, 5-pin light plug with FR insulated multi-stranded copper conductor wire in concealed/surface mounted PVC Conduit including cost of cutting and filling chases as required with fixing of plate, set of 2 Nos. modular type socket (6A) controlled by 1 No. 6A switch and earthing complete with all accessories as required. The first point wiring shall be done with 2 x 2.5 + 1 x 1.5 Sq.mm wires and looping shall be done with 2 x 1.5 + 1 x 1.5 Sq.mm wires. Only one point and to be looped (UPS Fed). (Cost of fish wire also to be included in the item).  |      |      |      |        |
| a)   | first point  | Nos. | 0    |      |        |

|    |   |      |   |  |  |
|----|---|------|---|--|--|
| b) | loop point  | Nos. | 0 |  |  |
|    |   |      |   |  |  |
| 5  | Supplying all materials, storing, handling, fixing laying, wiring and testing for exhaust fan point wiring with 2 x 1.5 + 1 x 1.5 sq.mm FR insulated copper conductor wire in concealed/surface mounted PVC Conduit including cost of cutting and filling chases as required with fixing of 6 amp modular switch and suitable plate on the existing switchboard near door and 6A, 3 pin plug to be provided near exhaust fan (cost of fish wire to be included in the item).  | Nos. | 2 |  |  |
|    |   |      |   |  |  |
| 6  | Supplying all materials, storing, handling, fixing laying, wiring and testing for ceiling fan point wiring with 2 x 1.5 + 1 x 1.5 sq.mm FR insulated copper conductor wire in concealed/surface mounted PVC Conduit including cost of cutting fixing of 6 amp single pole modular flush mounted switch & switch plate.(cost of fire wire to be included in the item).   | Nos. | 2 |  |  |
|    |   |      |   |  |  |
| 7  | Providing and fixing circular/ Hexagonal MS box for ceiling fan clamp, of internal dia 140 mm, 73 mm height, top lid of 1.5 mm thick MS sheet with its top surface hacked for proper bonding, top lid shall be screwed into the GI box by means of 3.3 mm dia round headed screws, one lock at the corners, clamp shall be made of 12 mm dia. M.S. bar bent to shape as per standard drawing.   | Nos. | 2 |  |  |
|    |   |      |   |  |  |
| 8  | Supplying and fixing stepped type electronic fan regulator on the existing modular plate switch box including connections but excluding modular plate etc. as required.   | Nos. | 2 |  |  |
|    |   |      |   |  |  |
| 9  | Supplying all materials, storing, handling, fixing, laying, wiring and testing for 16 Amp power outlet with FR insulated copper conductor wires in concealed/surface mounted PVC Conduit including cost of cutting and filling chases as required with fixing of 6 pin 16 Amps shuttered modular switch socket, switch plate with internal wiring , earthing of 3rd pin. The wiring shall be done with 2 x 4.0 + 1 x 2.5 Sq.mm copper wire and looping shall be done with 2 x 2.5 + 1 x 1.5 Sq.mm. (Power Socket). (cost of fire wire to be included in the item).    |      |   |  |  |
| a) | First Point   | Nos. | 5 |  |  |
| b) | Loop Point  | Nos. | 5 |  |  |
|    |   |      |   |  |  |
| 10 | Supplying all materials, storing, handling, fixing, laying, wiring and testing for 20 Amp power outlet for AC with FR insulated copper conductor wires in concealed/surface mounted MS Conduit including cost of cutting and filling chases as required with fixing of 6 pin 16 Amps shuttered modular switch socket, switch plate with internal wiring , earthing of 3rd pin. The wiring shall be done with 2 x 4.0 + 1 x 2.5 Sq.mm copper wire and looping shall be done with 2 x 2.5 + 1 x 1.5 Sq.mm. (AC Socket). (cost of fire wire to be included in the item). | Nos. | 0 |  |  |
|    |   |      |   |  |  |

|              |   |      |    |  |  |
|--------------|---|------|----|--|--|
| 11           | Supplying, installation, testing , commissioning of 20 amps, 240 volts, SPN metal clad socket with 2 pole and earth, metal enclosed plug top along with 20 amps "C" curve, SP, MCB in sheet steel enclosure with chained metal cover for the socket out let and complete with connections, testing and commissioning etc. as required (2 x 4.0 + 1 x 2.5 sq.mm wiring have been taken separately). (In Electrical Room, Basement, Stilt and Terrace.) | Nos. | 0  |  |  |
| 12           | Supplying and fixing following <b>modular switch/ socket</b> on the existing modular plate & switch box including connections but excluding modular plate etc. as required.   |      |    |  |  |
|              | Bell push   | Nos. |    |  |  |
| 13           | Supplying and fixing <b>modular blanking plate</b> on the existing modular plate & switch box excluding modular plate as required.  | Nos. | 6  |  |  |
| 14           | Supplying and fixing 3 pin, 5 amp ceiling rose on the existing junction box/ wooden block including connection etc. as required.  | Nos. | 2  |  |  |
| 15           | Supplying and fixing call bell/ buzzer suitable for single phase, 230 volts, complete as required.  | Nos. |    |  |  |
| 16           | Supply, Installation, testing and commissioning of Multi-sensor suitable for single phase, 230 volts, complete as required.   | Nos. |    |  |  |
| 17           | Supply, Installation, testing and commissioning of USB Charging socket for single phase, 230 volts, complete as required.   | Nos. |    |  |  |
| 18           | Providing and fixing of following sizes of PVC conduit on surface/recessed including cost of cutting and filling chases as required along with all accessories etc. complete as required (cost of fish wire to be included in the item).  |      |    |  |  |
| b)           | 32mm dia. conduit   | RM   | 25 |  |  |
| c)           | 25mm dia. conduit   | RM   | 25 |  |  |
|              | <b>TOTAL CARRIED OVER TO SUMMARY</b>  |      |    |  |  |
| <b>Notes</b> | <b>1. All copper wires shall be of FR insulated.</b>  |      |    |  |  |
| <b>-</b>     | <b>2. Sizes of conduit/conduit accessories will be as per the maximum nos. of wires to be drawn in the conduit as given in the technical specification/Relevant standard.</b>   |      |    |  |  |
| <b>B)</b>    | <b>SUB-MAINS CABLE FOR DBs:-</b>  |      |    |  |  |
|              | Supplying, installation, testing, Termination and commissioning of XLPE armoured Aluminum cable for submain of DBs suitable size 1100 volts grade as per technical specifications and drawings enclosed with this document  |      |    |  |  |
| a)           | 2 X 4 sq. mm + 1 X 2.5 sq. mm earth wire  | RM   |    |  |  |
| b)           | 2 X 6 sq. mm + 1 X 4 sq. mm earth wire  | RM   |    |  |  |
| c)           | 4 X 10 sq. mm + 2 X 6 sq. mm earth wire   | RM   | 25 |  |  |
|              | <b>TOTAL CARRIED OVER TO SUMMARY</b>  |      |    |  |  |
|              |   |      |    |  |  |
|              |   |      |    |  |  |

|              |   |      |   |  |  |
|--------------|---|------|---|--|--|
| <b>C)</b>    | <b>LIGHT FIXTURES AND FANS (INSTALATION ONLY):-</b>   |      |   |  |  |
|              | Installation, testing, commissioning, receiving the lighting fixture and fan including assembling etc. of the following lighting fixtures and Fans including fixing arrangement and with all accessories as required with necessary GI pipe/steel pipe etc. as required for hanging of lighting fixtures and Fan. |      |   |  |  |
| a)           | 18W wall mounted LED Batten light. (Make Philips, Model no. :-MASS LED TUBE 1200MM 18W 865 T8) or Equivalent to Wipro & Bajaj.  | Nos. | 0 |  |  |
| b)           | 12W surface mounted circular LED light. (Make Wipro, Model no. :- D641265) or Equivalent to Philips, Bajaj.   | Nos. |   |  |  |
| c)           | 8-10 W LED Mirror Light.  | Nos. |   |  |  |
| d)           | Supply of 7W LED Wall Bracket Light. Make- Philips, Model- (E27 6500K A60 ND) or Equivalent to Trilux, GE   | Nos. |   |  |  |
| e)           | Bulk head light. (Make Philips, Model no. :-WT202W LED6S NW PSU S2 PC) or Equivalent to Trilux, GE.   | Nos. |   |  |  |
| f)           | 60 Degree 80W Wipro Alpha Floodlight, IP Rating: IP66, Model Name/Number: LF19-931-060-57-XX  | Nos. |   |  |  |
| g)           | Exit sign Light   | Nos. | 2 |  |  |
| h)           | Ceiling Fan of 1200mm sweep complete erected in position with all accessories.(Make- Havells) or Equivalent to Orient, Crompton Greave.   | Nos. | 2 |  |  |
| i)           | Exhaust Fan Heavy duty 230V A.C 50 cycles 375 mm 1400 RPM complete erected in position with all accessories.(Make- Havells)   | Nos. | 2 |  |  |
|              |   |      |   |  |  |
| <b>Notes</b> |   |      |   |  |  |
| 1)           | The type of fittings/make will be decided after interior designer selects the fittings. However, erection rate quoted shall hold good for a similar type of fittings and no extra charge will be paid on this account.  |      |   |  |  |
| 2)           |   |      |   |  |  |
|              | Above item are based on General requirement on the preliminary drawings. Quantity are approximate & may change based on revised layout.   |      |   |  |  |
|              |   |      |   |  |  |
|              | <b>TOTAL CARRIED OVER TO SUMMARY</b>  |      |   |  |  |
|              |   |      |   |  |  |
| <b>D)</b>    | <b>LIGHT FIXTURES AND FANS (SUPPLY ONLY):-</b>  |      |   |  |  |
|              | Supply the lighting fixture and fan including assembling etc. of the following lighting fixtures and Fans including fixing arrangement and with all accessories as required with necessary GI pipe/steel pipe etc. as required for hanging of lighting fixtures and Fan.  |      |   |  |  |
| a)           | 18W wall mounted LED Batten light. (Make Philips, Model no. :-MASS LED TUBE 1200MM 18W 865 T8) or Equivalent to Wipro & Bajaj.  | Nos. | 0 |  |  |
| b)           | 12W surface mounted circular LED light. (Make Wipro, Model no. :- D641265) or Equivalent to Philips, Bajaj.   | Nos. |   |  |  |
| c)           | 8-10 W LED Mirror Light.  | Nos. |   |  |  |
| d)           | Supply of 7W LED Wall Bracket Light. Make- Philips, Model- (E27 6500K A60 ND) or Equivalent to Trilux, GE   | Nos. |   |  |  |
| e)           | Bulk head light. (Make Philips, Model no. :-WT202W LED6S NW PSU S2 PC) or Equivalent to Trilux, GE.   | Nos. |   |  |  |
| f)           | 60 Degree 80W Wipro Alpha Floodlight, IP Rating: IP66, Model Name/Number: LF19-931-060-57-XX  | Nos. |   |  |  |

|                                      |   |      |          |  |  |
|--------------------------------------|---|------|----------|--|--|
| g)                                   | Exit sign Light   | Nos. | 2        |  |  |
| h)                                   | Ceiling Fan of 1200mm sweep complete erected in position with all accessories.(Make- Havells) or Equivalent to Orient, Crompton Greave.   | Nos. | 2        |  |  |
| i)                                   | Exhaust Fan Heavy duty 230V A.C 50 cycles 375 mm 1400 RPM complete erected in position with all accessories.(Make- Havells)   | Nos. | 2        |  |  |
| <b>Notes</b>                         |   |      |          |  |  |
| 1)                                   | The type of fittings/make will be decided after interior designer selects the fittings. However, erection rate quoted shall hold good for a similar type of fittings and no extra charge will be paid on this account.  |      |          |  |  |
| 2)                                   |   |      |          |  |  |
|                                      | Above item are based on General requirement on the preliminary drawings. Quantity are approximate & may change based on revised layout.   |      |          |  |  |
| <b>TOTAL CARRIED OVER TO SUMMARY</b> |   |      |          |  |  |
| <b>E) DISTRIBUTION BOARDS:-</b>      |   |      |          |  |  |
| 1                                    | Supply, installation, testing & commissioning of following MCB double door type <b>prewired</b> Distribution boards as per drawing & specification fabricated out of 16 SWG CRCA sheet steel in compartmentalized design as per specification and drawings these distribution boards shall be surface/ recessed in walls. The rate includes the painting, numbering earthing etc. as required. DB shall be suitable for incoming aluminum armoured cable. |      |          |  |  |
| 1                                    | <b>8 Way TPN DB (MACHINES AREA)</b>   |      |          |  |  |
|                                      | Comprising of following:  |      |          |  |  |
|                                      | <b>Incoming:</b>  |      |          |  |  |
|                                      | One (1) No. 63A FP MCB (10kA)   |      |          |  |  |
|                                      | Three (3) Nos. 40A DP RCBO (100mA)  |      |          |  |  |
|                                      | <b>Outgoing:</b>  |      |          |  |  |
|                                      | Eighteen (18) Nos. 6-20A SP MCB (10kA)  |      |          |  |  |
|                                      | <b>Neutral link:</b>  |      |          |  |  |
|                                      | Separate for each outgoing  |      |          |  |  |
|                                      | <b>Earthing Terminals:</b>  |      |          |  |  |
|                                      | Earthing terminals suitable for outgoing as above.  | No.  | 1        |  |  |
| 2                                    | <b>6 Way SPN DB</b>   |      |          |  |  |
|                                      | Comprising of following:  |      |          |  |  |
|                                      | <b>Incoming:</b>  |      |          |  |  |
|                                      | 25A DP RCBO (100mA)   |      |          |  |  |
|                                      | <b>Outgoing:</b>  |      |          |  |  |
|                                      | Four (4) Nos. 6A-25A SP MCB (10kA)  |      |          |  |  |
|                                      | <b>Neutral link:</b>  |      |          |  |  |
|                                      | Separate for each outgoing  |      |          |  |  |
|                                      | <b>Earthing Terminals:</b>  |      |          |  |  |
|                                      | Earthing terminals suitable for outgoing as above.  | Nos. | 0        |  |  |
| <b>TOTAL CARRIED OVER TO SUMMARY</b> |   |      | <b>1</b> |  |  |
| <b>F) SAFETY EQUIPMENTS :</b>        |   |      |          |  |  |
| 1.0                                  | Providing and fixing NO SMOKING & DANGER ZONE signboards.   | Nos  | 2        |  |  |
| 2.0                                  | Providing and fixing 2 no. fire bucket of 9 lit. capacity made of 24 gauge MS sheet with floor standing MS stand.   | Nos  | 2        |  |  |



|                                      |   |     |     |  |  |
|--------------------------------------|---|-----|-----|--|--|
| 3.0                                  | Providing and fixing ISI marked CO <sub>2</sub> 4.5 Kg. Capacity as per latest IS.  | Nos | 2   |  |  |
| 4.0                                  | Providing and fixing ISI marked Chemical foam type of 9 liters as per latest IS (trolley marker).   | Nos | 2   |  |  |
| 5.0                                  | Providing and fixing ISI marked Dry chemical powder type (5 Kg.) as per latest IS.  | Nos | 2   |  |  |
| 6.0                                  | Supply and fixing of approved shock treatment chart in position & written in English and Hindi. The chart shall be framed using wooden frame and glass.   | Nos | 2   |  |  |
| 7.0                                  | Insulating Mats   |     |     |  |  |
| 7.1                                  | Supply, installation, testing commissioning of Insulating Mats of size 1m x 2m x 2mm for AC rms voltage grade up to 1.1 kV with dielectric strength of C Class, fire retarded complete in all respect.  | Nos | 2   |  |  |
| <b>TOTAL CARRIED OVER TO SUMMARY</b> |   |     |     |  |  |
| <b>G)</b>                            | <b>CABLE TRAYS &amp; RACEWAYS:-</b>   |     |     |  |  |
| 1                                    | <b>Cable tray</b>   |     |     |  |  |
|                                      | Providing and fixing of the following Hot dip Galvanized cable tray along with necessary coupler plates, nuts, bolts and washer with the following specifications, including cost of providing and fixing supporting steel structure hanging arrangement as mentioned below along with dash fasteners, nuts, bolts and washers etc. for suspending cable trays. <b>(All accessories like tees, bends vertical / horizontal shall be factory fabricated and cost of these to be included in the rate. Site fabricated accessories are not acceptable).</b> |     |     |  |  |
| 1.1                                  | <b>Perforated Type</b>  |     |     |  |  |
| a)                                   | 300mm(W) x 40 mm (D)  | RM  | 20  |  |  |
| b)                                   | 200mm(W) x 40 mm (D)  | RM  | 150 |  |  |
| <b>TOTAL CARRIED OVER TO SUMMARY</b> |   |     |     |  |  |
| <b>H)</b>                            | <b>EARTHING SYSTEM</b>  |     |     |  |  |
| 1                                    | <b>EARTHING STATION</b>   |     |     |  |  |
|                                      | <b>Body earthing for Mixer Machine, Extruder Machine, Agglomeration Machine, Grinder Machine, Washing line.</b>   |     |     |  |  |

|           |   |     |     |  |  |
|-----------|---|-----|-----|--|--|
| 1.1       | Supply, installation, testing and commissioning of UL listed CPRI Tested maintenance free copper coated earth rod of 3 meter having diameter of 17.2mm with 250 micron copper coating with clamp made of stainless steel or gun metal for terminating cable / flat conductor. Earth enhancing mineral (PROCEM) compound 25 kg tested for Leaching & TCLP with NABL accredited lab. The systems is conforming to IS 3043, IS / IEC 62305, IEC 61643-5-54, UL 467, the rod has to be tested to for dimensions, marking, tensile strength, salt mist, coating thickness, electrical resistivity test before and after corrosion test etc. as per IEC 62561-2.                        | Set | 16  |  |  |
| 1.2       | Supply, installation, testing and commissioning of Heavy Duty chamber with cover made on polypropylene material with tested to carry 5000 Kg with pulling hook size approx. 300x300 mm  | Set | 0   |  |  |
| 2         | <b>EARTHING STRIP/WIRES:</b>  |     |     |  |  |
|           | Supply & laying of hot dipped GI/pure copper earthing strip to connect to the DBS, Poles and equipment's in outdoor yard and also in indoor portion of substation.  |     |     |  |  |
| i         | 25 x 5 mm GI strip  | RM  | 200 |  |  |
| ii        | 32 x 6 mm GI strip  | RM  | 140 |  |  |
| vi        | 8 SWG GI wire   | RM  | 40  |  |  |
|           | <b>TOTAL CARRIED OVER TO SUMMARY</b>  |     |     |  |  |
| <b>I)</b> | <b>LT PANELS &amp; DISTRIBUTION BOARDS</b>  |     |     |  |  |
|           | <b>FRONT OPERATED PANEL</b>   |     |     |  |  |
|           | NOTE: ALL ACBs ARE REQUIRED WITH SAFETY SHUTTER, UNDER VOLTAGE RELEASE / SHUNT TRIP   |     |     |  |  |
|           | General Note for all Panels   |     |     |  |  |
| Note 1    | The Panels/ Switch-boards shall be fabricated out of (load bearing member of 2mm and non load bearing member 1.6 mm thick) CRCA sheet steel, Compartmentised design, modular construction with Form 4b separation for Main Panels & 3b for remaining, Mounting Plates and Internal Partition shall be made of 1.6/2.0mm Aluzinc sheet for better heat dissipation clear space of 300mm or as approved shall be left at the bottom. The operating handle of the topmost switch shall not be higher than 1800mm from the finished floor and maximum height of panels shall not more than 2400mm. The Panel shall be Powder coated to paint of desired shaded in an approved manner. |     |     |  |  |
| Note 2    | Under voltage Relay (27)  |     |     |  |  |
| Note 3    | Reverse power RELAY (32)  |     |     |  |  |
| Note 4    | Inverse Definite minimum time overcurrent earth fault relay   |     |     |  |  |
| Note 5    | Overvoltage Relay (59)  |     |     |  |  |
| Note 6    | Buchholz protection (only transformer switch ) (63)   |     |     |  |  |
| Note 7    | Emergency stop on Main panel  |     |     |  |  |

|            |  |  |  |  |  |
|------------|--|--|--|--|--|
| Note 8     | All incomers and Bus coupler panel door should be different color coded for identification and mimic diagram in front of panel should be marks by reflector paints   |  |  |  |  |
| Note 9     | All ACB terminals shall have vertical-vertical configuration for termination of incoming & outgoing bus links. All MCCB's up to 630A shall be provided with rear stud type terminations.   |  |  |  |  |
| Note 10    | Space heater, Thermostat, On/Off switch, LED Lamp , Door operated switch.  |  |  |  |  |
| Note 11    | <b>UL Listed Linear pneumatic heat Detection Tube with all necessary fittings &amp; supports. Master Control Unit for controlling each system, complete with pressure switches, buzzers and electronic hooters, including all necessary accessories + electrical Receiving ,fixing and drawing wiring to make each entire system functional including Suitable Cylinder</b>  |  |  |  |  |
| Note 12    | All ACBs shall have protection Releases with LSIG.   |  |  |  |  |
| Note 13    | All Multifunction meters shall communication on Ethernet through Ethernet ports and shall have % THD and individual harmonics till 15 order  |  |  |  |  |
| Note 14    | ON Indication Light for all Outgoings. with backup MCB (refer SLD)   |  |  |  |  |
| Note 15    | All MCCB should be having Thermal Magnetic based Release UP TO 250 Amp and above 250 amp With Microprocessor Release, Ics=100%Icu with Rotary Handle. Fault Level minimum 25KA   |  |  |  |  |
| <b>1.0</b> | <b>JAMMU MRC MAIN LT PANEL</b>   |  |  |  |  |
| 1.01       | Fabrication, Supply, Erection, Testing and commissioning of outdoor type cubicle pattern LT Switch-Board with a rupturing capacity of 50 KA at 415 V or as called for in individual items, openable in front and back suitable for 3 phase, 4 wire, 50Hz AC supply at an ambient temperature of 45 C. The cubicle should be outdoor type, dust proof, vermin proof, well ventilated and enclosure protection shall be IP-55 as per IS 2147-1962.or as per CPWD specifications, ( Part IV - Sub-station) and IS: 8623 The cubicle should be front operated, floor mounted, free standing with compartments in tier formation, extensible on both sides. The panel to be provided with PVC Sleeved TPN Electrolytic Al. Bus Bar and PVC insulated solid interconnections and also provided with 50x6mm. horizontal tinned copper Earth Bus Bars in each section. |  |  |  |  |
| <b>A</b>   | <b>Main Incomer</b>  |  |  |  |  |
|            | 1 Nos 500A FP MCCB 25kA With Microprocessor Based Release (O/C,S/C,E/F) Protection & all Accessories in each :   |  |  |  |  |
|            | 1 No Under Voltage Relay (27)  |  |  |  |  |
|            | 1 No Over Voltage Relay (59)   |  |  |  |  |
|            | 1 No. Breaker Control Switch   |  |  |  |  |
|            | 1 Nos Multifunction Meter Without RS-485 port  |  |  |  |  |
|            | 1 set C.T's 500/5Amp , CL 1.0, 15VA for meter  |  |  |  |  |
|            | 1 set C.T's 500/5Amp , CL 1.0, 15VA for APFCR  |  |  |  |  |
|            | 1 set Phase Indicating LED Lamps with backup MCB   |  |  |  |  |

|            |  |     |   |  |  |
|------------|--|-----|---|--|--|
|            | 1 set ON,OFF,TRIP indicating LED Lamps with backup MCB.  |     |   |  |  |
|            | Control SP MCB   |     |   |  |  |
|            | 1 no emergency stop push button switch (to control whole panel)  |     |   |  |  |
| <b>B</b>   | <b>BUSBAR :-</b>   |     |   |  |  |
|            | FP aluminium bus bars of minimum 630 Amp with heat shrinkable colored sleeves , Shrouds at Joints and including DMC/SMC bus bars supports at required interval complete for cross section, side supports and their spacing |     |   |  |  |
| <b>C</b>   | <b>OUTGOING</b>  |     |   |  |  |
|            | Note:  |     |   |  |  |
|            | All MCCB should be having Thermal Magnetic based Release ,Ics=100%Icu with Rotary Handle. Fault Level minimum 25KA   |     |   |  |  |
|            | ON,OFF,TRIP Indication Light for all Outgoings. with backup MCB  |     |   |  |  |
|            | 1 Nos. 250Amps TP+N ,MCCB with Microprocessor adjustable with rotary handle.   |     |   |  |  |
|            | 2 Nos. 160Amps TP+N ,MCCB with Thermal Magnetic Release adjustable with rotary handle.   |     |   |  |  |
|            | 2 Nos. 100Amps TP+N ,MCCB with Thermal Magnetic Release adjustable with rotary handle.   |     |   |  |  |
|            | 2 Nos. 63Amps TP+N ,MCCB with Thermal Magnetic Release adjustable with rotary handle.  |     |   |  |  |
|            | 3 Nos. 40Amps TP+N ,MCCB with Thermal Magnetic Release adjustable with rotary handle.  |     |   |  |  |
|            | Miscellaneous items  |     |   |  |  |
|            | 2 nos. door switch   |     |   |  |  |
|            | 2 nos. illumination lights with 6 A,10kA MCB   |     |   |  |  |
|            | ILLUMINATION LED WITH HOLDER & DOOR SWITCH   |     |   |  |  |
|            | 2 nos. 6" dia. exhaust fan with thermostat & suitable canopy   |     |   |  |  |
|            | Internal illumination in Cable alleys with Door operated switch.   |     |   |  |  |
|            | <b>JAMMU MRC MAIN LT PANEL as described above</b>  | set | 1 |  |  |
| <b>2.0</b> | <b>JAMMU SUB PANEL -1</b>  |     |   |  |  |
| <b>A</b>   | <b>Main Incomer</b>  |     |   |  |  |
|            | 1 Nos 160A FP MCCB 25kA With Microprocessor Based Release (O/C,S/C,E/F) Protection & all Accessories in each :   |     |   |  |  |
|            | 1 No Under Voltage Relay (27)  |     |   |  |  |
|            | 1 No Over Voltage Relay (59)   |     |   |  |  |
|            | 1 No. Breaker Control Switch   |     |   |  |  |
|            | 1 Nos Multifunction Meter Without RS-485 port  |     |   |  |  |
|            | 1 set C.T's 160/5Amp , CL 1.0, 15VA for meter  |     |   |  |  |
|            | 1 set C.T's 160/5Amp , CL 1.0, 15VA for APFCR  |     |   |  |  |
|            | 1 set Phase Indicating LED Lamps with backup MCB   |     |   |  |  |
|            | 1 set ON,OFF,TRIP indicating LED Lamps with backup MCB.  |     |   |  |  |
|            | Control SP MCB   |     |   |  |  |
|            | 1 no emergency stop push button switch (to control whole panel)  |     |   |  |  |
| <b>B</b>   | <b>BUSBAR :-</b>   |     |   |  |  |

|            |  |     |   |  |  |
|------------|--|-----|---|--|--|
|            | FP aluminium bus bars of minimum 200 Amp with heat shrinkable colored sleeves , Shrouds at Joints and including DMC/SMC bus bars supports at required interval complete for cross section, side supports and their spacing |     |   |  |  |
| <b>C</b>   | <b>OUTGOING</b>  |     |   |  |  |
|            | Note:  |     |   |  |  |
|            | All MCCB should be having Thermal Magnetic based Release ,Ics=100%Icu with Rotary Handle. Fault Level minimum 25KA   |     |   |  |  |
|            | ON,OFF,TRIP Indication Light for all Outgoings. with backup MCB  |     |   |  |  |
|            | 4 Nos. 63Amps TP+N ,MCCB with Thermal Magnetic Release adjustable with rotary handle.  |     |   |  |  |
|            | 5 Nos. 40Amps TP+N ,MCCB with Thermal Magnetic Release adjustable with rotary handle.  |     |   |  |  |
|            | Miscellaneous items  |     |   |  |  |
|            | 2 nos. door switch   |     |   |  |  |
|            | 2 nos. illumination lights with 6 A,10kA MCB   |     |   |  |  |
|            | ILLUMINATION LED WITH HOLDER & DOOR SWITCH   |     |   |  |  |
|            | 2 nos. 6" dia. exhaust fan with thermostat & suitable canopy   |     |   |  |  |
|            | Internal illumination in Cable alleys with Door operated switch.   |     |   |  |  |
|            | <b>JAMMU SUB PANEL -1 as described above</b>   | set | 1 |  |  |
|            |  |     |   |  |  |
| <b>3.0</b> | <b>JAMMU SUB PANEL -2</b>  |     |   |  |  |
| <b>A</b>   | <b>Main Incomer</b>  |     |   |  |  |
|            | 1 Nos 250A FP MCCB 25kA With Microprocessor Based Release (O/C,S/C,E/F) Protection & all Accessories in each :   |     |   |  |  |
|            | 1 No Under Voltage Relay (27)  |     |   |  |  |
|            | 1 No Over Voltage Relay (59)   |     |   |  |  |
|            | 1 No. Breaker Control Switch   |     |   |  |  |
|            | 1 Nos Multifunction Meter Without RS-485 port  |     |   |  |  |
|            | 1 set C.T's 250/5Amp , CL 1.0, 15VA for meter  |     |   |  |  |
|            | 1 set C.T's 250/5Amp , CL 1.0, 15VA for APFCR  |     |   |  |  |
|            | 1 set Phase Indicating LED Lamps with backup MCB   |     |   |  |  |
|            | 1 set ON,OFF,TRIP indicating LED Lamps with backup MCB.  |     |   |  |  |
|            | Control SP MCB   |     |   |  |  |
|            | 1 no emergency stop push button switch (to control whole panel)  |     |   |  |  |
| <b>B</b>   | <b>BUSBAR :-</b>   |     |   |  |  |
|            | FP aluminium bus bars of minimum 300 Amp with heat shrinkable colored sleeves , Shrouds at Joints and including DMC/SMC bus bars supports at required interval complete for cross section, side supports and their spacing |     |   |  |  |
| <b>C</b>   | <b>OUTGOING</b>  |     |   |  |  |
|            | Note:  |     |   |  |  |
|            | All MCCB should be having Thermal Magnetic based Release ,Ics=100%Icu with Rotary Handle. Fault Level minimum 25KA   |     |   |  |  |
|            | ON,OFF,TRIP Indication Light for all Outgoings. with backup MCB  |     |   |  |  |

|             |  |     |     |  |  |
|-------------|--|-----|-----|--|--|
|             | 1 Nos. 125Amps TP+N ,MCCB with Thermal Magnetic Release adjustable with rotary handle.   |     |     |  |  |
|             | 1 Nos. 100Amps TP+N ,MCCB with Thermal Magnetic Release adjustable with rotary handle.   |     |     |  |  |
|             | 2 Nos. 63Amps TP+N ,MCCB with Thermal Magnetic Release adjustable with rotary handle.  |     |     |  |  |
|             | 2 Nos. 40Amps TP+N ,MCCB with Thermal Magnetic Release adjustable with rotary handle.  |     |     |  |  |
|             | Miscellaneous items  |     |     |  |  |
|             | 2 nos. door switch   |     |     |  |  |
|             | 2 nos. illumination lights with 6 A,10kA MCB   |     |     |  |  |
|             | ILLUMINATION LED WITH HOLDER & DOOR SWITCH   |     |     |  |  |
|             | 2 nos. 6" dia. exhaust fan with thermostat & suitable canopy   |     |     |  |  |
|             | Internal illumination in Cable alleys with Door operated switch.   |     |     |  |  |
|             | <b>JAMMU SUB PANEL -2 as described above</b>   | set | 1   |  |  |
|             |  |     |     |  |  |
| <b>3.00</b> | <b>ISOLATOR BOX</b>  |     |     |  |  |
|             | 12 Nos. 40Amps TP+N ,MCCB with Thermal Magnetic Release adjustable with rotary handle. With weatherproof cubical box   | set | 12  |  |  |
|             | 3 Nos. 63Amps TP+N ,MCCB with Thermal Magnetic Release adjustable with rotary handle. With weatherproof cubical box  | set | 3   |  |  |
|             | 3 Nos. 100Amps TP+N ,MCCB with Thermal Magnetic Release adjustable with rotary handle. With weatherproof cubical box   | set | 3   |  |  |
|             |  |     |     |  |  |
| <b>4.00</b> | <b>WATER EXTRACTION PUMP</b>   |     |     |  |  |
|             | Supply, installation, testing and commissioning of 3.5 HP Water extraction pump in all respect including laying and commissioning of 2" GI water pipe till ETP plant   | set | 1   |  |  |
|             |  |     |     |  |  |
|             |  |     |     |  |  |
|             | <b>TOTAL CARRIED OVER TO SUMMARY</b>   |     |     |  |  |
|             |  |     |     |  |  |
| <b>J)</b>   | <b>LT CABLES &amp; TERMINATION :</b>   |     |     |  |  |
| 1.1         | <b>L.T CABLES</b>  |     |     |  |  |
|             | Supply, laying, testing and commissioning of 1100 Volt grade XLPE insulated extruded PVC inner and outer sheathed armored cables conforming to IS 7098 amended up to date including the cost of providing required gap between adjacent cables (minimum one cable dia.) and including the cost of providing identification tags etc. complete as per specification, as required. |     |     |  |  |
| a)          | 3.5C x 300 sq. mm Aluminium  | RM  |     |  |  |
| b)          | 3.5C x 240 sq. mm Aluminium  | RM  |     |  |  |
| c)          | 3.5C x 185 sq. mm Aluminium  | RM  |     |  |  |
| d)          | 3.5C x 150 sq. mm Aluminium  | RM  | 80  |  |  |
| e)          | 3.5C x 95 sq. mm Aluminium   | RM  | 50  |  |  |
| f)          | 3.5C x 50 sq. mm Aluminium   | RM  | 50  |  |  |
| g)          | 3.5C x 25 sq. mm Aluminium   | RM  |     |  |  |
| h)          | 4C x 25 sq. mm Aluminium   | RM  | 200 |  |  |
| i)          | 4C x 16 sq. mm Aluminium   | RM  | 200 |  |  |
| j)          | 4C x 10 sq. mm Aluminium   | RM  | 200 |  |  |

|       |   |     |     |  |  |
|-------|---|-----|-----|--|--|
| k)    | 3C x 10 sq. mm Aluminium  | RM  |     |  |  |
| l)    | 2C x 6 sq. mm Aluminium   | RM  |     |  |  |
|       |   |     |     |  |  |
| 1.2   | <b>Cable termination :</b>  |     |     |  |  |
|       |   |     |     |  |  |
| 1.2.1 | Supplying, installation of all materials for terminations of 1.1 KV grade copper/aluminium multicore cables. The work includes cable glanding using brass plated , sizing the core leads, removing insulation, fixing suitable crimping type copper lugs/thimbles by using hydraulic crimping tools with correct size of the dies, shaping the leads and neatly connecting the same to the equipment terminals.   |     |     |  |  |
|       |   |     |     |  |  |
| a)    | 3.5C x 300 sq. mm Aluminium double compression gland  | Set |     |  |  |
| b)    | 3.5C x 240 sq. mm Aluminium double compression gland  | Set |     |  |  |
| c)    | 3.5C x 185 sq. mm Aluminium double compression gland  | Set |     |  |  |
| d)    | 3.5C x 150 sq. mm Aluminium double compression gland  | Set | 2   |  |  |
| e)    | 3C x 95 sq. mm Aluminium single compression gland   | Set | 2   |  |  |
| f)    | 3C x 50 sq. mm Aluminium single compression gland   | Set | 2   |  |  |
| g)    | 3.5C x 25 sq. mm Aluminium single compression gland   | Set |     |  |  |
| h)    | 4C x 25 sq. mm Aluminium single compression gland   | Set | 20  |  |  |
| i)    | 4C x 16 sq. mm Aluminium single compression gland   | Set | 24  |  |  |
| j)    | 4C x 10 sq. mm Aluminium single compression gland   | Set | 12  |  |  |
| k)    | 3C x 10 sq. mm Cu single compression gland  | Set |     |  |  |
| l)    | 2C x 6 sq. mm Cu single compression gland   | Set |     |  |  |
|       |   |     |     |  |  |
| 1.3   | <b>HUME PIPE AND CHAMBER:-</b>  |     |     |  |  |
|       | Providing and laying RCC pipe with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 Cement : 2 Fine Sand) including testing of joints etc. complete.   |     |     |  |  |
| a)    | 300 mm dia.   | RM  | 100 |  |  |
| c)    | Masonry chamber 1000 x 1000 x 1000 mm with 2nd class brick work in cement mortar 1 : 5 (1 cement : 5 fine sand) for cable laying with RCC top cover 1 : 2 : 4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) necessary excavation, foundation concrete (1 : 5 : 10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1 : 3 (1 cement : 3 coarse sand) 12 mm thick finished with a coat of neat cement complete with RCC cover. (750 x 750 x 50 mm). (for HT/LT). | Nos |     |  |  |

|    |   |     |   |  |  |
|----|---|-----|---|--|--|
| d) | Masonry chamber 450 x 450 x 750 mm with 2nd class brick work in cement mortar 1 : 5 (1 cement : 5 fine sand) for cable laying with RCC top cover 1 : 2 : 4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) necessary excavation, foundation concrete (1 : 5 : 10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1 : 3 (1 cement : 3 coarse sand) 12 mm thick finished with a coat of neat cement complete with RCC cover. (300 x 300 x 50 mm). (for LV). | Nos | 1 |  |  |
|    |   |     |   |  |  |
|    | <b>TOTAL CARRIED OVER TO SUMMARY</b>  |     |   |  |  |