

1152270/2022/PS-PEM-EL

|                                                                                   |                                          |                             |
|-----------------------------------------------------------------------------------|------------------------------------------|-----------------------------|
|  | PRE-QUALIFYING REQUIREMENTS FOR<br>POLES | DOC. NO. PE-PQ-434-558-E004 |
|                                                                                   |                                          | REV. 00                     |
|                                                                                   | 3X 800 MW PATRATU TPS                    | DATE: 14.11.22              |
|                                                                                   |                                          | SHEET 1 OF 1                |

ITEMS: Poles

**SCOPE:**

Supply : YES

Erection &amp; Commissioning: No

|   |                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Vendor should be a manufacturer of lighting poles as per relevant IS.<br>In case vendor is not a manufacturer, the vendor to furnish following documents:<br>a) Undertaking/agreement from OEM of offered make for support in design, manufacture, inspection & testing of poles.<br>b) Credentials of the manufacturer of offered make to meet the PQR requirements of S. No. 2 to 4 below.<br>c) Vendor's credentials to meet S. No. 5. |
| 2 | Availability of test reports of lighting poles conducted at Govt. lab/ Govt. approved independent lab or witnessed by third party as per relevant IS.                                                                                                                                                                                                                                                                                     |
| 3 | Capacity of manufacturing 50 lighting poles per month.                                                                                                                                                                                                                                                                                                                                                                                    |
| 4 | Manufactured and supplied at least 100 lighting poles in one or more orders.                                                                                                                                                                                                                                                                                                                                                              |
| 5 | Minimum two (2) nos. purchase orders for lighting poles shall be submitted which should not be more than five (5) years old from date of techno-commercial bid opening for establishing continuity in business.                                                                                                                                                                                                                           |

**Notes:**

1. Consideration of offer shall be subject to customer's approval of bidder, if applicable.
2. Bidder to submit all supporting documents in English. If documents submitted by bidder are in language other than English, a self-attested English translated document should also be submitted.
3. Notwithstanding anything stated above, BHEL reserves the right to access the capabilities and capacity of the bidder/collaborator to perform the contract, should the circumstances warrant such assessment in the overall interest of BHEL.
4. Any satisfactory fulfilment of all the above criteria/ requirement, offer shall be considered for further evaluation as per NIT and all the other terms of tender.

|                                                                                                                                |                                                                                                                            |                                                                                                                               |                                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| PREPARED BY<br><br>KHUSHBOO YADAV<br>(MGR.) | CHECKED BY<br><br>ABHISHEK<br>(SR. MGR) | REVIEWED BY<br><br>PRAVEEN DUTTA<br>(AGM) | APPROVED BY<br><br>DEBASISA RATH<br>(AGM- DH ELECTRICAL)) |
|--------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|

**3 X 800 MW PATRATU TPS**

**VOLUME – II**

**TECHNICAL SPECIFICATION FOR**  
**OCTAGONAL GALVANIZED POLES**

**SPECIFICATION NO: PE-TS-434-558-E004**  
**REV-0**



**BHARAT HEAVY ELECTRICALS LIMITED**  
**POWER SECTOR**  
**PROJECT ENGINEERING MANAGEMENT**  
**NOIDA, UTTAR PRADESH, INDIA – 201301**

1152270/2022/PS-PEM-EL



# **TECHNICAL SPECIFICATION FOR OCTAGONAL GALVANIZED POLES**

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## **COMPLIANCE CERTIFICATE**

The bidder shall confirm compliance to the following by signing/ stamping this compliance certificate and furnishing same with the offer.

1. The scope of supply, technical details, construction features, design parameters etc. shall be as per technical specification & there are no exclusion/ deviation with regard to same
2. There are no deviations with respect to specification other than those furnished in the 'schedule of deviations'
3. Only those technical submittals which are specifically asked for in NIT to be submitted at tender stage shall be considered as part of offer. Any other submission, even if made, shall not be considered as part of offer.
4. Any comments/ clarifications on technical/ inspection requirements furnished as part of bidder's covering letter shall not be considered by BHEL, and bidder's offer shall be construed to be in conformance with the specification.
5. Any changes made by the bidder in the price schedule with respect to the description/ quantities from those given in BOQ-Cum-Price schedule of the specification shall not be considered (i.e., technical description & quantities as per specification shall prevail).
6. The requirements mentioned in Section-I shall prevail and govern in case of conflict between the same and the corresponding requirements mentioned in the descriptive portion in Section-II

-----  
BIDDER'S STAMP & SIGNATURE

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**SECTION – 'I'****SPECIFIC TECHNICAL REQUIREMENTS**



## TECHNICAL SPECIFICATION FOR OCTAGONAL GALVANIZED POLES

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### 1.0 SCOPE OF ENQUIRY

- 1.1 Design, manufacture, assembly, inspection & testing at manufacturer's works, proper packing and delivery to site of OCTAGONAL GALVANIZED POLES as mentioned in different sections of this specification, complete with all accessories for efficient and trouble-free operation.
- 1.2 Standard technical requirements of the LIGHTING POLES are indicated in Section-II. Project specific requirements/changes are listed in Section-I.
- 1.3 The requirements of Section-I shall prevail and govern in case of conflict between the corresponding requirements of Section-I and Section-II.
- 1.4 Review of sub vendor's documents by the vendor shall not relieve the vendor from the responsibility of design and supply.
- 1.5 The documents shall be in English language and MKS system of units. Submission of all post award stage documents shall be done through document management system-DMS.

### 2.0 BILL OF QUANTITIES:

- 2.1 Quantity requirements shall be as per BOQ-cum-price schedule as part of NIT.

### 3.0 SPECIFIC TECHNICAL REQUIREMENTS

| <u>S.No.</u> | <u>Reference Clause No. of Section- II</u> | <u>Specific Requirement/ Change</u>                                                                                                                                                       |
|--------------|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1            | 3.2.4 (JB-M)                               | 4 X 16 mm <sup>2</sup> cable shall be read as 3.5 X 25 mm <sup>2</sup> cable.                                                                                                             |
| 2            | 3.1.1                                      | Clause 3.1.1 shall be read as:<br>Lighting poles as required for street lighting and flood lighting shall be of Octagonal type as per applicable standard.                                |
| 3            | 3.2.2 (e)                                  | Clause 3.2.2 (e) shall be read as:<br>Junction box shall be integral to pole.<br>Junction Box shall be suitable for mounting inside Octagonal pole.                                       |
| 4            | 3.1.5                                      | Clause 3.1.5 shall be read as:<br>Each street lighting pole shall be suitably provided with internal junction box.                                                                        |
| 5            | 3.1.6                                      | Clause 3.1.6 shall be read as:<br>Not applicable                                                                                                                                          |
| 6            | 3.1.7                                      | Clause 3.1.7 shall be read as:<br>Flood lighting pole shall be provided with galvanised MS plate and shall be suitable for the number of flood lighting luminaires and controlgear boxes. |
| 7            | 3.5                                        | Clause 3.5 Not applicable                                                                                                                                                                 |
| 8            | 3.6.1                                      | Clause 3.6.1 Not applicable                                                                                                                                                               |
| 9            | 8.2                                        | Clause 8.2 shall be read as:<br>Erection & commissioning spares are included in the bidder's scope of supply. These include foundation bolts for 2 nos. poles.                            |



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|    |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10 | 6.1                   | Clause 6.1 shall be read as:<br>The approval on Quality plan (ref.no. PE-QP-999-558-E004, REV.01) shall be obtained from end customer after award of contract & shall be subjected to modification without any commercial implication to BHEL.                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 11 | 7.0 (TOOLS & TACKLES) | Following clause is added:<br>Bidder to supply necessary accessories required for installation of its supplied equipment's without any cost implication to BHEL.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 12 | Sub-vendor list       | Following clause is added:<br>The approval on Sub-vendor list shall be obtained from end customer after award of contract & same shall be subjected to modification without any commercial implication to BHEL.                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 13 |                       | The Street Light system and peripheral lighting shall be designed generally in line with design guidelines. The Poles shall be mounted above ground using base plate and minimum height of pole shall be 8 mtrs The poles shall be hot-dip galvanized as per IS2629/ IS2633/ IS4759. The average coating thickness of galvanizing shall be min. 70 micron. The System shall be capable of withstanding the appropriate wind load etc as per IS 875 considering prevailing soil/ site condition considering all accessories mounting on pole. The street light poles shall have loop in loop out arrangement for cable entry and light fixture / wiring protected with suitably rated MCB. |

### 3.1 Galvanized Octagonal poles- technical requirements

- 3.1.1 **Scope:** The octagonal pole shall be mounted on RCC pedestal as per design & drawing prepared by the vendor, after award of contract. Octagonal lighting pole accessories such as arm/ holding brackets, hold fast, base plate, foundation bolt, **wire (if required)**, 100 mm dia GI pipes for taking cables shall be supplied by vendor to meet overall system requirements. The other consumable required to complete the job in all respects shall also be in contractor's scope.
- 3.1.2 **Exclusion:** The scope of civil work such as embedment, RCC pedestal using M-30 grade concrete, for steel shuttering etc. are excluded from the scope of bidder.
- 3.1.3 The Octagonal Poles shall be designed to withstand the maximum wind speed as per **IS-875 latest revision & amendments**. The top loading i.e. area and the weight of fixtures are to be considered to calculate maximum deflection of the pole and the same shall meet the requirement of BS: 5649 Part VI 1982/ BSEN 40-3:2000, pr EN-10-3-3.



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- 3.1.4 The pole shaft shall have octagonal cross section and shall be continuously tapered with single longitudinal welding. There shall not be any circumferential welding joint.
- 3.1.5 The octagonal Poles shall have door of approximate 500 mm length at the elevation of 500 mm from the Base plate. The door shall be vandal resistance and shall be weather proof to ensure safety of inside connections. The door shall be flush with the exterior surface and shall have suitable locking arrangement. There shall also be suitable arrangement for the purpose of earthing **at two points**. The pole shall be adequately strengthened at the location of the door to compensate for the loss in section. Lighting pole junction box shall be provided along with octagonal pole as per requirement.
- 3.1.6 Material:            Octagonal Poles                    HT Steel Conforming to grade S355JO.  
                                 Base Plate                                    Fe 410 conforming to IS 226 / IS 2062  
                                 Foundation Bolt                                EN.8 grade
- 3.1.7 The Octagonal Poles shall be in single section (upto 9/11 Mtr).
- 3.1.8 The poles shall be hot dip galvanized as per IS 2629 / IS 2633 / IS 4759/ BS EN ISO 1461 standards with average coating thickness of 70 micron. The galvanizing shall be done in single dipping.
- 3.1.9 The Octagonal Poles shall be bolted on a foundation with a set of four foundation bolts for greater rigidity.
- 3.1.10 The galvanized mounting bracket shall be supplied along with the Octagonal Poles for installation of the luminaries.
- 3.1.11 The brackets shall be made of specified size NB G.I heavy duty pipe approx. 1.2 M long, bent at the centre at an angle of 105 degrees, with necessary holding brackets, hold fasts etc. with special reducer at end to accommodate type of street light fitting to be fixed. The bracket shall be galvanised.
- 3.1.12 QP enclosed with the specification shall be subject to customer approval without any commercial implication to BHEL
- 3.1.13 Section –II, General requirements shall also be applicable to Octagonal galvanized poles in general.
- 4.0 Supplier to also give the following undertaking in the BOM:  
"The BoM provided herewith completes the scope (in content and intent) of material supply under PO No. -----, dated -----.  
Any additional material which may become necessary for the intended application of the supplied item(s)/package will be supplied free of cost in most reasonable time."
- 5.0 Bidder shall furnish all inputs for foundation design to BHEL during detailed engineering.
- 6.0 **Inspection & Testing:**  
  
Standard quality plan is enclosed. Inspection shall be carried out as per quality plan without any implication on cost and delivery. There shall be no commercial implication to



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BHEL on account of any changes in QP during contract stage.

All equipment to be supplied shall be of type tested design. During detail engineering, the contractor shall submit for Owner's approval the reports of all the type tests as listed in this specification and carried out within last ten years from **08.09.18**. These reports should be for the test conducted on the equipment similar to those proposed to be supplied under this contract and the test(s) should have been either conducted at an independent laboratory or should have been witnessed by a client.

However if the contractor is not able to submit report of the type test(s) conducted within last ten years from the date of bid opening, or in the case of type test report(s) are not found to be meeting the specification requirements, the contractor shall conduct all such tests under this contract at no additional cost to the owner either at third party lab or in presence of client/owners representative and submit the reports for approval.

All acceptance and routine tests as per the specification and relevant standards shall be carried out. Charges for these shall be deemed to be included in the equipment price.

Selection of samples for type test, acceptance test & routine test and acceptance criteria for all the items shall be as per relevant I.S

### Galvanizing Tests

The quality of galvanizing shall be smooth, continuous, free from flux stains and shall be inspected visually.

In addition following tests shall be conducted as acceptance tests.

(a) Uniformity of coating - The coating of any article shall withstand for one (1) minute dips in standard copper sulphate solution without the formation of an adherent red spot of metallic copper upon the basic metal.

(b) The quality of cadmium/zinc plating on items with screw threads shall be free from visible defects such as unplated areas, blisters and modules and shall be inspected visually.

(c) In addition, the plating thickness shall be determined microscopically/ chemically or electronically.

## 7.0 DOCUMENTATION

7.1 Documents required after award of LOI shall be as per NIT.

7.2 Document/drawing submission/re-submission schedule shall be submitted by vendor as required.



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## 1.0 APPLICABLE STANDARDS & CODES

### [A] POLES

- |     |                                                                                       |                        |
|-----|---------------------------------------------------------------------------------------|------------------------|
| 1.  | Tubular steel poles for over head power lines                                         | IS 2713                |
| 2.  | Code and practice for design loads for structures                                     | IS 875 Part III, 1987  |
| 3.  | Code of practice for general construction in steel                                    | IS 800                 |
| 4.  | European structural steel standard (Grade of M.S. plate)                              | BS-EN 10025/ DIN 17100 |
| 5.  | Code of practice for phosphating of iron and steel                                    | IS 6005                |
| 6.  | Colour for ready mixed paints & enamels                                               | IS 5                   |
| 7.  | Recommended practice for hot dip galvanising of iron & steel                          | IS 2629                |
| 8.  | Method of testing uniformity of coating on zinc coated articles                       | IS 2603                |
| 8.  | Method of sampling for steel pipes, tubes & fittings                                  | IS 4711                |
| 10. | Method of chemical analysis of pig iron, cast iron and plain carbon & low alloy steel | IS 228                 |
| 11. | Steel tubes for structural purposes                                                   | IS 1161                |
| 12. | Mechanical testing of metals-Tensile Testing                                          | IS 1608                |
| 13. | Specification for hot dip zinc coatings on structural steel and allied products       | IS 4759                |
| 14. | Method for testing uniformity of coating on zinc coated articles                      | IS 2633                |
| 15. | Specification for structural Steel                                                    | IS: 226                |
| 16. | Hot Rolled Medium and High Tensile. Structural Steel                                  | IS 2062                |
| 17. | Method for Verification of Structural Design by Testing                               | BS 5649                |



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18. Lighting columns. Design and verification. BS EN 40-3-2:2013

**[B] ASSEMBLED EQUIPMENT AND COMPONENTS**

- |    |                                                                                                              |           |
|----|--------------------------------------------------------------------------------------------------------------|-----------|
| 1. | Low voltage switchgear and controlgear                                                                       | IEC 60947 |
| 2. | General requirements for enclosures for accessories for household and similar fixed electrical installations | IS 14772  |
| 3. | Electrical accessories- Circuit breaker for overcurrent protection for household and similar installations   | IEC 60898 |
| 4. | Low voltage Fuses for voltages not exceeding 1100V AC or 1500V DC                                            | IS 13703  |
| 5. | Visual indicator lamps                                                                                       | IS 1901   |



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## 2.0 TECHNICAL DETAILS

| S. No. | Description                                          | Unit    | Value                                       |
|--------|------------------------------------------------------|---------|---------------------------------------------|
| 1.0    | <b>System Design Data</b>                            |         |                                             |
| a      | Rated voltage                                        | V       | 415                                         |
| b      | Rated frequency                                      | Hz      | 50                                          |
| c      | Voltage and frequency variation (permissible)        | %       | Voltage: $\pm 10\%$<br>Frequency: $\pm 5\%$ |
| d      | Combined voltage & frequency variation (permissible) | %       | 10% absolute                                |
| e      | System fault level & duration                        | kA, sec | 10kA for 1 sec                              |
| 2.0    | <b>Lighting Poles</b>                                |         | Hot dip galvanized Octagonal pole           |
| 2.1    | Type of Pole                                         |         |                                             |
| a      | Octagonal pole type PS-1                             |         | 9 m, Refer Clause 3.1.9 (a) of Section II   |
| b      | Octagonal pole type PS-2                             |         | 11 m, Refer Clause 3.1.9 (b) of Section II  |
| c      | Octagonal pole type PF-1                             |         | 9 m, Refer Clause 3.1.9 (d) of Section II   |
| d      | Octagonal pole type PF-2                             |         | 9 m, Refer Clause 3.1.9 (e) of Section II   |
| 2.2    | Material                                             |         | HT Steel Conforming to grade S355JO         |
| 2.3    | Tensile Strength                                     | MPa     | 490-630 N/mm <sup>2</sup>                   |
| 2.4    | Mounting arrangement                                 |         | [ ] PCC foundation [✓] Base plate           |
| 2.5    | Grade of concrete                                    |         | [ ] M20 [✓] M25 [ ] M30                     |
| 2.6    | Surface Treatment                                    |         | [ ] Painted [✓] Galvanized                  |

## 2.7 The general dimensions of pole are mentioned below

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| Sl.no. | Height<br>(meter) | Top<br>Dia<br>A/F<br>(mm)<br>Min. | Bottom<br>Dia A/F<br>(mm)<br>Min. | Sheet<br>thickness<br>(mm)<br>min. | Base plate<br>dim. (LxBxT)<br>mm. min | Foundation bolt                              |             |                        |                                     | Ancho<br>r plat<br>thickn<br>ess<br>(mm)<br>min. |
|--------|-------------------|-----------------------------------|-----------------------------------|------------------------------------|---------------------------------------|----------------------------------------------|-------------|------------------------|-------------------------------------|--------------------------------------------------|
|        |                   |                                   |                                   |                                    |                                       | Bolt size<br>(no. x<br>dia.)<br>(mm)<br>min. | PCD<br>(mm) | Bolt<br>length<br>(mm) | Projected<br>Bolt<br>length<br>(mm) |                                                  |
| 1      | 9                 | 70                                | 155                               | 3                                  | 260x260x16                            | 4x24                                         | 250         | 750                    | 125                                 | 3                                                |
| 2      | 11                | 90                                | 210                               | 4                                  | 300x300x20                            | 4x24                                         | 300         | 850                    | 125                                 | 4                                                |

These dimension are subjected to tolerances as per IS-2102 except for bending radius.

|      |                                                     |                   |                                                                  |
|------|-----------------------------------------------------|-------------------|------------------------------------------------------------------|
| 2.8  | <b>PAINTING details for poles (if applicable)</b>   |                   | <b>(AS APPLICABLE)</b>                                           |
| a    | Paint shade as per IS:5                             |                   | NA                                                               |
| b    | Paint Thickness                                     | Microns           | NA                                                               |
| 2.9  | <b>GALVANISATION details for poles</b>              |                   |                                                                  |
| a    | Process                                             |                   | Hot dip                                                          |
| b    | Min weight of zinc coating                          | gm/m <sup>2</sup> | 460                                                              |
| c    | Avg. thickness of zinc coating                      | Microns           | 70                                                               |
| 3.0  | <b>Street Light Junction Box (Integral to pole)</b> |                   |                                                                  |
| a    | Enclosure material                                  |                   | [ ] FRP [√] CRCA Sheet.                                          |
| b    | Enclosure thickness                                 | mm                | 1.6                                                              |
| c    | Galvanisation details                               |                   |                                                                  |
| i)   | Process                                             |                   | Hot dip                                                          |
| ii)  | Min weight of zinc coating                          | gm/m <sup>2</sup> | 460                                                              |
| iii) | Avg. thickness of zinc coating                      | Microns           | 70                                                               |
| d    | Degree of protection                                |                   | IP-55                                                            |
| 4.0  | <b>Cable Glands</b>                                 |                   | <b>By vendor for all incoming and outgoing cables at Pole JB</b> |
| a    | Type                                                |                   | [√] Double compression<br>[ ] Single compression                 |

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|-----|------------------------------|--|--------------------------------------------------------------------------------------|
| b   | Material                     |  | Brass                                                                                |
| c   | Nickel Plating provided      |  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                  |
| d   | Size                         |  | Cable Gland shall be suitable for cable size :<br>3.5C-25sqmm                        |
| 5.0 | <b>Cable Lugs</b>            |  | <b>By vendor for all incoming and outgoing cables at Pole JB</b>                     |
| a   | Type                         |  | <input checked="" type="checkbox"/> Crimping type <input type="checkbox"/> Ring type |
| b   | Material                     |  | Tinned copper                                                                        |
| c   | Size                         |  | Suitable for Cable sizes: 3.5C-25sqmm<br>armoured cable.                             |
| 6.0 | <b>WIND SPEED DATA</b>       |  | As per IS-875 latest revision &<br>amendments.<br>(Wind speed : 39 meters/sec)       |
| 7.0 | <b>Soil bearing Capacity</b> |  | 8 T/m <sup>2</sup>                                                                   |



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| S. No. | Description                                          | Unit    | Value |
|--------|------------------------------------------------------|---------|-------|
| 1.0    | <b>System Design Data</b>                            |         |       |
| a      | Rated voltage                                        | V       |       |
| b      | Rated frequency                                      | Hz      |       |
| c      | Voltage and frequency variation (permissible)        | %       |       |
| d      | Combined voltage & frequency variation (permissible) | %       |       |
| e      | System fault level & duration                        | kA, sec |       |
| 2.0    | <b>Lighting Poles</b>                                |         |       |
| 2.1    | Type of Pole                                         |         |       |
| a      | PS-1 (9m), Refer 3.1.9 Section-II                    |         |       |
| b      | PS-2 (11 m), Refer 3.1.9 Section-II                  |         |       |
| c      | PS-4 (11 m), Refer 3.1.9 Section-II                  |         |       |
| d      | PF-1 (9m), Refer 3.1.9 Section-II                    |         |       |
| e      | PF-2 (9m), Refer 3.1.9 Section-II                    |         |       |
| 2.2    | Material                                             |         |       |
| 2.3    | Tensile Strength                                     | MPa     |       |
| 2.4    | Mounting arrangement                                 |         |       |
| 2.5    | Grade of concrete                                    |         |       |
| 2.6    | Surface Treatment                                    |         |       |
| 2.7    | <b>PAINTING details for poles (if applicable)</b>    |         |       |
| a      | Paint shade as per IS:5                              |         |       |
| b      | Paint Thickness                                      | Microns |       |



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| 2.8          | <b>GALVANISATION details for poles</b>                                                                                                                                                                                                                                                         |         |                                                                                   |
| a            | Process                                                                                                                                                                                                                                                                                        |         |                                                                                   |
| b            | Min weight of zinc coating                                                                                                                                                                                                                                                                     | gm/m2   |                                                                                   |
| c            | Avg thickness of zinc coating                                                                                                                                                                                                                                                                  | Microns |                                                                                   |
| <b>Note:</b> | Exterior Aluminium paint specified at 2.7 above is not in vendor's scope and is to be carried out at site after installation. It is specified only for completeness of datasheet. However, black bituminous paint & red oxide primer to be applied by vendor as per clause 3.12 of section II. |         |                                                                                   |
| 3.0          | <b>Street Light Junction Box</b>                                                                                                                                                                                                                                                               |         |                                                                                   |
| a            | Enclosure material                                                                                                                                                                                                                                                                             |         |                                                                                   |
| b            | Enclosure thickness                                                                                                                                                                                                                                                                            | mm      |                                                                                   |
| c            | Galvanisation details                                                                                                                                                                                                                                                                          |         |                                                                                   |
| i)           | Process                                                                                                                                                                                                                                                                                        |         |                                                                                   |
| ii)          | Min weight of zinc coating                                                                                                                                                                                                                                                                     | gm/m2   |                                                                                   |
| iii)         | Avg. thickness of zinc coating                                                                                                                                                                                                                                                                 | Microns |                                                                                   |
| d            | Degree of protection                                                                                                                                                                                                                                                                           |         |                                                                                   |
| 4.0          | <b>Cable Glands</b>                                                                                                                                                                                                                                                                            |         | <b>By vendor for all incoming and outgoing cables at Pole JB and feeder panel</b> |
| a            | Type                                                                                                                                                                                                                                                                                           |         |                                                                                   |
| b            | Material                                                                                                                                                                                                                                                                                       |         |                                                                                   |
| c            | Nickel Plating provided                                                                                                                                                                                                                                                                        |         |                                                                                   |
| d            | Size                                                                                                                                                                                                                                                                                           |         |                                                                                   |
| 5.0          | <b>Cable Lugs</b>                                                                                                                                                                                                                                                                              |         | <b>By vendor for all incoming and outgoing cables at Pole JB and feeder panel</b> |
| a            | Type                                                                                                                                                                                                                                                                                           |         |                                                                                   |
| b            | Material                                                                                                                                                                                                                                                                                       |         |                                                                                   |
| c            | Size                                                                                                                                                                                                                                                                                           |         |                                                                                   |

1152270/2022/PS-PEM-EL



# **TECHNICAL SPECIFICATION FOR OCTAGONAL GALVANIZED POLES**

SPECIFICATION NO. PE-TS-434-558-E004

VOLUME II

SECTION - I

REVISION 0

SHEET 1 OF 1

## **SUB VENDOR'S LIST FOR OCTAGONAL GALVANIZED POLES**

The approval on Sub-vendor list shall be obtained from end customer after award of contract & same shall be subjected to modification without any commercial implication to BHEL.

| ITEM CODE | ITEM/SERVICE DESCRIPTION | QP INSPECTION CAT | VENDOR NAME                                           | ADDRESS                                                                                             | REMARKS                 |
|-----------|--------------------------|-------------------|-------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-------------------------|
| ES1       | AC CONTACTORS            |                   | SIEMENS                                               | RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA         |                         |
|           | AC CONTACTORS            |                   | GE-POWER                                              | KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032 |                         |
|           | AC CONTACTORS            |                   | TELEMECHANIQUE/<br>SCHNEIDER ELECTRIC INDIA PVT. LTD. | 9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002                             | TAKEN OVER BY SCHNEIDER |
|           | AC CONTACTORS            |                   | L&T                                                   | 32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-110015                                                  |                         |
|           | AC CONTACTORS            |                   | BCH                                                   | 20/4, MATHURA ROAD, FARIDABAD, HARYANA-121006                                                       |                         |
|           | AC LOAD BREAK SWITCH     |                   | GE-POWER                                              | KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032 |                         |
| ES2       | AC LOAD BREAK SWITCH     |                   | L&T                                                   | 32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-110015                                                  |                         |
|           | AC LOAD BREAK SWITCH     |                   | SIEMENS                                               | RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA         |                         |
|           | AC LOAD BREAK SWITCH     |                   | KAYCEE                                                | KAYCEE INDUSTRIES LTD., C/O-CMS COMPUTERS LTD., 35A, REAR BLDG., KILOKARI, NEW DELHI-110014         |                         |
|           | AC LOAD BREAK SWITCH     |                   | C&S ELECTRIC LTD.                                     | 222, OKHLA IND. ESTATE, PH-III, NEW DELHI-110020                                                    |                         |

| ITEM CODE | ITEM/SERVICE DESCRIPTION | QP INSPECTION CAT | VENDOR NAME                        | ADDRESS                                                                                                    | REMARKS |
|-----------|--------------------------|-------------------|------------------------------------|------------------------------------------------------------------------------------------------------------|---------|
| ES3       | AC MCCB                  |                   | C&S ELECTRIC LTD.                  | 222, OKHLA IND. ESTATE, PH-III, NEW DELHI-110020                                                           |         |
|           | AC MCCB                  |                   | SCHNEIDER ELECTRIC INDIA PVT. LTD. | 9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002                                    |         |
|           | AC MCCB                  |                   | SIEMENS                            | RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA                |         |
|           | AC MCCB                  |                   | GE-POWER                           | KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032        |         |
|           | AC MCCB                  |                   | L&T                                | 32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-110015                                                         |         |
|           | AC MCCB                  |                   | CROMPTON GREAVES                   | RAIL TRANSPORTATION SYSTEMS,VANDANA BUILDING, 11, TOLSTOY MARG, TOLSTOY MARG, NEW DELHI, DL 110001         |         |
|           | ACDB/ DCDB DRAWOUT TYPE  |                   | ELECTRO CONTROLS & DEVICES         | M/S ELECTRO CONTROLS & DEVICES, F-41, SITE-C, SURAJPUR INDUSTRIAL AREA GREATER NOIDA UTTAR PRADESH :201308 |         |
| ES4       | ACDB/ DCDB DRAWOUT TYPE  |                   | KMG ATOZ SYSTEMS                   | C-49, SECTOR-81-NOIDA-201305                                                                               |         |
|           | ACDB/ DCDB DRAWOUT TYPE  |                   | ASIATIC                            | A-58 NARAINA IND. AREA, PHASE-I , NEW DELHI 110028                                                         |         |
|           | ACDB/ DCDB DRAWOUT TYPE  |                   | UNILEC ENGINEERS PVT. LTD.         | BEHRAMPUR INDUSTRIAL AREA, BEGAMPUR KHATOLA ROAD, GURGAON-122001                                           |         |
|           | ACDB/ DCDB DRAWOUT TYPE  |                   | C&S ELECTRIC LTD.                  | 222, OKHLA IND. ESTATE, PH-III, NEW DELHI-110020                                                           |         |
|           | ACDB/ DCDB DRAWOUT TYPE  |                   | L&T                                | 32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-110015                                                         |         |
|           | ACDB/ DCDB DRAWOUT TYPE  |                   | GE-POWER                           | KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032        |         |
|           | ACDB/ DCDB DRAWOUT TYPE  |                   |                                    |                                                                                                            |         |

| ITEM CODE | ITEM/SERVICE DESCRIPTION | QP INSPECTION CAT | VENDOR NAME                  | ADDRESS                                                                                                    | REMARKS |
|-----------|--------------------------|-------------------|------------------------------|------------------------------------------------------------------------------------------------------------|---------|
|           | ACDB/ DCDB DRAWOUT TYPE  |                   | SIEMENS                      | RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA                |         |
|           | ACDB/ DCDB FIXED TYPE    |                   | ELECTRO CONTROLS & DEVICES   | M/S ELECTRO CONTROLS & DEVICES, F-41, SITE-C, SURAJPUR INDUSTRIAL AREA GREATER NOIDA UTTAR PRADESH :201309 |         |
|           | ACDB/ DCDB FIXED TYPE    |                   | JASPER ENGINEERS PVT. LTD.   | A-23, SECTOR - 8, NOIDA-201301                                                                             |         |
|           | ACDB/ DCDB FIXED TYPE    |                   | JACKSON ENGINEERS            | A-43, HOSEIRY COMPLEX, OPPOSITE NSEZ, NOIDA-201305                                                         |         |
|           | ACDB/ DCDB FIXED TYPE    |                   | SPACEAGE SWITCHGEARS LTD.    | 68 & 13-A INDUSTRIAL DEVELOPMENT COLONY, MEHRAULI ROAD GURGAON, HARYANA-122001                             |         |
|           | ACDB/ DCDB FIXED TYPE    |                   | KMG ATOZ SYSTEMS             | C-49, SECTOR-81-NOIDA-201305                                                                               |         |
|           | ACDB/ DCDB FIXED TYPE    |                   | ASIATIC                      | A-58 NARAINA IND. AREA, PHASE-I , NEW DELHI 110028                                                         |         |
|           | ACDB/ DCDB FIXED TYPE    |                   | UNILEC ENGINEERS PVT. LTD.   | BEHRAMPUR INDUSTRIAL AREA, BEGAMPUR KHATOLA ROAD, GURGAON-122001                                           |         |
|           | ACDB/ DCDB FIXED TYPE    |                   | C&S ELECTRIC LTD.            | 222, OKHLA IND. ESTATE, PH-III, NEW DELHI-110020                                                           |         |
|           | ACDB/ DCDB FIXED TYPE    |                   | ENPRO ENGG.                  | NO.995P, DIAMOND PLAZA, 2ND FLOOR, 12TH MAIN ROAD, ANNA NAGAR, CHENNAI-40                                  |         |
|           | ACDB/ DCDB FIXED TYPE    |                   | ASSOCIATED SWGR & PROJ. LTD. | C-10, UPSIDC, INDUSTRIAL AREA, SITE-IV, KASNA ROAD, GREATER NOIDA-201306                                   |         |
|           | ACDB/ DCDB FIXED TYPE    |                   | BCH                          | 20/4, MATHURA ROAD, FARIDABAD, HARYANA-121006                                                              |         |
|           | ACDB/ DCDB FIXED TYPE    |                   | ECS PRIVATE LTD              | 7/47, Site 2, Upsidc Ind Area, Loni Road, MOHAN Nagar, Ghaziabad, Uttar Pradesh 201007                     |         |
|           | ACDB/ DCDB FIXED TYPE    |                   | L&T                          | 32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-110015                                                         |         |

ES5

| ITEM CODE | ITEM/SERVICE DESCRIPTION | QP INSPECTION CAT | VENDOR NAME                        | ADDRESS                                                                                                                | REMARKS |
|-----------|--------------------------|-------------------|------------------------------------|------------------------------------------------------------------------------------------------------------------------|---------|
|           | ACDB/ DCDB FIXED TYPE    |                   | GE-POWER                           | KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032                    |         |
|           | ACDB/ DCDB FIXED TYPE    |                   | SIEMENS                            | RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA                            |         |
|           | ACDB/ DCDB FIXED TYPE    |                   | KHOKHAR ELECT. PVT LTD.            | C-44, SEC-63, NOIDA-201307                                                                                             |         |
|           | ACDB/ DCDB FIXED TYPE    |                   | VIDHYUT CONTROLS (INDIA) PVT. LTD. | M/S VIDHYUT CONTROL (I) PVT.LTD. D-12 & 13, SECTOR-17,KAVI NAGAR INDL.AREA, GHAZIABAD – 201002 ( DELHI NCR) U.P. INDIA |         |
|           | AIR CIRCUIT BREAKER      |                   | L&T                                | 32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-110015                                                                     |         |
|           | AIR CIRCUIT BREAKER      |                   | SIEMENS                            | RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015,                                  |         |

| ITEM CODE | ITEM/SERVICE DESCRIPTION | QP INSPECTION CAT | VENDOR NAME                                        | ADDRESS                                                                                             | REMARKS                 |
|-----------|--------------------------|-------------------|----------------------------------------------------|-----------------------------------------------------------------------------------------------------|-------------------------|
| ES6       | AIR CIRCUIT BREAKER      |                   | GE-POWER                                           | KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032 |                         |
|           | AIR CIRCUIT BREAKER      |                   | SCHNEIDER ELECTRIC INDIA PVT. LTD.                 | 9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002                             |                         |
|           | AIR CIRCUIT BREAKER      |                   | C&S ELECTRIC LTD.                                  | 222, OKHLA IND. ESTATE, PH-III, NEW DELHI-110020                                                    |                         |
|           | AUXILIARY RELAYS         |                   | ABB                                                | 14, MATHURA ROAD, FARIDABAD, HARYANA-121003                                                         |                         |
| ES7       | AUXILIARY RELAYS         |                   | ALSTOM LTD                                         | A-7, SEC-65, NOIDA                                                                                  |                         |
|           | AUXILIARY RELAYS         |                   | JYOTI LTD.                                         | JYOTI LIMITED, E&CS DIVISION, 3/15, BIDC, GORWA, VADODARA - 390 016, E-MAIL ID: ECS@JYOTI.COM       |                         |
|           | AUXILIARY RELAYS         |                   | OEN INDIA LTD                                      | 29/1479, VYTILLA, COCHIN - 682 019 KERALA, INDIA                                                    |                         |
|           | AUXILIARY RELAYS         |                   | SIEMENS                                            | RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA         |                         |
|           | BIMETAL RELAYS           |                   | L&T                                                | 32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-110015                                                  |                         |
|           | BIMETAL RELAYS           |                   | GE-POWER                                           | KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032 |                         |
| ES8       | BIMETAL RELAYS           |                   | SIEMENS                                            | RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA         |                         |
|           | BIMETAL RELAYS           |                   | TELEMECHANIQUE/ SCHNEIDER ELECTRIC INDIA PVT. LTD. | 9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002                             | TAKEN OVER BY SCHNEIDER |

| ITEM CODE | ITEM/SERVICE DESCRIPTION  | QP INSPECTION CAT | VENDOR NAME                   | ADDRESS                                                                                                               | REMARKS |
|-----------|---------------------------|-------------------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------|---------|
| ES9       | BUCHHOLZ RELAY            |                   | ALSTOM LTD                    | A-7, SEC-65, NOIDA                                                                                                    |         |
|           | BUCHHOLZ RELAY            |                   | ATVUS INDUSTRIES              | 689, BLOCK 'O', NEW ALIPORE, CALCUTTA-700053                                                                          |         |
|           | BUCHHOLZ RELAY            |                   | INSTRUMENTS & CONTROLS        | 146,GIDC IND.ESTATE,MAKARPURA, VADODRA-390010                                                                         |         |
| ES10      | CABLE CLAMPS & CABLE TIES |                   | ELECTROMAC IND.CORPN.         | 27/28 AF,NEW EMPIRE IND.ESTT., R.KRISHNA MANDIR RD.JB NGR ,ANDHERI(E), MUMBAI-400059                                  |         |
|           | CABLE CLAMPS & CABLE TIES |                   | INCAB                         | HARE STREET,KOLKATA,WEST BENGAL-700001                                                                                |         |
|           | CABLE CLAMPS & CABLE TIES |                   | NOVOFLEX MARKETING PVT. LTD.  | RAIKVA' - 5TH FLOOR, UNIT-6<br>3A, RAM MOHAN MULLUCK GARDEN LANE<br>KOLKATA - 700 010                                 |         |
|           | CABLE GLANDS              | III               | ALLIED TRADERS & EXPORTERS    | C-124 A, SECTOR-2,<br>NOIDA -201 301, UTTAR PRADESH, INDIA                                                            | NOTED   |
| ES11      | CABLE GLANDS              | III               | ARUP ENGG & FOUNDRY WORKS     | 391/119,PRINCE ANWAR SHAH ROAD, CALCUTTA-700068                                                                       | NOTED   |
|           | CABLE GLANDS              | III               | BALIGA LIGHTING EQPT.PVT.LTD. | 63A,CP RAMASWAMY ROAD, ALWARPET,P.B.No 6910, CHENNAI-600018                                                           | NOTED   |
|           | CABLE GLANDS              | III               | COMMET BRASS PRODUCTS         | NUTAN CHEMICAL COMPOUND, WALBHAT ROAD, GOREGAON, MUMBAI-400063                                                        | NOTED   |
|           | CABLE GLANDS              | III               | DOWELLS                       | M/S. DOWELLS ELECTRICALS<br>47/47A, SATGURU INDUSTRIAL ESTATE.<br>OFF AAREY ROAD, GOREGOAN (EAST).<br>MUMBAI 400 063. | NOTED   |
|           | CABLE GLANDS              | III               | ELECTROMAC INDUSTRIES         | 27/28AF NEW EMPIRE IND.ESTT., R.KRISHNA MANDIR RD.JB NGR ,ANDHERI(E),MUMBAI-400059                                    | NOTED   |
|           | CABLE GLANDS              | III               |                               |                                                                                                                       |         |

| ITEM CODE   | ITEM/SERVICE DESCRIPTION | QP INSPECTION CAT | VENDOR NAME                                                                                                  | ADDRESS                                                                                                         | REMARKS |
|-------------|--------------------------|-------------------|--------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|---------|
|             | CABLE GLANDS             | III               | INCAB                                                                                                        | HARE STREET,KOLKATA, WEST BENGAL-700001                                                                         | NOTED   |
| <b>ES12</b> | CABLE LUGS               | III               | DOWELLS                                                                                                      | M/S. DOWELLS ELECTRICALS<br>47/47A, SATGURU INDUSTRIAL ESTATE.<br>OFF AAREY ROAD, GOREGOAN (EAST).<br>Umbergaon | A       |
|             | CABLE LUGS               | III               | M/s Billets Elektro Werke<br>Ltd. (3D)                                                                       |                                                                                                                 | A       |
|             | CABLE LUGS               | III               | M/s Chetna                                                                                                   | Nasik                                                                                                           | A       |
|             | CABLE LUGS               | III               | Additionally any make's model with VDE or CE or UL or CSA marking or BIS approved with CML no. refer note 3. |                                                                                                                 | NOTED   |
|             | CABLE LUGS               | III               | UNIVERSAL MACHINES LTD.                                                                                      | 4.B.B.D.BAG (EAST) 90,STEPHEN HOUSE,5TH FLR<br>CALCUTTA-700001                                                  |         |
| <b>ES13</b> | D.C. MCCB                |                   | CROMPTON GREAVES                                                                                             | RAIL TRANSPORTATION SYSTEMS,VANDANA<br>BUILDING, 11, TOLSTOY MARG, TOLSTOY MARG,<br>NEW DELHI, DL 110001        |         |
|             | D.C. MCCB                |                   | L&T                                                                                                          | 32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-<br>110015                                                          |         |
|             | D.C. MCCB                |                   | GE-POWER                                                                                                     | KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK<br>INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY,                         |         |
|             | D.C. MCCB                |                   | SIEMENS                                                                                                      | RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B,<br>PLOT NO. 78, SECTOR 18, GURGAON-122015,<br>INDIA               |         |
|             | EARTH LEAKAGE CB         |                   | L&T                                                                                                          | 32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-<br>110015                                                          |         |
|             | EARTH LEAKAGE CB         |                   | SIEMENS                                                                                                      | RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B,<br>PLOT NO. 78, SECTOR 18, GURGAON-122015,<br>INDIA               |         |
|             | EARTH LEAKAGE CB         |                   | GE-POWER                                                                                                     | KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK<br>INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY,<br>CHENNAI-600032       |         |

| ITEM CODE   | ITEM/SERVICE DESCRIPTION                                                | QP INSPECTION CAT | VENDOR NAME                                        | ADDRESS                                                                                     | REMARKS                 |
|-------------|-------------------------------------------------------------------------|-------------------|----------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------|
| <b>ES14</b> | EARTH LEAKAGE CB                                                        |                   | SCHNEIDER ELECTRIC INDIA PVT. LTD.                 | 9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002                     |                         |
|             | EARTH LEAKAGE CB                                                        |                   | C&S ELECTRIC LTD.                                  | 222, OKHLA IND. ESTATE, PH-III, NEW DELHI-110020                                            |                         |
|             | EARTH LEAKAGE CB                                                        |                   | ABB                                                | 14, MATHURA ROAD, FARIDABAD, HARYANA-121003                                                 |                         |
|             | EARTH LEAKAGE CB                                                        |                   | INDO ASIAN                                         | B-24, PHASE - II, NOIDA - 201305, U.P.                                                      |                         |
|             | EARTH LEAKAGE CB                                                        |                   | MDS SWITCHGEAR LTD                                 | 314-317 SHAH NAHAR ESTATE                                                                   |                         |
|             | EARTH LEAKAGE CB                                                        |                   | S&S POWER SWITCHGEAR LTD,                          | NEW NO. 67, OLD NO. 19, DR. RANGA ROAD, MYLAPORE, CHENNAI - 600004                          |                         |
| <b>ES15</b> | JELLY FILLED CABLES                                                     |                   | DELTON SALES LTD.                                  | DELTON HOUSE 4801, BHARAT RAM ROAD, 24 DARYAGANJ N. DELHI-110002                            |                         |
|             | JELLY FILLED CABLES                                                     |                   | HINDUSTAN CABLES                                   | A-40 ASIAN GAMES VILLAGE RANJIT SINGH BLOCK NEW DELHI-110049                                |                         |
|             | JELLY FILLED CABLES                                                     |                   | TELELINK-NICCO                                     | NICCO HOUSE 2, HARE STREET, CALCUTTA-700001                                                 |                         |
|             | JELLY FILLED CABLES                                                     |                   | USHA BELTRON LTD.                                  | TATISILWAI, ranchi- 835105                                                                  |                         |
|             | GI CONDUITS                                                             | III               | BIS LICENSEE WITH VALID CML NO                     |                                                                                             | A                       |
|             | GI CONDUIT (EPOXY PAINTED)                                              | III               | BIS LICENSEE WITH VALID CML NO                     |                                                                                             | A                       |
| <b>ES19</b> | PVC CONDUIT / HUMIE PIPE / LIGHTING WIRE / HDPE PIPE / STRUCTURAL STEEL | III               | BIS LICENSEE / ISI MARKED WITH VALID CML NUMBER    |                                                                                             | A                       |
| <b>ES20</b> | DC CONTACTORS                                                           |                   | SCHNEIDER ELECTRIC INDIA PVT. LTD.                 | 9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002                     |                         |
|             | DC CONTACTORS                                                           |                   | BHEL (BHOPAL)                                      | HEAVY ELECTRICAL PLANT                                                                      |                         |
|             | DC CONTACTORS                                                           |                   | ELECTROMAC INDUSTRIES                              | 27/28AF NEW EMPIRE IND.ESTT., R. KRISHNA MANDIR RD.JB NGR ,ANDHERI(E),MUMBAI-400059         |                         |
|             | DC CONTACTORS                                                           |                   | L&T                                                | 32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-110015                                          |                         |
|             | DC CONTACTORS                                                           |                   | SIEMENS                                            | RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA |                         |
|             | DC CONTACTORS                                                           |                   | TELEMECHANIQUE/ SCHNEIDER ELECTRIC INDIA PVT. LTD. | 9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002                     | TAKEN OVER BY SCHNEIDER |

| ITEM CODE | ITEM/SERVICE DESCRIPTION                         | QP INSPECTION CAT | VENDOR NAME                        | ADDRESS                                                                                                                                 | REMARKS |
|-----------|--------------------------------------------------|-------------------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|---------|
|           | DC CONTACTORS                                    |                   | GE-POWER                           | KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032                                     |         |
| ES21      | CONTROL SWITCHES/ SELECTOR SWITCH                |                   | KAYCEE                             | KAYCEE INDUSTRIES LTD., C/O-CMS COMPUTERS LTD., 35A, REAR BLDG., KILOKARI, NEW DELHI-110014                                             |         |
|           | CONTROL SWITCHES/ SELECTOR SWITCH                |                   | GE-POWER                           | KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032                                     |         |
|           | CONTROL SWITCHES/ SELECTOR SWITCH                |                   | ALSTOM LTD                         | A-7, SEC-65, NOIDA                                                                                                                      |         |
|           | CONTROL SWITCHES/ SELECTOR SWITCH                |                   | SCHNEIDER ELECTRIC INDIA PVT. LTD. | 9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002                                                                 |         |
|           | CONTROL SWITCHES/ SELECTOR SWITCH                |                   | M/s Shrenik & Co.                  | 39A/3, PANCHRATNA INDUSTRIAL ESTATE, SARKHEJ-BAVLA ROAD, CHANGODAR,                                                                     |         |
|           | CONTROL SWITCHES/ SELECTOR SWITCH                |                   | RECOM PVT. LTD.                    | M/S RECOM PVT. LTD., 16A , 2ND FLOOR A, WING RAJ INDUSTRIAL COMPLEX, MILITARY                                                           |         |
|           | CONTROL TRANSFORMER/ WINDING HEATING TRANSFORMER |                   | AUTOMATIC ELECTRIC LTD.            | 96 AB LONAVLA INDUSTRIAL ESTATE NANGARGAON, LONAVLA-410401                                                                              |         |
| ES22      | CONTROL TRANSFORMER/ WINDING HEATING TRANSFORMER |                   | INDCOIL                            | PLOT NO. A- 150/ 151, 23RD U ROAD, WAGLE ESTATE, THANE WEST, CST RD, FRIENDS COLONY, HALLOW PUL, KURLA WEST, MUMBAI, MAHARASHTRA 400070 |         |
|           | CONTROL TRANSFORMER/ WINDING HEATING TRANSFORMER |                   | KAPPA ELECTRICALS                  | KAPPA ELECTRICALS, KAPPA CONSOLIDATED PVT. LTD., 14, CART TRACK ROAD, MADUVANKARAI, CHENNAI - 600 042, INDIA.                           |         |
|           | CONTROL TRANSFORMER/ WINDING HEATING TRANSFORMER |                   | LOGICSTAT                          | B-160, INDUSTRIAL AREA, C BLOCK RD, OKHLA I, OKHLA INDUSTRIAL AREA, NEW DELHI, DL 110020                                                |         |

| ITEM CODE | ITEM/SERVICE DESCRIPTION                               | QP INSPECTION CAT | VENDOR NAME                   | ADDRESS                                                                                                                                 | REMARKS                      |
|-----------|--------------------------------------------------------|-------------------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|           | CONTROL TRANSFORMER/<br>WINDING HEATING<br>TRANSFORMER |                   | PRECISE ELECTRICALS           | 47A-49A,CHAKALA ROAD ANDHERI(E),MUMBAI-99 MUMBAI, MAHARASHTRA, INDIA PIN-400 099                                                        |                              |
|           | CONTROL TRANSFORMER/<br>WINDING HEATING<br>TRANSFORMER |                   | UNILEC ENGINEERS PVT.<br>LTD. | PLOT NO: R-247, T.T.C. INDUSTRIAL AREA, M.I.D.C, RABALE, NAVI MUMBAI- 400 701 INDIA                                                     |                              |
|           | CONTROL TRANSFORMER/<br>WINDING HEATING<br>TRANSFORMER |                   | M/s Newtek Electricals        | M-90, M.I.D.C, Waluj, Aurangabad 431136, Maharashtra, India                                                                             | FOR CONTROL TRANSFORMER ONLY |
| ES23      | LT- CURRENT TRANSFORMER                                |                   | SIEMENS                       | RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA                                             |                              |
|           | LT- CURRENT TRANSFORMER                                |                   | AUTOMATIC ELECTRIC LTD.       | 96 AB LONAVLA INDUSTRIAL ESTATE NANGARGAON, LONAVLA-410401                                                                              |                              |
|           | LT- CURRENT TRANSFORMER                                |                   | INDCOIL                       | PLOT NO. A- 150/ 151, 23RD U ROAD, WAGLE ESTATE, THANE WEST, CST RD, FRIENDS COLONY, HALLOW PUL, KURLA WEST, MUMBAI, MAHARASHTRA 400070 |                              |
|           | LT- CURRENT TRANSFORMER                                |                   | KAPPA ELECTRICALS             | KAPPA ELECTRICALS, KAPPA CONSOLIDATED PVT. LTD., SOUTHERN ELECTRIKS 14, CART TRACK ROAD, MADUVANKARAI, CHENNAI - 600 042, INDIA.        |                              |
|           | LT- CURRENT TRANSFORMER                                |                   | PRAGATI ELECTRICALS           | 280/3,II POKHRAN RD                                                                                                                     |                              |
|           | LT- CURRENT TRANSFORMER                                |                   | PRECISE ELECTRICALS           | 47A-49A,CHAKALA ROAD ANDHERI(E),MUMBAI-99 MUMBAI, MAHARASHTRA, INDIA PIN-400 099                                                        |                              |

| ITEM CODE | ITEM/SERVICE DESCRIPTION  | QP INSPECTION CAT | VENDOR NAME                      | ADDRESS                                                                                                                                                | REMARKS |
|-----------|---------------------------|-------------------|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
|           | LT- CURRENT TRANSFORMER   |                   | SILKAANS<br>ELECT.MFG.CO.PVT.LTD | PLOT NO: R-247, T.T.C. INDUSTRIAL AREA, M.I.D.C , RABALE, NAVI MUMBAI- 400 701 INDIA                                                                   |         |
|           | LT- CURRENT TRANSFORMER   |                   | PRAYOG ELECTRICALS PVT. LTD.     | GROUND FLOOR, THAKORE INDUSTRIAL COMPUND, STATION ROAD, VIDYA VIHAR (W), NATHANI ROAD , OPP. AMIBIKA TEMPLE,MUMBAI Mumbai - 400086, Maharashtra, India |         |
|           | LT- CURRENT TRANSFORMER   |                   | C&S ELECTRIC LTD.                | 222, OKHLA IND. ESTATE, PH-III, NEW DELHI-110020                                                                                                       |         |
|           | LT- CURRENT TRANSFORMER   |                   | M/s Newtek Electricals           | M-90, M.I.D.C, Waluj, Aurangabad 431136, Maharashtra, India                                                                                            |         |
|           | LT- POTENTIAL TRANSFORMER |                   | SIEMENS                          | RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA                                                            |         |
|           | LT- POTENTIAL TRANSFORMER |                   | AUTOMATIC ELECTRIC LTD.          | 96 AB LONAVLA INDUSTRIAL ESTATE NANGARGAON, LONAVLA-410401                                                                                             |         |
|           | LT- POTENTIAL TRANSFORMER |                   | INDCOIL                          | PLOT NO. A- 150/ 151, 23RD U ROAD, WAGLE ESTATE, THANE WEST, CST RD, FRIENDS COLONY, HALLOW PUL, KURLA WEST, MUMBAI, MAHARASHTRA 400070                |         |
|           | LT- POTENTIAL TRANSFORMER |                   | KAPPA ELECTRICALS                | KAPPA ELECTRICALS, KAPPA CONSOLIDATED PVT. LTD., SOUTHERN ELECTRIKS 14, CART TRACK ROAD, MADUVANKARAI, CHENNAI - 600 042, INDIA.                       |         |
|           | LT- POTENTIAL TRANSFORMER |                   | PRAGATI ELECTRICALS              | 280/3,II POKHRAN RD                                                                                                                                    |         |
|           | LT- POTENTIAL TRANSFORMER |                   |                                  |                                                                                                                                                        |         |
|           | LT- POTENTIAL TRANSFORMER |                   |                                  |                                                                                                                                                        |         |

FC24

| ITEM CODE | ITEM/SERVICE DESCRIPTION  | QP INSPECTION CAT | VENDOR NAME                      | ADDRESS                                                                                                                                                                  | REMARKS |
|-----------|---------------------------|-------------------|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| ES24      | LT- POTENTIAL TRANSFORMER |                   | PRECISE ELECTRICALS              | 47A-49A,CHAKALA ROAD ANDHERI(E),MUMBAI-99 MUMBAI, MAHARASHTRA, INDIA PIN-400 099                                                                                         |         |
|           | LT- POTENTIAL TRANSFORMER |                   | SILKAANS<br>ELECT.MFG.CO.PVT.LTD | PLOT NO: R-247, T.T.C. INDUSTRIAL AREA, M.I.D.C, RABALE, NAVI MUMBAI- 400 701 INDIA                                                                                      |         |
|           | LT- POTENTIAL TRANSFORMER |                   | PRAYOG ELECTRICALS PVT. LTD.     | GROUND FLOOR, THAKORE INDUSTRIAL COMPUED, STATION ROAD, VIDYA VIHAR (W), NATHANI ROAD , OPP. AMIBIKA TEMPLE,MUMBAI Mumbai - 400086, Maharashtra, India                   |         |
|           | LT- POTENTIAL TRANSFORMER |                   | M/s Newtek Electricals           | M-90, M.I.D.C, Waluj, Aurangabad 431136, Maharashtra, India                                                                                                              |         |
| ES25      | DC SWITCH                 |                   | GE-POWER                         | KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032                                                                      |         |
|           | DC SWITCH                 |                   | KAYCEE                           | KAYCEE INDUSTRIES LTD., C/O-CMS COMPUTERS LTD., 35A, REAR BLDG., KILOKARI, NEW DELHI-110014                                                                              |         |
|           | DC SWITCH                 |                   | SIEMENS                          | RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA                                                                              |         |
|           | DISTRIBUTION BOX          |                   | M/S SHRENIK & CO.                | 39A/3, PANCHRATNA INDUSTRIAL ESTATE, SARKHEJ-BAVLA ROAD, CHANGODAR, AHMEDABAD – 382 213                                                                                  |         |
| ES27      | EMER. PORTABLE LTG. SET   |                   | BAJAJ ELECTRICALS                | BAJAJ ELECTRICALS LTD.<br>ENGINEERING & PROJECTS BU (NORTH)<br>3rd FLOOR, GULMOHARHOUSE,<br>COMMUNITY CENTRE 161/B-4,<br>GAUTAM NAGAR, YUSUF SARAI<br>NEW DELHI – 110049 |         |

| ITEM CODE | ITEM/SERVICE DESCRIPTION | QP INSPECTION CAT | VENDOR NAME                        | ADDRESS                                                                                                                                                                  | REMARKS |
|-----------|--------------------------|-------------------|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| ES28      | EMER. PORTABLE LTG. SET  |                   | BAJAJ ELECTRICALS                  | BAJAJ ELECTRICALS LTD.<br>ENGINEERING & PROJECTS BU (NORTH)<br>3rd FLOOR, GULMOHARHOUSE,<br>COMMUNITY CENTRE 161/B-4,<br>GAUTAM NAGAR, YUSUF SARAI<br>NEW DELHI – 110049 |         |
|           | FUSE BASE                |                   | INDO ASIAN                         | B-24, PHASE - II , NOIDA - 201305, U.P.                                                                                                                                  |         |
|           | FUSE BASE                |                   | GE-POWER                           | KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK<br>INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY,<br>CHENNAI-600032                                                                |         |
|           | FUSE BASE                |                   | L&T                                | 32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-<br>110015                                                                                                                   |         |
|           | FUSE BASE                |                   | C&S ELECTRIC LTD.                  | 222, OKHLA IND. ESTATE, PH-III, NEW DELHI-<br>110020                                                                                                                     |         |
|           | FUSE BASE                |                   | SIEMENS                            | RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B,<br>PLOT NO. 78, SECTOR 18, GURGAON-122015,<br>INDIA                                                                        |         |
|           | FUSE BASE                |                   | ABB                                | 14, MATHURA ROAD, FARIDABAD, HARYANA-<br>121003                                                                                                                          |         |
|           | FUSE BASE                |                   | SPACEAGE SWITCHGEARS LTD.          | 68 & 13-A INDUSTRIAL DEVELOPMENT COLONY,<br>MEHRAULI ROAD GURGAON, HARYANA-122001                                                                                        |         |
|           | FUSE BASE                |                   | SCHNEIDER ELECTRIC INDIA PVT. LTD. | 9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002                                                                                                  |         |
|           | FUSE BASE                |                   | ALSTOM LTD                         | A-7, SEC-65, NOIDA                                                                                                                                                       |         |
|           | FUSE BASE                |                   | ESSEN DEINKI                       | FLAT NO. 502, SKYLINE HOUSE 85, NEHRU PLACE<br>NEW DELHI                                                                                                                 |         |
|           | HRC FUSES                |                   | INDO ASIAN                         | B-24, PHASE - II , NOIDA - 201305, U.P.                                                                                                                                  |         |

| ITEM CODE | ITEM/SERVICE DESCRIPTION | QP INSPECTION CAT | VENDOR NAME                         | ADDRESS                                                                                                                                                | REMARKS |
|-----------|--------------------------|-------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| ES29      | HRC FUSES                |                   | GE-POWER                            | KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032                                                    |         |
|           | HRC FUSES                |                   | L&T                                 | 32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-110015                                                                                                     |         |
|           | HRC FUSES                |                   | C&S ELECTRIC LTD.                   | 222, OKHLA IND. ESTATE, PH-III, NEW DELHI-110020                                                                                                       |         |
|           | HRC FUSES                |                   | SIEMENS                             | RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA                                                            |         |
|           | HRC FUSES                |                   | ABB                                 | 14, MATHURA ROAD, FARIDABAD, HARYANA-121003                                                                                                            |         |
|           | HRC FUSES                |                   | SPACEAGE SWITCHGEARS LTD.           | 68 & 13-A INDUSTRIAL DEVELOPMENT COLONY, MEHRAULI ROAD GURGAON, HARYANA-122001                                                                         |         |
|           | HRC FUSES                |                   | SCHNEIDER ELECTRIC INDIA PVT. LTD.  | 9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002                                                                                |         |
|           | HRC FUSES                |                   | ALSTOM LTD                          | A-7, SEC-65, NOIDA                                                                                                                                     |         |
|           | HRC FUSES                |                   | ESSEN DEINKI                        | FLAT NO. 502, SKYLINE HOUSE 85, NEHRU PLACE NEW DELHI                                                                                                  |         |
|           | GI WIRE & FLAT           | III               | INDUSTRIAL PERFORATION (I) PVT.LTD. | MR. A. K. SAHA 327, R.N.GUHA ROAD, DUM DUM KOLKATA-West Bengal-India Phone- 9830241788 Pincode : 700028 Email : ipipl@cal2.vsnl.net.in                 |         |
|           | GI WIRE & FLAT           | III               | INDIA ELECTRICALS SYNDICATE         | Mr. Suresh Kumar Agarwal 55, Ezra Street, Kolkata-West Bengal-India Phone- 033-22354047 Pincode : 700001 Email : cabletray@vsnl.com                    |         |
|           | GI WIRE & FLAT           | III               | INDMARK FORMTECH PVT. LTD.          | Mr. Narendra R. Meher J Block, Plot No.-375, MIDC BHOSARI PUNE-MAHARASHTRA-INDIA Phone- 020-27130546 Pincode : 411026 Email : indmarkformtech@vsnl.net |         |

| ITEM CODE | ITEM/SERVICE DESCRIPTION | QP INSPECTION CAT | VENDOR NAME                               | ADDRESS                                                                                                                                                                                     | REMARKS |
|-----------|--------------------------|-------------------|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| ES31      | GI WIRE & FLAT           | III               | PREMIER POWER PRODUCTS (CAL) PVT. LTD.    | Chatterjee International Centre, 33A, Jawaharlal Nehru Road, 6th Floor, Suit No. - 11A, Kolkata, - West Bengal-India Phone- 9331008739 Pincode : 700071 Email : hemantdaga@dagaventures.com |         |
|           | GI WIRE & FLAT           | III               | PATNY SYSTEMS (P) LTD                     | PATNY PLAZA 160 , SARDAR PATEL ROAD SEUNDRABAD SECUNDRABAD-TELANGANA-INDIA Phone- 040-27902451 Pincode : 500003 Email : mr.mkt@patnysystems.com                                             |         |
|           | GI WIRE & FLAT           | III               | PASSIVE INFRA PROJECTS PVT. LTD.          | MR. VARUN AGRAWAL 182, VAISHALI, PITAMPURA Delhi-DELHI-INDIA Phone- 9871183059 Pincode : 110088 Email : ATANU.SAHA@PASSIVEINFRA.COM                                                         |         |
|           | GI WIRE & FLAT           | III               | RUKMANI ELECTRICAL & COMPONENTS PVT LTD   | 11A , MAHARISHI DEBENDRA ROAD 1ST FL, ROOM NO.4 KOLKATA-WEST BENGAL-INDIA Phone- Pincode : 700007 Email : maruthikabra@gmail.com                                                            |         |
|           | GI WIRE & FLAT           | III               | RATAN PROJECTS & ENGINEERING CO. PVT.LTD. | MR. G.D. SINGHEE/MR. MAHESH SINGHEE 26, P.K. TAGORE STREET, MAIN BUILDING KOLKATA-WEST BENGAL-INDIA Phone- 9830177331 Pincode : 700006 Email : mahesh@ratans.com                            |         |
|           | GI WIRE & FLAT           | III               | RABI ENGINEERING WORKS PVT. LTD.          | MR. TAPAN KUMAR SEN/MR. SIDDHARTHA 327, R.N. GUHA ROAD, DUM DUM, KOLKATA-WEST BENGAL-INDIA Phone- 9748753002 Pincode : 700028 Email : rabiengineering@gmail.com                             |         |
|           | GI WIRE & FLAT           | III               | RAJASTHAN METAL SMELTING CO.              | Mr. R. K. Tibrewala D-80, Road No. 7, V.K.I.A., Jaipur-Rajasthan-India Phone- 0141-2332269 Pincode : 302013 Email : info@rmscoindia.com                                                     |         |
|           | GI WIRE & FLAT           | III               | SARAL INDUSTRIES                          | Mr. Y.K. Gupta L-1, L-2, Industrial Area-1 Sultanpur Road Rae Bareilly-Uttar Pradesh-India Phone- 0535-2702474 Pincode : 229010 Email : saralindustries@gmail.com                           |         |

| ITEM CODE   | ITEM/SERVICE DESCRIPTION | QP INSPECTION CAT | VENDOR NAME                                     | ADDRESS                                                                                                                                                        | REMARKS |
|-------------|--------------------------|-------------------|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
|             | GI WIRE & FLAT           | III               | PARCO Engineers Pvt. Ltd.                       | 401, skyline Epitom Building ,Near to Jolly Gym Khana, Kirol Road , Vidhyavihar, MH 400086 India                                                               |         |
|             | GI WIRE & FLAT           | III               | UNITECH FABRICATORS and ENGINEERS PVT LTD       | INDRAPRASHTHA APARTMENT 24, M.B.RAOD , BIRATI KALABAGAN KOLKATA KOLKATA-WEST BENGAL-INDIA Phone- Pincode : 700051 Email : ufepl@vsnl.net; ufepl@rediffmail.com |         |
|             | GI WIRE & FLAT           | III               | BIS LICENSEE / ISI MARKED WITH VALID CML NUMBER |                                                                                                                                                                |         |
| <b>ES33</b> | IND.POWER & WLDG SOCKETS |                   | CROMPTON GREAVES                                | 3RD FLOOR, EXPRESS BUILDING,9-10, BAHADUR SHAH ZAFAR MARG, NEAR ITO CROSSING,NEW DELHI-110002, INDIA                                                           |         |
|             | IND.POWER & WLDG SOCKETS |                   | CYCLO ELECTRIC DEVICE & SERV.CO.                | : A-3, NEAR ANTHEM BIOSCIENCE, KSSIDC INDUSTRIAL AREA, BOMMASANDRA, BOMMASANDRA INDUSTRIAL AREA, BANGALORE, KARNATAKA 560099                                   |         |
|             | IND.POWER & WLDG SOCKETS |                   | BCH                                             | 20/4, MATHURA ROAD, FARIDABAD - 121006, HARYANA, INDIA                                                                                                         |         |
|             | IND.POWER & WLDG SOCKETS |                   | BEST & CROMPTON                                 | Best & Crompton Engineering Ltd                                                                                                                                | BEST &  |
|             | IND.POWER & WLDG SOCKETS |                   | AJIMERA INDUSTRIES & ENGG. WORKS                | AJIMERA INDL. AND ENGG. WORKS.                                                                                                                                 |         |
|             | IND.POWER & WLDG SOCKETS |                   |                                                 | AJIMERA HOUSE, A-61 / KHAIRANE MIDC. , TTC INDL. AREA, NAVI MUMBAI – 400705.                                                                                   |         |
| <b>ES34</b> | INTERPOSING RELAY        |                   | ABB                                             | 14, MATHURA ROAD, FARIDABAD, HARYANA-121003                                                                                                                    |         |
|             | INTERPOSING RELAY        |                   | ALSTOM LTD                                      | A-7, SEC-65, NOIDA                                                                                                                                             |         |
|             | INTERPOSING RELAY        |                   | JYOTI LTD.                                      | JYOTI LIMITED, E&CS DIVISION,3/15, BIDC, GORWA,VADODARA - 390 016, E-MAIL ID: ECS@JYOTI.COM                                                                    |         |
|             | INTERPOSING RELAY        |                   | OEN INDIA LTD                                   | 29/1479, VYTILLA, COCHIN - 682 019 KERALA, INDIA                                                                                                               |         |

| ITEM CODE | ITEM/SERVICE DESCRIPTION         | QP INSPECTION CAT | VENDOR NAME                        | ADDRESS                                                                                                     | REMARKS        |
|-----------|----------------------------------|-------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------|----------------|
| ES35      | INTERPOSING RELAY                |                   | SIEMENS                            | RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA                 |                |
|           | INDICATING LAMPS                 |                   | BCH                                | 20/4, MATHURA ROAD, FARIDABAD, HARYANA-121006                                                               |                |
|           | INDICATING LAMPS                 |                   | C&S ELECTRIC LTD.                  | 222, OKHLA IND. ESTATE, PH-III, NEW DELHI-110020                                                            |                |
|           | INDICATING LAMPS                 |                   | ESSEN DEINKI                       | FLAT NO. 502, SKYLINE HOUSE 85, NEHRU PLACE NEW DELHI                                                       |                |
|           | INDICATING LAMPS                 |                   | VAISHNO(HOTLINE SWGR.& CONTROL)    | G-19, SECTOR - 11, NOIDA - 201301, UTTAR PRADESH, INDIA                                                     |                |
|           | INDICATING LAMPS                 |                   | GE-POWER                           | KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032         |                |
|           | INDICATING LAMPS                 |                   | SIEMENS                            | RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA                 |                |
|           | INDICATING LAMPS                 |                   | SCHNEIDER ELECTRIC INDIA PVT. LTD. | 9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002                                     |                |
|           | JUNCTION BOXES (NON FLAME PROOF) | III               | JASPER ENGINEERES PVT. LTD.        | A-23, SECTOR - 8, NOIDA-201301                                                                              | NOTED ; NOTE-2 |
|           | JUNCTION BOXES (NON FLAME PROOF) | III               | Electro Controls & Devices         | M/S ELECTRO CONTROLS & DEVICES, F-41, SITE-C, SURAJPUR INDUSTRIAL AREA GREATER NOIDA, UTTAR PRADESH :201308 | NOTED ; NOTE-2 |
|           | JUNCTION BOXES (NON FLAME PROOF) | III               | M/s Shrenik & Co.                  | 39A/3, PANCHRATNA INDUSTRIAL ESTATE, SARKHEJ-BAVLA ROAD, CHANGODAR, AHMEDABAD – 382 213                     | NOTED ; NOTE-2 |
|           | JUNCTION BOXES (NON FLAME PROOF) | III               | M/s PHOENIX MECANO LTD.,           | 388 BHARE, TALUKA MULSHI, POST GHOTAWADE, PIRANGOOT, INDUSTRIAL AREA, PUNE-412115                           | NOTED ; NOTE-2 |

| ITEM CODE | ITEM/SERVICE DESCRIPTION         | QP INSPECTION CAT | VENDOR NAME                       | ADDRESS                                                                                                                                                                  | REMARKS                      |
|-----------|----------------------------------|-------------------|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| ES36      | JUNCTION BOXES (NON FLAME PROOF) | III               | Adroit Control Engineers Pvt.Ltd. | M/S ADROIT CONTROL ENGINEERS PVT.LTD.<br>PLOT-3, KRISHNA INDL. AREA, SECTOR-25<br>FARIDABAD – 121004                                                                     | NOTED ; NOTE-2               |
|           | JUNCTION BOXES (NON FLAME PROOF) | III               | M/s PHOENIX MECANO LTD.,          | 388 BHARE, TALUKA MULSHI, POST GHOTAWADE, PIRANGOOT, INDUSTRIAL AREA, PUNE-412115                                                                                        | NOTED ; NOTE-2               |
|           | JUNCTION BOXES (NON FLAME PROOF) | III               | MIKA ENGINEERS                    | BRANCH OFFICE :<br>'D'-101, DHEERAJ HERITAGE RESIDENCY II,<br>SHASTRI NAGAR, SANTACRUZ (W), MUMBAI 400 054.                                                              | TYPE-S ONLY<br>NOTED; NOTE-2 |
|           | JUNCTION BOXES (NON FLAME PROOF) | III               | M/s PHOENIX MECANO LTD.,          | 388 BHARE, TALUKA MULSHI, POST GHOTAWADE, PIRANGOOT, INDUSTRIAL AREA, PUNE-412115                                                                                        | NOTED ; NOTE-2               |
|           | JUNCTION BOXES (NON FLAME PROOF) | III               | BAJAJ ELECTRICALS                 | BAJAJ ELECTRICALS LTD.<br>ENGINEERING & PROJECTS BU (NORTH)<br>3rd FLOOR, GULMOHARHOUSE,<br>COMMUNITY CENTRE 161/B-4,<br>GAUTAM NAGAR, YUSUF SARAI<br>NEW DELHI – 110049 | NOTED ; NOTE-2               |

| ITEM CODE | ITEM/SERVICE DESCRIPTION            | QP INSPECTION CAT | VENDOR NAME                             | ADDRESS                                                                                                                                   | REMARKS        |
|-----------|-------------------------------------|-------------------|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|           | JUNCTION BOXES (NON FLAME PROOF)    | III               | AJMER INDUSTRIES & ENGG. WORKS          | AJMER INDL AND ENGG. WORKS.<br>AJMER HOUSE, A-61 / KHAIRANE MIDC. , TTC INDL AREA, NAVI MUMBAI – 400705.                                  | NOTED ; NOTE-2 |
|           | JUNCTION BOXES (NON FLAME PROOF)    | III               | S.B. ELECTRICAL ENGINEERING CORPORATION | 03, SARDAR GRIHA BUILDING, LOHAR CHAWAL, MUMBAI-400002                                                                                    | NOTED ; NOTE-2 |
|           | JUNCTION BOXES (NON FLAME PROOF)    | III               | RITTAL INDIA PVT. LTD.                  | Espire Building ,Level -1 A-41, Mohan Co-Operative Industrial Estate ,Mathura Road, New Delhi -110044                                     | NOTED ; NOTE-2 |
|           | JUNCTION BOXES (NON FLAME PROOF)    | III               | HPL ELECTRIC AND POWER LTD.             | Works Address: Village Shavella, PO:Jabli, Teh- Kasauli, Dist-Solan, Himachal Pradesh-173209                                              | NOTED ; NOTE-2 |
| ES37      | JUNCTION BOXES (FLAME PROOF)        | II                | SUDHIR SWITCHGEAR                       | 305/6, APEEJAY HOUSE, 130, BOMBAY SAMACHAR MARG, MUMBAI - 400 023. INDIA                                                                  | NOTED ; NOTE-2 |
| ES45      | LIGHTING SWITCH , SOCKET & S/F UNIT |                   | ELEXPRO ELECTRICALS PVT/ LTD.           | C 1/27 & 37 GIDC KABILPORE NAVSARI-396424                                                                                                 |                |
|           | LIGHTING SWITCH , SOCKET & S/F UNIT |                   | ANCHOR                                  | STEEL HOUSE, B WING, PLOT NO. 24, MAHAL INDUSTRIAL ESTATE, MAHAKALI CAVES ROAD, NEAR PAPER BOX, ANDHERI (E), MUMBAI, MAHARASHTRA - 400093 |                |
|           | LIGHTING SWITCH , SOCKET & S/F UNIT |                   | KAYCEE                                  | KAYCEE INDUSTRIES LTD., C/O-CMS COMPUTERS LTD., 35A, REAR BLDG., KILOKARI, NEW DELHI-110014                                               |                |
|           | LIGHTING SWITCH , SOCKET & S/F UNIT |                   | L&T                                     | 32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-110015                                                                                        |                |

| ITEM CODE | ITEM/SERVICE DESCRIPTION                    | QP INSPECTION CAT | VENDOR NAME                    | ADDRESS                                                                                                | REMARKS |
|-----------|---------------------------------------------|-------------------|--------------------------------|--------------------------------------------------------------------------------------------------------|---------|
| ES47      | LIGHTING SWITCH , SOCKET & S/F UNIT         |                   | SIEMENS                        | RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA            |         |
|           | LIGHTING SWITCH , SOCKET & S/F UNIT         |                   | INDO ASIAN                     | B-24, PHASE - II , NOIDA - 201305, U.P.                                                                |         |
|           | LOCAL PUSH BUTTON STATION (NON FLAME PROOF) |                   | GE-POWER                       | KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032    |         |
|           | LOCAL PUSH BUTTON STATION (NON FLAME PROOF) |                   | ASIATIC                        | A-58 NARAINA IND. AREA, PHASE-I , NEW DELHI 110028                                                     |         |
|           | LOCAL PUSH BUTTON STATION (NON FLAME PROOF) |                   | C&S ELECTRIC LTD.              | 222, OKHLA IND. ESTATE, PH-III, NEW DELHI-110020                                                       |         |
|           | LOCAL PUSH BUTTON STATION (NON FLAME PROOF) |                   | EVERGREEN ENGG. CO.            | EVERGREEN ENGG COMPANY WORKS-5, PLOT NO. 9,10,11,12, SURVEY NO. 242, CHINCH PADA, VASAI EAST-401208    |         |
|           | LOCAL PUSH BUTTON STATION (NON FLAME PROOF) |                   | TECNIC CONTROLS                | 703, MADHAVA, BANDRA, KURLA COMPLEX, BANDRA EAST, MUMBAI, MAHARASHTRA 400051                           |         |
|           | LOCAL PUSH BUTTON STATION (NON FLAME PROOF) |                   | EX-PROTECTA LIGHTING EQUIPMENT | 305-306, GIDC ESTATE, VITHAL UDYOGNAGAR - 388121 DIST. ANAND, GUJARAT 388121 INDIA                     |         |
|           | LOCAL PUSH BUTTON STATION (NON FLAME PROOF) |                   | BALIGA ELECTRICALS             | 63A, CP RAMASWAMY ROAD, PB NO 6910, CHENNAI-600018                                                     |         |
|           | LOCAL PUSH BUTTON STATION (NON FLAME PROOF) |                   | ENPRO ENGG.                    | NO.995P, DIAMOND PLAZA, 2ND FLOOR, 12TH MAIN ROAD, ANNA NAGAR, CHENNAI-40                              |         |
|           | LOCAL PUSH BUTTON STATION (NON FLAME PROOF) |                   | STERLING SWGR CONTROL PVT.LTD. | P.O. BOX NO. 17023, SORAB HOUSE, 2ND FLOOR, 555, S.B. MARG, DADAR, MUMBAI - 400028, MAHARASHTRA, INDIA |         |
|           | LOCAL PUSH BUTTON STATION (NON FLAME PROOF) |                   | ELEXPRO ELECTRICALS PVT/ LTD.  | C 1/27 & 37 GIDC KABILPORE NAVSARI-396424                                                              |         |

| ITEM CODE | ITEM/SERVICE DESCRIPTION                       | QP INSPECTION CAT | VENDOR NAME                        | ADDRESS                                                                                     | REMARKS |
|-----------|------------------------------------------------|-------------------|------------------------------------|---------------------------------------------------------------------------------------------|---------|
|           | LOCAL PUSH BUTTON STATION<br>(NON FLAME PROOF) |                   | VAISHNO(HOTLINE SWGR & CONTROL)    | G-19, SECTOR - 11, NOIDA - 201301, UTTAR PRADESH, INDIA                                     |         |
|           | LOCAL PUSH BUTTON STATION<br>(NON FLAME PROOF) |                   | JASPER ENGINEERS PVT. LTD.         | A-23, SECTOR - 8, NOIDA-201301                                                              |         |
|           | LOCAL PUSH BUTTON STATION<br>(NON FLAME PROOF) |                   | KMG ATOZ SYSTEMS                   | C-49, SECTOR-81-NOIDA-201305                                                                |         |
|           | LOCAL PUSH BUTTON STATION<br>(NON FLAME PROOF) |                   | UNILEC ENGINEERS PVT. LTD.         | BEHRAMPUR INDUSTRIAL AREA, BEGAMPUR KHATOLA ROAD, GURGAON-122001                            |         |
|           | LOCAL PUSH BUTTON STATION<br>(NON FLAME PROOF) |                   | BCH                                | 20/4, MATHURA ROAD, FARIDABAD, HARYANA-121006                                               |         |
|           | LOCAL PUSH BUTTON STATION<br>(NON FLAME PROOF) |                   | CANDS                              | J/202, ANSA INDUSTRIAL ESTATE, SAKI VIHAR ROAD, SAKINAKA, ANDHERI (EAST), MUMBAI-72         |         |
|           | LOCAL PUSH BUTTON STATION<br>(NON FLAME PROOF) |                   | SIEMENS                            | RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA |         |
|           | LOCAL PUSH BUTTON STATION<br>(NON FLAME PROOF) |                   | SCHNEIDER ELECTRIC INDIA PVT. LTD. | 9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002                     |         |
|           | LOCAL PUSH BUTTON STATION<br>(NON FLAME PROOF) |                   | TECKNIC CONTROLS                   | 703, MADHAVA, BANDRA, KURLA COMPLEX, BANDRA EAST, MUMBAI, MAHARASHTRA 400051                |         |
|           | LOCAL PUSH BUTTON STATION<br>(NON FLAME PROOF) |                   | UNITED ELECTRIC                    | 97 UDYOG VIHAR PHASE-I, GURGAON 122015, HARYANA                                             |         |
|           | LOCAL PUSH BUTTON STATION<br>(NON FLAME PROOF) |                   | M/s Shrenik & Co.                  | 39A/3, PANCHRATNA INDUSTRIAL ESTATE, SARKHEJ-BAVLA ROAD, CHANGODAR, AHMEDABAD – 382 213     |         |
|           | LOCAL PUSH BUTTON STATION<br>(FLAME PROOF)     |                   |                                    |                                                                                             |         |
|           | LIGHTING PANEL ( FLAME PROOF)                  |                   | BALIGA ELECTRICALS                 | 63A, CP RAMASWAMY ROAD, PB NO 6910, CHENNAI-600018                                          |         |
| ES48      |                                                |                   |                                    |                                                                                             |         |

| ITEM CODE | ITEM/SERVICE DESCRIPTION         | QP INSPECTION CAT | VENDOR NAME                        | ADDRESS                                                                                                               | REMARKS |
|-----------|----------------------------------|-------------------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------|---------|
| ES49      | LIGHTING PANEL ( FLAME PROOF)    |                   | SUDHIR SWITCHGEAR                  | 305/6, APEEJAY HOUSE, 130, BOMBAY SAMACHAR MARG, MUMBAI - 400 023. INDIA                                              |         |
|           | LIGHTING PANEL (NON FLAME PROOF) |                   | MIKA ENGINEERS                     | D'-101, DHEERAJ HERITAGE RESIDENCY II, SHASTRI NAGAR, SANTACRUZ (W), MUMBAI 400 054.                                  |         |
|           | LIGHTING PANEL (NON FLAME PROOF) |                   | ELEXPRO ELECTRICALS PVT/ LTD.      | C 1/27 & 37 GIDC KABILPORE NAVSARI-396424                                                                             |         |
|           | LIGHTING PANEL (NON FLAME PROOF) |                   | Vidhyut Controls (India) Pvt. Ltd. | M/S VIDHYUT CONTROL (I) PVT.LTD. D-12 & 13, SECTOR-17,KAVI NAGAR INDL-AREA,GHAZIABAD – 201002 ( DELHI NCR) U.P. INDIA |         |
|           | LIGHTING PANEL (NON FLAME PROOF) |                   | KMG ATOZ SYSTEMS                   | "ATOZ HOUSE" C-49, SECTOR-81, GAUTAM BUDDH NAGAR, NOIDA – 201 305 U. P. (INDIA)                                       |         |
| ES50      | LIGHTING PANEL (NON FLAME PROOF) |                   | UNILEC ENGINEERS PVT. LTD.         | BEHRAMPUR INDUSTRIAL AREA, BEGAMPUR KHATOLA ROAD, GURGAON-122001                                                      |         |
|           | LIGHTING PANEL (NON FLAME PROOF) |                   | AVAIDS TECHNOVATORS LTD.           | PLOT NO.25 ,SECTOR-3,IMT-MANESAR, GURGEON-122050 ( HARYANA)                                                           |         |
|           | LIGHTING PANEL (NON FLAME PROOF) |                   | Adroit Control Engineers Pvt.Ltd.  | M/S ADROIT CONTROL ENGINEERS PVT.LTD. PLOT-3, KRISHNA INDL. AREA, SECTOR-25 FARIDABAD – 121004                        |         |
|           | LIGHTING PANEL (NON FLAME PROOF) |                   | JACKSON ENGINEERS                  | A-43, HOSEIRY COMPLEX, OPPOSITE NSEZ, NOIDA-201305                                                                    |         |
|           | LIGHTING PANEL (NON FLAME PROOF) |                   |                                    |                                                                                                                       |         |

| ITEM CODE | ITEM/SERVICE DESCRIPTION         | QP INSPECTION CAT | VENDOR NAME                        | ADDRESS                                                                                                                                                     | REMARKS |
|-----------|----------------------------------|-------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
|           | LIGHTING PANEL (NON FLAME PROOF) |                   | MILESTONE SWITCHGEARS PVT. LTD.    | MILESTONE SWITCHGEARS PVT. LTD.<br>97, UDYOG VIHAR,<br>PHASE-1, GURGEON<br>HARYANA - 122016                                                                 |         |
|           | LIGHTING PANEL (NON FLAME PROOF) |                   | Positronics Pvt. Ltd.              | POSITRONICS HOUSE, 882/ 2, G.I.D.C.<br>MAKARPURA,VADODARA 390010<br>GUJARAT                                                                                 |         |
|           | LIGHTING PANEL (NON FLAME PROOF) |                   | Pyrotech Electronics Pvt. Ltd.     | M/s Pyrotech Electronics Pvt. Ltd(Unit -1)<br>Led Light, Sensor Division<br>F-16A, Road No.3<br>Mewar Industrial Area, Madri<br>Udaipur -313003, Rajasthan, |         |
|           | MCB                              |                   | MDS SWITCHGEAR LTD                 | 314-317SHAH NAHAR ESTATE                                                                                                                                    |         |
| ES51      | MCB                              |                   | INDO ASIAN                         | B-24, PHASE - II, NOIDA - 201305, U.P.                                                                                                                      |         |
|           | MCB                              |                   | SCHNEIDER ELECTRIC INDIA PVT. LTD. | 9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002                                                                                     |         |
|           | MCB                              |                   | S&S POWER SWITCHGEAR LTD,          | NEW NO. 67, OLD NO. 19, DR. RANGA ROAD, MYLAPORE, CHENNAI - 600004                                                                                          |         |
|           | MCC (FIXED TYPE)                 |                   | SPACEAGE SWITCHGEARS LTD.          | 68 & 13-A INDUSTRIAL DEVELOPMENT COLONY, MEHRAULI ROAD GURGAON, HARYANA-122001                                                                              |         |
| ES52      | MCC (FIXED TYPE)                 |                   | ASSOCIATED SWGR & PROJ.LTD.        | C-10, UPSIDC, INDUSTRIAL AREA, SITE-IV, KASNA ROAD, GREATER NOIDA-201306                                                                                    |         |
|           | MCC (FIXED TYPE)                 |                   | BCH                                | 20/4, MATHURA ROAD, FARIDABAD, HARYANA-121006                                                                                                               |         |

| ITEM CODE | ITEM/SERVICE DESCRIPTION    | QP INSPECTION CAT | VENDOR NAME                   | ADDRESS                                                                                                                                   | REMARKS             |
|-----------|-----------------------------|-------------------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| ES53      | LV MOTORS (NON FLAME PROOF) |                   | ABB                           | 14, MATHURA ROAD, FARIDABAD, HARYANA-121003                                                                                               |                     |
|           | LV MOTORS (NON FLAME PROOF) |                   | BHARAT BIJLEE LTD.            | BHARAT BIJLEE LIMITED,<br>1ST FLOOR, 7-B, RAJINDRA PARK,<br>PUSA ROAD, NEW DELHI - 110 060.                                               |                     |
|           | LV MOTORS (NON FLAME PROOF) |                   | CROMPTON GREAVES              | 3RD FLOOR, EXPRESS BUILDING,9-10, BAHADUR SHAH ZAFAR MARG, NEAR ITO CROSSING,NEW DELHI-110002, INDIA                                      |                     |
|           | LV MOTORS (NON FLAME PROOF) |                   | GE-POWER                      | KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032                                       |                     |
|           | LV MOTORS (NON FLAME PROOF) |                   | KIRLOSKAR ELECTRIC CO LTD.    | P.O. BOX 5555 , MALLESWARAM WEST ,BANGALORE 560055                                                                                        |                     |
|           | LV MOTORS (NON FLAME PROOF) |                   | LAXMI HYDRAULICS PVT. LTD     | 129/130, INDUSTRIAL ESTATE PATIL NAGAR, HOTGI ROAD SOLAPUR-413003, MAHARASHTRA                                                            | APPROVED UPTO 200KW |
|           | LV MOTORS (NON FLAME PROOF) |                   | MARATHON                      | MARATHON ELECTRIC INDIA PRIVATE LTD.SECTOR - 11, MODEL TOWN, FARIDABAD - 121006                                                           |                     |
|           | LV MOTORS (NON FLAME PROOF) |                   | NGEF                          | POCKET NO.10, FLAT NO. 37 & 38, EXPANDABLE DDA FLATS, NASIRPUR DWARKA, PHASE-I NEW                                                        |                     |
|           | LV MOTORS (NON FLAME PROOF) |                   | RAJINDRA ELECT INDUSTRIES     | 14 SHAH IND.ESTATE VEERA DESAI RD,ANDHERI(W) MUMBAI-400053                                                                                |                     |
|           | LV MOTORS (NON FLAME PROOF) |                   | SIEMENS                       | RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA                                               |                     |
| ES54      | LV MOTORS (FLAME PROOF)     |                   | RAJINDRA ELECT INDUSTRIES     | 14 SHAH IND.ESTATE VEERA DESAI RD,ANDHERI(W) MUMBAI-400053                                                                                |                     |
| ES55      | MODULAR SWITCH BOARD        |                   | ANCHOR                        | STEEL HOUSE, B WING, PLOT NO. 24, MAHAL INDUSTRIAL ESTATE, MAHAKALI CAVES ROAD, NEAR PAPER BOX, ANDHERI (E), MUMBAI, MAHARASHTRA:- 400093 |                     |
|           | MODULAR SWITCH BOARD        |                   | ELEXPRO ELECTRICALS PVT/ LTD. | C 1/27 & 37 GIDC KABILPORE NAVSARI-396424                                                                                                 |                     |
|           | MODULAR SWITCH BOARD        |                   | HAVELLS INDIA LIMITED         | QRG TOWERS , 2D SECTOR-126, NOIDA- 201301                                                                                                 |                     |

| ITEM CODE | ITEM/SERVICE DESCRIPTION        | QP INSPECTION CAT | VENDOR NAME                                 | ADDRESS                                                                                                               | REMARKS |
|-----------|---------------------------------|-------------------|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|---------|
| ES56      | OIL TEMP INDICATOR              |                   | PERFECT CONTROLS                            | BLOCK NO. 7, NORTH ROAD, WEST C.I.T. NAGAR, CHENNAI - 600035, INDIA.                                                  |         |
|           | OIL TEMP INDICATOR              |                   | PRECIMEASURE                                | M/S. PRECIMEASURE CONTROLS PVT. LTD. 168/C, INDUSTRIAL SUBURB, PEENYA 3RD PHASE, BANGALORE - 560058. KARNATAKA, INDIA |         |
| ES57      | PROTECTION - RELAYS (PNUEMATIC) |                   | SIEMENS                                     | RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA                           |         |
|           | PROTECTION - RELAYS (PNUEMATIC) |                   | SCHNEIDER ELECTRIC INDIA PVT. LTD.          | 9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002                                               |         |
|           | PROTECTION - RELAYS (PNUEMATIC) |                   | GE-MULTILINE, GE INDIA INDUSTRIAL PVT. LTD. | NO. 90- B, ELECTRONICS CITY, HOSUR ROAD, BENGALURU - 560016, KARNATAKA                                                |         |
|           | PROTECTION - RELAYS (PNUEMATIC) |                   | SCHWEITZER ENGG. LAB (SEL)                  | 406, BHIKAJI CAMA BHAVAN, BHIKAJI CAMA PLACE, BHIKAJI CAMA PLACE, MOHAMMADPUR, RK PURAM, NEW DELHI, DL 110066         |         |
|           | PROTECTION - RELAYS (PNUEMATIC) |                   | C&S ELECTRIC LTD.                           | 222, OKHLA IND. ESTATE, PH-III, NEW DELHI-110020                                                                      |         |
|           | PROTECTION - RELAYS (PNUEMATIC) |                   | ALSTOM LTD                                  | A-7, SEC-65, NOIDA                                                                                                    |         |
|           | PROTECTION - RELAYS (PNUEMATIC) |                   | ABB                                         | 14, MATHURA ROAD, FARIDABAD, HARYANA-121003                                                                           |         |
|           | PROTECTION - RELAYS (PNUEMATIC) |                   | AVK-SEG & CONTROLS(I) LTD                   | C-60, NOIDA PHASE-II                                                                                                  |         |
|           | PROTECTION - RELAYS (NUMERICAL) |                   | SIEMENS                                     | RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA                           |         |
|           | PROTECTION - RELAYS (NUMERICAL) |                   | SCHNEIDER ELECTRIC INDIA PVT. LTD.          | 9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002                                               |         |
| ES58      | PROTECTION - RELAYS (NUMERICAL) |                   | GE-MULTILINE, GE INDIA INDUSTRIAL PVT. LTD. | NO. 90- B, ELECTRONICS CITY, HOSUR ROAD, BENGALURU - 560016, KARNATAKA                                                |         |
|           | PROTECTION - RELAYS (NUMERICAL) |                   | SCHWEITZER ENGG. LAB (SEL)                  | 406, BHIKAJI CAMA BHAVAN, BHIKAJI CAMA PLACE, BHIKAJI CAMA PLACE, MOHAMMADPUR, RK PURAM, NEW DELHI, DL 110066         |         |

| ITEM CODE | ITEM/SERVICE DESCRIPTION | QP INSPECTION CAT | VENDOR NAME                      | ADDRESS                                                                                                                                                                  | REMARKS |
|-----------|--------------------------|-------------------|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| ES59      | RECEPTACLES - DECORATIVE |                   | ANCHOR                           | STEEL HOUSE, B WING, PLOT NO. 24, MAHAL INDUSTRIAL ESTATE, MAHAKALI CAVES ROAD, NEAR PAPER BOX, ANDHERI (E), MUMBAI, MAHARASHTRA. - 400093                               |         |
|           | RECEPTACLES - DECORATIVE |                   | ELEXPRO ELECTRICALS PVT/ LTD.    | C 1/27 & 37 GIDC KABILPORE NAVSARI-396424                                                                                                                                |         |
|           | RECEPTACLES - DECORATIVE |                   | BAJAJ ELECTRICALS                | BAJAJ ELECTRICALS LTD.<br>ENGINEERING & PROJECTS BU (NORTH)<br>3rd FLOOR, GULMOHARHOUSE,<br>COMMUNITY CENTRE 161/B-4,<br>GAUTAM NAGAR, YUSUF SARAI<br>NEW DELHI – 110049 |         |
|           | RECEPTACLES - DECORATIVE |                   | AJMERIA INDUSTRIES & ENGG. WORKS | AJMERIA INDL. AND ENGG. WORKS.<br>AJMERIA HOUSE, A-61 / KHAIRANE MIDC. , TTC<br>INDL. AREA, NAVI MUMBAI – 400705.                                                        |         |
|           | RESISTOR FOR DC STARTERS |                   | BCH                              | 20/4, MATHURA ROAD, FARIDABAD, HARYANA-121006                                                                                                                            |         |
| ES60      | RESISTOR FOR DC STARTERS |                   | C&S ELECTRIC LTD.                | 222, OKHLA IND. ESTATE, PH-III, NEW DELHI-110020                                                                                                                         |         |
|           | RESISTOR FOR DC STARTERS |                   | RSI                              | 60,IND.DEV.COLONY, MEHRAULI ROAD,<br>GURGAON-122001                                                                                                                      |         |
|           | RESISTOR FOR DC STARTERS |                   | SPEED-O-CONTROL                  | C-16, NAND JYOT INDUSTRIAL ESTATE, SAFED POOL, ANDHERI-KURLA ROAD, SAFED POOL, MAGAN NATHURAM RD, SHIVAJI NAGAR, SAKINAKA, MUMBAI, MAHARASHTRA 400072                    |         |
|           | RESISTOR FOR DC STARTERS |                   | SUSHIL ENGG CORP.                | D-7, GHATKOPAR INDUSTRIAL ESTATE, OFF LBS MARG, GHATKOPAR (WEST), AMRUT NAGAR RD, AMRUT NAGAR, GHATKOPAR WEST, MUMBAI, MAHARASHTRA 400086                                |         |
|           | RESISTOR FOR DC STARTERS |                   |                                  |                                                                                                                                                                          |         |

| ITEM CODE | ITEM/SERVICE DESCRIPTION | QP INSPECTION CAT | VENDOR NAME                                   | ADDRESS                                                                                                                                                                  | REMARKS |
|-----------|--------------------------|-------------------|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| ES61      | SWITCH BOX               |                   | ANCHOR                                        | STEEL HOUSE, B WING, PLOT NO. 24, MAHAL INDUSTRIAL ESTATE, MAHAKALI CAVES ROAD, NEAR PAPER BOX, ANDHERI (E), MUMBAI, MAHARASHTRA - 400093                                |         |
|           | SWITCH BOX               |                   | ELEXPRO ELECTRICALS PVT/ LTD.                 | C 1/27 & 37 GIDC KABILPORE NAVSARI-396424                                                                                                                                |         |
|           | SWITCH BOX               |                   | BAJAJ ELECTRICALS                             | BAJAJ ELECTRICALS LTD.<br>ENGINEERING & PROJECTS BU (NORTH)<br>3rd FLOOR, GULMOHARHOUSE,<br>COMMUNITY CENTRE 161/B-4,<br>GAUTAM NAGAR, YUSUF SARAI<br>NEW DELHI - 110049 |         |
|           | SWITCH BOX               |                   | AJIMERA INDUSTRIES &<br>ENGG. WORKS           | AJIMERA INDL. AND ENGG. WORKS.<br>AJIMERA HOUSE, A-61 / KHAIRANE MIDC. , TTC<br>INDL. AREA, NAVI MUMBAI - 400705.                                                        |         |
|           | SWITCH BOX               |                   | S.B. ELECTRICAL<br>ENGINEERING<br>CORPORATION | 03, SARDAR GRIHA BUILDING, LOHAR CHAWAL,<br>MUMBAI-400002                                                                                                                |         |
|           | TERMINAL BLOCKS          |                   | WAGO-CONTROLS                                 | C 27, GREATER NOIDA, SECTOR 58, C BLOCK,<br>SECTOR 58, NOIDA, UTTAR PRADESH 201307                                                                                       |         |
| ES62      | TERMINAL BLOCKS          |                   | CONNECT WELL                                  | 309A/4, 3RD FLOOR, KALKAJI, OKHLA IND AREA<br>PH-2, GOVINDPURI, NEW DELHI, DL 110019                                                                                     |         |
|           | TERMINAL BLOCKS          |                   | ELMEX CONTROLS PVT. LTD.                      | 12,G.I.D.C.ESTATE,MUKARPURA<br>ROAD,VADODARA-390010                                                                                                                      |         |
|           | TERMINAL BLOCKS          |                   | ESSEN DEINKI                                  | FLAT NO. 502, SKYLINE HOUSE 85, NEHRU PLACE<br>NEW DELHI                                                                                                                 |         |
|           | TERMINAL BLOCKS          |                   | TECHNOPLAST                                   | OPP.I.M.INTER COLLEGE, BEGUM SARAI KHURD<br>ROAD, AMROHA - 244221, U.P.                                                                                                  |         |
|           | TERMINAL BLOCKS          |                   |                                               |                                                                                                                                                                          |         |

| ITEM CODE | ITEM/SERVICE DESCRIPTION | QP INSPECTION CAT | VENDOR NAME                                       | ADDRESS                                                                                                               | REMARKS                 |
|-----------|--------------------------|-------------------|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-------------------------|
| ES63      | TERMINAL BLOCKS          |                   | M/s PHOENIX MECANO LTD.,                          | 388 BHARE, TALUKA MULSHI, POST GHOTAWADE, PIRANGOOT, INDUSTRIAL AREA, PUNE-412115                                     |                         |
|           | TERMINAL BLOCKS          |                   | ESSEN DEINKI                                      | FLAT NO. 502, SKYLINE HOUSE 85, NEHRU PLACE NEW DELHI                                                                 |                         |
|           | TIMERS - PNEUMATIC       |                   | BCH                                               | 20/4, MATHURA ROAD, FARIDABAD, HARYANA-121006                                                                         |                         |
|           | TIMERS - PNEUMATIC       |                   | ALSTOM LTD                                        | A-7, SEC-65, NOIDA                                                                                                    |                         |
|           | TIMERS - PNEUMATIC       |                   | L&T                                               | 32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-110015                                                                    |                         |
|           | TIMERS - PNEUMATIC       |                   | TELEMECHANIQUE/SCHNEIDER ELECTRIC INDIA PVT. LTD. | 9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002                                               | TAKEN OVER BY SCHNEIDER |
| ES64      | TIMERS - PNEUMATIC       |                   | SCHNEIDER ELECTRIC INDIA PVT. LTD.                | 9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002                                               |                         |
|           | TIMERS - PNEUMATIC       |                   | ELECTRONICAUTOMATION PVT. LTD.                    | 20, KHB INDUSTRIAL AREA YELAHANKA BANGLORE-560064                                                                     |                         |
| ES65      | TRANSUCERS               |                   | ESSEN DEINKI                                      | FLAT NO. 502, SKYLINE HOUSE 85, NEHRU PLACE NEW DELHI                                                                 |                         |
| ES66      | TRANSUCERS               |                   | AUTOMATIC ELECTRIC LTD.                           | ADDRESS : 96 AB LONAVLA INDUSTRIAL ESTATE NANGARGAON, LONAVLA-410401                                                  |                         |
|           | TRANSUCERS               |                   | SOUTHERN TRANSDUCERS                              | INTERTECH B-83, FLATTED FACTORY COMPLEX, NEAR MODI MILLS, OKHLA, NEW DELHI-110020                                     |                         |
|           | WINDING TEMP INDICATOR   |                   | PERFECT CONTROLS                                  | OFFICE ADDRESS: 7, NORTH ROAD, WEST C.I.T. NAGAR, CHENNAI - 600035, INDIA.                                            |                         |
|           | WINDING TEMP INDICATOR   |                   | PRECIMEASURE                                      | M/S. PRECIMEASURE CONTROLS PVT. LTD. 168/C, INDUSTRIAL SUBURB, PEENYA 3RD PHASE, BANGALORE - 560058. KARNATAKA, INDIA |                         |

| ITEM CODE | ITEM/SERVICE DESCRIPTION     | QP INSPECTION CAT | VENDOR NAME                      | ADDRESS                                                                                                                      | REMARKS |
|-----------|------------------------------|-------------------|----------------------------------|------------------------------------------------------------------------------------------------------------------------------|---------|
| ES67      | RECEPTACLE (FLAME PROOF)     |                   | BALIGA ELECTRICALS               | 63A,CP RAMASWAMY ROAD, PB NO 6910, CHENNAI-600018                                                                            |         |
|           | RECEPTACLE (FLAME PROOF)     |                   | SUDHIR SWITCHGEAR                | 305/6, APEEJAY HOUSE, 130, BOMBAY SAMACHAR MARG, MUMBAI - 400 023. INDIA                                                     |         |
|           | RECEPTACLE (FLAME PROOF)     |                   | FCG FLAME PROOF CONTROL GEAR     | A1/53, SHAH & NAHAR INDUSTRIAL ESTATE, SITARAM JADHAV ROAD, LOWER PAREL (W), MUMBAI-400 013                                  |         |
|           | RECEPTACLE (NON FLAME PROOF) |                   | AJMERIA INDUSTRIES & ENGG. WORKS | AJMERIA INDL AND ENGG. WORKS. AJMERIA HOUSE, A-61 / KHAIRANE MIDC. , TTC INDL AREA, NAVI MUMBAI – 400705.                    |         |
| ES68      | RECEPTACLE (NON FLAME PROOF) |                   | CROMPTON GREAVES                 | 3RD FLOOR, EXPRESS BUILDING,9-10, BAHADUR SHAH ZAFAR MARG, NEAR ITO CROSSING,NEW DELHI-110002, INDIA                         |         |
|           | RECEPTACLE (NON FLAME PROOF) |                   | CYCLO ELECTRIC DEVICE & SERV.CO. | : A-3, NEAR ANTHEM BIOSCIENCE, KSSIDC INDUSTRIAL AREA, BOMMASANDRA, BOMMASANDRA INDUSTRIAL AREA, BANGALORE, KARNATAKA 560099 |         |
|           | RECEPTACLE (NON FLAME PROOF) |                   | BCH                              | 20/4, MATHURA ROAD, FARIDABAD - 121006, HARYANA, INDIA                                                                       |         |
|           | RECEPTACLE (NON FLAME PROOF) |                   | BEST & CROMPTON                  | BEST & CROMPTON ENGINEERING LTD 28C, AMBATTUR INDUSTRIAL ESTATE (NORTH) AMBATTUR, CHENNAI - 600 098                          |         |
|           | ENERGY METER ( ANALOG)       |                   | BHEL (EDN)                       | MYSORE ROAD,BANGALORE-560026                                                                                                 |         |
|           | ENERGY METER ( ANALOG)       |                   | SIMCO ENGG. LTD                  | NO. 126, K ROAD, TIRUCHIRAPPALLI -620001, TAMIL NADU                                                                         |         |

| ITEM CODE | ITEM/SERVICE DESCRIPTION | QP INSPECTION CAT | VENDOR NAME                           | ADDRESS                                                                                          | REMARKS |
|-----------|--------------------------|-------------------|---------------------------------------|--------------------------------------------------------------------------------------------------|---------|
| ES72      | ENERGY METER ( ANALOG)   |                   | RISHABH INST.PVT LTD                  | RISHABH INSTRUMENTS PVT. LTD.<br>F-31, MIDC, SATPUR<br>NASHIK - 422007<br>MAHARASHTRA INDIA      |         |
|           | ENERGY METER ( ANALOG)   |                   | AUTOMATIC ELECTRIC LTD.               | 96 AB LONAVLA INDUSTRIAL ESTATE<br>NANGARGAON, LONAVLA-410401                                    |         |
|           | ENERGY METER ( ANALOG)   |                   | CONSERVE SYSTEMS PVT. LTD.(SCHNEIDER) | 87, 1ST FLOOR INDUSTRIAL DEVELOPMENT COLONY (IDC) MEHRAULI ROAD, UGURGAON 122001 HARYANA, INDIA. |         |
| ES73      | ENERGY METER ( DIGITAL)  |                   | CONSERVE SYSTEMS PVT. LTD.(SCHNEIDER) | 87, 1ST FLOOR INDUSTRIAL DEVELOPMENT COLONY (IDC) MEHRAULI ROAD, UGURGAON 122001 HARYANA, INDIA. |         |
|           | ENERGY METER ( DIGITAL)  |                   | M/s Newtek Electricals                | M-90, M.I.D.C, Waluj, Aurangabad 431136, Maharashtra, India                                      |         |
|           |                          |                   |                                       |                                                                                                  |         |
| ES74      | AMMETER                  |                   | AUTOMATIC ELECTRIC LTD.               | 96 AB LONAVLA INDUSTRIAL ESTATE<br>NANGARGAON, LONAVLA-410401                                    |         |
|           | AMMETER                  |                   | RISHABH INST.PVT LTD                  | RISHABH INSTRUMENTS PVT. LTD.<br>F-31, MIDC, SATPUR<br>NASHIK - 422007<br>MAHARASHTRA INDIA      |         |
|           | AMMETER                  |                   | M/s Newtek Electricals                | M-90, M.I.D.C, Waluj, Aurangabad 431136, Maharashtra, India                                      |         |
|           | VOLTMETER                |                   | AUTOMATIC ELECTRIC LTD.               | 96 AB LONAVLA INDUSTRIAL ESTATE<br>NANGARGAON, LONAVLA-410401                                    |         |
|           |                          |                   | RISHABH INST.PVT LTD                  | RISHABH INSTRUMENTS PVT. LTD.<br>F-31, MIDC, SATPUR<br>NASHIK - 422007<br>MAHARASHTRA INDIA      |         |

| ITEM CODE | ITEM/SERVICE DESCRIPTION | QP INSPECTION CAT | VENDOR NAME                                                    | ADDRESS                                                                                                                                          | REMARKS                 |
|-----------|--------------------------|-------------------|----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| ES75      | VOLTMETER                |                   | M/s Newtek Electricals                                         | M-90, M.I.D.C, Waluj, Aurangabad 431136, Maharashtra, India                                                                                      |                         |
|           |                          |                   | SCHNEIDER ELECTRIC INDIA PVT. LTD.                             | 9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002                                                                          |                         |
|           |                          |                   | L&T                                                            | 32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-110015                                                                                               |                         |
|           |                          |                   | SIEMENS                                                        | RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA                                                      |                         |
| ES76      | MPCB                     |                   | GE-POWER                                                       | KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032                                              |                         |
|           |                          |                   | SCHNEIDER ELECTRIC INDIA PVT. LTD.                             | 9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002                                                                          |                         |
|           |                          |                   | C&S ELECTRIC LTD.                                              | 222, OKHLA IND. ESTATE, PH-III, NEW DELHI-110020                                                                                                 |                         |
|           |                          |                   | SUKRUT UDYOG                                                   | 9/1/A, ERANDAWANE, OPPOSITE MEHENDALE GARAGE, ERANDAWANE, GULAWANI MAHARAJ RD, SWAROOP SOCIETY, VAKIL NAGAR, ERANDWANE, PUNE, MAHARASHTRA 411004 |                         |
| ES77      | MAGNETIC OIL GAUGE       |                   | CONSERVE SYSTEMS PVT. LTD./ SCHNEIDER ELECTRIC INDIA PVT. LTD. | 87, 1ST FLOOR INDUSTRIAL DEVELOPMENT COLONY (IDC) MEHRAULI ROAD, GURGAON 122001 HARYANA, INDIA.                                                  | TAKEN OVER BY SCHNEIDER |
| ES78      | MULTIFUNCTION METER      |                   | M/s Newtek Electricals                                         | M-90, M.I.D.C, Waluj, Aurangabad 431136, Maharashtra, India                                                                                      |                         |
|           | MULTIFUNCTION METER      |                   |                                                                |                                                                                                                                                  |                         |

| ITEM CODE | ITEM/SERVICE DESCRIPTION       | QP INSPECTION CAT | VENDOR NAME                        | ADDRESS                                                                                             | REMARKS |
|-----------|--------------------------------|-------------------|------------------------------------|-----------------------------------------------------------------------------------------------------|---------|
| ES79      | RCCB                           |                   | C&S ELECTRIC LTD.                  | 222, OKHLA IND. ESTATE, PH-III, NEW DELHI-110020                                                    |         |
|           | RCCB                           |                   | SCHNEIDER ELECTRIC INDIA PVT. LTD. | 9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002                             |         |
|           | RCCB                           |                   | SIEMENS                            | RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA         |         |
|           | RCCB                           |                   | GE-POWER                           | KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032 |         |
|           | RCCB                           |                   | L&T                                | 32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-110015                                                  |         |
|           | RCCB                           |                   | CROMPTON GREAVES                   | RAIL TRANSPORTATION SYSTEMS,VANDANA BUILDING, 11, TOLSTOY MARG, TOLSTOY MARG, NEW DELHI, DL 110001  |         |
|           | PVC WIRES                      |                   | BIS APPROVED MAKE                  |                                                                                                     |         |
|           | EXIT SIGN (FLAME PROOF)        |                   | REPUTED MAKE                       |                                                                                                     |         |
| ES80      | EXIT SIGN (NON FLAME PROOF)    |                   | REPUTED MAKE                       |                                                                                                     |         |
| ES81      | LADDER                         |                   | REPUTED MAKE                       |                                                                                                     |         |
| ES82      | HUME PIPE                      |                   | REPUTED MAKE                       |                                                                                                     |         |
| ES83      | PHOTOELECTRIC SWITCH           |                   | REPUTED MAKE                       |                                                                                                     |         |
| ES84      | DICHORIC SPOT LIGHTING FIXTURE |                   | REPUTED MAKE                       |                                                                                                     |         |
| ES85      | HAND LAMP UNIT                 |                   | REPUTED MAKE                       |                                                                                                     |         |
| ES86      | VAF METER ( DIGITAL)           |                   | M/s Newtek Electricals             | M-90, M.I.D.C, Waluj, Aurangabad 431136, Maharashtra, India                                         |         |
| ES87      |                                |                   |                                    |                                                                                                     |         |
| ES88      |                                |                   |                                    |                                                                                                     |         |
| ES89      |                                |                   |                                    |                                                                                                     |         |
| ES90      |                                |                   |                                    |                                                                                                     |         |

| ITEM CODE | ITEM/SERVICE DESCRIPTION                         | QP INSPECTION CAT | VENDOR NAME             | ADDRESS                                                                                                                                                                                                                        | REMARKS |
|-----------|--------------------------------------------------|-------------------|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| ES91      | LED BASED HIGH INTENSITY AVIATION WARNING LIGHTS |                   | M/s INSTA POWER LIMITED | Correspondence Address: M/s Insta Power Limited, S-19, Panch Shila Park, New-Delhi-110017 Manufacturing Unit: M/s Insta Power Limited, Khasra No. 103M, Raipur Industrial Area, Raipur, Bhagwanpur, Roorkee, Uttrakhand-247661 |         |

| ITEM CODE | ITEM/SERVICE DESCRIPTION | QP INSPECTION CAT | VENDOR NAME | ADDRESS | REMARKS |
|-----------|--------------------------|-------------------|-------------|---------|---------|
|-----------|--------------------------|-------------------|-------------|---------|---------|

**NB**

|                                                                                                                                                                                                                                                                |                                    |                                    |                               |  |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|------------------------------------|-------------------------------|--|--|
| Remarks column :                                                                                                                                                                                                                                               |                                    |                                    |                               |  |  |
| A : mean vendor to this item is acceptable to NTPC                                                                                                                                                                                                             |                                    |                                    |                               |  |  |
| Under QP / Inspection category column :                                                                                                                                                                                                                        |                                    |                                    |                               |  |  |
| Cat-I : For these items the Quality plans approved by NTPC / BHEL & final acceptance will be on physical inspection & witness by NTPC/ BHEL.                                                                                                                   |                                    |                                    |                               |  |  |
| Cat-II : For these items the Quality plans approved by NTPC/ BHEL. BHEL reserves the right to inspect. However, no physical inspection shall be done by NTPC . The final acceptance by NTPC shall be on basis of verification of documents as per approved QP. |                                    |                                    |                               |  |  |
| Cat-III : For these items main supplier approves the Quality plans,. The final acceptance by NTPC/ BHEL shall be on basis of certificate of conformance by the main supplier.                                                                                  |                                    |                                    |                               |  |  |
| <a href="#">.@ : Vendor acceptance is subject to sub-QR clearance.</a>                                                                                                                                                                                         |                                    |                                    |                               |  |  |
| Note 1 : Approval conditions attached to above identified vendors, as applicable shall be adhered to.                                                                                                                                                          |                                    |                                    |                               |  |  |
| Note 2 : List of acceptable Galvanisers :                                                                                                                                                                                                                      |                                    |                                    |                               |  |  |
| 1) M. J. Engg , Delhi                                                                                                                                                                                                                                          | 7) Steelite Engg, Mumbai           | 13) B G Shirke, Pune               | 19) Neha Galvanizer, Kolkata  |  |  |
| 2) Jamna Metal, Delhi                                                                                                                                                                                                                                          | 8) National Galvanizer, Kolkata    | 14) Gurpreet galvanizer, Hyderabad | 20) Unitec Galvanizer, Hoogly |  |  |
| 3) A. V. Engg , Kolkata                                                                                                                                                                                                                                        | 9) Unistar Galvanizer, Kolkata     | 15) Sigma , Mumbai                 | 21) Gurpreet galvanizers,     |  |  |
| 4) Inar Profiles, Vishakhapatnam                                                                                                                                                                                                                               | 10) B.P. Project, Kolkata          | 16) Radhakrishnan Shetty, Chennai  | 22) DMP Projects, Kolkata     |  |  |
| 5) Anand Udyog, Mumbai                                                                                                                                                                                                                                         | 11) Bajaj, Pune                    | 17) Karamtara, Mumbai              |                               |  |  |
| 6) Techno Engg, Chandigarh                                                                                                                                                                                                                                     | 12) Electrocare Industries, Mumbai | 18) Poona Galvanizers, Pune        |                               |  |  |
| Additional galvanizers, if any, proposed by manufacturer through main contractor during detailed engineering shall be reviewed and assessed as per merits of the case.                                                                                         |                                    |                                    |                               |  |  |
| Note 3 : VDE/ CE/JUL/CSA marking for product Quality : Self certification / valid certification from third party agency or BIS approval letter with CML no. For product quality shall be submitted for information.                                            |                                    |                                    |                               |  |  |

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**TECHNICAL SPECIFICATION FOR  
OCTAGONAL GALVANIZED POLES**

SPECIFICATION NO. PE-TS-434-558-E004

VOLUME II

SECTION II

REVISION: 0

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**SECTION-II****GENERAL REQUIREMENTS**



## TECHNICAL SPECIFICATION FOR OCTAGONAL GALVANIZED POLES

SPECIFICATION NO. PE-TS-434-558-E004

VOLUME II

SECTION II

REVISION: 0

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### 1.0 INTENT OF SPECIFICATION

- 1.1 The requirement of this specification shall be fully complied with.
- 1.2 The “design” shall broadly cover the selection of components, materials, sizes etc. for the equipment of supply in vendor’s scope. Complete responsibility of establishing the correctness of equipment design rests with the vendor.
- 1.3 It is not the intent to specify here all the details of design and manufacture. However, the equipment shall conform in all respects to high standards of design, engineering and workmanship, and shall be capable of performing the required duties in a manner acceptable to Engineer / purchaser, who will interpret the meaning of drawings and specifications and shall be entitled to reject any work or material, which in his judgement is not in full accordance herewith.
- 1.4 Make of all equipment and components shall be as per sub vendor list (Section I) and subjected to the approval of BHEL/BHEL’s customer without any commercial implication.

### 2.0 CODES & STANDARDS

- 2.1 The material shall comply with all currently applicable safety codes and statutory regulations of India as well of the locality where the material is to be installed.
- 2.2 The material, construction, manufacture, inspection and testing shall conform to the latest revisions of standards as specified in Datasheet-A.
- 2.3 In case of conflict between the applicable reference standard and this specification, stringent requirement shall govern.

### 3 DESIGN REQUIREMENTS

#### 3.1 LIGHTING POLES

- 3.1.1 Lighting poles as required for street lighting and flood lighting shall be of swaged/stepped tubular steel of swan neck construction as per applicable standard.
- 3.1.2 Where painted type of poles is specified (to be done at vendor’s works);
  - a) The poles shall be coated with black bituminous paint, conforming to applicable standard, throughout on the inside surface and on the outside surface up to the level which is embedded in ground.
  - b) Exposed outside surface shall be painted with two coats of red oxide and zinc chromate in synthetic compound primer.
  - c) Final painting shall be done at site after installation. Same is not in vendor's scope.
- 3.1.3 Where galvanization of poles is specified;
  - a) All inside and outside surfaces of the pole and base plate shall be hot dip galvanised as per manufacturer’s practice.
  - b) Base plate shall be galvanised after welding to the pole base.
  - c) Weight and thickness of zinc coating shall be as per Datasheet-A.



## TECHNICAL SPECIFICATION FOR OCTAGONAL GALVANIZED POLES

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- 3.1.4 Each street lighting pole shall be supplied with necessary pipe-reducer / fixing-bracket for fixing the luminaire.
- 3.1.5 Each street lighting pole shall be suitably provided with weather proof, galvanised steel junction box and two numbers fixing brackets suiting the diameter of the pole. The requirements of junction box are stipulated elsewhere. The fixing brackets shall be supplied loose.
- 3.1.6 Street lighting pole shall be provided with wiring hole. The location shall be coordinated with mounting position of street lighting pole JB. The diameter of hole shall be 20 mm. The hole shall be provided with a rubber / PVC grommet.
- 3.1.7 Flood lighting pole shall be provided with painted MS plate and shall be suitable for the number of flood lighting luminaires and controlgear boxes.
- 3.1.8 Provision for earthing shall be provided for flood / street lighting poles at a height 1 metre above the ground (MS flat size shall be informed during detailed engineering). The pole shall be earthed at two points.
- 3.1.9 Types of Lighting Poles

Exact type and designation of lighting pole is as given in Data Sheet A. Basic types are as follows:

- a) PS1 - Street Lighting Pole for one luminaire with 1200mm bracket arm.
- b) PS2 - Street Lighting Pole for one luminaire with 1800mm bracket arm.
- c) PS4 - Street Lighting Pole for two luminaires with 1800mm bracket arm each.
- d) PF1 - Flood Lighting Pole for one luminaire.
- e) PF2 - Flood Lighting Pole for two luminaires.

Details of luminaire shall be provided during detailed engineering.

### 3.2 POLE JUNCTION BOXES JB(S)

- 3.2.1 Junction boxes with terminals shall be supplied for branching and terminating lighting wires/cables.
- 3.2.2 Construction Features
  - (a) The junction boxes shall be fabricated out of material specified in Datasheet-A and shall be of rectangular shape. The cover shall be hinged or bolted with captive nuts and bolts and shall be provided with neoprene gasket lining all over.
  - (b) The junction boxes shall be provided with suitable knock outs/ gland plates for conduit/ cable connection. The conduit connection shall be properly sealed. The junction boxes meant for cable connection shall be complete with removable gland plates, glands and cable lugs, as required. The junction boxes shall be provided with two earthing terminals suitable for 14SWG GI earthing wires.



## TECHNICAL SPECIFICATION FOR OCTAGONAL GALVANIZED POLES

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- (c) The junction boxes shall be weather proof type conforming to IP-55 of IS:2147. Junction boxes for street light poles and lighting/lightning masts shall be provided with hinged doors and allen keys with bolts as locking arrangement.
- (d) The boxes and cover shall be hot dip galvanised.
- (e) The junction boxes shall be suitable for mounting on lighting poles, mast etc. The brackets, bolts, nuts, screws and any other erection accessories required for erection shall be provided along with the junction box.

### 3.2.3 Terminals

- (a) Multiway terminal blocks of approved type and make complete with galvanised screws, nuts, washers and marking strips shall be furnished for terminating the lighting wires.
- (b) All the terminals blocks shall be of 650V grade one piece construction with insulating barriers. These terminals shall be made of copper alloy and shall be stud type. Each terminal provided on junction box shall be suitable for terminating two numbers of aluminium conductors of the size as specified without any damage to the conductors or looseness.

### 3.2.4 The junction boxes shall be of following types:

| Type | Description                                                                                                                                                                                                |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| JB-S | Provided with four (4) way stud type terminals, each terminal suitable for terminating upto two nos. of 3.5Cx50 mm <sup>2</sup> stranded aluminium conductors & with one no.6A HRC fuse and link.          |
| JB-M | Provided with four (4) way stud type terminals, each terminal suitable for terminating upto two nos. of 4Cx16 mm <sup>2</sup> stranded aluminium conductors & tap off of 3 nos. 2C x 2.5 sq. mm. Cu cable. |

### 3.3 CABLE GLANDS

- 3.3.1 Whether specifically mentioned or not, cable glands of suitable sizes shall be supplied along with each equipment for power and control cables.
- 3.3.2 Rubber components used in the gland shall be of neoprene.
- 3.3.3 Name / trade name of manufacturer, type no. and applicable range of outer diameter of cable shall be engraved / indelibly printed on the cable gland.

### 3.4 CABLE LUGS

- 3.4.1 All equipment shall be supplied with the power and control cable lugs of suitable size, whether specifically mentioned or not.
- 3.4.2 Name / trade name and size of lug shall be engraved/ indelibly printed on each cable lug.

### 3.5 TIMERS

#### 3.5.1 Time Switch

- (a) Time switch shall be suitable for automatic switching ON and OFF of street lighting / flood lighting circuits.
- b) Time switch have 00 - 24 hrs clock base.



## TECHNICAL SPECIFICATION FOR OCTAGONAL GALVANIZED POLES

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- c) Time switch shall indicate actual time and shall permit accurate time setting.
- d) Time switch shall be rugged, independent of normal fluctuations of voltage / frequency and free from maintenance.
- e) Contact rating, clock accuracy, rated voltage rating and frequency rating of timer shall be suitable to its application.
- f) Time switch shall be provided with Ni-Cd battery.
- g) Time switch shall be suitable for mounting inside the panel.

### 3.5.2 On Delay Timer

- (a) Timer shall be fully static and suitable for operation on normal frequency and system voltage.
- (b) Timer shall have high setting accuracy, high repeat accuracy, low reset time and low power consumption.
- (c) Timer shall have the time setting range of 24 - 240 seconds, unless mentioned otherwise in Data Sheet A.
- (d) Timer shall be suitable for mounting inside the panel.

### 3.6 CIRCUIT DIAGRAM / DIRECTORY PLATE

- 3.6.1 A diagram is to be prepared for fixing to the inside cover of every mast feeder panel giving details of the points controlled by each circuit.

### 4.12 SURFACE TREATMENT FOR PANEL

- 4.12.1 All metal parts and the surfaces (exterior & interior) of equipment shall be degreased by dipping in hot alkaline solution and rubbed with wire brush to remove oil & scale from them & then rinsed in water. Alternatively, they may be shot / sand blasted.
- 4.12.2 Parts shall be pickled by dipping in hydrochloric acid tank to remove the rust from the surfaces formed during storage of sheets & then rinsed to remove traces of the acid. The cleaning and pretreatment of all metal parts shall be as per applicable standard.
- 4.12.3 The surfaces to be painted shall then be prepared by phosphatizing to protect them from further rusting & to create a good bond with the paint. The pretreatment shall conform to the applicable standard.
- 4.12.4 All parts shall then be subjected to a coat of red oxide primer paint.
- 4.12.5 All inside and outside surfaces of panel shall be spray painted with synthetic enamel of the shade as per Data Sheet A.
- 4.12.6 Electrostatic or powder coating painting shall be done as specified in Data Sheet A.
- 4.12.7 Wherever possible, finished parts shall be coated with peelable compound by spraying method to protect the finished product from scratches, grease, dirty and oily spots during handling and transportation.



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### 4 PACKING

- 4.1 Loose items shall be packed, duly labelled in a box and sealed properly to avoid damage during transportation. Packing list shall be pasted on every box, listing the contents of the box.

### 6.0 INSPECTION & TESTING

- 6.1 Bidder shall confirm compliance with the BHEL Standard Quality Plan (PE-QP-999-558-E004) without any deviations. At contract stage, the successful bidder shall submit the same QP for BHEL/ ultimate customer's approval. In case bidder has reference QP agreed with ultimate customer, same can be submitted for specific project after award of contract for BHEL/ ultimate customer's approval. There shall be no commercial implication to BHEL on account of any changes in QP during contract stage.
- 6.2 All the components and completely assembled equipment shall be tested as per the latest edition of standards. Any charges for these shall be deemed to be included in equipment price.
- 6.3 All the specified tests shall be carried out to verify the rating and performance of the equipment.
- 6.4 All manufacturing processes viz. machining, sheet forming, electroplating, wire routing, cleating & crimping, assembly, surface preparation shall conform to good manufacturing practices.

### 7.0 TOOLS AND TACKLE

- 7.1 Tools & tackle which are essential to facilitate assembly, adjustments, erection, maintenance & dismantling of equipment shall be provided as part of equipment supplied.
- 7.2 The above tools shall be supplied along with the initial consignment of equipment so as to be available prior to erection but may not be used for erection purposes.
- 7.3 Vendor shall also submit a list of recommended tools and tackle. Acceptance of these tools and tackle shall not be a binding on the purchaser.
- 7.4 Schedule of tools & tackle shall be filled up by bidder.

### 8.0 SPARES

- 8.1 Mandatory spares (if applicable) are indicated in BOQ-cum-price schedule.
- 8.2 Erection & commissioning spares are included in the bidder's scope of supply. Bidder to furnish list of E&C spares in the relevant schedules of the Bid Form and Price Schedules.

1152270/2022/PS-PEM-EL

**TECHNICAL SPECIFICATION FOR  
OCTAGONAL GALVANIZED POLES**

SPECIFICATION NO. PE-TS-434-558-E004

VOLUME II

SECTION - II

REVISION 0

SHEET 1 OF 1

**QAP FOR**  
**OCTAGONAL GALVANIZED POLES**

1152270/2022/PS-PEM-EL

|                                                                                  |                                                     |                                                                       |          |                                                                                                                                                   |                       |                             |                                                               |                                             |                            |                                |   |                        |               |                                 |  |
|----------------------------------------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------------------------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------------|---------------------------------------------------------------|---------------------------------------------|----------------------------|--------------------------------|---|------------------------|---------------|---------------------------------|--|
|  |                                                     | MANUFACTURER'S NAME AND ADDRESS                                       |          | MANUFACTURING QUALITY PLAN                                                                                                                        |                       |                             |                                                               |                                             |                            | PROJECT :                      |   | KUDGI STEP-1 (SIBR)HWW |               |                                 |  |
|                                                                                  |                                                     |                                                                       |          | ITEM :                                                                                                                                            |                       | OCTAGONAL POLE FOR LIGHTING |                                                               | QP NO :                                     |                            | 9573-215-DVT Q-013             |   | PACKAGE :              |               |                                 |  |
|                                                                                  |                                                     |                                                                       |          | SUB-SYSTEM :                                                                                                                                      |                       |                             |                                                               | REV NO :                                    |                            | 0                              |   | CONTRACT NO :          |               | CS-9573-215-2-FC-COA 5971       |  |
|                                                                                  |                                                     |                                                                       |          |                                                                                                                                                   |                       |                             |                                                               | DATE :                                      |                            | 11-02-16                       |   | MAIN SUPPLIER :        |               |                                 |  |
| PAGE :                                                                           |                                                     |                                                                       |          |                                                                                                                                                   |                       |                             |                                                               |                                             |                            |                                |   |                        |               |                                 |  |
| SL NO.                                                                           | COMPONENT AND OPERATIONS                            | CHARACTERISTICS                                                       | CLASS    | TYPE OF CHECK                                                                                                                                     | QUANTUM OF CHECK      | REFERENCE OF DOCUMENT       | ACCEPTANCE NORMS                                              | FORMAT OF RECORD                            | AGENCY                     |                                |   | REMARKS                |               |                                 |  |
|                                                                                  |                                                     |                                                                       |          |                                                                                                                                                   | 6M 6 C/N              |                             |                                                               |                                             | M                          | C                              | N |                        |               |                                 |  |
| 1                                                                                | Steel for Poles shaft                               | a. Chemical composition & mechanical properties                       | Major    | Chemical & Mechanical                                                                                                                             | Sample as per mfr std | Same as 6 M                 | NTPC Specification manufacturer's plant std                   | NTPC Specification manufacturer's plant std | TC                         | V                              | P | V                      | V             | at the time of final inspection |  |
|                                                                                  |                                                     | b. Thickness                                                          | Major    | Measurement                                                                                                                                       | Sample as per mfr std | Same as 6 M                 | NTPC Specification manufacturer's plant std                   | NTPC Specification manufacturer's plant std | TC                         | V                              | P | V                      | V             |                                 |  |
| 2                                                                                | Poles continuously tapered, Octagonal cross Section | a. Dimension, Cross Section                                           | Major    | Measurement                                                                                                                                       | 100%                  | Random                      | NTPC Approved Drawing                                         | NTPC Approved Drawing                       | Internal Inspection Report |                                | P | W                      | W             |                                 |  |
|                                                                                  |                                                     | b. Longitudinal weld                                                  | critical | visual                                                                                                                                            | 100%                  | Random                      | NTPC Appd Drg/ Data sheet manufacturer std                    | single defect free longitudinal weld        | Internal Inspection Report |                                | P | W                      | V             |                                 |  |
|                                                                                  |                                                     | c. Galvanization checks (Thickness, uniformity of coating & adhesion) | Major    | Measurement                                                                                                                                       | 100%                  | Random                      | NTPC Appd Drg/ Data sheet Drawing IS 2629/IS 2633/4759        | NTPC Appd Drg/ Data sheet Drawing           | Internal Inspection Report |                                | P | W                      | W             |                                 |  |
| 3                                                                                | Brackets                                            | a. Dimension                                                          | Major    | Measurement / verify                                                                                                                              | 100%                  | Random                      | NTPC Appd Drg                                                 | NTPC Appd Drg                               | Internal Inspection Report | V                              | P | W                      | W             |                                 |  |
|                                                                                  |                                                     | b. Galvanization checks (Thickness, uniformity of coating & adhesion) | Major    | Measurement                                                                                                                                       | 100%                  | Random                      | NTPC Appd Drg/ Data sheet Drawing : IS 2629/IS 2633/ISO 11461 | NTPC Appd Drg/ Data sheet Drawing           | Internal Inspection Report | V                              | P | W                      | W             |                                 |  |
| 4                                                                                | Terminal Board / MCB / Backelite Sheet              | Dimension / Make / grade                                              | Major    | Visual                                                                                                                                            | 100%                  | Random                      | NTPC Specification / Material Test Certificate                | as per NTPC approved Drawing                | TC                         | V                              | V | V                      | V             |                                 |  |
| 5                                                                                | Foundation Bolt                                     | a. Mechanical Properties                                              | Major    | Mechanical                                                                                                                                        | 100%                  | Random                      | NTPC Appd Drg/ Data sheet IS EN 8                             | NTPC Appd Drg/ Data sheet EN 8 Grade        | TC                         | V                              | P | V                      | V             |                                 |  |
|                                                                                  |                                                     | b. Dimension                                                          | Major    | Measurement                                                                                                                                       | 100%                  | Random                      | NTPC Appd Drg/ Data sheet IS EN 8                             | NTPC Appd Drg/ Data sheet IS EN 8           | TC                         | V                              | P | V                      | V             |                                 |  |
| MANUFACTURER / SUB-SUPPLIER                                                      |                                                     | IN SUPPLIER                                                           |          | LEGEND: RECORDS, IDENTIFIED WITH TICK (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. EMP: NTPC SHALL IDENTIFIED IN COLUMN "M" |                       |                             |                                                               | DOC NO :                                    |                            |                                |   |                        |               |                                 |  |
| SIGNATURE                                                                        |                                                     |                                                                       |          | M : MANUFACTURER/ SUB-SUPPLIER                                                                                                                    |                       |                             |                                                               |                                             |                            |                                |   |                        |               |                                 |  |
| FORMAT NO                                                                        |                                                     |                                                                       |          | C : SUPPLIER NOMINATED INSPECTION AGENCY: SUBJECT TO PRIOR ACCEPTANCE OF NTPC) N: NTPC                                                            |                       |                             |                                                               |                                             |                            | REVIEWED BY                    |   | APPROVED BY            | APPROVAL SEAL |                                 |  |
|                                                                                  |                                                     |                                                                       |          | P: PERFORM W: WITNESS AND V: VERIFICATION AS APPROPRIATE                                                                                          |                       |                             |                                                               | FOR NTPC USE                                |                            |                                |   |                        |               |                                 |  |
|                                                                                  |                                                     |                                                                       |          |                                                                                                                                                   |                       |                             |                                                               | ENG. DIV./QA&E                              |                            |                                |   |                        |               |                                 |  |
|                                                                                  |                                                     |                                                                       |          | BD DOC NO                                                                                                                                         |                       |                             |                                                               | TECHNICAL SPECIFICATION                     |                            | GENERAL TECHNICAL REQUIREMENTS |   | PART C                 | PAGE 1 of 2   |                                 |  |

|                                                                                                                                                                                                                                                                                                                                                                       |                          |                                 |       |                                |                        |                             |                       |                                      |                  |             |    |                    |         |                 |  |  |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|---------------------------------|-------|--------------------------------|------------------------|-----------------------------|-----------------------|--------------------------------------|------------------|-------------|----|--------------------|---------|-----------------|--|--|--|
|                                                                                                                                                                                                                                                                                       |                          | MANUFACTURER'S NAME AND ADDRESS |       | MANUFACTURING QUALITY PLAN     |                        |                             |                       |                                      |                  | PROJECT :   |    |                    |         |                 |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                       |                          |                                 |       | ITEM :                         |                        | OCTOGONAL POLE FOR LIGHTING |                       |                                      |                  | QP NO. :    |    | 9573-213-QVE-Q-013 |         | PACKAGE :       |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                       |                          |                                 |       | SUB-SYSTEM :                   |                        |                             |                       |                                      |                  | REV NO. :   |    | 1                  |         | CONTRACT NO. :  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                       |                          |                                 |       |                                |                        |                             |                       |                                      |                  | DATE :      |    | 11-07-16           |         | MAIN SUPPLIER : |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                       |                          |                                 |       |                                |                        |                             |                       | PAGE :                               |                  |             |    |                    |         |                 |  |  |  |
| SL NO.                                                                                                                                                                                                                                                                                                                                                                | COMPONENT AND OPERATIONS | CHARACTERISTICS                 | CLASS | TYPE OF CHECK                  | QUANTUM OF CHECK<br>GM | 6 C/N                       | REFERENCE OF DOCUMENT | ACCEPTANCE NORMS                     | FORMAT OF RECORD | AGENCY      |    |                    | REMARKS |                 |  |  |  |
| 1                                                                                                                                                                                                                                                                                                                                                                     | 2                        | 3                               | 4     | 5                              | 6                      | 7                           | 8                     | 9                                    | 10               | 11          | 12 | 13                 | 14      |                 |  |  |  |
| 6                                                                                                                                                                                                                                                                                                                                                                     | Final Testing            | a. Deflection Test              | Major | Measurement                    | 1 Nos. per lot         | Random                      | As per ISEN 40-3-3    | As per Annexures A,B,C Docs Enclosed | TR               | ✓           | P  | W                  | W       |                 |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                       |                          | b. Straightness                 | Major | Measurement                    | 1 Nos. per lot         | Random                      | As per BSEN 40-2      | As per Annexures A,B,C Docs Enclosed | TR               | ✓           | P  | W                  | W       |                 |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                       |                          | c. Weight                       | Major | Measurement                    | 2 Nos. per lot         | Random                      | As per IS 2713        | As per Annexures A,B,C Docs Enclosed | TR               | ✓           | P  | W                  | W       |                 |  |  |  |
| Note: LOT SIZE = 500 Poles<br>LEGEND: RECORDS, IDENTIFIED WITH TICK (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. CHP: NTPC SHALL IDENTIFIED IN COLUMN "N"<br>M: MANUFACTURER/ SUB-SUPPLIER<br>C: SUPPLIER NOMINATED INSPECTION AGENCY (SUBJECT TO PRIOR ACCEPTANCE OF NTPC) N: NTPC<br>P: PERFORM W: WITNESS AND V: VERIFICATION AS APPROPRIATE |                          |                                 |       |                                |                        |                             |                       |                                      |                  |             |    |                    |         |                 |  |  |  |
| MANUFACTURER / SUB-SUPPLIER                                                                                                                                                                                                                                                                                                                                           |                          | SIGNATURE                       |       | FORMAT NO. : QS - 01           |                        | FOR NTPC USE                |                       | REVIEWED BY                          |                  | APPROVED BY |    | APPROVAL SEAL      |         |                 |  |  |  |
| ENG. DIV. / QA & I                                                                                                                                                                                                                                                                                                                                                    |                          |                                 |       |                                |                        |                             |                       |                                      |                  |             |    |                    |         |                 |  |  |  |
| BID DOC. NO.                                                                                                                                                                                                                                                                                                                                                          |                          | TECHNICAL SPECIFICATION         |       | GENERAL TECHNICAL REQUIREMENTS |                        | PART C                      |                       | PAGE 2 of 2                          |                  |             |    |                    |         |                 |  |  |  |

3X800MW PATRATU TPP

BOQ CUM PRICE SCHEDULE FOR POLES AND MAST

| Sl. No. | Item Code.  | DESCRIPTION                                                                                                  | UNIT | TOTAL ORDER QUANTITY | Qty for UNIT-1 | Qty for UNIT-2 | Qty for UNIT-3 | HSN Code | Quoted/Not Quoted |
|---------|-------------|--------------------------------------------------------------------------------------------------------------|------|----------------------|----------------|----------------|----------------|----------|-------------------|
| 1       | 558-14022-A | Octagonal pole type PS-1 (9M) (Including price of foundation bolt) - Junction box shall be integral to pole  | Nos. | 302                  | 101            | 101            | 100            |          |                   |
| 2       | 558-14023-A | Octagonal pole type PS-2 (11M) (Including price of foundation bolt) - Junction box shall be integral to pole | Nos. | 456                  | 152            | 152            | 152            |          |                   |
| 3       | 558-14020-A | Octagonal pole type PF-1 (9M) (Including price of foundation bolt) - Junction box shall be integral to pole  | Nos. | 16                   | 6              | 5              | 5              |          |                   |
| 4       | 558-14021-A | Octagonal pole type PF-2 (9M) (Including price of foundation bolt) - Junction box shall be integral to pole  | Nos. | 42                   | 14             | 14             | 14             |          |                   |

NOTE:

1

Foundation bolts for 2 nos. poles shall be supplied as erection & commissioning spares. Charges of poles & Mast shall be inclusive of erection & commissioning spares.

2

Please quote for Total Order Quantity.

## **Annexure-A**

### **DEFAULT/ BREACH OF CONTRACT, INSOLVENCY AND RISK PURCHASE**

In case of delays (beyond the maximum late delivery period as per LD clause) in supplies, or if there be defective supplies or non-fulfilment of any other terms and conditions of the Contract as enumerated subsequently in this clause, then, without prejudice to its right to recover any expenses, losses or damages to which the Buyer may be put to incur or sustain by reason of the Seller/Contractor's default or breach of Order/Contract or to suspend business dealings with the Seller/Contractor in terms of the Buyers' Guidelines for Suspension of Business Dealings as applicable from time to time, the Buyer shall also be entitled to cancel the Order/ Contract either in whole or portion thereof without compensation to Seller. On the occurrence of any of the acts/omissions mentioned below, the Buyer may if it so desires, procure upon such terms and in such manner as deemed appropriate, plant/ equipment/ stores not so delivered or others of similar description where plant/ equipment/ stores exactly complying with particulars are not, in the opinion of the Buyer (which shall be final), readily procurable, at the risk and cost of the Seller.

The Seller shall be liable to the Buyer for any excess costs incurred thereof and the Seller shall continue the performance of the Order/Contract to the extent not cancelled under the provisions of this clause. The Seller shall on no account be entitled to any gain on such repurchases. If the Bidder does not agree to this Risk Purchase clause, BHEL reserves the right to reject the bid/offer of the Bidder.

The order/contract may be cancelled in whole or part thereof and Risk & Cost Clause in line with terms and conditions of PO/Contract may be invoked by the Buyer in any of the following cases:

- i. If the Seller/Contractor fails to deliver the goods or materials or any installment thereof within the period(s) fixed for such delivery or the Seller's poor progress of the supply/services vis-à-vis delivery/execution timeline as stipulated in the contract, backlog attributable to the Seller including unexecuted portion of supply does not appear to be executable within balance period available;
- ii. delivers goods or materials not of the contracted quality and failing to adhere to the contract specifications/execution methodology;
- iii. withdrawal from or repudiation/abandonment of the supply/services by the Seller before completion as per contract or if the Seller refuses or is unable to supply goods or materials covered by the order/Contract either in whole or in part or otherwise fails to perform the Order/Contract.
- iv. Non supply by the Seller within scheduled completion/delivery period as per contract or as extended from time to time for reasons attributable to the Seller;
- v. Termination of Contract on account of any other reason(s) attributable to the Seller.
- vi. Assignment, transfer, sub-letting of Contract without BHEL's written permission resulting in termination of Contract or part thereof by BHEL.
- vii. If the Seller be an individual or a Sole Proprietorship, in the event of death or insanity of the Seller.
- viii. If the Seller/Contractor being an individual or if a partnership firm thereof, shall at any time be adjudged insolvent or shall have a receiving order for administration of his estate made against him or shall take any proceeding for composition under any Insolvency Act for the time being in force or make any assignment of the order/Contract or enter into any arrangement or composition with his creditors or suspend payment or if the firm dissolved under the Partnership Act;
- ix. If the Seller/Contractor being a Company is wound up voluntarily or by order of a Court or a Receiver, Liquidator or Manager on behalf of the debenture holders and creditors is appointed or circumstances have arisen which entitles the Court of debenture holder and creditors to appoint a receiver, liquidator or manager
- x. Non- Compliance to any contractual condition or any other default attributable to the Seller.

Such defaulting vendor/Seller shall not be eligible to participate in re-tendering conducted on account of risk purchase made due to fault of such vendor/Seller.

BHEL's right to go for Risk and Cost, Calculation of Risk and Cost amount & LD, recovery options to BHEL are given in detail in Annexure-V hereto.

## **ANNEXURE-V**

### **(RISK AND COST CLAUSE)**

1. BHEL reserves the right to terminate the contract or withdraw portion of work and get it done through other agency, at the risk and cost of the contractor *after due notice of a period of 14 days' by BHEL* in any of the following cases:
  - i) If the Seller/Contractor fails to deliver the goods or materials or any instalment thereof within the period(s) fixed for such delivery or the Seller's poor progress of the supply/ services vis-a-vis delivery/execution timeline as stipulated in the Contract, backlog attributable to seller including unexecuted portion of supply does not appear to be executable within balance available period;
  - ii) Delivers goods or materials not of the contracted quality and failing to adhere to the contract specifications;
  - iii) Withdrawal from or repudiation/ abandonment of the supply/ services by Seller before completion as per contract or if the Seller refuses or is unable to supply goods or materials covered by the Order/Contract either in whole or in part or otherwise fails to perform the Order/Contract;
  - iv) Non-supply by the Seller within scheduled completion/delivery period as per Contract or as extended from time to time, for the reasons attributable to the Seller;
  - v) Termination of Contract on account of any other reason (s) attributable to Seller.
  - vi) Assignment, transfer, subletting of Contract without BHEL's written permission resulting in termination of Contract or part thereof by BHEL.
  - vii) If the Seller be an individual or a sole proprietorship Firm, in the event of the death or insanity of the Seller;
  - viii) If the Seller/Contractor being an individual or if a firm on a partnership thereof, shall at any time, be adjudged insolvent or shall have a receiving order for administration of his estate made against him or shall take any proceeding for composition under any Insolvency Act for the time being in force or make any assignment of the Order/Contract or enter into any arrangement or composition with his creditors or suspend payment or if the firm dissolved under the Partnership Act;
  - ix) If the Seller/Contractor being a company is wound up voluntarily or by order of a Court or a Receiver, Liquidator or Manager on behalf of the debenture holders and creditors is appointed or circumstances shall have arisen which entitles the Court of debenture holder and creditors to appoint a receiver, liquidator or manager;
  - x) Non-compliance to any contractual condition or any other default attributable to Seller.

#### **1.1 Risk & Cost Amount against Balance Work:**

Risk & Cost amount against balance work shall be calculated as follows:

$$\text{Risk \& Cost Amount} = [(A-B) + (A \times H/100)]$$

Where,

A= Value of Balance scope of Work (\*) as per rates of new contract

B= Value of Balance scope of Work (\*) as per rates of old contract being paid to the contractor at the time of termination of contract i.e. inclusive of PVC & ORC, if any.

H = Overhead Factor to be taken as 5

In case (A-B) is less than 0 (zero), value of (A-B) shall be taken as 0 (zero).

#### **1.2 \* Balance scope of work (in case of termination of contract):**

Difference of Contract Quantities and Executed Quantities as on the date of issue of Letter for 'Termination of Contract', shall be taken as balance scope of Work for calculating risk & cost amount.

Contract quantities are the quantities as per original contract. If, Contract has been amended, quantities as per amended Contract shall be considered as Contract Quantities.

Items for which total quantities to be executed have exceeded the Contract Quantities based on drawings issued to contractor from time to time till issue of Termination letter, then for these items total Quantities as per issued drawings would be deemed to be contract quantities.

Substitute/ extra items whose rates have already been approved would form part of contract quantities for this purpose.

Substitute/ extra items which have been executed but rates have not been approved, would also form part of contract quantities for this purpose and rates of such items shall be determined in line with contractual provisions.

However, increase in quantities on account of additional scope in new tender shall not be considered for this purpose.

NOTE: In case portion of work is being withdrawn at risk & cost of contractor instead of termination of contract, contract quantities pertaining to portion of work withdrawn shall be considered as 'Balance scope of work' for calculating Risk & Cost amount.

#### **1.3 LD against delay in executed work in case of Termination of Contract:**

LD against delay in executed work shall be calculated in line with LD clause no. 16 of GCC, for the delay attributable to contractor. For limiting the maximum value of LD, contract value shall be taken as Executed Value of work till termination of contract.

Method for calculation of LD against delay in executed work in case of termination of contract" is given below.

- i. Let the time period from scheduled date of start of work till termination of contract excluding the period of Hold (if any) not attributable to contractor = T1
- ii. Let the value of executed work till the time of termination of contract = X
- iii. Let the Total Executable Value of work for which inputs/fronts were made available to contractor and were planned for execution till termination of contract = Y
- iv. Delay in executed work attributable to contractor i.e.  $T2 = [1 - (X/Y)] \times T1$
- v. LD shall be calculated in line with LD clause (clause 16) of the Contract for the delay attributable to contractor taking "X" as Contract Value and "T2" as period of delay attributable to contractor.

## **2. Recoveries arising out of Risk & Cost and LD or any other recoveries due from Contractor**

Without prejudice to the other means of recovery of such dues from the Seller recoveries from the Seller on whom risk & cost has been invoked shall be made from the following:

- a) Dues available in the form of Bills payable to seller, SD, BGs against the same contract.
- b) Dues payable to seller against other contracts in the same Region/Unit/ Division of BHEL.
- c) Dues payable to seller against other contracts in the different Region/Unit/ division of BHEL.

*In-case recoveries are not possible with any of the above available options, Legal action shall be initiated for recovery against contractor.*

## Annexure-II- Delivery Schedule of LIGHTING POLES for PATRATU Project

| Sl. No. | Package name   | BHEL Drawing No    | Drawing Title                              | Primary/Secondary | Drg Sch for Vendors                                                                                                                                                                     | Delivery Terms for Supply Portion                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------|----------------|--------------------|--------------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | LIGHTING POLES | PE-V0-XXX-558-E601 | DATA SHEET OF POLES & MASTS                | Primary           | R-0 within 14 days from PO & subsequent revisions within 10 days of comments received from BHEL. BHEL shall furnish comments / approval on each submission within 18 days from receipt. | <b>For UNIT-1 Supply Qty:</b> Within Four (04) months from date of CAT-1 approval of Primary drawing/documents, subjected to drawing/document submission/re-submission schedule as stipulated, in case of any delay in submission/re-submission of Primary drawing/documents, then same shall be reduced from the given delivery period.<br><br><b>For Unit-II &amp; III Supply Qty:</b> Within Four (04) months from the date of BHEL clearance for respective units.<br><b>Note:-</b> For Unit Wise Qty of Poles, please refer BOQ- Cum Unprice Schedule. |
|         |                | PE-V0-XXX-558-E907 | QUALITY PLAN OF POLES & MASTS              | Primary           |                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|         |                | PE-V0-XXX-558-E602 | GA DRAWING OF POLES & MASTS                | Primary           |                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|         |                | PE-V0-XXX-558-E603 | FIELD QUALITY PLAN OF POLES & MASTS        | Secondary         | R-0 within 30 days from PO & subsequent revisions within 10 days of comments received from BHEL. BHEL shall furnish comments / approval on each submission within 18 days from receipt. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|         |                | PE-V0-XXX-558-E604 | FOUNDATION DETAILS OF POLES & MASTS        | Secondary         |                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|         |                | PE-V0-XXX-558-E605 | INSTRUCTIONS FOR ERECTION OF POLES & MASTS | Secondary         |                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

**(ON COMPANY LETTER HEAD)**

An undertaking regarding Model Clauses

To,  
M/s Bharat Heavy Electricals Ltd.,  
Project Engineering Management,  
Power Project Engineering Institute,  
HRD & ESI Complex,  
Plot No 25, Sector-16 A, Noida-201301

Dear Sir,

This has reference to:

1. Our offer for LIGHTING POLES for 3 X 800 MW PATRATU TPP, GEM BID No. [REDACTED]
2. Ministry of Finance circular dated 23.07.20, 08.02.21 & 06.09.22 reg.  
restriction under rule 144 (xi) of GFR.

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India. I hereby certify that M/s [REDACTED] (bidder name) is not from such a country and is eligible to be considered/participate in tender enquiry for against aforesaid tender enquiry.

Thanking You,  
Yours faithfully,

Director/Proprietor/Partner  
M/s \_\_\_\_\_

**LOCAL CONTENT CERTIFICATE**  
**(ON COMPANY LETTER HEAD)**

To,  
Bharat Heavy Electricals Limited  
PEM, PPEI Building, Plot No 25,  
Sector 17 A, Noida (U.P)-201301

Subject: - Certification regarding local content

Reference: GEM BID No.:

Name of Package: LIGHTING POLES (OCTAGONAL)

Project Name: 3 X 800 MW PATRATU TPP

Dear Sir,

We hereby certify that items offered by us for LIGHTING POLES (OCTAGONAL) for 3 X 800 MW PATRATU TPP has local content of        %

Further, it is also certified that the local content % certified above is in line with definition of local content given in Public Procurement (Preference to Make in India), Order 2017-revision, having ref no. P45021/2017/-PP (BE-II) dtd. 04.06.20 & 16.09.20 and we qualify as Class        supplier.

We further confirm that address of the location at which the local value addition is made will be as follows:

|  |
|--|
|  |
|  |
|  |
|  |
|  |

Thanking You,  
Yours faithfully,

M/s \_\_\_\_\_

**(ON COMPANY LETTER HEAD)**

To,  
Bharat Heavy Electricals Limited  
PEM, PPEI Building, Plot No 25,  
Sector -I6A, Noida (U.P)-201301

**Subject: - No Deviation Certificate**

Reference: GeM BID No.: \_\_\_\_\_

Name of Package: LIGHTING POLES (OCTAGONAL)

Project Name: 3 X 800 MW PATRATU TPP.

Dear Sir,

We hereby confirm that we have not taken any deviation in the above referred tender enquiry.  
If any deviation in any part of our offer is found same shall be null & void.

Thanking You,  
Yours faithfully,

M/s \_\_\_\_\_



Indian Electrical & Electronics Manufacturer's Association  
 501, Kakad Chambers P +91 22 2493 0532  
 132, Dr. A. B. Road, Worli, F +91 22 2493 2705  
 Mumbai 400 018 E [mumbai@ieema.org](mailto:mumbai@ieema.org)  
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**Cir. No. 10/PVC/T & D Project/05**

**25 May 2022**

To Members of T & D Project Division, SEBs and other listed purchasing bodies.

**Sub: New PV formulae for Steel Tubular Pole and Polygonal Pole**

Currently Steel poles are increasingly used in distribution network especially in hilly area due to sturdiness and ease of transportation. And in the wake of upcoming scheme of Revamped Distribution network strengthening scheme (RDSS); members of IEEMA T & D project division decided to evolve PV formula for Steel Tubular Poles and Polygonal Poles.

IEEMA has collected costing data, lead time for manufacturing etc. from major manufacturers of poles and in consultation with division arrived at the draft Price Variation Clauses for Steel Tubular Poles and Polygonal Poles and circulated to all stakeholders vide circular no. **14/PVC/T & D Project/05 dated 9 Mar 22** for their comments.

After incorporating changes suggested by the industry stakeholders on the **Steel Tubular Pole and Polygonal Pole** PV formulae; we are making the Price Variation formulae operational from 1<sup>st</sup> April 2022.

We have enclosed PV clauses applicable for **Steel Tubular Pole and Polygonal Pole** which are effective from 1<sup>st</sup> April 2022.

Although, the PV clause is made effective from 1<sup>st</sup> April 2022, practically it can be incorporated in all the current new tenders/contracts starting from 1<sup>st</sup> May 2022.

We request and recommend all the users & stakeholders including Utilities, PSUs etc. to incorporate the above PV formulae in all the new tenders/contracts henceforth.

**Director**

IEEMA/PVC/Poles/2022

Effective from: 1<sup>st</sup> Apr 2022**PRICE VARIATION CLAUSE FOR POLES**

The price quoted/confirmed is based on the input cost of raw materials/components and labour cost as on the date of quotation and the same is deemed to be related to prices of raw materials and all India average consumer price index number for industrial workers as specified in the price variation clause given below. In case of any variation in these prices and index numbers, the price payable shall be subject to adjustment, up or down in accordance with the following formula:

**(A) Steel Tubular Poles**

$$P = \frac{P_0}{100} \left( 7 + 70 \frac{IS}{IS_0} + 13 \frac{Zn}{Zn_0} + 10 \frac{W}{W_0} \right)$$

**(B) Polygonal Poles**

$$P = \frac{P_0}{100} \left( 9 + 64 \frac{IS}{IS_0} + 13 \frac{Zn}{Zn_0} + 14 \frac{W}{W_0} \right)$$

Wherein,

- P = Price payable as adjusted in accordance with the above formula.
- P<sub>0</sub> = Price quoted/confirmed.
- IS<sub>0</sub> = Price of HR Coil of 3.15 mm thickness (refer notes)  
This price is as applicable for the month, ONE month prior to the date of tendering.
- Zn<sub>0</sub> = Price of Electrolytic high grade zinc (refer notes)  
This price is as applicable on the 1st working day of the month, ONE month prior to the date of tendering.
- W<sub>0</sub> = All India average consumer price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt. of India (Base: 2016 = 100) (Refer notes)  
This index number is as applicable for the month, THREE months prior to the date of tendering.

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**IEEMA/PVC/Poles/2022****Effective from: 1<sup>st</sup> Apr 2022**

For example, if date of tendering falls in May 2022, the applicable prices of HR Coil (IS<sub>0</sub>) should be for the month March 2022, Zinc (Zn<sub>0</sub>) should be for the month April 2022 and all India average consumer price index number (W<sub>0</sub>) should be for the month of February 2022.

The above prices and indices are as published by IEEMA vide circular reference number IEEMA (PVC)/TLT-2014 (R-1)/\_/ \_ **ONE** month prior to the date of tendering.

- IS = Price of HR Coil of 3.15 mm thickness (refer notes)  
 This price is as applicable for the month, **FOUR** month prior to the date of delivery.
- Zn = Price of Electrolytic high grade zinc (refer notes)  
 This price is as applicable on the 1st working day of the month, **ONE** month prior to the date of delivery.
- W = All India average consumer price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt. of India (Base: 2016 = 100) (Refer notes)  
 This index number is as applicable on the first working day of the month, **THREE** months prior to the date of delivery.

For example, if date of delivery falls in December 2022, the applicable prices of HR Coil (IS) should be for August 2022 and Zinc (Zn) should be for the month November 2022 and all India average consumer price index number (W) should be for the month of September 2022.

The date of delivery is the date on which Poles are notified as being ready for inspection/dispatch (in the absence of such notification, the date of manufacturer's dispatch note is to be considered as the date of delivery) or the contracted delivery date (including any agreed extension thereto), whichever is earlier.

**Notes:**

(a) All prices of raw materials are exclusive of GST and any other central, state or local taxes etc.

(b) The details of prices are as under:

1. Price of steel is the average retail price of HR Coil 3.15 mm thickness as published by Joint Plant Committee (JPC) in Rs./MT.
2. The price of Electrolytic high grade zinc (in Rs/MT) is ex-works price as quoted by a primary producer.

**Director**

IEEMA/PVC/Poles/2022/Page 2 of 3

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|  | <b>CORPORATE QUALITY ASSURANCE/ कॉर्पोरेट गुणवत्ता आश्वासन</b><br><b>SUB-VENDOR QUESTIONNAIRE/ सब-वेंडर प्रश्नावली</b> |
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|             |                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                        |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>i.</b>   | <b>Item/Scope of Sub-contracting</b><br>उप-संविदा(अनुबंध) का मद/ दायरा                                                                                                                                                |                                                                                                                                                                                                                                                                                                        |
| <b>ii.</b>  | <b>Address of the registered office</b> पंजीकृत कार्यालय का पता<br><br>                                                                                                                                               | <b>Details of Contact Person</b> संपर्क व्यक्ति का विवरण<br><br>(Name, Designation, Mobile, Email) (नाम, पदनाम, मोबाइल, ईमेल)                                                                                                                                                                          |
| <b>iii.</b> | <b>Name and Address of the proposed Sub-vendor's works where item is being manufactured</b> प्रस्तावित उप-विक्रेता के कार्यों का नाम और पता, जहां मद का निर्माण किया जा रहा है<br><br>                                | <b>Details of Contact Person:</b> संपर्क व्यक्ति का विवरण<br><br>(Name, Designation, Mobile, Email) (नाम, पदनाम, मोबाइल, ईमेल)                                                                                                                                                                         |
| <b>iv.</b>  | <b>Annual Production Capacity for proposed item/scope of sub-contracting</b> उप-संविदा(अनुबंध) के प्रस्तावित मद / दायरे के लिए वार्षिक उत्पादन क्षमता                                                                 |                                                                                                                                                                                                                                                                                                        |
| <b>v.</b>   | <b>Annual production for last 3 years for proposed item/scope of sub-contracting</b> उप-संविदा(अनुबंध) के प्रस्तावित मद / दायरे के लिए पिछले 3 वर्षों का वार्षिक उत्पादन                                              |                                                                                                                                                                                                                                                                                                        |
| <b>vi.</b>  | <b>Details of proposed works</b> प्रस्तावित कार्यों का विवरण                                                                                                                                                          |                                                                                                                                                                                                                                                                                                        |
| <b>1.</b>   | <b>Year of establishment of present works</b> वर्तमान फैक्टरी की स्थापना का वर्ष                                                                                                                                      |                                                                                                                                                                                                                                                                                                        |
| <b>2.</b>   | <b>Year of commencement of manufacturing at above works</b> उपरोक्त फैक्टरी में निर्माण कार्य शुरू होने का वर्ष                                                                                                       |                                                                                                                                                                                                                                                                                                        |
| <b>3.</b>   | <b>Details of change in Works address in past (if any)</b> पूर्व में फैक्टरी स्थल में परिवर्तन का विवरण (यदि कोई हो)                                                                                                  |                                                                                                                                                                                                                                                                                                        |
| <b>4.</b>   | <b>Total Area</b> कुल क्षेत्र                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                        |
| <b>4.</b>   | <b>Covered Area</b> शामिल क्षेत्र                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                        |
| <b>5.</b>   | <b>Factory Registration Certificate</b> फैक्टरी पंजीकरण प्रमाण पत्र                                                                                                                                                   | <b>Details attached at Annexure – F2.1</b> विवरण अनुलग्नक- एफ 2.1 पर संलग्न है                                                                                                                                                                                                                         |
| <b>6.</b>   | <b>Design/ Research &amp; development set-up</b> डिजाइन / अनुसंधान और विकास सेटअप (No. of manpower, their qualification, machines & tools employed etc.) (श्रमिकों की संख्या, उनकी योग्यता, मशीन और उपलब्ध उपकरण आदि) | <b>Applicable / Not applicable if manufacturing is as per Main Contractor/purchaser design)</b><br><b>Details attached at Annexure – F2.2</b><br>(if applicable) लागू / लागू नहीं, अगर विनिर्माण मुख्य संविदाकार / खरीददार के डिजाइन के अनुसार है) विवरण अनुलग्नक –एफ 2.2 पर संलग्न है । (यदि लागू हो) |
| <b>7.</b>   | <b>Overall organization Chart with Manpower Details (Design/Manufacturing/Quality etc)</b> मैनपावर विवरण के साथ समग्र संगठन का चार्ट( डिजाइन / विनिर्माण / गुणवत्ता आदि )                                             | <b>Details attached at Annexure – F2.3</b> विवरण अनुलग्नक – F2.3 में संलग्न है ।                                                                                                                                                                                                                       |
| <b>8.</b>   | <b>After sales service set up in India, in case of foreign sub-vendor(Location, Contact Person, Contact details etc.)</b> भारत                                                                                        | <b>Applicable / Not applicable</b> लागू / लागू नहीं                                                                                                                                                                                                                                                    |

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|  | <b>CORPORATE QUALITY ASSURANCE/ कॉरपोरेट गुणवत्ता आश्वासन</b><br><b>SUB-VENDOR QUESTIONNAIRE/ सब-वेंडर प्रश्नावली</b> |
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|                                          | में बिक्री सेवा की स्थापना के बाद, विदेशी उप-विक्रेता के मामले में (स्थल, संपर्क व्यक्ति, संपर्क विवरण आदि)                                                                                                                                                                                                                                                 | <i>Details attached at Annexure – F2.4</i> विवरण अनुलग्नक -2.4 पर संलग्न है।                                                                                                       |
| 9.                                       | <i>Manufacturing process execution plan with flow chart indicating various stages of manufacturing from raw material to finished product including outsourced process, if any</i> फ्लोचार्ट सहित विनिर्माण प्रक्रिया निष्पादन योजना, जिसमें आउटसोर्स प्रक्रिया, यदि कोई हो, सहित कच्चे माल से तैयार उत्पाद तक विनिर्माण के विभिन्न चरणों को दर्शाया गया हो, | <i>Details attached at Annexure – F2.5</i> विवरण अनुलग्नक - F2.5में संलग्न है।                                                                                                     |
| 10.                                      | <i>Sources of Raw Material/Major Bought Out Item</i> कच्चे माल के स्रोत / खरीदे हुए मुख्य मद                                                                                                                                                                                                                                                                | <i>Details attached at Annexure – F2.6</i> विवरण अनुलग्नक - F2.6में संलग्न है।                                                                                                     |
| 11.                                      | <i>Quality Control exercised during receipt of raw material/BOI, in-process, Final Testing, packing</i> कच्चे माल / खरीदे हुए मद, प्रक्रियाबद्ध, अंतिम परीक्षण, पैकिंग करते समय गुणवत्ता नियंत्रण                                                                                                                                                           | <i>Details attached at Annexure – F2.7</i> विवरण अनुलग्नक - F2.7 पर संलग्न है                                                                                                      |
| 12.                                      | <i>Manufacturing facilities (List of machines, special process facilities, material handling etc.)</i> विनिर्माण सुविधा (मशीनों की सूची, विशेष प्रक्रिया सुविधाएं, सामग्री रख-रखाव आदि)                                                                                                                                                                     | <i>Details attached at Annexure – F2.8</i> विवरण अनुलग्नक - F2.8में संलग्न है।                                                                                                     |
| 13.                                      | <i>Testing facilities (List of testing equipment)</i> परीक्षण सुविधाएं (परीक्षण उपकरण की सूची)                                                                                                                                                                                                                                                              | <i>Details attached at Annexure – F2.9</i> विवरण अनुलग्नक – F2. 9 में संलग्न है।                                                                                                   |
| 14.                                      | <i>If manufacturing process involves fabrication then-</i> यदि निर्माण प्रक्रिया में फेब्रिकेशन की गई है तो-<br><i>List of qualified Welders</i> पात्र वेल्डर की सूची<br><i>List of qualified NDT personnel with area of specialization</i> विशेषज्ञता के क्षेत्र सहित पात्र एनडीटी कार्मिकों की सूची                                                       | <i>Applicable / Not applicable</i> लागू / लागू नहीं<br><i>Details attached at Annexure – F2.10</i> विवरण अनुलग्नक - F2.10में संलग्न है।<br><i>(if applicable)</i> लागू / लागू नहीं |
| 15.                                      | <i>List of out-sourced manufacturing processes with Sub-Vendors' names &amp; addresses</i> सब-वेंडर द्वारा बाह्य स्रोतों (उनके नाम और पते सहित) से करवाए गए निर्माण प्रक्रियाओं की सूची                                                                                                                                                                     | <i>Applicable / Not applicable</i> लागू / लागू नहीं<br><i>Details attached at Annexure. –F2.11</i> विवरण अनुलग्नक - F2.10में संलग्न है।<br><i>(if applicable)</i> (यदि लागू हो)    |
| 16.                                      | <i>Supply reference list including recent supplies</i> नवीनतम आपूर्ति सहित आपूर्ति संदर्भ सूची                                                                                                                                                                                                                                                              | <i>Details attached at Annexure – F2.12</i> विवरण अनुलग्नक - F2.12 में संलग्न है।<br><i>(as per format given below)</i> ( नीचे दिए गए प्रारूप के अनुसार )                          |
| <i>Project/ package</i> परियोजना / पैकेज | <i>Customer Name</i> ग्राहक का नाम                                                                                                                                                                                                                                                                                                                          | <i>Supplied Item (Type/Rating/Model /Capacity/Size etc)</i> आपूर्ति की गई वस्तु (प्रकार / रेटिंग / मॉडल / क्षमता / आकार आदि)                                                       |
|                                          |                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                    |
|                                          |                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                    |
| 17.                                      | <i>Product satisfactory performance feedback letter/certificates/End User Feedback</i> उत्पाद के संतोषजनक प्रदर्शन संबंधी फीडबैक पत्र / प्रमाण पत्र / अंतिम उपयोगकर्ता फीडबैक                                                                                                                                                                               | <i>Attached at annexure - F2.13</i> अनुलग्नक F2. 3पर संलग्न है                                                                                                                     |
| 18.                                      | <i>Summary of Type Test Report (Type Test Details, Report No, Agency, Date of testing) for the proposed product</i>                                                                                                                                                                                                                                         | <i>Applicable / Not applicable</i> लागू / लागू नहीं                                                                                                                                |

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|  | <b>CORPORATE QUALITY ASSURANCE/ कॉर्पोरेट गुणवत्ता आश्वासन</b><br><b>SUB-VENDOR QUESTIONNAIRE/ सब-वेंडर प्रश्नावली</b> |
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|     |                                                                                                                                                                                                                                                                                       |                                                                                                                                                |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
|     | <i>(similar or higher rating)</i> प्रस्तावित उत्पाद (एक समान या उच्च रेटिंग वाले) के लिए टाइप टेस्ट रिपोर्ट (टाइप टेस्ट विवरण, रिपोर्ट संख्या, एजेंसी, जांच की तारीख) का सारांश<br>नोट: - रिपोर्ट प्रस्तुत करने की आवश्यकता नहीं है<br><i>Note:- Reports need not to be submitted</i> | <i>Details attached at Annexure – F2.14</i> विवरण अनुलग्नक - F2.1 4में संलग्न है<br><i>(if applicable)</i> (यदि लागू हो)                       |
| 19. | <b>Statutory / mandatory certification for the proposed product</b><br>प्रस्तावित उत्पाद के लिए वैधानिक / अनिवार्य प्रमाणीकरण                                                                                                                                                         | <i>Applicable / Not applicable</i> लागू / लागू नहीं<br><br><i>Details attached at Annexure – F2.15</i><br><i>(if applicable)</i> (यदि लागू हो) |
| 20. | <b>Copy of ISO 9001 certificate</b> आईएसओ 9001 प्रमाण पत्र की प्रति <i>(if available)</i> (यदि उपलब्ध हो)                                                                                                                                                                             | <i>Attached at Annexure – F2.16</i> अनुलग्नक में संलग्न - F2.1 6 है                                                                            |
| 21. | <b>Product technical catalogues for proposed item</b> <i>(if available)</i><br>प्रस्तावित मद के लिए उत्पाद तकनीकी कैटलॉग (यदि उपलब्ध हो)                                                                                                                                              | <i>Details attached at Annexure – F2.17</i> विवरण अनुलग्नक - F2.1 7 में संलग्न है                                                              |

|                             |  |                             |  |                                   |  |                              |  |
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| <b>Name:</b><br><b>नाम:</b> |  | <b>Desig:</b><br><b>पद:</b> |  | <b>Sign:</b><br><b>हस्ताक्षर:</b> |  | <b>Date:</b><br><b>तिथि:</b> |  |
|-----------------------------|--|-----------------------------|--|-----------------------------------|--|------------------------------|--|

**Company's Seal/Stamp:- कंपनी की मुहर/ मोहर:-**