

**TENDER
SPECIFICATION
BHEL PSSR SCT 2206**

FOR

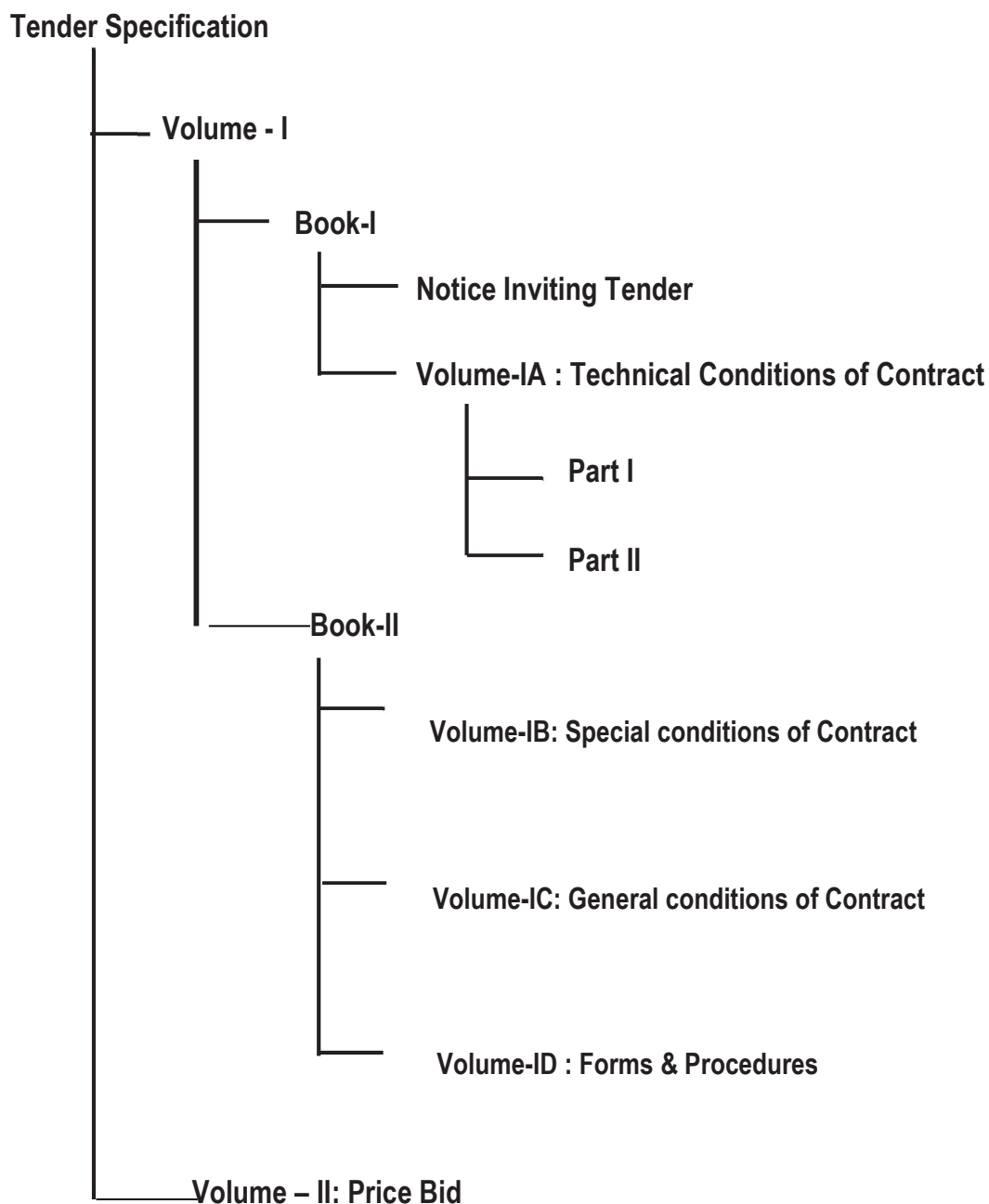
**Erection and Commissioning of Construction Power Supply,
Area Lighting and Yard Lighting including supply of materials
as specified in the tender specification under Package-A and
Operation and Maintenance of the same under Package-B at
1X800MW SCCL Thermal Power Project Stage 2**

**PRICEBID
VOLUME –II**



BHARAT HEAVY ELECTRICALS LIMITED
(A Government of India Undertaking)
Power Sector – Southern Region
BHEL Integrated Office Complex, TNEB Road
Pallikaranai, Chennai -600100

TENDER SPECIFICATION CONSISTS OF



PRICE BID

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PRICE BID

PART A **Instruction to Bidders:**

1. This scope of work in this tender is split into two Packages, Package A and Package B.
2. Package A broadly comprises of Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting including supply of materials at 1X800MW SCCL Thermal Power Project Stage 2.
Package B broadly comprises of Operation and Maintenance of the Construction Power Supply, Area Lighting and Yard Lighting established under Package A
3. **Bidder shall submit Price for Package A only.**
4. The successful bidder (L1 Bidder) will be considered for award of both Package A and Package B.
5. Bidders shall only quote "Total Lumpsum amount" in the format given in the price bid. The "Total Lumpsum amount" is for the entire scope of work of Pkg A. Payment will be as per actual quantity executed as certified by BHEL Engineer.
6. Tenderers are requested to affix their company seal and authorized signature in all pages.
7. Bidders shall quote 'Total Amount' in the format enclosed as a separate Excel File in BHEL NIC e-Procurement portal for the subject tender and upload the same under 'Packet details - > Tender covers -> Finance '(Cover Type Description – Price Bid)'' and same shall be taken into account for evaluation and awarding and hence, shall be complete in all respect for the full scope of work defined in specification and in accordance with terms & conditions of the tender. Any other entry elsewhere in the price bid shall be treated as Null and Void. Quoting of rates in any other form/ formats will not be entertained.
8. The above mentioned 'Total amount' is for the entire Bill of Quantity (BOQ) given in Part -C **(Pkg A)** of the Price Bid.
9. Contractor shall prepare billing break up in consultation with BHEL Engineer and submit the same for approval of BHEL Engineer In charge. Though the work is being tendered on lumpsum price basis, the payment shall be effected only based on the billing break up to the extent of work executed.
10. Payment shall be made for the actual quantities of work executed at the unit rate arrived as per the billing break up approved by BHEL. Refer TCC Vol 1A PART-1 Chapter-9 BOQ.
11. Bidders are also requested to refer Clause 35.0 of NIT for "Mode of Award of Work".

Part C : Bill of Quantities

Tender Specification for Package-A for Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification)

at 1x800 MW Singareni Thermal Power Project - Stage II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
1.0	PREPARATION OF DRAWING & OBTAINING STATUTORY APPROVAL	--		
1.01	Route survey, preparation of route drawing, Detailed SLD, Detailed 33/11kV and 11kV/433V substation drawing, 33 & 11kV distribution drawing, Two/Four/Six/Eight pole structure arrangement drawing, Earthing layout, sag calculation for OH line & any other document /drawing as required by Electrical inspectorate and getting approval of above from statutory authority and also includes liaison with electrical inspectorate for field inspection and obtaining clearance certificate for charging the entire system in a phased manner as per site requirement (any number of times till completion of entire scope under this contract.)	Lump sum	1	.0186958
2.0	SUPPLY PORTION OF BOM FOR 33kV OH Lines/Cable Interconnection.	--		
2.1	33kV Supply Handling Items	--		
2.2	33kV/11kV Substation Related Items.	--		
2.2.1	Supply of 2kVA 230V 1 phase sine wave UPS of reputed make with 2 nos. of oxide make 150AH 12V tubular lead acid batteries. Vendor shall specify the make for which he is quoting in the bid and shall submit relevant certificates along with supply.	Sets	2	.0024305
2.2.2	Supply of Current transformers as per IS:2705 type: Outdoor oil cooled with Highest system voltage 36KV, Insulation level of 70/170KV, ratio: 100-50-25/5-5 Amps, rated short time thermal current Ith:25KA for 3sec with 02 cores. Core I: VA: 15, class : 5P10 Core II: VA: 5, class: 0.2S	Nos.	8	.013461
2.2.3	Supply of Potential transformers as per IS:3156/1992 type: Outdoor with Highest system voltage 36KV, Insulation level of 70/170KV, burden '50VA-100VA' ratio: 33KV/√3/110V/√3-110V/√3, Conn: Star/Star-Delta	Nos.	8	.0119653
2.2.4	Supply of Lightning arrestor set suitable for 33kV as per ISS/IEC Spec No. IS:3070/2-1985/Latest. (Each set consist of all 3 Phases).	Sets	2	.0006033
2.3	11kV Overhead Ring Main Line Related Items.	--		

Part C : Bill of Quantities

Tender Specification for Package-A for Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification)

at 1x800 MW Singareni Thermal Power Project - Stage II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2.3.1	Supply of ACSR Raccoon conductors as per IS:398/1961 (To meet 1.5Km of 3 phase line)	Meters	5,000	.0117783
2.3.2	Supply of 9.1m long 280kg working load pre-stressed cement concrete poles (PSCC) as per IS:1678.	Nos.	70	.0078195
2.3.3	Pole ISMB-250 11 m for 11kV Height for Overhead line two/four pole steel structure at Sub Station.	Nos.	24	.0096582
2.3.4	ISMC-100 for cross beam for Overhead line two/four pole steel structure at Sub Station.	MT	4	.0073848
2.3.5	ISMC-75 for cross beam for Overhead line two/four pole steel structure at Sub Station.	MT	1	.0018462
2.3.6	Supply of 11kV 'V' Cross arms/Straight Arm with suitable back clamps including supply of necessary fasteners as per IE specification.	Nos.	60	.001981
2.3.7	Supply of 11kV GI stay (7/3.15mm) sets with Guy, Bow, Stay Rod, wire etc. as per I.E. Specifications.	Sets	15	.0008448
2.3.8	Supply of 11kV top fittings (I Clamp) with suitable back clamps including supply of necessary fasteners as per IE specification.	Nos.	60	.0007193
2.3.9	Supply of 11kV disc insulator with fixing & conductor and holding clamp as per IS: 3188/1965 & IEC 309/1969/Latest. (Each set consist of all 3 Phases).	Sets	15	.0005208
2.3.10	Supply of 11kV pin insulator with pins as per IS: 2544/1963 AMD 125 & IEC 168/1969 Latest. (Each set consist of all 3 Phases).	Sets	60	.0008192
2.3.11	Supply of 11kV 400A Air break switch-double break-horizontal mounting rotating type as per ISS/IEC Spec No.4710/1968-265-C/1970/Latest.	Nos.	15	.0068356
2.3.12	Supply of 11kV 400A Air break switch-double break-Vertical mounting rotating type as per ISS/IEC Spec No.4710/1968-265-C/1970/Latest.	Nos.	2	.0009114
2.3.13	Supply of 11kV Lightning arrester set as per ISS/IEC Spec No. IS:3070/2-1985/Latest. (Each set consist of all 3 Phases).	Sets	15	.0022169

Part C : Bill of Quantities

Tender Specification for Package-A for Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification)

at 1x800 MW Singareni Thermal Power Project - Stage II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2.3.14	Supply of 11kV HG fuse as per ISS/IEC Spec IS: 9385/Latest. (Each set consist of all 3 Phases)	Sets	10	.0021056
2.3.15	Supply of 11kV DO fuse as per ISS/IEC Latest. (Each set consist of all 3 Phases)	Sets	10	.0031175
2.3.16	Supply of out door type weather proof 630A capacity 11kV feeder Pillar box IP 55 Protection as per IS with one no. Incoming and two nos. outgoing including supply of accessories.	Nos.	2	.0033964
2.3.17	Supply and fixing of anti climb device (barbed wire) roled on the poles at 2m height as per I.E. specification and numbering of poles.	Sets	60	.001949
2.4	Common Items	--		
2.4.4	Supply of 5Cx2.5sqmm LT Power Cable along with double compression type brass cable glands and required number of termination lugs of reputed make suitable for CT and PT Wiring from VCB's to Control Panels.	Meters	250	.0027927
2.4.5	Supply of 3Cx2.5sqmm LT Power Cable along with double compression type brass cable glands and required number of termination lugs of reputed make suitable for extending AC/DC control supply to VCB's and Xmers.	Meters	250	.0020741
2.4.6	Supply of 7C/9C/10Cx1.5sqmm LT Control Cable along with double compression type brass cable glands and required number of termination lugs of reputed make suitable for extending alarm, annunciation and protection VCB's and Xmers.	Meters	1,000	.0081016
2.4.7	Supply of 1Cx10sqmm LT Control Cable along with double compression type brass cable glands and required number of termination lugs of reputed make suitable for earthing of high mast lightning arrangements.	Meters	600	.0023837
2.4.8	Supply of 65x10 mm GI earth flat.	Meters	250	.0031257
2.4.9	Supply of 50x6 mm GI earth flat.	Meters	300	.001928
2.4.10	Supply of 25x3 mm GI earth flat.	Meters	350	.0009128

Part C : Bill of Quantities

Tender Specification for Package-A for Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification)

at 1x800 MW Singareni Thermal Power Project - Stage II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2.4.11	Supply of Earth Conductor (Conductor size 25mm squirrel Aluminium conductor)	Meters	1,500	.0003786
2.4.12	Supply of Required MS/GI/Nickel cadmium fasteners/anchor fasteners for erection of all supply materials and completion of entire works covered under this package (M6 to M16).	kg	50	.0003155
2.4.13	Supply of Heat shrink type HT Indoor termination kits of reputed make suitable for 11kV 3Cx95 sqmm(AL) XLPE insulated Armored Cables.	Nos.	12	.0009273
2.4.14	Supply of Heat shrink type HT Outdoor termination kits of reputed make suitable for 11kV 3Cx95 sqmm (AL) XLPE insulated Armored Cables.	Nos.	12	.0009722
2.4.15	Supply of Heat shrink type HT straight through jointing kits of reputed make for 11kV 3Cx95 sqmm (AL) XLPE insulated Armored Cables.	Nos.	5	.0006699
2.4.16	Supply of Heat shrink type HT Outdoor termination kits of reputed make suitable for 11kV 3Cx185 sqmm(AL) XLPE insulated Armored Cables.	Nos.	20	.0021936
2.4.17	Supply of Heat shrink type HT straight through jointing kits of reputed make for 11kV 3Cx185 sqmm (AL) XLPE insulated Armored Cables.	Nos.	8	.0014707
2.4.18	Supply of 200mm dia RCC hume pipes for make use of cable crossing where ever required such as existing culverts, trenches and road etc for HT Cables.	Meters	200	.0057957
2.4.19	Supply of 150mm NB 4.8mm thick medium class GI pipes for make use of cable crossing where ever required such as existing culverts, trenches and road etc for for LT Cables.	Meters	200	.0053283
2.4.20	Supply of 33kV, 11kV and 440 V danger board of standard size.	Nos.	40	.0003739
2.4.21	Supply of Fire Buckets with stand floor mounted type of rigid & good quality-4 nos. 10 ltr capacity Fire buckets per stand-Type & make shall be approved by BHEL/ Engineer.	Sets	9	.000673
2.4.22	Supply of Aluminium alloy 5kg CO2 fire extinguisher industrial type with ISI Mark of reputed make. Type & make shall be approved by BHEL/ engineer.	Nos.	9	.0013741
2.4.23	Supply of HT cable route markers standard size with 1m height angle support.	Nos.	100	.0009348

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Tender Specification for Package-A for Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification)

at 1x800 MW Singareni Thermal Power Project - Stage II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2.4.24	Supply of LT cable route markers standard size with 1m height angle support.	Nos.	190	.0016429
2.4.25	Supply of Griddle Guards of length 15m, with 8SWG GI Wire for Road crossing with necessary fixing arrangement etc, as per IS Specification.	Sets	8	.0016452
2.4.26	Supply of Double compression type brass cable glands of reputed make for 3.5C x 185 Sq. mm LT cable	Nos.	60	.0014392
2.4.27	Supply of Double compression type brass cable glands of reputed make for 3.5C x 95 Sq. mm LT cable	Nos.	100	.0018696
2.4.28	Supply of Double compression type brass cable glands of reputed make for 3.5C x 70 Sq. mm LT cable	Nos.	120	.0019294
2.4.29	Supply of Double compression type brass cable glands of reputed make for 3.5Cx35 Sq. mm LT cable	Nos.	150	.0014022
2.4.30	Supply of Double compression type brass cable glands of reputed make for 3.5Cx25 Sq. mm LT cable	Nos.	150	.0013846
2.4.31	Supply of Double compression type brass cable glands of reputed make for 4C x 16 Sq. mm LT cable	Nos.	150	.000943
2.5	FOR AREA LIGHTING Related Items.	--		
2.5.1	For Contruction Power Supply Area & its Route	--		
2.5.1.1	Supply of steel tubular swaged poles, 9 mtr long made of sheet steel having ultimate tensile strength 42 kg F/sq. mm conforming to BIS: 2713 (part-II) complete with 300x300x6 mm thick MS base plate for welding at site and size as per configuration given in BIS for 410 SP-28 (113 kg- pole weight) .	Nos.	48	.0178358
2.5.1.2	Supply of Electrical junction box (GI/PVC)of good quality to suit the opening availabe in above lighting pole, one connector block for 3 Phase 4 wire incoming and outgoing cable to next street light pole with 01 no. 6A SP MCB for street light and earthing etc.	Nos.	51	.0018355

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Tender Specification for Package-A for Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification)

at 1x800 MW Singareni Thermal Power Project - Stage II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2.5.1.3	Supply of 90W LED street light fitting of make Philips/CGL/Bajaj/Havells only.	Nos.	58	.0050047
2.5.1.4	Supply of 2Cx2.5sqmm size Armoured copper PVC/XLPE insulated cable confirming to IS 1554 (Part-I)/ IS 7098 (part-I) respectively flexible cable of reputed make.	Meters	8,700	.0357837
2.5.1.5	Supply of 50mm NB 3.6mm thick medium class standard GI pipe for incoming and outgoing cables.	Meters	126	.0015724
2.5.1.6	Supply of out door type metal clad Lighting distribution board (LDB) having IP-55 protection with double door type and one incomer with 100A TPN MCCB additionally with 3 nos. 32 A TPN ELCBs with 30mA tripping and timer & contactors for auto on/off street lights and 3 indicating lamps with fuse for indication bus supply ON, Digital Voltmeter & VSS 0-500V etc. Suitable busbar arrangement for Phase and Neutral. Sufficient space should be provided in the removable cable gland plate to accommodate incoming power cable and all outgoing cables.	Nos.	7	.007476
2.5.2	For Open Storage Yard	--		
2.5.2.1	Supply of steel tubular swaged poles, 9 mtr long made of sheet steel having ultimate tensile strength 42 kg F/sq. mm conforming to BIS: 2713 (part-II) complete with 300x300x6 mm thick MS base plate for welding at site and size as per configuration given in BIS for 410 SP-28 (113 kg- pole weight) .	Nos.	186	.0643322
2.5.2.2	Supply of weather proof LED street light fitting 150 watt of Bajaj, Crompton, Philips or equivalent make, complete with one piece of appropriate driver (integral/non-integral) and suitable for directly slipping over light mounting bracket made out of 40 mm OD pipe and suitable for lamps, JB, cabling & termination of items supplied (To be mounted on 9 mtr pole - Item No.2.5.2.1).	Nos.	205	.0450335

Part C : Bill of Quantities

Tender Specification for Package-A for Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification)

at 1x800 MW Singareni Thermal Power Project - Stage II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2.5.2.3	Supply of 3-Phase metering and power distribution board complete with: (1) Incoming SFU TPN 400 Amps - 1no, (2) Outgoing SFU TPN 200 Amps -1nos. (3) Outgoing SFU TPN 63 Amps -1nos. (4) Outgoing SFU TPN 32 Amps -7nos. 3 Phase Electronic Energy Meter - BHEL / L&T / GEC make. Ammeter, Voltmeter and Selector Switches for both - AE and Kaycee make. Phase indication lamps, HRC fuses for IC and OG feeders, cable glands, power terminals for cables termination, cable lugs and provision for doubly earthing the panel enclosure. Panel enclosure shall be made of sheet metal thichnness not less than 1.6 mm and suitable for out door installation, modular construction, hinged door with locking arrangement, base frame, should have slopped canopy, duly painted with first coat of primer and two coats of synthetic enamel paint (interior with white paint and exterior with light grey as per shade 5, is 630) internal power distribution to devices shall be with al busbars or copper flexible single core PVC cables of 1.1 kV grade, control wiring with 1.5 sqmm, suitable stool made out of MS structure of 1.2 meter high for mounting of panel with anchoring arragement at foundation, suitable for bottom entry of cables.	Nos.	1	.0046739
2.5.2.4	Supply of 415 Volt AC, 3 phase/four wire power feeder pillar board, board shall be comprises of three number and one number aluminium bus bar for phase & neutral respectively. Bus bar rating shall be 200 amps and shall be mounted on epoxy insulator of 1.1 kV grade, each bus bar shall have drilled hole for connecting incoming /outgoing cables, provision for earthing the panel enclosure. Panel enclosure shall be made of sheet metal thichnness not less than 1.6 mm and suitable for out door installation, hinged door with locking arrangement, base frame, should have slopped canopy, duly painted with first coat with primer and two coats of synthetic enamel paint (interior with white paint and exterior with smoke grey as per IS), suitable stool made out of MS structure of 1.2 meter high for mounting of panel with anchoring arrangement at foundation .	Nos.	6	.0087777

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Tender Specification for Package-A for Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification)

at 1x800 MW Singareni Thermal Power Project - Stage II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2.5.2.6	Supply of out door type metal clad Lighting distribution board (LDB) having IP-55 protection with double door type and one incomer with 100A TPN MCCB additionally with 3 nos. 32 A TPN ELCBs with 30mA tripping and timer & contactors for auto on/off street lights and 3 indicating lamps with fuse for indication bus supply ON, Digital Voltmeter & VSS 0-500V etc. Suitable busbar arrangement for Phase and Neutral. Sufficient space should be provided in the removable cable gland plate to accommodate incoming power cable and all outgoing cables.	Nos.	6	.0166299
2.5.2.7	Supply of 400W LED flood light luminaires of Bajaj, Crompton, Phillips or equivalent, with appropriate JB integral/ non integral type including cables for interconnection. (These fitting shall be mounted on lighting mast /tower, on each tower 12 such fitting shall be mounted).	Nos.	72	.0165121
2.5.2.8	Supply of 2Cx6 sqmm Aluminium Armoured PVC/XLPE insulated cable confirming to IS 1554 (Part-I)/ IS 7098 (part-I) respectively along with double compression type brass cable glands, required nos of termination lugs, Jointing kits, Straight throughs and suitable glands.	Meters	18,600	.0925862
3.0	Erection, Testing and Commissioning BOQ Items.	--		
3.1	33kV Supply Handling Items	deleted		
3.2	33kV/11kV Substation Related Items.	--		
3.2.1	Erection, testing and commissioning of 2kVA 230V 1 phase sine wave UPS of reputed make with 2 nos. of exide make 150AH 12V tubuler lead acid batteries.	Sets	2	.0002025
3.2.2	Erection, testing and commissioning of Current transformers as per IS:2705 with Highest system voltage 36KV, Insulation level of 70/170KV, ratio: 100-50-25/5-5 Amps, rated short time thermal current Ith:25KA for 3sec with 02 cores. Core I: VA: 15, class : 5P10 Core II: VA: 5, class: 0.2S in existing 33KV sub-station.	Nos.	8	.0059827

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Tender Specification for Package-A for Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification)

at 1x800 MW Singareni Thermal Power Project - Stage II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
3.2.3	Erection, testing and commissioning of Potential transformers as per IS:3156/1992 type: Outdoor with Highest system voltage 36KV, Insulation level of 70/170KV, burden '50VA-100VA' ratio: 33KV/√3/110V/√3-110V/√3, Conn: Star/Star-Delta	Nos.	8	.0059827
3.2.4	Erection, testing and commissioning, including oil filtration and submission of oil test report of 33kV/11kV, 5MVA oil filled outdoor transformer as per BHEL Technical Specifications.	Nos.	2	.0057396
3.2.5	Erection, testing and commissioning of 11KV Switchgear panel consisting of 2 Incomers, 1 Bus coupler and 4 Outgoing feeders in existing 33KV Sub station control room	Set	1	.0074783
3.2.6	Erection & earthing of Lightning arrestor set suitable for 33kV as per ISS/IEC Spec No. IS:3070/2-1985/Latest. (Each set consist of all 3 Phases).	Sets	2	.0002
3.3	11kV Overhead Ring Main Line Related Items.	--		
3.3.1	Stringing of ACSR Raccoon conductors as per IS:398/1961/latest (To meet 1.5KM of 3 phases/lines)	Meters	5,000	.0025866
3.3.2	Erection of 9.1 m long 280kg working load pre-stressed cement concrete poles (PSCC). The erection includes excavation of earth of size 1x1x1.8m depth, grouting with concrete of ratio 1:4:8 for size of 1x1x1.8m depth including supply of cement, sand, metal etc. for the foundation and coping of poles by 1 feet height.	Nos.	70	.007416
3.3.3	Erection of Pole ISMB-250 11 m Height for 11kV Overhead line two/four/six/eight pole steel structure at Sub Station. The erection includes excavation of earth of size 1x1x1.8m depth, fasteners, foundation bolt, grouting with concrete of ratio 1:4:8 for size of 1x1x1.8m depth including supply of cement, sand, metal etc for the foundation and coping of poles by 1 feet height.	Nos.	24	.0035896
3.3.4	Erection of ISMC-100 for cross beam for Overhead line two/four/six/eight pole steel structure at Sub Station.	MT	4	.0020067
3.3.5	Erection of ISMC-75 for cross beam for Overhead line two/four/six/eight pole steel structure at Sub Station.	MT	1	.0005017

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Tender Specification for Package-A for Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification)

at 1x800 MW Singareni Thermal Power Project - Stage II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
3.3.6	Erection of 11kV Cross arms/Straight Arm with suitable back clamps including erection of necessary fasteners as per IE specification.	Nos.	60	.000624
3.3.7	Erection of 11kV GI stay (7/3.15mm) sets with Guy, Bow, Stay Rod, wire etc. as per I.E. Specifications. (Each set consist of all 3 Phases).	Sets	15	.0007992
3.3.8	Erection of 11kV top fittings (I Clamp) with suitable back clamps including erection of necessary fasteners as per IE specification.	Nos.	60	.0002888
3.3.9	Erection of 11kV disc insulator with fixing & conductor and holding clamp as per IS: 3188/1965 & IEC 309/1969/Latest. (Each set consist of all 3 Phases).	Sets	15	.0002126
3.3.10	Erection of 11kV pin insulator with pins as per IS: 2544/1963 AMD 125 & IEC 168/1969 Latest. (Each set consist of all 3 Phases).	Sets	60	.0004978
3.3.11	Erection of 11kV 400A Air break switch-double break-horizontal mounting rotating type as per ISS/IEC Spec No.4710/1968-265-C/1970/Latest.	Nos.	15	.0046973
3.3.12	Erection of 11kV 400A Air break switch-double break-vertical mounting rotating type as per ISS/IEC Spec No.4710/1968-265-C/1970/Latest.	Nos.	2	.0006263
3.3.13	Erection of 11kV Lightning arrestor set as per ISS/IEC Spec No. IS:3070/2-1985/Latest. (Each set consist of all 3 Phases).	Sets	15	.001262
3.3.14	Erection of 11kV HG fuse as per ISS/IEC Spec IS: 9385/Latest. (Each set consist of all 3 Phases)	Sets	10	.0014489
3.3.15	Erection of 11kV DO fuse as per ISS/IEC Latest. (Each set consist of all 3 Phases)	Sets	10	.0035522
3.3.16	Erection, testing and commissioning of out door type weather proof 630A capacity 11kV Pillar box IP 55 Protection as per IS with one no. Incoming and two nos. outgoing.	Nos.	2	.0008413
3.3.17	Erection and fixing of anti climb device (barbed wire) roled on the poles at 2m height as per I.E. specification and numbering of poles.	Sets	70	.0020939

Part C : Bill of Quantities

Tender Specification for Package-A for Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification)

at 1x800 MW Singareni Thermal Power Project - Stage II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
3.3.18	Laying and Termination of 11kV 3Cx95sqmm Armoured HT Cable along with double compression type brass cable glands and required number of termination lugs of reputed make suitable for Inteconnection of OH line with respective PSS. (Cable supply by BHEL as free issue)	Meters	400	.0007721
3.3.19	Laying and Termination of 11kV 3Cx185sqmm Armoured HT Cable along with double compression type brass cable glands and required number of termination lugs of reputed make suitable (for Interconnection of Ring Main System). (Cable supply by BHEL as free issue)	Meters	2,500	.0070577
3.3.20	Erection, testing and commisioning, including oil filtration (if required) and submission of oil test report of 500kVA, 11kV/0.440kV Package Substations as per BHEL Technical Specifications.	Nos.	6	.0145307
3.3.21	Erection, testing and commisioning, including oil filtration (if required) and submission of oil test report of 250kVA, 11kV/0.440kV Package Substations as per BHEL Technical Specifications.	Nos.	2	.0044697
3.3.22	Overhead Laying and Installation of HT & LT cables on poles including supply and installation of poles and all other accessories. HT Cable supply, laying and termination is excluded here and paid separately.	Meters	250	.0018462
3.4	Common Items	--		
3.4.1	Laying of 3.5Cx185sqmm LT Power Cable(Cable supply by BHEL as free issue)	Meters	500	.0010049
3.4.2	Laying of 3.5Cx70sqmm LT Power Cable (Cable supply by BHEL as free issue)	Meters	3,300	.0046272
3.4.3	Laying of 3.5Cx25sqmm LT Power Cable (Cable supply by BHEL as free issue)	Meters	3,900	.003828
3.4.4	Laying and termination of 5Cx2.5sqmm LT Power Cable along with double compression type brass cable glands and required number of termination lugs of reputed make suitable for CT and PT Wiring from VCB's to Control Panels.	Meters	250	.000208

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at 1x800 MW Singareni Thermal Power Project - Stage II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
3.4.5	Laying and termination of 3Cx2.5sqmm LT Power Cable along with double compression type brass cable glands and required number of termination lugs of reputed make suitable for extending AC/DC control supply to VCB's and Xmers.	Meters	250	.0001542
3.4.6	Laying and termination of 7C/9C/10Cx1.5sqmm LT Control Cable along with double compression type brass cable glands and required number of termination lugs of reputed make suitable for extending alarm, annunciation and protection VCB's and Xmers.	Meters	1,000	.0007619
3.4.7	Laying of 1Cx10sqmm LT Control Cable along with double compression type brass cable glands and required number of termination lugs of reputed make suitable for earthing of high mast lighting arrangements.	Meters	600	.0003842
3.4.8	Erection of 65 x 10 mm GI earth flat.	Meters	250	.0006368
3.4.9	Erection of 50 x 6 mm GI earth flat.	Meters	300	.0005118
3.4.10	Erection of 25 x 3 mm GI earth flat.	Meters	350	.0004499
3.4.11	Laying and Stringing of Earth Conductor (Conductor size 25mm squirrel Aluminium conductor)	Meters	1,500	.0005609
3.4.12	Erection of Required MS/GI/Nickel cadmium fasteners/ anchor fasteners for erection of all Erection materials and completion of entire works covered under this package (M6 to M16).	kg	50	.0001698
3.4.13	Erection of Heat shrink type HT Indoor termination kits of reputed make suitable for 11kV 3Cx95 sqmm Cables.	Nos.	12	.0007852
3.4.14	Erection of Heat shrink type HT Outdoor termination kits of reputed make suitable for 11kV 3Cx95 sqmm Cables.	Nos.	12	.0007852
3.4.15	Erection of Heat shrink type HT straight through jointing kits of reputed make for 11kV 3Cx95 sqmm sqmm Cables.	Nos.	5	.0003973
3.4.16	Erection of Heat shrink type HT Indoor/Outdoor termination kits of reputed make suitable for 11kV 3Cx185 sqmm Cables.	Nos.	20	.0014333

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at 1x800 MW Singareni Thermal Power Project - Stage II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
3.4.17	Erection of Heat shrink type HT straight through jointing kits of reputed make for 11kV 3Cx185 sqmm Cables.	Nos.	8	.0007104
3.4.18	Erection of 200 mm dia RCC hume pipes for make use of cable crossing where ever required such as existing culverts, trenches and road etc for HT Cables.	Meters	200	.0013087
3.4.19	Erection of 150mm NB 4.8mm thick medium class GI pipes for make use of cable crossing where ever required such as existing culverts, trenches and road etc for for LT Cables.	Meters	200	.0016359
3.4.20	Erection of 33kV, 11kV and 440V danger board of standard size.	Nos.	40	.0003365
3.4.21	Erection of Fire Buckets with stand floor mounted type of rigid & good quality-4 nos. 10 liter capacity Fire buckets per stand-Type & make shall be approved by BHEL/ Engineer.	Sets	9	.0005048
3.4.22	Erection of Aluminium alloy 5kg CO2 fire extinguisher industrial type with ISI Mark of reputed make. Type & make shall be approved by BHEL/ engineer.	Nos.	9	.0001851
3.4.23	Erection of HT cable route markers standard size with 1m height angle support.	Nos.	100	.0010049
3.4.24	Erection of LT cable route markers standard size with 1m height angle support.	Nos.	190	.0017761
3.4.25	Erection and fixing of Griddle Guards of length 15m, with 8 SWG GI Wire for Road crossing with necessary fixing arrangement etc, as per IS Specification.	Sets	8	.0025501
3.4.26	Making end termination of 3.5Cx185 sq.mm LT Power cable including supply of Aluminium lugs	Nos.	30	.0005609
3.4.27	Making end termination of 3.5Cx95 sq.mm LT Power cable including supply of Aluminium lugs	Nos.	50	.0007478
3.4.28	Making end termination of 3.5Cx70 sq.mm LT Power cable including supply of Aluminium lugs	Nos.	60	.0007852
3.4.29	Making end termination of 3.5Cx35 sq.mm LT Power cable including supply of Aluminium lugs	Nos.	75	.0004207

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
3.4.30	Making end termination of 3.5Cx25 sq.mm LT Powercable including supply of Aluminium lugs	Nos.	75	.0006544
3.4.31	Making end termination of 4Cx16 sq.mm LT Power cable including supply of Aluminium lugs	Nos.	75	.000631
3.4.32	Laying of 4Cx16 sqmm LT Power Cable (Cable supply by BHEL as free issue)	Meters	1,000	.0014022
3.5	FOR AREA LIGHTING Related Items.	--		
3.5.1	For Contruction Power Supply Area & its Route	--		
3.5.1.1	Installation/Erection of steel tubular swaged poles, 9 mtr long made of sheet steel having ultimate tensile strength 42 kg F/sq. mm conforming to BIS: 2713 (part-II) complete with 300x300x6 mm thick MS base plate for welding at site and size as per configuration given in BIS for 410 SP-28 (113 kg- pole weight) with 1.5 mtr deep exacavation, concreting in 1:4:8 ratio size 45 cms x 45 cms x 150 cms and pole plinth in 1:3:6 cement concreting having 300 mm height and 300 mm dia including double earthing of pole with suitable arrangement, duly painted with two coats of red oxide paint and one coat of aluminium paint to be applied after erection; the length of pole below ground to be painted with two coats of black bituminus paint. the pole shall be complete with JB, fuse and minor fabrication as below : i) Driling 20 mm dia hole at about 2.5 mtr from ground level for wire leads from junction box to light fixture. ii) Driling 15mm dia holes at about 0.7 and at 2.5 mtr from ground level and welding 12 mm nuts for using a 12 mm GI bolt for fastening earth conducters. iii) Welding required holes for fixing pole cap of street light bracket. iv) Welding diametrally 10 mm MS round 30 mm below pole top edge for clipping wire leads .	Nos.	48	.0111053
3.5.1.2	Erection of Electrical junction box (GI/PVC)of good quality to suit the opening availabe in above lighting pole, one connector block for 3 Phase 4 wire incoming and outgoing cable to next street light pole with 01 no. 6A SP MCB for street light and earthing et3.	Nos.	51	.0011001

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
3.5.1.3	Erection of 90W LED street light fitting of make Philips/CGL/Bajaj/Havells only.	Nos.	58	.0006506
3.5.1.4	Cable Laying and Termination of 2Cx2.5sqmm size copper PVC/ XLPE insulated cable confirming to IS1554 (Part-I)/ IS 7098 (part-I) respectively insulated flexible cable of reputed make.	Meters	8,700	.0040257
3.5.1.5	Erection of 50mm NB 3.6mm thick medium class standard GI pipe for incoming and outgoing cables.	Meters	126	.0004122
3.5.1.6	Erection, testing and commissioning of out door type metal clad Lighting distribution board (LDB) having IP-55 protection with double door type and one incomer with 100A TPN MCCB additionally with 3 nos. 32 A TPN ELCBs with 30mA tripping and timer & contactors for auto on/off street lights and 3 indicating lamps with fuse for indication bus supply ON, Digital Voltmeter & VSS 0-500V et3. Suitable busbar arrangement for Phase and Neutral. Sufficient space should be provided in the removable cable gland plate to accommodate incoming power cable and all outgoing cables.	Nos.	7	.0009161
3.5.1.7	Erection, Earthing and Charging of High Mast (30 Meters) along with its Accessories.(High Masts Lights consisting of Mast shaft in multiple sections, head frame, steel wire rope, double drum winch, galvanized lantern carriage, luminaires and their control gear boxes, aviation obstruction lights, control/feeder panel etc. complete with all other accessories and interconnecting cables) (Excluding Civil Works) (Supply of Highmast by BHEL)	Sets	12	.0295393
3.5.1.8	Erection, Earthing and Charging of High Mast (20 Meters) along with its Accessories.(High Masts Lights consisting of Mast shaft in multiple sections, head frame, steel wire rope, double drum winch, galvanized lantern carriage, luminaires and their control gear boxes, aviation obstruction lights, control/feeder panel etc. complete with all other accessories and interconnecting cables) (Excluding Civil Works) (Supply of High Mast by BHEL)	Sets	6	.0127131
3.5.2	For Open Storage Yard	--		

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
3.5.2.1	Installation/Erection of steel tubular swaged poles, 9 mtr long made of sheet steel having ultimate tensile strength 42 kg F/sq. mm conforming to BIS: 2713 (part-II) complete with 300x300x6 mm thick MS base plate for welding at site and size as per configuration given in BIS for 410 SP-28 (113 kg- pole weight) with 1.5 mtr deep excavation, concreting in 1:4:8 ratio size 45 cms x 45 cms x 150 cms and pole plinth in 1:3:6 cement concreting having 300 mm height and 300 mm dia including double earthing of pole with suitable arrangement, duly painted with two coats of red oxide paint and one coat of aluminium paint to be applied after erection; the length of pole below ground to be painted with two coats of black bituminous paint. the pole shall be complete with JB, fuse and minor fabrication as below : i) Drilling 20 mm dia hole at about 2.5 mtr from ground level for wire leads from junction box to light fixture. ii) Drilling 15mm dia holes at about 0.7 and at 2.5 mtr from ground level and welding 12 mm nuts for using a 12 mm GI bolt for fastening earth conductors. iii) Welding required holes for fixing pole cap of street light bracket. iv) Welding diametrically 10 mm MS round 30 mm below pole top edge for clipping wire leads .	Nos.	186	.043033
3.5.2.2	Installation/Erection & Commissioning of LED street light fitting 150 watt of Bajaj, crompton, Philips or equivalent make, complete with one piece of appropriate driver (integral/non-integral) and suitable for directly slipping over light mounting bracket made out of 40 mm OD pipe and suitable for lamps, JB, cabling & termination of items supplied .	Nos.	205	.0033855

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
3.5.2.3	<p>Providing suitable foundation for mounting AC distribution board as specified and Installation/Erection and Commissioning of 3-Phase metering and power distribution board complete with:</p> <p>(1) Incoming SFU TPN 400 Amps - 1no, (2) Outgoing SFU TPN 200 Amps -1nos. (3) Outgoing SFU TPN 63 Amps -1nos. (4) Outgoing SFU TPN 32 Amps -7nos. 3 Phase Electronic Energy Meter - BHEL / L&T / GEC make. Ammeter, Voltmeter and Selector Switches for both - AE and Kaycee make. Phase indication lamps, HRC fuses for IC and OG feeders, cable glands, power terminals for cables termination, cable lugs and provision for doubly earthing the panel enclosure. Panel enclosure shall be made of sheet metal thichnness not less than 1.6 mm and suitable for out door installation, modular construction, hinged door with locking arrangement, base frame, should have slopped canopy, duly painted with first coat of primer and two coats of synthetic enamel paint (interior with white paint and exterior with light grey as per shade 5, is 630) internal power distribution to devices shall be with al busbars or copper flexible single core PVC cables of 1.1 kV grade, control wiring with 1.5 sqmm, suitable stool made out of MS structure of 1.2 meter high for mounting of panel with anchoring arragement at foundation, suitable for bottom entry of cables.</p>	Nos.	1	.0007712

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
3.5.2.4	Providing suitable foundation for mounting 415 Volt AC power feeder pillar board and Installation/Erection and Commissioning of 415 Volt AC, 3 phase/four wire power feeder pillar board, board shall be comprises of three number and one number aluminium bus bar for phase & neutral respectively. Bus bar rating shall be 200 amps and shall be mounted on epoxy insulator of 1.1 kV grade, each bus bar shall have drilled hole for connecting incoming /outgoing cables, provision for earthing the panel enclosure. Panel enclosure shall be made of sheet metal thichnness not less than 1.6 mm and suitable for out door installation, hinged door with locking arragement, base frame, should have slopped canopy, duly painted with first coat with primer and two coats of synthetic enamel paint (interior with white paint and exterior with smoke grey as per IS), suitable stool made out of MS structure of 1.2 meter high for mounting of panel with anchoring arragement at foundation .	Nos.	6	.0036457
3.5.2.6	Erection, testing and commissioning of out door type metal clad Lighting distribution board (LDB) having IP-55 protection with double door type and one incomer with 100A TPN MCCB additionally with 3 nos. 32 A TPN ELCBs with 30mA tripping and timer & contactors for auto on/off street lights and 3 indicating lamps with fuse for indication bus supply ON, Digital Voltmeter & VSS 0-500V et3. Suitable busbar arrangement for Phase and Neutral. Sufficient space should be provided in the removable cable gland plate to accommodate incoming power cable and all outgoing cables.	Nos.	6	.0009348
3.5.2.7	Erection & Commissioning of 400W LED flood light luminiaries of Bajaj, Crompton, Phillips or equivalent, with appropriate JB integral/ non itegral type including cables for interconnection. (These fitting shall be mounted on lighting mast /tower, on each tower 12 such fitting shall be mounted).	Nos.	72	.0012564

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
3.5.2.8	Cable Laying and Termination of 2Cx6 sqmm Aluminium Armoured PVC/XLPE insulated cable confirming to IS 1554 (Part-I)/ IS 7098 (part-I) respectively along with double compression type brass cable glands, required nos of termination lugs, Jointing kits, Strainght throughs and suitable glands and including laying of cable below ground, excavation of trench of 600 mm depth in all kind of soil, termination of cables cores with crimp type lugs, providing sand layer below/ above the cable, brick laying both side /above the cable and back filling etc complete. Cables are to be laid from 415 Volt AC power feeder pillar board to lighting poles & pole to pole. Rate is inclusive of all civil works complete.	Meters	18,600	.0882394
3.5.2.9	Cable Laying of 3.5CX35 sqmm Al armoured PVC/XLPE insulated cable confirming to IS 1554 (Part-I)/ IS 7098 (part-I) respectively including laying of cable below ground, excavation of trench of 600 mm depth in all kind of soil, providing sand layer below/ above the cable, brick laying both side /above the cable and back filling etc. Cables are to be laid from transformer sub station to 415 Volt AC distribution board to store yard & sheds. (Cable will be supplied by BHEL) Rate is inclusive of all civil works complete.	Meters	2,201	.0118819
3.5.2.10	Cable Laying and Termination of 3.5CX95 sqmm Aluminium Cable Armoured PVC/XLPE insulated cable confirming to IS 1554 (Part-I)/ IS 7098 (part-I) respectively including laying of cable below ground, excavation of trench of 600 mm depth in all kind of soil providing sand layer below/ above the cable, brick laying both side/above the cable and back filling etc complete. Cables are to be laid from 415 Volt AC distribution board to feeder pillar board, feeder pillar board to lighting mast / tower & for sheds. (Cable will be supplied by BHEL) Rate is inclusive of all civil works complete.	Meters	2,100	.0122102

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
3.5.2.11	Cable Laying and Termination of 3.5CX185 sqmm aluminium armoured PVC/XLPE insulated cable confirming to IS 1554 (Part-I)/ IS 7098 (part-I) respectively including laying of cable below ground, excavation of trench of 600 mm depth in all kind of soil, providing sand layer below/ above the cable, brick laying both side /above the above the cable and back filling etc. Cables are to be laid from transformer sub station to 415 Volt AC distribution board. (Cable will be supplied by BHEL) Rate is inclusive of all civil works complete.	Meters	2,522	.0165617
4.0	SUPPLY & ERECTION PORTION OF BOM FOR CIVIL RELATED WORKS.	--		
4.1	For 33kV/11kV Substation Related Civil Works	--		
4.2	For Package Substation (PSS) Related Civil Works	--		
4.2.1	Leveling of substation yard, supply and spreading of 40mm size stone aggregate of 75mm thick for an area of size 8m x 6m, supply and construction of Brick work with cement mortar 1:6 of 230 mm thick and 450 mm height all-round the substation yard, plastering the brick work in CM 1:6, white washing etc complete. (Per Sub Station). Tentative detail as specified under and may vary as per site conditions..	--		
4.2.1 a	Excavation (8x6x0.300) -Eartwork Excavation rate is including the necessary side supports and dewatering arrangements etc.,.	CUM	115	.0004873
4.2.1 b	Backfilling (8x6x0.4)-Earthwork	CUM	154	.0006286
4.2.1 c	Brickwork (8x2+6x2)x0.230	CUM	20	.0036457
4.2.1 d	PCC M10 (1:3:6)	CUM	38	.0070142
4.2.1 e	Plastering the brick work 12mm thk	SQM	101	.0005199

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
4.2.2 f	Paint white wash	SQM	101	.000236
4.2.2	Supply and construction of foundation as per supplier foundation drawing for 500kVA/250kVA. Package Substation. Appx size 4400 mm x 4400 mm x500 mm height (size may slightly vary as per new order of PSS) from ground level and including excavation of plinth pit and base concreting and plastering, white washing etc. as per the instruction of BHEL site engineer. (Per Sub Station). Tentative detail as specified under and may vary as per site conditions..	--		
4.2.2 a	RCC M20 (1:1.5:3)	CUM	77	.0111567
4.2.2 b	Reinforcement	MT	9	.0172469
4.2.2 c	Shuttering	SQM	70	.0007032
4.2.3	Supply and fixing of 3.15mm GI chain linked wire fencing height 2m for the substation of size 8m x 6m including grouting of 3m height ISA 75 fabricated posts at an interval of 1.5m (2m vertical 0.5m slanting, 0.5m grouting) and three runs of barbed wire along with the fencing on the slanting angle post, fixing of mesh with post by 50x6mm MS flat with fasteners (2 nos./post) and earthing of fencing by 8 SWG GI wire and providing finish aluminum painting of all steel materials etc. Supplied structural steel materials are used for fencing posts. (Per Sub Station) (Earthing flat supply and erection is paid separately).	Meters	280	.0118045
4.2.4	Supply and installation of 1m x 2m height MS gate made of MS Angle, channel/rolled sections including supply and fixing of hinges, locking arrangement etc including providing finish aluminum painting etc. (Per Sub Station)	Nos.	8	.0041505

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
4.2.5	Supply and Erection of 3m long 50mm dia 3.6 mm thick medium class GI funnel type earth electrode with filling of bentonite earthing powder as per standard, four side brick work chamber with cement plastering, white washing and removable type RCC/ cast iron cover plate. Scope includes supply of required betonite eathing powder, cement, brick, sand, RCC/cast iron cover plate. Minium 06 earthpits per sub station. Sub station earthing shall be carried out by using supplied 50X6, 25X6 and 25x3 mm earth flats.	Nos.	48	.0189575
4.2.6	Supply and erection One No. 5m height 3mm thick conical GI street light pole of reputed make with 40W LED street light fitting with base plate, foundation bolts and single lighting GI arm bracket with fasteners including supply all civil materials like cement, metal & sand etc for making foundation and cabling from LT panel. Supply and providing of necessary timer circuit for auto charging of lights. Make shall be approved by BHEL/ Engineer	Nos.	16	.0087496
4.2.7	Supply and installation of One No. vertical air terminations, 6m height 50 mm NB 3.6mm thick medium class GI Pipe with 1m height lightning spike on the top (total height-7m) with suitable Base plate & foundation bolts for Ligtning protection of PSS. Vertical air terminal shall be grounded with earth pits. Required civil works for lightning pole erection and grouting including supply of grouting civil materials are in the scope of Contractor. (02 sets Per Sub Station)	Sets	16	.0068427
4.2.8	Supply and Erection of 3m long 50mm dia 3.6 mm thick medium class GI funnel type earth electrode with filling of bentonite earthing powder as per standard, four side brick work chamber with cement plastering, white washing and removable type RCC/ cast iron cover plate. Scope includes supply of required betonite eathing powder, cement, brick, sand, RCC/cast iron cover plate. Minium 02 earthpits per LDB. Earthing shall be carried out by using supplied 50x6 and 25x3 mm earth flats.	Nos.	28	.0110586
4.2.9	Excavation of cable trench size 0.4 X1.0 M depth in all types soil for HT cable. After cable laying, the trench will be back filled with sand/excavated earth materials / other outside earth materials with compaction. Excavation rate is including the necessary side supports and dewatering arrangements etc.,	CUM	2,500	.0105944
4.2.10	Supply and spreading of river sand or available approved sand in cable trench of 300 mm thick for protection HT Power cable	CUM	750	.0392612

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
4.2.11	Supply and laying of red/ ash bricks in the cable trench for protection of HT Power cable	Nos.	7,000	.0012433
TOTAL Weightage				0.9999997