

TENDER DOCUMENT

FOR

Tender Document for the Supply Installation Testing & commissioning of HT works at Lab Complex at Karaikal, Puducherry.

**PART-III
PRICE BID**

**TENDERNO.HITES/IDS/16/09/JIPMERII/KIK07
July 2016**

HLL INFRA TECH SERVICES LIMITED

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1. COMMERCIAL CONDITIONS

- 1.1 The tendered rate shall inter alia be deemed to include for the provision of all materials , process, operation and special requirements detailed in the particular specification irrespective of whether these are mentioned in the description of equipment schedule and Bill of quantities or not. It is an express condition of the contract that the tendered rates for various items in the Bill of Quantities shall be deemed to include for the full, entire and final condition of the contractor respective items of the works in accordance with the provision of the contract.
- 1.2 The tendered rate shall include for all taxes, duties, etc. as applicable and shall be quoted on the works contract basis for the Supply, Installation, Testing & commissioning of HT works at Lab Complex.
- 1.3 The tendered rate shall remain firm and free from variation due to rise in the cost of materials/equipment labour or any other reasons whatsoever during the contract period and valid extension.
- 1.4 The quantum of excise duty included in the tendered price, the rate at which they were assumed etc. shall be indicated in the tender.

2. UNIT RATES

- 2.1 Only approved work will be measured on completion and priced as per rates quoted against the respective items.

3. BRIEF DESCRIPTION OF PRICING

- 3.1 The tenderer shall furnish duly certified breakup of material and labour separately for each item of work. The same shall be attached separately along with the price bid.

4. PRO-RATA VALUE

The detailed break up of prices for various items of equipments and materials of the full system should be provided by successful tenderers within fifteen days from the date of letter of intent to facilitate the Employer for assessment and verification and to certify payment.

5. INCOME TAX

Any payment to the contractor as per contract, will be made after deducting income tax as per the rules and regulations.

6. SALES TAX AND EXCISE DUTY

The tenderer shall clearly indicate sales tax, Excise and works contract tax and other duties as applicable in his offer for carrying out this work.

The quoted price shall be inclusive of all taxes and duties whether payable by the contractor or to be deducted at source. This shall include those applicable among VAT, Sales Tax, Income Tax, Customs Duty, Excise Duty, Turnover Tax, Service Tax, Work Contract Tax, Octroi, Labour Welfare Cess or any Other Taxes and Duties prevailing in respect of this contract. ANY BID STATING THAT TAXES ARE EXTRA WILL BE SUMMARILY REJECTED.

7. SUBMISSION OF BILL

7.1 The contractor shall from time to time prepare and submit interim bills of the work executed and on completion of the contract, he shall prepare and submit the final bill. The measurements sheets in support of the interim and final bills shall be prepared by the contractor on the basis of measurements taken by him jointly with the project engineer and the said measurement sheets shall be submitted by him with the relevant bill.

8. EXTRA ITEMS

The contractor is bound to carry out any items of work necessary for the completion of the job even though such items may not have been included in the schedule of probable quantities or rates, such items being necessary or essential for completing the job. Variation order in respect of such additional items and their quantities will be issued in writing by the Employer.

All shavings, cuttings and other rubbish as it accumulates from time to time during the progress of work and on completion including that of the sub-contractors and special tradesman and all materials condemned by the project engineer shall be cleared and removed from the site by the contractor without any extra charge.

All measuring steel taps, scaffolding, ladders instruments and tools that may be required for taking measurements shall be supplied by the contractor.

9. OVER TIME WORK

If the contractor is required to work night or on holidays in order to maintain the time schedule he shall take prior approval from the Employer. He should also provide and maintain at his own cost sufficient lights as may be necessary to enable the work to proceed satisfactorily during the night.

- 9.2 The contractor shall give full facilities to all other contractors working on site. He shall also arrange his programme of work so as not hinder the progress of other trades. The decision of the Employers on any point of dispute between the various parties shall be final and binding.
- 9.3 It is specifically pointed out that the contractor shall not be entitled to any compensation whatsoever on account of delay in procurement or supply of controlled materials and the rates quoted in the contract are fixed till the completion of the contract.
- 9.4 The contractor shall co-operate with other agencies appointed by the Employer for the work to proceed smoothly with the least possible delay and to the satisfaction.
- 9.5 The owners shall provide a source for power supply at one convenient point at site. The contractor shall at his own cost install a separate meter at the said source and lay additional cables from the said source also at his own cost. For the electricity consumed by the contractor he shall pay the owner the actual cost at the rate charged by the local authority for power for constructional purposes. The contractor shall also obtain the necessary permit for utilizing power for constructional purposes.

10. TERMS OF PAYMENT

10.1 For equipments delivered and sorted at the site for the installation, the payment will be made by the HLL in accordance of this contract.

10.2 The rate of payment for the contract value under this contract shall be regulated and detailed below:

70% after supply of materials at site in good working condition on pro-rata basis.

20% after completion of installation in all respects.

Balance 10% will be paid after testing, commissioning & handing over to the client, including all required statutory approvals.

11. SPECIAL CONDITIONS

11.1 EXECUTION WORK

11.1.1 The whole of the work as described in the contract (including bills of materials, specification and all drawings pertaining thereto) and as advised by the

Owners/Employers from time is to be carried out and completed in all parts to the entire satisfaction of the Owners/Employers. Any minor details of construction which are obviously and fairly intended, or which may not have been definitely referred to in this contract, but which are usual construction practice and essential to the work, shall be included in this contact.

11.2 MAINTENANCE & TRAINING FOR PERSONNEL

- 11.2.1 The contractor shall without any extra cost carry out for a period of 12 months after the installation is taken over by the owners, all routine and special maintenance and attend to any difficulties and defects that may arise in the operation of the System
- 11.2.2 The contractor shall associate with the Employers' staff during erection and the maintenance period, in the maintenance/operation of the system
- 11.2.3 If required, by the Employers, the contractor shall also train members of the Employers' staff at their works/service station without any extra charge.

11.3 CERTIFICATE OF COMPLETION

- 11.3.1 The contractor shall intimate to HITES in writing as and when the works are completed and put into beneficial use in order to enable HITES to check certify to the Employer to take over the plants.
- 11.3.2 The work shall not be considered as completed and put into beneficial use until HITES have certified in writing that the same has been completed and put into beneficial use.
- 11.3.3 The defects liability period of one year shall commence from date of such completion or any specific date mentioned therein.

11.4 OPERATIONAL AND MAINTENANCE MANUALS

- 11.4.1 The contractor shall also furnish the prints of all up-dated handing over along with required set of operating/maintenance manuals/instructions.

11.5 STATUTARY APPROVALS

All statutory approvals pertaining installations including electrical inspectorate & all the required approvals shall be in the scope of the supplier.

THE ABSTRACT OF BILL OF QUANTITIES IN THE PRICE BID SHALL BE INVARIABLY FILLED. THOSE WHO BIDDERS DO NOT FILL WILL BE NON-RESPONSIVE AND WILL BE DISQUALIFIED FROM EVALUATION AND WILL BE TREATED AS TECHNICALLY NOT QUALIFIED.

**ALL ROWS SHALL BE FILLED, THIS IS MANDATORY
(IF NIL OR NA, THAT MAY ALSO BE SHOWN)**

BILL OF QUANTITIES

ABSTRACT

Sl No	Name of work	Amount in Rs
1	Supply, Installation, Testing & commissioning of HT works at Lab Complex, including all taxes & duties except service tax.	
a	Service tax component to be paid by the bidder	
b	Service tax component to be directly paid by the HTTES in case the bidder is a Proprietary firm	
	GRAND TOTAL	

Electrical HT works

Sl no	DSR item ref no	Item Description	Unit	Quantity	Rate in figures & words(in Rs.)	Amount in Rs.
1		Supply, fabrication, erection, testing & commissioning of 11 KV DP structure using required size of ISMB for poles and required size cross channel with ISMC for supporting structure for 11kV components, 11 KV pin, disc and stay insulators, supports, jumpers/ interconnecting conductors with 0'SWG Cu, 25x3mm braided copper earthing for non current moving part like handle of AB switch etc. The item includes erection of DP structure on suitable concrete foundation and painting with one coat of metal primer after fabrication and two coats of aluminium enamel paint after erection complete and consists of the following. The cost of the civil foundation shall be measured along with civil items. The design of the foundation shall be got approved from Engineer-in-charge before execution.				
		11KV,400A single brake,TP, gang operated AB switch with operating handle & locking mechanism - 1 set				
		11 KV Lighting Arrestors - 1 set				
		11 KV Drop out fuses - 1 set				
		The consumers DP structure shall be braced with state electricity board DP structure if required & interconnection shall be done with 0 SWG Cu wire.				
		The DP structure shall be with all necessary accessories for connecting 11kV cable as per particular specification & drawing. The 11kV DP structure shall be	Job	2		

		done as per the requirement of statutory authority.				
2		Supply, installation, testing & commissioning of 11kV outdoor type CT/PT unit with CT rating suitable as per Puducherry Electricity Department , class 0.5, 15VA CT & 11kV/110V class 0.5 100VA PT to be mounted on to the DP structure. The item also include supply & installation of TOD meter in a suitable weather proof sheet steel enclosure (14SWG) in 600mm plinth including Test terminal block, control fuses & 10C 2.5sqmm armoured copper cable between CT/PT unit & TOD meter. The work shall be as per state electricity board norms. The cost of the civil foundation shall be measured along with civil items. The design of the foundation shall be got approved from Engineer-in-charge before execution.	Job	1		

3	<p>Supply, fabricating & erection of 1.8 mtr high chain link fencing (50mm cross link) over 600 mm high brick masonry, using 4 mm thick GI chain link with a framework of 50x50x6 mm MS angle between vertical posts of ISMC 75x50mm at 2400 mm interval, which are fixed to the concrete footing (1:2:4) of size 450x450x200 mm (above GL) with adequate footing depth, between the brick / block masonry. Brick / block masonry (345 mm thick) and 200 mm from ground level for foundation & plinth in cement mortar (1:6). The brick masonry is to be pointed using cement mortar 1:3 to have a flush finish. Earth strip shall be connected to the fencing for its earthing. The MS framework for chain link fencing is finished using zinc chromate primer & 2 coats of synthetic enamel paint. 1.5 mtr wide gate shall be provided with suitable locking arrangements. The rate shall be inclusive of all materials, labour, lead, lift, etc including excavation works and fabrication and assembly works including all nuts, bolts & other miscellaneous items, etc. complete</p>	m	30		
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4		<p>Supply, erection, testing and commissioning of 400 kVA indoor type unitised substation (USS), 11 kV / 433 V, 3 phase, Vector DYn-11, Copper wound, resin cast transformer with off circuit tap changer from +5 % to - 10 % in steps of 2.5 %. The HV side shall be connected to HTSFU and LV cable box suitable for connecting 3 runs 3.5C x 300sqmm XLPE Aluminium cable. The transformer shall be provided with O/C and E/F protection on HV side, winding temperature indicator and all other standard fittings and accessories conforming to IS 11171/85 and IS2026/1975. The low set earth fault relay with neutral CT 120/5A, class 5P10, 10VA shall be provided.</p>				
		<p>All the equipments shall be mounted on a common galvanised GI base with fabricated enclosure painted with outdoor type rust proof paint / powder coated. The wall of the enclosure shall be detachable type with louvers for natural cooling The busbars inside the cubicle shall be sleeved using heat shrinkable sleeves.</p>				
		<p>The HV side of the USS shall be provided with 11kV, 18.4kA, 630A, load break switch with earth switch. The HT HRC fuse, seal off bushing, 230V shunt trip coil, space heater with thermostat, 400A Copper busbar with support insulator shall be provided.</p>				
		<p>Space for the TOD meter with sealing facility as per Puducherry Electricity Department shall be provided. (Make: Kriloskar / Megawin / Intrans / Crompton Greaves)</p>	Each	1		

5		Supply and installation of suitable CT ratio /5A, 15VA, class 0.5 as per Puducherry Electricity Department. 11kV/ 110V, 100VA, class 0.5 fixed type PT, TOD meter in the space provided in USS.	Job	1		
8		Supply, Installation, Testing & Commissioning of cubicle type Main MV panel board, made out of 2mm thick CRCA sheet, totally enclosed, IP42, free standing, floor mounting, dust and vermin proof, powder coated, indoor, compartmentalised, suitable for operation on 3 phase and neutral, 415 V, 50Hz AC system, including internal wiring with suitable size wires, rotary handle, spreaders etc. The panel shall include supply & installation of following switchgears, metering instruments and accessories as per specification.				
		Incomer				
		1 no. 630A, 35kA, TP+NL MCCB having isolation duty with microprocessor based release for adjustable O/L, SC & E/F protection.				
		Busbar				
		1 Set of 630 Amp TPN busbars of high conductivity electrolytic quality Aluminium conductor.				
		Instruments				
		1 No 3 phase Digital Multi function meter to read V, A, F, kWh with Acc class 1.				
		1 Set of phase indicating lamps, LED type, RYB.				
		1 Set of 2A 10kA C curve SP control MCB				
		1 Set of 630/5A, Class 1.0, 10VA, Cast Resin CT for metering.				
		1 Set of 630/5A, Class 1.0, 10VA, Cast Resin CT for APFC relay.				
		3 nos Digital Type Ammeter (0-				

		600A), Acc class 1				
		Outgoing				
		1 nos. 315A, 35kA, TP+NL MCCB with thermal magnetic release for adjustable O/L & SC protection.				
		2 no. 250A, 35kA, TP+NL MCCB with thermal magnetic release for adjustable O/L & SC protection.				
		3 nos. 200A, 35kA, TP+NL MCCB with thermal magnetic release for adjustable O/L & SC protection.	Each	1		
9		Supply, Installation, Testing & Commissioning of cubicle type AMF panel board, made out of 2mm thick CRCA sheet, totally enclosed, IP42, free standing, floor mounting, dust and vermin proof, powder coated, indoor, compartmentalised, suitable for operation on 3 phase and neutral, 415 V, 50Hz AC system, including internal wiring with suitable size wires, rotary handle, spreaders etc. The panel shall include supply & installation of following switchgears, metering instruments and accessories as per specification.				
		Incomer				
		2 nos.630 A, 35kA, FP MCCB having isolation duty with E/F release, adjustable thermal magnetic release for O/L & SC protection.				
		2 nos. 630 A, FP, AC3 duty Power Contactor.				
		Electrical & mechanical interlock between the incomers.				
		Busbar				
		1 Set of 630 Amp TPN busbars of high conductivity electrolytic quality Aluminium alloy.				
		Instruments				

		2 No 3 phase Digital Multi function meter to read V, A, F, kWh with Acc class 1.				
		2 Set of phase indicating lamps, LED type, RYB				
		1 Set of indicating lamps for Main On, DG On, Load on DG etc.				
		2 Set of 2A 10kA C curve SP control MCB				
		2 Set of 630/5A, Class 1.0, 10VA, Cast Resin CT for metering.				
		1 set Low set earth fault relay connected with the neutral CT of DG set.				
		1 set microprocessor based AMF control relay with all protective features for the starting and stopping of the DG set automatically.				
		1 set Auto / manual, test, off selector switch.				
		1 set SMPS based battery charger with inbuilt auto/manual current & float/boost facility adjustment with DC Volt meter & Ammeter(separate)				
		Required Danger boards, signages, lettering etc.				
		The panel shall be with all required accessories & control wiring for AMF operation.				
		Outgoing				
		1 nos.630 A, 35kA, FP MCCB having isolation duty with E/F release, adjustable thermal magnetic release for O/L & SC protection.	Each	1		

10	Supply, Installation, Testing & Commissioning of 100kVAR APFC panel , cubicle type, made out of 2mm thick CRCA sheet, totally enclosed, IP42, free standing, floor mounting, dust and vermin proof, powder coated, indoor, compartmentalised, suitable for operation on 3 phase and neutral, 415 V, 50Hz AC system, including internal wiring with suitable size wires, rotary handle, spreaders etc. The panel shall include supply & installation of following switchgears, metering instruments and accessories as per specification.				
	Incomer				
	1 no. 200A, 25kA, TP+NL MCCB with thermal magnetic release for adjustable O/L & SC protection.				
	Busbar				
	1 Set of 200 Amp TPN busbars of high conductivity electrolytic quality Aluminium conductor.				
	Instruments				
	1 No 3 phase Digital Multi function meter to read V, A, F with Acc class 1.				
	1 Set of phase indicating lamps, LED type, RYB.				
	1 Set of 2A 10kA C curve SP control MCB				
	1 Set of 200/5A, Class 1.0, 10VA, Cast Resin CT for metering.				
	1 no. 6 stage microprocessor based APFC relay				
	6 set On, Off push button				
	6 set On, Off LED type indication lamp				
	1 set Auto / manual selector switch.				
	Outgoing				
	2 No 63A, TPN, C curve MCB.				
	2 No 40A, TPN, C curve MCB.				
	2 Nos 32A, TPN, C curve MCB.				

		2 Nos. 25 kVAR MPP heavy duty capacitor with capacitor duty contactor.				
		2 Nos. 15 kVAR MPP heavy duty capacitor with capacitor duty contactor.				
		1 Nos. 10 kVAR MPP heavy duty capacitor with capacitor duty contactor.				
		1 No. 10 kVAR MPP heavy duty capacitor directly connected.				
		The panel shall be provided with required ventilating louvers and panel mounted cooling fan for the capacitor bank chamber with thermostat and control switch.	Each	1		
11		Supply, Installation, Testing & Commissioning of Sub panel-1(1st floor), cubicle type, made out of min 2mm thick CRCA sheet (load bearing), totally enclosed, IP42, free standing, floor mounting, dust and vermin proof, powder coated, indoor, compartmentalised, suitable for operation on 3 phase and neutral, 415 V, 50Hz AC system, including internal wiring with suitable size wires, rotary handle, spreaders, 3mm thick gland plate, hinged type door with neoprene gasket / PU etc. The panel shall include supply & installation of following switchgears, metering instruments and accessories as per specification.				
		Incomer				
		315A TPN 25kA MCCB with thermal magnetic release with adjustable OL, SC protection - 1 nos.				
		Busbar				
		1 Set of 315 A TPN busbars of high conductivity electrolytic quality Aluminium alloy and suitable size earthing conductor through out the panel for its earthing.				

		Instruments				
		2A, C curve SP MCB - 3 nos.				
		RYB indication lamp, LED type - 3 nos.				
		1 No 3 phase Digital Multi function meter to read V, A, F, kW, kWh, Acc class 1.				
		315/5A 5VA class 1 resin cast CT - 1 set				
		Outgoing.				
		125A, TPN, 16kA MCCB, thermal magnetic having adjustable O/L, SC protection - 2 nos.				
		100A, TPN, 16kA MCCB, thermal magnetic having adjustable O/L, SC protection - 3 nos.				
		63A, TPN, 16kA MCCB, thermal magnetic having adjustable O/L, SC protection - 2 nos.	Each	1		
12		Supply, Installation, Testing & Commissioning of Sub panel-2(Ground floor), cubicle type, made out of min 2mm thick CRCA sheet (load bearing), totally enclosed, IP42, free standing, floor mounting, dust and vermin proof, powder coated, indoor, compartmentalised, suitable for operation on 3 phase and neutral, 415 V, 50Hz AC system, including internal wiring with suitable size wires, rotary handle, spreaders, 3mm thick gland plate, hinged type door with neoprene / PU gasket etc. The panel shall include supply & installation of following switchgears, metering instruments and accessories as per specification.				
		Incomer				
		250A TPN 25kA MCCB with thermal magnetic release with adjustable OL, SC protection - 1 nos.				
		Busbar				

		1 Set of 250 A TPN busbars of high conductivity electrolytic quality Aluminium alloy and suitable size earthing conductor through out the panel for its earthing.				
		Instruments				
		2A, C curve SP MCB - 3 nos.				
		RYB indication lamp, LED type - 3 nos.				
		1 No 3 phase Digital Multi function meter to read V, A, F, kW, kWh, Acc class 1.				
		250/5A 5VA class 1 resin cast CT - 1 set				
		Outgoing.				
		100A, TPN, 16kA MCCB, thermal magnetic having adjustable O/L, SC protection - 4 nos.				
		63A, TPN, 16kA MCCB, thermal magnetic having adjustable O/L, SC protection - 2 nos.	Each	1		
13		Supply, Installation, Testing & Commissioning of Sub panel-3(2nd floor), cubicle type, made out of min 2mm thick CRCA sheet (load bearing), totally enclosed, IP42, free standing, floor mounting, dust and vermin proof, powder coated, indoor, compartmentalised, suitable for operation on 3 phase and neutral, 415 V, 50Hz AC system, including internal wiring with suitable size wires, rotary handle, spreaders, 3mm thick gland plate, hinged type door with neoprene gasket / PU etc. The panel shall include supply & installation of following switchgears, metering instruments and accessories as per specification.				
		Incomer				
		200A TPN 25kA MCCB with thermal magnetic release with				

		adjustable OL, SC protection - 1 nos.				
		Busbar				
		1 Set of 200 A TPN busbars of high conductivity electrolytic quality Aluminium alloy and suitable size earthing conductor through out the panel for its earthing.				
		Instruments				
		2A, C curve SP MCB - 3 Nos				
		RYB indication lamp, LED type - 3 Nos				
		1 Nos 3 phase Digital Multi function meter to read V, A, F				
		200/5A 10VA class 1 resin cast CT - 1 set				
		Outgoing.				
		100A, TPN, 16kA MCCB, thermal magnetic having adjustable O/L, SC protection - 3 nos.				
		63A, TPN, 16kA MCCB, thermal magnetic having adjustable O/L, SC protection - 3 nos.	Each	1		
14		Supply of 11kV, 3Cx150sqmm (E) grade XLPE insulated PVC sheathed compact circular armoured aluminium conductor HT power cable, insulation screened with extruded semi conducting compound in combination with copper tape suitable for 11kV earthed system confirming to relevant standard.	m	60		
15		Supply of the following size 1.1kV grade XLPE insulated PVC sheathed, armoured Aluminium conductor power cable confirming to IS 7098 (part 1) ammended upto date.				

15.1		3.5 x 300 sqmm cable	m	300		
15.2		3.5 x 240 sqmm cable	m	50		
15.3		3.5 x 185 sqmm cable	m	30		
15.4		3.5 C x 150 sq.mm	m	70		
15.5		3.5 x 120 sqmm cable	m	30		
15.6		3.5 C x 95 sq.mm	m	65		
16		Supply and providing 6 mm thick & 1 m wide electrical grade chequered type rubber mat to withstand 3.3 KV dielectric strength conforming to IS 5429/1969.	m	14		
17		Supply and providing 12 mm thick & 1 m wide electrical grade chequered type rubber mat to withstand 15 KV dielectric strength conforming to IS 5429/1969.	m	8		
18		Supply, fabrication and fixing 3 nos MS Fire buckets on suitable fabricated MS angle iron stand with hook, painting with red paint & filled with dry sand as required with all required accessories.	Set	1		

19		Supply and providing 15" long rubber hand gloves 15kV.	Pair	2		
20		Supply and providing First Aid Chart duly framed and placed in a conspicuous location for clear vision.	Each	2		
21		Supply and providing Electrical main single line Diagram duly framed and placed in a conspicuous location for clear vision.	Each	1		
22		Preparation of electrical drawing, submission of drawings to Electrical inspectorate/ EB and obtaining approval, arranging inspection for entire installation and other utilities, obtaining road cutting permission obtaining sanction orders for the energisation of the installation complete. Including all incidental expenses except the fees payable to the statutory authorities in the name of client.	Job	1		
		Total amount of LMR items				
		<u>DSR Item</u>				
		Cable Tray				
23.1	4.1	Supply and installing following size of perforated GI cable trays with perforations not more than 17.5% in convenient sections, jointed with connectors, suspended from the ceiling with GI suspenders / fixed to walls with suitable GI clamps, including bolts and nuts, bends, reducers, Tees, cross members etc as required.				
23.1.1	4.1.3	200 mm width x 50 mm depth x 1.6 mm thickness	m	120		

23.1.2	4.1.4	300 mm width x 50 mm depth x 1.6 mm thickness	m	110		
		Earthing				
24.1	5.4	Earthing with GI earth plate 600 mm X 600 mm X 6 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.	Each	6		
24.2	5.6	Earthing with copper earth plate 600 mm X 600 mm X 3 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.	Set	6		
24.3	5.7	Supplying and laying 6 SWG G.I. wire at 0.50 metre below ground level for conductor earth electrode, including connection/ termination with GI thimble etc. as required.	m	290		
24.4	5.8	Supply and laying 25mm x 5mm copper strip at 0.5m below ground as strip earth electrode, including connection / terminating with nut, bolt, spring, washer etc as required (Jointing shall be done by overlapping and with 2 sets of brass nut bolt & spring washer spaced 50mm).	m	160		
24.5	5.9	Supply and laying 25mm x 5mm GI strip at 0.5m below ground as strip earth electrode, including connection / terminating with nut, bolt, spring, washer etc as required (Jointing shall be done by overlapping and with 2 sets of GI nut bolt & spring washer spaced 50mm).	m	290		

24.6	5.14	Providing and fixing 25 mm X 5 mm copper strip on surface or in recess for connections etc. as required.	m	90		
24.7	5.15	Providing and fixing 25 mm X 5 mm GI strip on surface or in recess for connections etc. as required.	m	70		
24.8	5.18	Providing and fixing 6 SWG dia G.I. wire on surface or in recess for loop earthing along with existing surface / recessed conduit / submain wiring / cable as required.	m	260		
24.9	5.19	Providing and fixing 4 mm dia copper wire on surface or in recess for loop earthing along with existing surface / recessed conduit / submain wiring / cable as required.	m	130		
		MV Cable laying and Termination				
25.1		Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc as required.				
25.1.1	7.1.3	Above 95 sq. mm and upto 185 sq. mm	m	30		
25.1.2	7.1.4	Above 185 sq. mm and upto 400 sq. mm	m	90		

25.2	7.2	Laying of one number additional PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size direct in ground in the same trench in one tier horizontal formation including excavation, sand cushioning, protective covering but excluding and refilling the trench etc as required.				
25.2.1	7.2.3	Above 95 sq. mm and upto 185 sq. mm	m	10		
25.2.2	7.2.4	Above 185 sq. mm and upto 400 sq. mm	m	180		
25.3		Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size in the existing RCC/ HUME/ METAL pipe as required.				
25.3.1	7.5.3	Above 95 sq. mm and upto 185 sq. mm	m	15		
25.3.2	7.5.4	Above 185 sq. mm and upto 400 sq. mm	m	30		
25.4		Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size in the existing masonry open duct as required.				
25.4.1	7.6.3	Above 95 sq. mm and upto 185 sq. mm	m	25		

25.4.2	7.6.4	Above 185 sq. mm and upto 400 sq. mm	m	60		
25.5	7.7	Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on wall surface as required.				
25.5.1	7.7.2	Above 35 sq. mm and upto 95 sq. mm (clamped with 25x3mm MS flat clamp)	m	50		
25.6.2	7.7.3	Above 95 sq. mm and upto 185 sq. mm (clamped with 25/40x3mm MS flat clamp)	m	65		
25.6.3	7.7.4	Above 185 sq. mm and upto 400 sq. mm (clamped with 40x3mm MS flat clamp)	m	70		
25.7		Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on cable tray as required.				
25.7.1	7.8.2	Above 35 sq. mm and upto 95 sq. mm (clamped with 25x3mm MS flat clamp)	m	50		
25.7.2	7.8.3	Above 95 sq. mm and upto 185 sq. mm (clamped with 25/40x3mm MS flat clamp)	m	100		
25.7.3	7.8.4	Above 185 sq. mm and upto 400 sq. mm (clamped with 40x3mm MS flat clamp)	m	135		

25.8	7.9	Supplying and making cable route marker with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) of size 60 cm X 60 cm at the bottom and 50 cm X 50 cm at the top with a thickness of 10cm including inscription duly engraved as required.	Each	10		
		HV Cable laying and Termination				
26.1		Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 11 KV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc as required.				
26.1.1	8.1.2	Above 120 sq. mm and upto 400 sq. mm	m	50		
26.2		Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 11 KV grade of following size in the existing masonry open duct as required.				
26.2.1	8.4.2	Above 120 sq. mm and upto 400 sq. mm	m	20		
26.3		Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 11 KV grade of following size in the existing RCC/ HUME/ METAL pipe as required.				
26.3.1	8.3.2	Above 120 sq. mm and upto 400 sq. mm	m	15		

		Supplying and making end termination with brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.				
26.4.1	9.1.30	3.5 C x 300 sq.mm	Nos	8		
26.4.2	9.1.29	3.5 C x 240 sq.mm	Nos	6		
26.4.3	9.1.27	3.5 C x 185 sq.mm	Nos	4		
26.4.4	9.1.26	3.5 C x 150 sq.mm	Nos	4		
26.4.5	9.1.25	3.5 C x 120 sq.mm	Nos	6		
26.4.6	9.1.24	3.5 C x 95 sq.mm	Nos	4		
27.1	10.4.2	Supplying and making indoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size of 3 core,150sqmm XLPE aluminium conductor cable of 11 KV grade as required :	Each	2		

27.2	10.5.3	Supplying and making outdoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for 3 core, <u>150sqmm</u> XLPE aluminium conductor cable of 11 KV grade as required :	Each	1		
28.1	14.13.3	Providing, laying and fixing of 100mm dia G.I. pipe (medium class) in ground complete with G.I. fittings including trenching (75 cm deep)and re-filling etc as required	m	35		
28.2		Providing, laying and fixing of following dia RCC pipe NP2 class (light duty) in ground complete with RCC collars, jointing with cement mortar 1:2 (1 cement : 2 fine sand) including trenching (75 cm deep) and refilling etc as required.				
28.2.1	14.14.2	150 mm dia	m	55		
28.2.2	14.14.4	300 mm dia	m	70		
		Total Amount in Rs				