

Table Ab11 - Bill of Quantity for Electricals and Mechanicals Works S.P.S.: LS-2

Sl No	Description	Unit	Quantity	Rate in Figures21	Total Amount
1	2	3	4	5	6
A	Supply, Storage, Testing, installation, commissioning and trial run of 3 month of all associated electromechanical and Instrumentation works for SPS as given below.				
1	Sub Station				
	Power Connection				
1.1	Obtaining Power Supply connection from nearest WBSEDCL source to SPS premises i/c Poles, cables, HT jointing Kit and all associated works as per Technical specifications and direction of EIC.	Job	1		0
1.2	Transformer of required capacity and including H.T. panel with all associated works as per Technical specifications and direction EIC.	Job	1		
	Cabling				
1.3	3Core XLPE, H.T Cable from metering room to HT panel of required size as per load with suitable size jointing kit.	Job	1		
1.4	3 Core XLPE, H.T Cable from HT panel to Transformer of required size as per load with suitable size joining kit	Job	1		
1.5	3.5 Core XLPE, H.T Cable from Transformer to LT Panel, LT panel to MCC of required size as per load and suitable size gland and lugs.	Job	1		
	Earthing				
1.6	G.I. Plate Earthing (900 X 900 X 6 mm) with 3 m long GI pipe of 40 mm dia as required for the sub-station as per IS-3043.	Job	1		
1.7	Earthing Copper strip (25x6 mm) as required for the sub-station as per IS-3043.	Job	1		
1.8	24 V DC Battery consisting of requisite number of dry maintenance free battery of 180 AH capacity complete with battery racks, battery charger, controls distribution and all other accessories housed in a common floor mounted enclosed and properly ventilated sheet steel cubicle including preparation of masonry pedestal for the same placing in position the battery racks, battery charger etc including necessary interconnection painting earthing all complete.	Job	1		
2	Pumping Station (Mechanical Work)				
	Screening System				
2.1	Manual Screen of SS 304 Bar Screens with anchors, fasteners, brackets and all accessories complete as per Tender Specification	Set	1		

2.2	Mechanical Fine bar screen shall be installed at an inclination of 40 degrees in the screen channel The Screens shall be made from SS 316 & SS 304 materials and fitted with specially laser cut screen bars. They shall be operated by an electric motor of required rating. The operation of Mechanical Fine Bar Screens shall be controlled by control panel with timer and ultrasonic level sensor. The Screen shall operate using two sets of fixed and moving bars which rotate cyclically discharging screened debris from one step to the next.	Set	1		
2.3	Conveyor System of belt driven and required width and length suitable as per GA with all accessories required for transporting screenings	Job	1		
2.4	CI Sluice Gate of required size manually operated with rising spindle conforming to IS: 13349 with anchor fasteners, brackets and all accessories complete.	Job	1		
2.5	Pumping Plant (Submersible) of required Discharge Capacity and Head with pump, motor & starter and S.S Guide rail system and composite MCC control panel.	Set	1		
	Piping and Valves				
2.6	Sluice Valve : CI DF of required rating confirming to IS:14846/BS 5150/DIN 3352 at their latest revision, rising spindle type, flat face, bolted bonnet with solid wedge disc and manually operated by hand wheel.	Job	1		
2.7	Reflux Valve : Double flanged with hinged single/multi swinging disc complete with bypass arrangements will have to be provided. The valve will be of flat face bolted cover and will be fitted with renewable body and disc seat. The reflux valve will be of required PN rating and as per IS:5312/BS:5153/ISO 2531 at their latest revision.	Job	1		
2.8	Air Release Valve : Supply of CI Double flanged PN-1/1.6 rating Kinetic Air Release valve confirming to IS -14846 specifications with isolating sluice valve and all accessories for installation on pump delivery .	Job	1		
2.9	MS/DI dismantling joint as per requirement and departments approved drawing and specifications, including machining and rubber ring and suitable for working pressure with required flanges of suitable size with nut and bolt etc complete the joint should have long bolts so that during normal working pressure there should be no sliding movement of sliding flanges LOF (length over flange) should not be less than 75% of dia	Job	1		
2.10	Providing and laying of CI/DI DF Pipes conforming to IS specifications of required size and PN rating i/c specials and fasteners for installation in Pump house.	Job	1		
	Pressure Gauge				
2.11	Pressure Gauge of 0-10 Kg/sq.cm and 100 mm dia. Diaphragm Sealed Pressure Gauge conforming to the latest revision of IS : 3624 / BS:1780 / Equivalent with Accuracy of $\pm 1.0\%$ of full scale range, gun metal isolation cock and all other accessories as required for installation on pump delivery.	Job	1		
	Level Measuring System				

2.12	Ultrasonic type Level Indicator-Transmitter suitable for measure liquid level in the sump upto specified depth with microcontroller based system. The 6 digit LCD display Indicator shall be installed on the top of the tank with 24 VDC power supply, rigid/flexible type electrode of SS 316, PTFE sheathed as per technical specification and direction of EIC.	Job	1		
	Flow Measuring System				
2.13	Electromagnetic Flow Meter including all materials and making connection with pipeline complete in all respect as per technical specification and as per direction of EIC.	Job	1		
	Loading/Unloading System				
2.14	Lifting arrangement including H.O.T. crane of required capacity and span for PS with travelling trolley & chain pulley block.	Set	1		
	Spares				
2.15	Recommended Spare parts of pumps.	Lot	1		
2.16	Tools and plant(For Pumping Plant and Substation-1 lot each)	Lot	1		
2.17	M.S. trusses / structure as required.	Job	1		
2.18	MS Chequered plate of 8 mm thk. and Guards as required.	Job	1		
3	D.G.SET				
	Diesel generating set with AMF Panel with alternator of required output capacity, 3 Phase, 415V, 50c/s 0.8 p. f A.C a totally enclosed air cooled multi cylinder diesel engine developing suitable BHP at 1500 rpm with 10% overload for 1 hour in 24 hours with standard accessories, self excited, self regulated, screen protected alternator with static excitation system running at 1500 RPM as per IS 4722-1968 with voltage regulation +/- 5 %.Both the engine and alternator direct coupled on a common fabricated steel base plate with anti vibrating pad with control panel comprising of standard meters, switchgears, indicators connected with suitable wires/cables. The complete set enclosed in Acoustic enclosure made of 18 SWG CRCA Sheet, sound absorbing material, Rockwool covered from inside with 3/4 mm holes perforated sheet to restrict sound level upto 75 dB at 1.0 m The engine with first filling of oil, diesel etc. obtaining necessary approval from Electrical Inspector as per specification	Set	1		
4	Pumping Station (Electrical Work)				
4.1	Main L.T. Panel including incoming Panel for Transformer & DG, APFC panel load, out goings for pump MCC & other utilities in manufacturers MS (IP 54) enclosure suitable for Wall/ Floor mounting danger board and all other accessories including supplying of all accessories.	Job	1		

	Distribution wiring for lighting including circuit wiring and point wiring in single core ISI marked stranded 2 X 1.5 Sqmm (1.1KV grade) PVC insulated copper wire and 1 no 1.5 sqmm. PVC insulated copper earth wire in 20 mm dia GI (M) conduit (as per specification) concealed in wall/ceiling for lights including supplying GI (M) conduit, bar saddles ,circular box, ceiling rose etc where necessary, galvanised ms switch board properly flushed in wall with 6A piano key type switch and white bakelite cover 3 mm thick and earthing the boxes painting all complete, for three pin 6 A socket outlets on same lighting switch board /separate location including supplying and fixing piano key type switch socket on bakelite cover (min 3 mm thk) switch board in sheet metal box with kit-kat type fuse unit and neon indication lamp complete in all respect. NB : point wiring should inclusive of continuous wire length upto the connection block of light fitting/fan etc.				
	Light Points as per approved design	job	1		
	Ceiling Fan as per approved design.	job	1		
	Exhaust Fan as per approved design.	job	1		
	MS Pole of required height with arm for Fixture Mounting, with base Mounting Plate, inclusive of Built- in Box with MCB, Connector Terminals, Internal Wiring to Fixture etc. Installation on Pre Cast PCC/RCC Base with J-Bolts, Complete with PVC Pipes, Loop in Loop out box etc. as per approved design.	job	1		
	18 Watt CFL lamp of superior quality (AL body) superior make on wall /ceiling with glass, powder coated metal guard and holder and proper size of clamps bolts, nuts etc. as required with necessary connection, earthing, etc. as per approved design.	job	1		
	Cable wiring and earthing				
4.2	3 Core XLPE, L.T Cable from LT panel/ MCC to motors of required size as per load and suitable size gland and lugs.	Job	1		
4.3	4 Core XLPE, Al armoured Cable				
4.3.1	4 Sq.mm as required for the sub- station &PS	Job	1		
4.3.2	6 Sq.mm as required for the sub- station &PS	Job	1		
4.4	3 Core XLPE, Cu armoured Cable as required for the sub- station & PS				
4.4.1	2.5 Sq.mm as required for the substation & PS	Job	1		
4.4.2	1.5 Sq.mm as required for the substation & PS	Job	1		
4.5	Jointing material-HT/LT Jointing Kit	Lot	1		
	Earthing				
4.6	G.I. Plate Earthing (900 X 900 X 6 mm) with 3 m long GI pipe of 40 mm dia as required for the pumping station as per IS 3043	Job	1		
4.7	G.I. Strips as required for the pumping station as per IS 3043				
4.7.1	50 X 6 mm Size as required for the pumping station as per IS 3043	Job	1		
4.7.2	25 X 3 mm Size as required for the pumping station as per IS 3043	Job	1		

4.7.2	8 SWG GI Wire as required for the pumping station as per IS 3043	Job	1		
4.8	Perforated Galvanised Cable tray of following sizes including supply of 25x6 mm Galvanised MS hangers ,SS 304 anchor fastener and all accessories complete including fixing the tray suspended from the roof slab / below the floor slab etc. including cutting chipping, grouting and mending good damages, painting, earthing all installation materials as per specification				
4.8.1	300 mm (W) x 1.6mm (Thk) x 50 mm (H)as required for the sub- station & PS	Job	1		
4.8.2	200 mm (W) x 1.6mm (Thk) x 50 mm (H)as required for the sub- station & PS	Job	1		
4.8.3	100 mm (W) x 1.6mm (Thk) x 50 mm (H)as required for the sub- station & PS	Job	1		
4.9	Internal and External Lighting				
4.9.1	Internal and External Lighting of the Pumping Station with all items as required for efficient lighting including the followings but not limited to.	Lot	1		
4.9.2	500 V 4 Way TPN MCB double door type Distribution board with incoming TPMCB and outgoing MCBs including separate TPN copper bus bars, earth bus bars etc. suitable for single and multiple pole MCBs complete with all interconnection as per approved design.	Job	1		
4.9.3	150 W HPSV street lighting luminaries with single piece deep drawn aluminum housing (IP-54) powder coated outside, pot optics reflector and UV stabilized acrylic cover complete with all accessories such as energy efficient copper ballast, Electronics igniters, Power factor improvement capacitor etc. pre wired to a terminal block and mounted easily detachable gear plate suitable for 150 W SON-T lamp for street / area lighting shall be connected by 2 core 6 sq mm Al armoured cable (XLPE) including 100 x 150 mm sheet steel lighting junction box and PVC/copper wire for connection including supply and fixing of 150 W HPSV lamp complete with all accessories as per approved design .	Job	1		
	Ventilation System				
4.10	Supply and installation of HD 300 mm sweep 230V AC ring mounted soundless Exhaust Fan along with Louvre guard -complete as required for the sub- station & PS for effective ventilation.	Job	1		
	Fire Fighting System				
4.11	ISI marked 5 kg capacity Dry Powder ABC type fire extinguisher with high pressure discharge hose, squeeze gripe nozzle, pressure gauge, gun metal cap with initial charge of dry power. Both extinguisher and dry powder to be ISI marked.	Job	1		
	Safety				
4.12	Non-skid rubber mat 12 mm thick and 1000 mm width chequered insulating matting as required including cutting of required length suitable for 12 KV grade insulation conforming to IS 15652-2006 complete as required.	Job	1		
4.13	Supply of Safety Charts	Set	3		
4.14	Supply of Danger Boards/Labels	Set	1		
4.15	Supply of First Aid Box with necessary items	Set	1		

4.16	Supply of 11 KV Safety hand Gloves (1 pair,) & 1100 volts grade hand gloves(2 pairs)	Set	1		
	Painting				
4.13	Painting of all pumps, piping and Valves etc.	Job	1		
5.0	Commissioning and 3 months trial run for the entire installation	Job	1		
Total Cost					
Amount in Words					