



SHEILD
—ASSOCIATION—

Bill of Quantities

Item	Description	Unit	Estimated Quantity	Unit Rate \$	Amount \$
	<u>Civil and Miscellaneous Works</u>				
	<u>Land preparation for PV installation</u>				
	<u>Land preparation, cleaning, leveling and compacting of existing surfaces for the installation of PV arrays</u> Works shall include the relocation of existing soil and aggregates from high areas, dumping the resulting material in low areas, leveling and compacting of the land, with the necessary heavy machinery, manpower, labour tools, and all other related works, all as specified, shown on drawings and to the satisfaction of the supervision entity at SHEILD and SLWE دائرة مراقبة التنفيذ. Price shall include safety measures, safety warning signs, cost of obtaining non objection certification (NOC) from local authorities, the municipality, and / or the pertinent Ministeries and other public authorities.				
	Estimated land area of 1270m2 <i>Unit Rate in Words:</i>	LS	1		
	<u>Galvanized break tank</u>				

	<p>Supply and install galvanized break tank of 5000L with all related fittings and accessories to connect the well and surface booster</p> <p>Unit Rate in Words: </p>	LS	1		
<u>Metallic Support and fence Structure for PV installation</u>					
<u>Metallic structure for PV panels mounting</u> Supply, install, test and commission, galvanized steel support structure for PV arrays able to withstand wind speed up to 140 km/h, with anti-rust treatment and epoxy painting at welding areas. Installation shall be complete with all required accessories, clamps and fittings, according to the specifications, the drawings, to the approval of the supervision entity at SHEILD and SLWE دائرة مراقبة التنفيذ.					
	<p>Galvanied steel (4x4) for solar panels including beams, columns, manpower and welding</p> <p>Unit Rate in Words: </p>	LS	250		
	<p>Steel for Concrete Foundations</p> <p>Unit Rate in Words: </p>	Tons	13		
	<p>Supply, install, test and commission, a Galvanized Steel Fence, corrosion resistant made of galvanized chain link, 1.8m in height, with barbed wires at the top, a 1m wide door with pad lock, galvanized steel poles to support the fence each 2.5m linear meter.</p> <p>Item shall include the necessary reinforced concrete bases, using Ordinary Portland Cement to ASTM C150, Type II, 25 MPa, anchor bolts, manpower, accessories, fittings and all other related works.</p> <p>Installation shall be complete with all required accessories and fittings, according to the</p>	LM	180		

	<p>specifications, the drawings, to the approval of the supervision entity at SHEILD and SLWE دائرة مراقبة التنفيذ.</p>				
<u>Reinforced Concrete Foundations</u>					
<p>Construct the following reinforced concrete foundations for the metallic support structure, complete including, but not limited to, all necessary excavation, concrete works using ordinary Portland cement to ASTM C150, Type II, 25 MPa on Cylinder for blinding and 30 MPa on Cubic for reinforced concrete works with all necessary formwork, reinforcement, anchor bolts & steel plate, accessories, application of two coats of bituminous paint to the concrete surfaces in contact with soil, backfilling and compaction, removal of resulting materials to approved dumping areas outside the site, and all other related works. Works shall be complete, done according to the specifications, the drawings, to the approval of the supervision entity at SHEILD and SLWE دائرة مراقبة التنفيذ.</p>					
	<p>Concrete Foundation 30cmx30cm including steel, cement, 5 bags per cubic meter (20 mpa), sand, gravel and water <i>Unit Rate in Words:</i></p>	M3	125		
<u>Electrical Works</u>					
<u>Electrical Panelboards</u>					
<u>Power and Control Panelboards</u>					

Supply, transport, install, test and commission of electrical panel boards, to be sealed, vandal-proof, weatherproof IP54, entirely made of thick steel sheets, having a hinged front door with a minimum of 2 locks, complete including galvanized steel mounting chassis 400mm minimum height, accessories, galvanized steel plate for cable protection, cable glands, louvers with screens, ventilation fans, HDPE sleeves for cable's entry, internal cables, circuit breakers, selector switch, voltage protections, overload protections, surge arresters, witness lamps, earthing bar with connection to the earthing system, and all other related works.

Item shall be complete including protections, manpower, accessories, fittings and all other related works, all as specified, shown on drawings and to the satisfaction of the supervision entity at SHEILD and SI WE بإدارة وإشراف هيئة الإقارة والتفتيش

<p>Weatherproof IP54, rust proof and vandal proof, DC combiner box including fuses and diodes, with DC SPD, including all required components. <i>Unit Rate in Words:</i></p>	No	2		
<p>Weatherproof IP54, rust proof and vandal proof, Protection Enclosure including AC and DC protections, with AC and DC SPDs, including all required components. <i>Unit Rate in Words:</i></p>	No	2		
<p>Solar pumping VFD drive rated 90 kW hybrid DC/AC input , with all of the required DC cables, AC power cables, control cables, accessories, mounting fittings and protections. <i>Unit Rate in Words:</i></p>	No	1		
<p>Solar pumping VFD drive rated 55 kW hybrid DC/AC input , with all of the required DC cables, AC power cables, control cables, accessories, mounting fittings and protections. <i>Unit Rate in Words:</i></p>	No	1		
<p>Ouput reactor for solar pumping VFD drive rated 55 KW, with all of the required cables, accessories, mounting fittings and protections. <i>Unit Rate in Words:</i></p>	No	1		

	<p>Sinewave Filter for solar pumping VFD drive rated 90 KW, with all of the required cables, accessories, mounting fittings and protections.</p> <p><i>Unit Rate in Words:</i></p> <p>.....</p> <p>.....</p>	№	1		
	<p>4 poles MTS with enclosure rated 4x250A, with all of the required cables, accessories, mounting fittings and weatherproof IP54, rust proof and vandal proof, MTS Panel.</p> <p><i>Unit Rate in Words:</i></p> <p>.....</p> <p>.....</p>	№	2		
	<p>Supply and install wall mounted portable fire extinguishers .</p> <p><i>Unit Rate in Words:</i></p> <p>.....</p> <p>.....</p>	№	2		
	<p>Supply, install, connect, label, test and commission a complete IP CCTV system including power supply, cables, rigid conduits (EMT unless fully embedded underground)</p> <p><i>Unit Rate in Words:</i></p> <p>.....</p> <p>.....</p>	LS	1		
<p><u>Hybrid solar system 5KWp</u></p>					
<p>Solar system of 5KWp with 10KWh of Lithium battery bank with all related elements as panels, 5KW hybrid inverter, AC and DC cabling, protection board. This system to supply chlorination system and station building services.</p>					
	<p>Hybrid solar system 5KWp</p> <p><i>Unit Rate in Words:</i></p> <p>.....</p> <p>.....</p>	LS	1		
<p><u>Photovoltaic (PV) Module</u></p>					

	<p>Supply, transport, install, test and commission a Solar Photovoltaic (PV) Module of the Mono-crystalline type, not less than 650Wp, Half Cells, protected by anti-reflective coated tempered glass and having a conversion efficiency greater or equal to 21%.</p> <p>Item shall be handed over by SLWE to the contractor.</p> <p>Contractor shall install the panels complete including protections, manpower, accessories, fittings and all other related works, all as specified, and to the satisfaction of the supervision entity at SHEILD and SLWE دائرة مراقبة التنفيذ.</p>				
	<p>650Wp, Half Cells , 21% efficiency PV Module.</p> <p><i>Unit Rate in Words:</i></p> <p>.....</p> <p>.....</p>	No	224		
	<p><u>Earthing system.</u></p>				
	<p>Supply, transport, install, test and commission an earthing system, complete including all necessary electrodes (minimum of 3 rods), inspection pits with precast concrete handhole, bare copper conductor of 50 mm², earth bus bar with test link, excavation, backfilling, compaction, and all other related works to achieve an earth resistance of less than 5 ohms, to be proven by a certified earth resistance test, witnessed by the supervision entity at SHEILD and SLWE دائرة مراقبة التنفيذ and officially reported by the Contractor to the Client.</p> <p>Item shall be complete including protections, manpower, accessories, fittings and all other related works, all as specified, and to the satisfaction of the supervision entity at SHEILD and SLWE دائرة مراقبة التنفيذ.</p>				
	<p>Earthing system.</p> <p><i>Unit Rate in Words:</i></p> <p>.....</p> <p>.....</p>	No	2		
	<p><u>Lightning protection system.</u></p>				
	<p>Rehabilitation of the existing lithning system</p> <p>Item shall be complete including protections, manpower, accessories, fittings and all other related works, all as specified, and to the satisfaction of the supervision entity at SHEILD and SLWE دائرة مراقبة التنفيذ.</p>				
	<p>Lightning protection system.</p> <p><i>Unit Rate in Words:</i></p> <p>.....</p> <p>.....</p>	No	1		

	<u>Power and Control Cables.</u>				
	Supply, install, test and commission of DC and AC power cables with all necessary lugs, connectors, cable glands, accessories and fittings. Item shall be complete including accessories, fittings and all related civil works, all as specified, and to the satisfaction of the supervision entity at SHEILD and SLWE دائرة مراقبة التنفيذ.				
	<i>Unit Rate in Words:</i>	LS	1		
Total					0

