**Electro mechanical works for groundwater well no. 15-18/006 in Noor Shams**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Item** | **Description** | **Unit** | **Unit Price /$US** | **Qty.** | **Total**  **/$US** |
| **Electrical and Mechanical Works:**  The contractor shall submit in his offer and supply maintenance manuals, catalogs, characteristic curves, testing certificates, shipping, lading documents and specifications of pumps, motor, fittings, mechanical and electrical control devices, cables, wiring and all accessories and ancillaries to complete the work. All to be new and not renewed in accordance with the specified specifications. The contractor should verify the design equipments by conducting field visits to the well and must be before ordering any equipment or materials as follows: the contactor must check and verify and match between the reality and the design quantities mentioned in this tender. If he notices any difference or no matching, then he must inform the supervisor engineer and find together a suitable solution to such conditions. This include checking and fitting all dimensions mentioned in the tender as the well's hole diameter, pump diameter, columns diameter, discharge head inlet and outlet. The contractor must check in particular that the size of the hole of the well is enough to install the pumping pipes, and the water level pipes together. The sizes mentioned in this contract are the best estimate of information we got for this well. The contractor should be responsible technically and financially to supply the suitable materials. All connections including the electrical and mechanical fittings should be according to the pumping layout view. | | | | | |
| G1.1 | **Electric Motor:**  Disjoin the existing vertical diesel motor and fittings, and then move them outside the operation site to the place within Noor Shams area specified by the project committee. Supply, transport, deliver, install, and operate successfully according to the specifications in the tender on the reinforced concrete foundation a new vertical hollow shaft Electric Motor with suitable reinforced foundation. The motor has to be inverter duty as 10:1 (6-60 Hertz) Speed Range Constant Torque voltage 220/380-440. The motor shall be of standard construction and suitable high thrust bearing to carry the loads of the rotating radial thrust, equipped with weather protection type-1 standard, insulation class F complete thermal protection unit, complete current overload unit. The motor must be not less than  **125 horsepower** at 1500 rpm, set at continuous steady state service factor 95%-100%, 1 year warranty starting from the date of the handing over certificate or 7000 working hours and whichever comes first; price involves casting a suitable reinforced concrete base for the new motor which fits the motor dimensions and its height matches level to the last vertical shaft discharge head. The concrete used should be B-300 and the two meshes a steel box and bars diameter 10 mm. The price includes supplying all cables and materials and executing all electrical connections needed between the following elements and despite of the length required: A- two cables one in between the main 3-phase power source or the proposed Municipality Tower close to the well and the other cable up-to the Main Electric Control Board inside the pumping room B- a cable between the Main Electric Control Board and the electric motor. The cable size and specifications are as follows: All above cables are to be round, blue or green color, copper conductors are solid and made of pure copper XPLE, PVC insulated, Armored with inner sheath, 600 V, conductors sizes 3x50+1x35 mm2. The price includes all materials and works to install the above cables including whatever of electric, mechanical fittings and accessories as PVC and steel trenches, anchors with clamps, jumpers, stays including base, anchors steel wires, The cables must be lay inside 4"PVC/as rubber pipes of flexible spring type two layers. The price includes excavation inside all types of soil and rock trenches not less than 40\*30 cm and lay on the cable inside these trenches and adding pure sand as backfilling to all size of the trenches and casting in the last 10 cm of the trenches with plain concrete over the pipes. The price includes supplying and installing all electric motor control devices (as RTDs thermal, over load) and any other connections including cabling inside or outside the pumping station relevant to this work and according to standard specifications for this work. The opening tender committee will receive an offer about type and motor specifications, catalogues, and an in site testing report which shows that the motor is matching with these specifications.   * The price of this item includes supplying and installing two I steel section (25\*30 cm) to hold on the motor * The electrical motor must be supplied with RTD (PT100) temperature protection. The type of motor connection must be suitable to present the motor temperature digitally inside the control panel. The price of this item includes all costs of materials and works to install and test the RTD control device. * The motor shall be designed and built for 24hr continuous service at any and all points within the required range of operation without overheating, cavitations, excessive vibration and strain. * Motor has to be new and furnished with a stainless steel name plate with data of the serial number, speed , KW, input voltage, Full load, Hz, power, etc . * All works necessary for transporting, supplying to the site of work, installing, connecting, running and testing are under the contractor expenses. * All works must be according to the Palestinian standards and engineers instructions and the specifications and drawings. * The price also includes any missing works not mentioned to execute this work. * The contractor must submit the motor specifications, certificate of origin , catalogs and on site testing report which shows that the motor is matching with the manufacturer specifications | Lump sum | 12000 | 1 | 12000 |
| G2.1 | **Main Electrical Control Panel Unit**: suitable for 70 m3 /hr at 16 bars, and installing in the site for the mode of operation, a control board according to the following specifications and supervisor instructions : control panel box shall be made of three compartments: one for main hour meter and fusses- breaker. The second compartment for the 130 hp inverter as ABB, main breaker as Siemens, contactor, capacitor(s) bank, main cables inlet/outlet.), It shall be IP56 protected, thermally painted paint as (RAL 7302). All main cables and wiring must be closed with special plastic cover and protected against human electric shock. The third compartment includes all control circuits, and secondary contactor, breakers for the high voltage cabinet or the low voltage. The control panel must be fixed to the wall by six Jumbo screws and laid on a reinforced concrete foundation 40-50 cm above the ground. The contractor should submit as built drawing including soft and hard copy. In case the contractor will use any digital equipment including PLC he must submit the cable, the software, or any other accessories that are necessary to operate and maintain these digital equipments.  The labeled nameplate should be mounted at the front of the main board behind the doors and above every switch and group of lamps. Control electric lamps 24v must be fixed to control all operation system, the starter shall be used to start, run, stop , protect and control manually and automatically by using the general required installation of the following equipments completely:   * The power circuit must consist of the following: main circuit breaker MCCB 3\*200A,25KA adjustable for the company and for generator (MOLLER ) two pieces. The price includes supplying and installing manual change over switch 4\*250A, SOCOMEC type for manual operation. * Bus bar 200A/0.4KV (3 phases and neutral and earth) * complete 4p \* 20KA surge arrestors of replaceable type. With box fuse 3\*63. * Digital screen inverter 130 Hp as ABB type with bypass contactor 130 Hp as MOELLER type equipped with over /under load, over temperature and all control system needed with all protections rated at suitable power that matches the pump motor with (0.8-1.2) over load range. * suitable capacitor banks with discharge resistors compensating reactor dry type 400v 50 Hz to reach power factor 0.97 Ducati. Three phase capacitor with resistors 30 KVAR Ducati type. * Digital multi meter which is able to read directly from a screen (V, Hz, KW, A, PF). * No voltage phase sequence and phase failure relays of best quality as MOELLER. * On-off push button set and emergency off button. * Reset push buttons red color 22 mm. * Overload relay unit rated at 1-1.5 of motor full load including digital motor screen protection control board. * Temperature relay unit rated at the motor thermal sensor, including digital motor screen protection control board with all cables and connections. * HRC fuses 3\*63A complete Fernaz type. * WHM 50\*50mm. * 24h clock with 150 hr mechanical reserve. * suitable automatic breaker with adjustable thermal and magnetic protection (ISC>=25KA) NZM. * (0-500V) 96\*96mm Voltmeter with selector switch between phases and neutral. * (0-300A) 96\*96mm ammeter. * 3 phase fuse holders set , 10\*38mm , with 20A fuses , * suitable earth leakage relay class A (AC and Dc trip). * contactor with discharge 25KVAR Moeller type. * Breakers for service Siemens type. * Relays and timers 24 V for no flow switch and high-pressure, low-pressure sensors. * Three phase 50 Hz 380V (KWh-meter), /5A-200/5 CT’s. The KW-h meter as electromechanical meter or solid state and pre-paid card electric type. * 24V/ 50Hz indication lamps installed in front of the control cabinet.. * 3 position selector switch A-O-M. * 220-2 12V (AC) transformer 100VA. * the price includes all cables to be used for control purposes shall have the following cross section: * \*(3\*95 mm2 + 35 mm2) for the internal connections inside main board and the contractor has to check and order the exact required length. * \*1.5 mm2 for the driving wheel circuits. * \*2.5 mm2 for the circuits of tension measurements. * \*1.5 mm2 for the sensors. * \*4.0 mm2 for the circuits of intensity measurements. * \*All terminals shall be carefully protected to assure electrical insulation. * Switches, measuring instruments, and warning slights shall be installed in the front side of the panel. * The control panel shall be manufactured with enough space (minimum 40% free space of the total size) to insure easy maintenance and no interface between the wiring for all circuits. * All wires must be coded clearly and fixed with special wire heads to avoid loose connection. * All timers (PSK), relays and contactors shall be of best quality as Siemens * the contractor shall supply any other materials and devices that might be missed here and considered to be essential to complete the work without claiming any changes in unit prices. * The control panel must be equipped with an alarming bell (100 dB at 8 meters distance) and flashing red alarm (should be visible from 300 meter during day). Alarms for all cases of failure as: voltage drop, no voltage or phase failure high or low pressure and no flow, high temperature etc. * The alarm must be muted without general reset and there should a special button in the front door to stop it alone. * Circuits must consist of the all necessary materials to operate and protect the system automatically and manually, the wiring color system, numbering all the components. The price includes the design of the whole system of control the contractor is intending to carry. The contractor should also submit at the end of work a s built drawing.   The control panel deign should include:   * Transformer 230/24V 150VA * Water level relay HK type. * 220V AC /80 Watt with 2 fans in each compartment, one for taking in air and the other for taking out the air with grid ( for the panel) complete with thermostat protection. * SIREN (alarm system)   Alarm system 24V for :   1. High pressure outlet 2. Low pressure outlet 3. No flow (non return valve) 4. Soft start fault 5. High temperature  * The price includes the excavation works installing pressure switches, flow switch and level sensor and all the electrical parts with suitable conduits and metal ducts to complete the works. * the price includes installing and testing for the mode of operation all mentioned devices and sensors. The control panel must be equipped with earthing unit so the price includes. * **Earthing** : The price of the control panel includes supplying and installing complete earth unit with earth equalizer compressing C40 box copper B.B. 25 mm2, with minimum two concrete manholes as foundation lines , two earth electrodes, D>19m, L=1.5m and any other missing materials to earth the pumping station . The price includes testing earth unit so as to fulfill the standard requirements (resistance less than 1.5-2 ohm). The across different fittings in the piping system. * The price also include supply all materials (as cables, in-out sockets and install, two outlets as 3-phase Service unit for the pumping room including Main MCB 5\*20A -10 KA MOLLER type. MCB 2 \*10A – 10KA Moeller type the control * The price include all cable materials and works to conduct the electrical connections of the thermal sensor inside the motor -(the cable 3x2.5 mm2 , the cable should be of suitable length. Use flexible thermal conduits, cable glands, wire terminals& labeling at both ends and all the accessories needed to complete the work(excavation &backfilling),the cable from the MDB to the head of pump motor. | L.S | 9000 | 1 | 9000 |
| G3.1 | **Flow Control switch**: Supplying and installing an electrical flow switch suitable for 6" pipes, powered by a 24v-dc power source. Price includes all cables and protection conduits required to connect it with the control panel, as shown pumping layout view. | Num. | 100 | 1 | 100 |
| G4.1 | **Pressure barrel**: Supplying and installing of a pressure barrel. The contractor shall supply and install all the pipes and fittings to connect with outlet main 6” pipes of the pump and should be according to specifications. The price include, complete instrumentation of the pressure barrel including all fittings and steel pipes ½” , and two-1/2 inch ball valves, pressure stabilizer needle valve at the entrance, foot valve-4directions, couples, nibbles, elbows with nuts, bolts, flanges and gaskets as needed to install the pressure barrel. The price includes supplying and installing all necessary materials and works to connect to the pressure switches and casting a suitable reinforced foundation under barrel, and above the pump ground level, as shown pumping layout view. | Lump  sum | 500 | 1 | 500 |
| G5.1 | **Pressure Control switch** Supply and install two pressure switches 1-25 bar. Price includes all cables and protection conduits required to connect it with the control panel, as shown pumping layout view. | Num. | 120 | 2 | 1800 |
| G6.1 | Supply and install pressure **Relief Valve**, 25 atm, complete, The price includes excavation, cutting, welding, adding screws, bolts and accessories that are needed to assemble the valve and according to specifications Annex 1/ S7 . The Price also include supplying and installing 2" coupling, 2”conical record, 2”nipple and 2" gate valve, as shown pumping layout view. | piece | 1200 | 1 | 10800 |
| G7.1 | **Pump lifting and reinstallation**: All works related to disjoin the existing discharge head, pumping pipes turbine, shafts, retainers, etc and reinstall the new pumping pipes, turbine, shafts, retainers and all related accessories. The price involves checking and operating the pump after finishing all project works to insure no vibration or unusual sound, as shown pumping layout view. | Lump sum | 1500 | 1 | 4500 |
| G8.1 | **Pumping pipes**: Supply and install new seamless iron pumping pipes with the following specifications should be supplied: (SCH 40) Diameter 6", thickness not less than 7.1 mm; and teeth not less than 8 teeth in 1" and painted with epoxy from outside and inside or galvanized by factory from source of supply. The number of teeth should be enough to cover the whole length of the intended coupling and not less than 15 cm length. The price includes threading cutting and adding reducers, or flanges, bolts to connect between the new rising pipes and the pump. Taking in consideration that the quantity estimated in this tender may increase or decrease. | M.L | 120 | 18 | 2160 |
| G9.1 | **Shafts:** Supply and install new shafts of carbon steel 1040, of 40 mm diameter and at the joints should be covered by stainless steel sleeves, and ended with a suitable couple according to Annex 1/S8. The price includes threading, cutting, adding suitable line shaft coupling, stabilizers to connect between the new shafts and the pump. Taking in consideration that the quantity estimated in this tender may increase or decrease. | M.L | 60 | 18 | 1080 |
| G10.1 | **Retainers and bearings:** supply and install new bearing retainers made of bronze and taking in consideration that the quantity in this tender is estimated and may increase or decrease. | Num. | 75 | 6 | 450 |
| G11.1 | **Rubber Joints**: supply and install new rubber joints and taking in consideration that the quantity in this tender is estimated and may increase or decrease. | Num. | 20 | 60 | 120 |
| G12.1 | **Discharge head:** Supply and assemble a new steel discharge head complete type F. The intake and outlet dimensions are 5"\*6" the price includes supplying and installing wick and box, and suitable stainless steel column for the last riser pipe and connect with and up to motor shaft. The basic dimensions for the discharge head are 45\*65 cm. The price includes supplying and installing a suitable stainless steel column for the last riser pipe. This column will connect with motor shaft. And it includes also supplying 2 suitable I steel section and casting new reinforced concrete foundation underneath the discharge head, as shown pumping layout view. | Lump sum | 1500 | 1 | 1500 |
| G13.1 | **Accesses Pipes**: **PVC, polyvinyl chloride sch. 80 pipes NP 25 bars of 1.5 Inches Diam.**  Supply, install and test in the well access PVC, pipes sch. 80/1.5 " size threaded and suitable coupling at joints ,These pipes should fixed to the pumping pipes using stainless steel clamps.  The price includes suitable couplings and 2\*2.5 mm2 level submersible cable (>= 105 meter) and electrode. | M.L | 6 | 90 | 540 |
| G14.1 | **Gate valve**: Supply and assemble gate valve, 6"complete, 25 bar. Price includes excavation, cutting, welding, adding screws, bolts and accessories that are needed to assemble the valve. The valves could be installed anywhere within the project area and according to specifications. mentioned in Annex1, S2 , as shown pumping layout view. | Num. | 800 | 2 | 1600 |
| G15.1 | **Gate valve**: Supply and assemble gate valve, 3"complete, 25 bar. Price includes excavation, cutting, welding, adding screws, bolts and accessories that are needed to assemble the valve. The valves could be installed anywhere within the project area and according to specifications. mentioned in Annex1, S2 , as shown pumping layout view. | Num. | 400 | 1 | 400 |
| G16.1 | **Gate valve**: Supply and assemble gate valve, 2"complete, 25 bar. Price includes excavation, cutting, welding, adding screws, bolts and accessories that are needed to assemble the valve. The valves could be installed anywhere within the project area and according to specifications. mentioned in Annex1, S2 , as shown pumping layout view. | Num. | 200 | 1 | 200 |
| G17.1 | **Non return valve**: Supply and assemble a non return valve, 6" complete, 25 bar of the swing type .Price includes excavation, cutting, welding, adding screws, bolts and accessories that are needed to assemble the valve. The valves could be installed anywhere within the project area according to specifications mentioned in Annex 1/ S1, as shown pumping layout view. | Num. | 1500 | 1 | 1500 |
| G18.1 | **Compound air valve**: Supply and assemble 2" compound air valve complete, 25 bar. The price includes excavation, cutting, welding, adding screws, bolts and accessories that are needed to assemble the valve. The valves could be installed according to specifications mentioned in Annex 1, S3. The Price also include supplying and installing 2" coupling, nipple and 2" gate valve. , as shown pumping layout view. | Num. | 700 | 1 | 700 |
| G19.1 | **Pressure gauge**: Supply and assemble pressure gauge, 25 bar with oil liquid Rotal ASME, B40. Price includes excavation, cutting, welding, adding coupling, and accessories that are needed to assemble the gauge, as shown pumping layout view. | Num. | 50 | 3 | 150 |
| G20.1 | **Dresser:** Supply and assemble 6" dresser complete. Price includes ears 60 cm rods and screws, bolts, excavation, cutting, welding, and adding accessories that are needed to assemble the dresser with NP 25 bar, as shown pumping layout view | Num. | 150 | 2 | 300 |
| G21.1 | **Dresser:** Supply and assemble 3" dresser complete. Price includes ears 60 cm rods and screws, bolts, excavation, cutting, welding, and adding accessories that are needed to assemble the dresser with NP 25 bar, as shown pumping layout view. | Num. | 100 | 2 | 200 |
| G22.1 | **Dresser conical record:** Supply and assemble 2" dresser complete. Price includes rods and screws, bolts, excavation, cutting, welding, and adding accessories that are needed to assemble the dresser with NP 25 bar, as shown pumping layout view. | Num. | 70 | 1 | 70 |
| G23.1 | **Steel pipes**: Supply and install 6" steel pipes for irrigation network. The minimum thickness of pipes is 4 mm as shown in Annex 1 /S9. The price includes, all costs of transportation, pipes distribution, excavation, cutting, shaping, welding, painting two faces (red oxide priming paint and zinc oxide base oil paint). The price includes reconnecting the new installed pipes with old network pipes and adding new connections (2", 3" or 4") of similar sizes for all farms which exist on the old pipe line. | M.L | 30 | 24 | 720 |
| G24.1 | **Galvanized 3” pipes**  Supply and install 3” diameter galvanized steel pipes thickness 3.96 mm, and according to specifications Annex 1/ S1-9, as shown pumping layout view. | M.L | 15 | 12 | 180 |
| G25.1 | **Galvanized 2” pipes**  Supply and install 2” diameter galvanized steel pipes thickness 3.96 mm, and according to specifications Annex 1/ S1-9, as shown pumping layout view. | M.L | 12 | 6 | 72 |
| G26.1 | **Elbows, T or Saddle:** Supply and install 6"/90 or 45 degree black steel elbows or T and Saddle for welding SCH 40 anywhere within the project area | Num. | 50 | 5 | 250 |
| G27.1 | Supply and install a complete 6" **cast iron water mete**r according to ISO 4064 (class B) or equivalent annex 1/ S5. Capacity 200 m³/hr, 25 bar painted with epoxy coated from both inside and outside, the measuring unit should be removable type without removing the body Price includes excavation, cutting, welding, adding dresser, flanges, screws, bolts, gaskets and adding accessories that are needed to assemble the valve with the dresser, as shown pumping layout view. | Num. | 1000 | 1 | 1000 |
| G28.1 | **Provisional item Supply and install water meter with the following specifications as ABB type :**   * **Built-in earthing (grounding) electro** * **Diameter 6” PN 25 bars.** * **Remote communications**– including Profibus DP v0 * **Electronic Display Unit:** Forward, reverse and net totals \_ 4 digital outputs and Communications: serial data (RS232), HART and Profibus DP v0. Remote communication up to 100m length and built in memory 8 GB. Adjustable reading frequency up to 2 s. PLC programmable. * **High accuracy as normal between 1-500 m3/hr** * **Housing IP65 (NEMA4)** * **Power supply AC/DC** | L.S | 3000 | 1 | 3000 |
| G29.1 | Supply, install a **screen digital** hydrostatic level meter (**submersible digital level sensor**) with the following characteristics:   * **Water Level Measurement**: 40m (max.) * **Excitation:** 9 to 30 Vdc, reverse polarity protected * **Output:** 4 to 20 mA DC, 2 wire, short circuit protected * **Input Current:** 20 mA max * **Accuracy:** 0.50% FS BFSL (includes linearity, hysteresis and repeatability) * **Response Time:** 2 ms * **Operating Temperature:** -10 to 60°C * **Proof Pressure:** 150% * **Burst Pressure:** 200% * **Wetted Parts:** 316 stainless steel * **Electrical Connections:** Submersible cable terminating in digital leads   The price include all works and materials, as cables, connections, sensor, digital screen that shows the remaining water depth above the sensor. The price includes all wiring necessary to connect the sensor inside the well’s hole to the MCB. In addition to that a process meter/controller, should be digital and programmable one, with flush mounted to be installed in the MCB 's door, step response 2sec,6A dual relay | L.S | 2500 | 1 | 2500 |
| G30.1 | **Water Cooling Tank:** Supply and install plastic polyethylene water tank capacity 1 m3 for cooling and lubrication of the shafts and rubber joints before the start according to PSI 99-1 to 6-1999. The price includes supplying and installing all necessary connections as 1-inch galvanized steel pipes, 1-inch ball valve, 1-inch dresser, 1-inch elbows etc. to connect between the water tank and the opening of the outlet at the discharge head, as shown pumping layout view. | Num. | 300 | 1 | 300 |
| G31.1 | **Provisional item Field and Lab Tests:**   * Water quality test includes Fecal and total Coliform, nitrate, chloride, sodium and bicarbonate, total dissolved solids, Sodium Adsorption ratio. All tests should be done two times, one according to the existing situation and the other one after the project. | L.S | 500 | 1 | 500 |
| **Total costs of all materials and works** | |  | | | **58192** |

**Civil works for groundwater well room No. 15-18/006in Noor Shams**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Item No.** | | **Description** | **Unit** | **Unit Price**  **($USD)** | **Qty** | **Total**  **/$US** |
| **Civil Works** | | | | | | |
| G1.2 | **Description, Groundwater well Pumping Room Rehabilitation:**  The price of rehabilitation includes all works and materials necessary to accomplish all activities according to works standards and supervisor engineer instructions and as follows:  The price for this item includes but not limited to the following types of materials. Any other material necessary to rehabilitate the well pumping room, must be prepared and the cost is included in this lump sum item.   * **Cleaning** **the site** from any waste and extra building materials: cleaning the room from any materials accumulated inside the room until reaching the original basement or the solid ground and despite of the quantity of cleaned sediments or the room ‘size. Therefore, the contractor should visit the sites and put his prices according to a comprehensive idea all the necessary works for this sub –items and all other items in this project. The price include the disposal costs to a place accepted the local community. * **Inside plaster: removing the old plaster** layer until reaching the original room ‘walls, the rate include all works necessary to carry four coats of plaster one as rough “musmar or nail shape” and made mainly of cement and silica sand of percentages 1:1 by weight and act as a holding cohesive coat to the walls. in case the walls and the ceiling contains pockets or holes or un stable layer and loose materials, then it is necessary to use galvanized steel mesh 1\*1 cm \*0.5 mm thickness and fixed to wall or the ceiling using special Jumbo bolts and washers. The second coat is made of cement/sand/ and fine aggregate crushed limestone as 1:2:3 and percentage are by weight respectively. The third cost is composed fine crushed aggregates with little sand and cement and lime 1:1:1 * The rate includes all works and water prices to prepare concrete **plaster** mix, and to cure the plaster for three days at least and where necessary. * The fourth face is composed of two coats of water proof materials as water proof **and**  emulsion water base acrylic paint paints and of strong wash resistance   The same plaster faces shall be used outside faces except the third face it composed of the following:   * The third cost is composed fine crushed aggregates with white cement and lime 1:1:1 locally know as shepreze * The fourth face is composed of two coats of water proof materials as water proof **and** emulsion water base acrylic paint paints (super Gameesh and as APC paints) and of strong wash resistance for outside use.   The tenderer must supply brand names of such product and catalogues including manufacturing company for the intended painting materials that are going to be used for rehabilitation. .   * **All types aggregates** for casting concrete and plastering materials: Supply all materials as crushed aggregates (fine and coarse materials as clean silica sand and medium size well graded gravel according to Annex, A3.), sand, water for the rooms, roof, floors, plastering the walls, and casting roof, floor and corridor area. All costs of transportation and any other costs for supply are included in the unit price. Concrete specification is according to Annex A1. Steel specifications are according to Annex, A2. The unit price includes a;; materials will be used for casting reinforced concrete for the room roof and floor and corridor (thickness not less than 10 cm and reinforced with steel bars mesh diameter 10 mm every 20 cm). The corridor shall be around all the building; and its width is 1.2 m and of the same specifications as the floor and roof layers. The roof layer is slopped at 1-2% and smooth finish as fair face. * Supply and install all construction materials (including cement, sand, and adhesive materials and bonds) which are required to make 2 m height of the wells’ walls of ceramic ceramic. This price for this item includes the supply of tiles of dimension not less 20\*30 wall ceramic grade A as Spanish tiles. The price including cleaning filling all spaces between each two row of tiles using special powder as MAPEI. * **Cement:** Supply cement for casting the room’s, floors, corridor, plastering the walls, and any other concrete works necessary for the rehabilitation of the building not necessarily explicitly mentioned here. All costs of transportation and any other costs for supply are included in the unit price. Concrete specifications are according to Annex, A1-1. And, Steel specifications are according to Annex A1-2. Rate also includes the supply of clean water suitable for drinking to be used for all concrete work (casting, plastering and curing). * **Steel:** Supply steel bars 10mm diameter for reinforcing the, roof, floor and the corridor area and anywhere within of the well site. The steel bars according to Annex A1. * **Roof works as reinforced concrete and asphalt insulation**. **Hot Applied Rubberized Asphalt Waterproofing/Roofing Membrane. Th**e concrete works are (B300) layer above the existing roof of the room (made of sloped 10 cm thick). The insulation layer is made by laying asphalted sheets minimum 4 mm thick with polyester for the top surface of the roof to prevent water leakage according to the Annex……. The constructing works must be according to instructions of the supervisor engineer and the standard specifications shown below. The unit price includes the primer coat above the sloped concrete face and making 10X10 cm chamfer between the slab and the walls & using galvanized steel at the edge of the insulation layer at the parapet. The works to be measured as per the horizontal plan of the roof from wall to wall without any additional cost for over lapping. * The rate also includes all works necessary for **testing the roof** for no leakage before it is covered with water for 24 hours. In the case of any noticeable leakage, the contactor should maintain the leaky place and redo the test * All costs of supply and install PVC pipes and fittings 2”, 3”, 4”, 6” to drain the roof rainwater and wash water inside the room. The price includes transportation and any other costs for installation. * The price includes all materials and works which are necessary to replace the existing **external steel frame** and protection for each window. The protection bars are made of 16 mm steel and at least two steel solid profiles 5\*0.5 cm. The outer frame is made of steel box profile 4\*4 cm \*2 mm thickness. The unit price includes steel frame, and works and materials for painting as two faces (red oxide priming paint and zinc oxide base oil paint. All costs of transportation and any other costs for supply are included in the unit price. * Supplying all materials and executing all existing window with **aluminum windows and regardless of the** dimensions. Aluminum 7000 sliding window as 2 and 3 leaves according to the window’s size. The price includes all materials needed such as glass, screen, locks … ect. * Supplying and executing a **steel door** and frame with the existing well’s door(s0 dimension(s). The door steel sheets are 2 mm thickness and fixed over box beams each of 6\*4\*3 cm and 2 mm thickness every 0.4 meter height. The door is divided into one or several parts so that each part width does not exceed 100 cms. The outside frame is made of steel angles not less than 5\*5 cm and 4 mm thickness and fixed to concrete walls (not brick). The price includes all materials needed to complete the work such as, locks, and painting,. * **External Ladder:** Supply galvanized steel 2”, 1” steel pipes, thickness not less than 4 mm for executing an external ladder. The main pipes are 5” and the steps pipes are 1” welded all around to the wall pipes. The step distance is 30com. The ladder is fixed and the ground by welding and to the room walls by Jumbo bolts. The ladder width is 70 cm and its height should 80 cm higher than the roof of the room and the ladder is fixed to the ceiling. The ladder is protected by adding galvanized steel cover sheet with lock (1.5 mm thickness) and height 2 ms from the ground.   **Wiring and Lighting** Supplying and executing all materials (as suitable size cables, on-off lighting fixtures, sockets, breakers, steel trenches needed for inside and outside lighting of the station (pump shed and station yard) according to the following:  6x36 W flourcent surface mounted (water proof) IP55 as Gaash type or equivalent for outside the room.   * Lighting the room from inside by four pieces double-glass fluorescent lamps (36 w) in each room (water proof). * 2x30w emergency 10 hours duration lighting fixture to be fixed in accordance with the supervisor engineer's instructions.   The price includes the lighting service and which is controlled by a separate DGB. Its power source is directly controlled through a double pole MCB   * Lighting the outside of the rooms by External two projectors each of at least 400W Metal Halide water proof IP 55 with aluminum body (high quality) (the price includes 3/4" galvanized pipe (arm ) 2m for connecting projectors, they will be switched on from the service DGB. Distribution box for lighting suitable for 24 circuit breaker (DBG). Also the price includes conduits ,(3x2.5mm) and all size of cables& all accessories needed to complete the work. Supplying materials and executing 4 power sockets, and one as 3-phase and the other two as 1-phase. The price includes supplying electric cables, leads, on-off keys, power sockets, trenches…etc. The price includes all any other missed works or materials to execute the lightening item | | Lump Sum | 9000 | 1 | 9000 |
|  | **The well pumping room total costs** | | | | | **9000** |

**Booster Pump and balance reservoir works for well room No. 15-18/006 in Noor Shams**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Item No.** | **Description** | **Unit** | **Unit Price**  **($USD)** | **Qty** | **Total**  **/$US** |
| **G1.3** | **Electrical Control Board**   1. **CABLES& WIRING**   Supply, install, test & connect the following electrical cables, including insertion into the conduit or attachment to structural elements, including all associated materials, insulation materials ,labeling, connection at both ends, and all other fittings and accessories needed to complete the work  Cable 3x50+25mm2 XLPE for booster pump  Executing electrical connections completely between company poles , Main electrical panel , electric motor of the booster pump , and other fittings needed to complete the work by inserting the cables inside PVC pipes 4" ,6" with elbows , tees to change the direction after that covered the electric Trench with sand 10 cm below the pipes , 10 cm above ,after that covered the trench by concrete blocks 10x20x40 cm, warning tape, and complete backfilling with suitable soft materials and compact the trench as needed . The work will include supplying & delivering suitable copper cables (XLPE).  Supply, install,& test PVC conduit 4" with pull wire from the main distribution board to the pump motor ,and to be laid and installed in the trench  Also the price includes the excavation works, installing pressure switches, flow switch, and High level, low level sensor, and all the electrical parts with suitable conduits to complete the works.  Cables to be used for power , control purposes shall have the following cross sectional areas:   * + (3\*50+25) for the booster pump's electric motor)   - 1 mm2 for the control circuits..  - 1.5 mm2 for the sensors  **B- MDB**  Supplying, delivering and installing for the reservoir site a main electrical control board: water proof, full automatic motor starter to drive the motor of the booster pump unit :-  It will be used to start, run, stop, protect and control the above mentioned motor.  The electrical board shall be made of steel frame (2.5mm) thickness, Gray, thermally painted, water proof.  It shall be located against the wall and anchored to the floor by concrete foundation, , the work shall include executing all connections between the various compartments to the panel doors, and all the output connections shall be made by means of terminals corresponding in size and cross-section to the electric conductors.  Labelled nameplate shall be mounted at the front of the main board behind the doors and above every switch and group of lamps.  Control electric lamps (24 V) must be fixed to control all operation system, the starter shall be used to start, run, stop, protect and control the above motor, manually & automatically by using the general required installation of the following equipments completely.  **The power circuit must consist of the following items**  Main circuit breaker- for the company- MCCB 3x160 A , 35 KA, thermal and magnetic protection, adjustable ( M.G, Moeller, or equivalent)  Main circuit breaker- for the booster pump- MCCB 3x125A ,35 KA, thermal and magnetic protection, adjustable ( M.G, Moeller, or equivalent)  Complete Surge Arrester 4P/ 20KA with box fuse 3x63 A  b)- Static multifunction digital metering ( KW, KVAR, A, V, P.F, HZ) with 3 current transformers 125/5 (Lovato or equivalent European one )  Bus Bars 250 A/ 0.4 KV (three phases& Neutral & Earth)  Soft starter-Soft stop 80 Hp P.E type or equivalent with by bass contactor 60 HP Moeller type or equivalent (Soft start shall contain all protection parameters as, over load , over temperature ,current limit, initial torque and all control system needed),also it must be calibrated with indicating leds  Capacitor bank unit for ( 80 HP) pump motor to improve the power factor to 95 % including :  HRC fuses 3X 40A complete , Ferraz type or equivalent  Contactor with discharge 15 KVR Moeller type or equivalent  Three phase Capacitor with resistors 15 KVAR (Ducatti type or equivalent)   1. **SERVICE UNIT INCLUD**   Main mcb 3x32A -10 KA ( Moeller type or equivalent)  Earth leakage relay 4x40 A IΔn= 30 mA for three phase socket ,(Moeller type or equivalent)  mcb 3x20 A -10 KA Moeller type or equivalent  Mcb C1x16 A -10 KA Moeller type or equivalent  Mcb C1x10A -10 KA Moeller type or equivalent  **The control circuit must consist of the all necessary materials to operate and protect the system automatically and manually , the wiring color system, numbering all the wires and components.**   1. **Control**   Transformer 230/24 V , 100 VA with two mcbs 2x6A  Phase failure phase sequence relay PSK type or equivalent  Over , Under voltage relay  Timers (0-60) sec adjustable & indicating lamps,24 V  Ditto, but (1-10) minutes  Relays 11 pin 24 VAC (A.B , relpol ) or equivalent (with indicating led)  Ditto, but 220 VAC  Mcb 1x6 A  indicating lamps 230 VAC  indicating lamps 24 VAC  Hour meter 230VAC Grasslin type or equiv.  Emergency Push button switch (Bretter or equivalent)  Two position selector switch (ON-OFF) Bretter or equivalent for the well pump.  Three position selector switch (M-0-A) Bretter or equivalent for the well pump.  Reset pushbutton red color  Start –stop push button (Bretter type or equivalent)  Digital temperature controller unit ),good European type  Timer 24 Hr with 150 hr reserve (Digital) Theben type or equivalent  220 V AC fan with grid (for the panel) complete with thermostat  Siren (alarm system) Alarm system 24 V for:  1) High pressure outlet ( H.P) 2) Low pressure outlet ( L.P) 3) No Flow ( Non- return valve)  4) Soft Start Fault 5) High temperature  Electrical connection of the pressure switches (HP & LP) -(the price includes excavation and backfilling, cable 3x1.5 mm2, flexible thermal conduits, cable glands, wire terminals& *labeling at both ends* and all the accessories needed to complete the work for the well pump & booster pump  Electrical connection of the thermal sensor inside the motor -(the price includes cable 3x2.5 mm2 , flexible thermal conduits, cable glands, wire terminals& *labeling at both ends* and all the accessories needed to complete the work(excavation &backfilling) from the distribution panel to the well pump motor and booster pump motor  Electrical connection of the Flow switch -(the price includes excavation and backfilling, cable 3x1.5 mm2 , flexible thermal conduits, cable glands, wire terminals& ***labelling at both ends*** and all the accessories needed to complete the work  The price includes supplying and installing electric floaters, high level ,low level ,good type (the price also includes cable 5x1.5 mm2 , flexible thermal conduits, cable glands, junction box IP65 , wire terminals& *labelling at both ends* and all the accessories needed to complete the work(excavation &backfilling)   1. **Earthling Unit:**   Executing an earth unit for the pumping station complete by using electrodes 19 mm 1.5 m – long inside concrete hand holes out side the pumping room and connect them with a suitable bare conductor (CU 25 mm) and all electrical components must be grounded( Electric panel, Booster pump motor, sensors ,water pipes , Booster pump, , and all metallic services in the building, ,The earthling resistance must not increase (1-2)ohm , and painting the cover of the hand holes with yellow- green paints as a sign for the earth  The price will include hand holes, junction box, potential equalizing Bus Bar, electrodes and all accessories needed. Copper electrode 19 mm/1.5m long including inspection chambers and their covers will be painted yellow-green , 25mm 2 CU bare conductor ,to be connected from electrodes to potential equalizing Bus Bar in MDB and all accessories needed to complete the work | **Lump SUM** | **5000** | **1** | **5000** |
| **G2.3** | **Booster Pump**  Supply and install a vertical centrifugal booster pump of Q = 120 efficiency not less than 75%, impeller must be stainless steel, the electrical motor should be complete water proof with all protection needed.   * + The price includes supplying and installing all required fittings to connect the pump with both lines (inlet and outlet).of 16 bar and above.   + The booster pump must be fixed on a reinforced concrete base at the suitable height.   + The booster pump must be connected to the electrical control panel   + The motor is 3 phase motor (rewindable) and includes all connections to the cables, pipes, fittings and all necessary works.   + Liquid: portable water   + Design capacity: 120 m³/h   + Design head: 85 m   + Minimum bowel efficiency at design point 70%   + Maximum run out capacity 120 m³/h   + Minimum bowel efficiency at run out capacity 80%   + Motor and pump operating speed 2900 rpm   + Main frequency 50 Hz   + Pump motor is duty frequency (6:1) speed ration   + Rated voltage 3\*380 – 400-415 V   + Start method: soft starter   \* Contractor has to supply a suitable cable to connect the motor to the control panel  \* The motor shall be designed and built for 24-hours continuous service at any and all points within the required range of operation without overheating , cavitations excessive vibration and strain.  \* Motor has to be new and furnished with a stainless steel name plate with data of the serial no., speed, Kw, input voltage, full load, Hz, power etc.)  \* All works from supplying, installing connecting running and testing are under the contractor's expenses.  \* All works must be according to the Palestinian standards and engineer instructions and as per specification and drawings.  \* The price also includes any missing works not mentioned to execute this work and includes laying cables inside a suitable cable trays laid and routed on the wall and ceiling fixed with suitable clamps and clips if he faces problems to excavate in the ground.  \* Supply and install all required power cables and control cables according to standard specifications.  \* The contractor must submit the motor specifications, certificate of origin, catalogues and on site testing report which shows that the motor is matching with the manufacturer specifications.  \*\* The price includes disconnecting the old booster pump and transporting it to the municipality stores according to the engineer's instructions- the pump shall be capable to run at shut off head for a few minutes | **Lump SUM** | **7500** | **1** | **7500** |
| **G3.3** | Supply and assemble a non return valve 6" complete 16 bar Price includes excavation, cutting welding, flanges, gaskets, adding screws, nuts, bolts and accessories that are needed to assemble the valve. According to the specifications in the tender. | Num | 1500 | 1 | **1500** |
| **G4.3** | Supply and install 6" float valve with handle, complete with flanges, gaskets, bolts and nuts working pressure 16 atm. Product of Bermad - Type 04-750-60VI. | Num | 4000 | 1 | **4000** |
| **G5.3** | Supply and assemble gate valve 6" complete 16 bar Price includes excavation, cutting welding, flanges, gaskets, adding screws, nuts, bolts and accessories that are needed to assemble the valve according to the specifications in the tender. | Num | 800 | 2 | **1600** |
| **G6.3** | Supply and assemble compound air valve 2" complete 16 bar Price includes adding 2” coupling and 2” stop valve, excavation, cutting welding, adding screws, nuts, bolts and accessories that are needed to assemble the valve. According to the specifications in the tender. | Num | **700** | 1 | **700** |
| **G7.3** | Supply and assemble a pressure gauge 25 bar with oil liquid Rotal ASME, B40. Price includes excavation, cutting welding, adding screws, bolts and accessories that are needed to assemble the valve. | Num | **50** | 3 | **150** |
| **G8.3** | Supply and assemble 6” dresser complete. Price includes excavation, cutting welding, adding screws, bolts, ears 60 cm rods and accessories that are needed to assemble the valve. | Num | **200** | 5 | **1000** |
| **G9.3** | Supplying and installing of a pressure barrel. The contractor shall supply and install all the pipes and fittings to connect with outlet pipes of the pump and should be according to specifications, complete with nuts, bolts, flanges and gaskets as needed to install the pressure barrel. The price includes supplying and installing all fittings to be connected to the pressure switches and casting a suitable reinforced foundation under barrel, and above the pump ground level. | Lump  sum | **500** | 1 | **500** |
| **G10.3** | Supply and assemble 6"-4" reducer Price includes excavation, cutting welding, | Num | **50** | 2 | **100** |
| **G11.3** | Supply and assemble 6" flange | Num | **40** | 1 | **40** |
| **G** | Supply and assemble 4 " flange | Num | **30** | 1 | **30** |
| **B13.3** | Supply and assemble 6" elbow 90 degrees or 45 degrees. Lined from inside with cement, and painted from outside with two layers of primers and oil coat | Num | **40** | 2 | **80** |
| **G14.3** | Supply and assemble 6" elbow 90 degrees or 45 degrees. Lined from inside with cement, and painted from outside with two layers of primers and oil coat | Num | **40** | 2 | **80** |
| **G15.3** | Supply and assemble steel pipes 6" diameter and 3.96 mm thickness Lined from inside with cement and galvanized from outside. | M.L | **30** | 18 | **540** |
| **G16.3** | Supply and assemble steel pipes 4" diameter and 3.96 mm thickness. Lined from inside with cement and galvanized from outside. | M.L | **25** | 6 | **150** |
| **G17.3** | Supply and assemble steel pipes 2" diameter and 3.65 mm thickness galvanized from f inside and outside. | M.L | **15** | 6 | **90** |
| **G18.3** | Supply and install pressure relief valve, 16 atm, complete, The price includes excavation, cutting, welding, adding screws, bolts and accessories that are needed to assemble the valve and according to specifications in the tender. | Num | **1200** | 1 | **1200** |
| **G19.3** | Supply and assemble couple 1/2 inch black welding steel + 1/2 inch ball valve | Num | **15** | 4 | **60** |
| **G20.3** | Supply and assemble 6 inches strainer and according to specifications in the tender. | Num | **250** | 1 | **250** |
| **G21.3** | Supply and install a complete 6" cast iron water meter according to ISO 4064 (class B) or equivalent annex 2, S5. Capacity 100 m³/hr 16 bar painted with epoxy coated from both inside and outside, the measuring unit should be removable type without removing the body Price includes excavation, cutting, welding, adding dresser, flanges, screws, nuts, bolts, gaskets and adding accessories that are needed to assemble the dresser with NP 16 bar. | Num | **1000** | 1 | **1000** |
| **G21.3** | **Concrete reservoir**:  **Excavation** **and cleaning:** for the mat foundation of the balance reservoir. The unit price is applied for excavation in all type of soil rock earth or mixed soil. It also includes backfilling materials and works with approved materials up to the required ground level and cleaning the site of the work from all surplus backfill materials or results of excavations. The unit price includes all backfill materials using base course grade A (as shown in Annex), and compaction on layers 20 cm until reaching 98% relative compaction density. Then supply and install reinforced ready mix concrete B300 to construct a balance reservoir net capacity 100 m3. The reservoir which is going to be built is located in the site of the well of approximate dimensions 5.5\*5.5\*4 m and reinforced by two mesh layers (lower and upper layers) each is reinforced with 5 bars (diameter 14 mm) per meter in both directions. In the case the wall are caste with the floor the contractor must use a water stop 25 cm. The reservoir walls are reinforced similar to the floor and wall thickness is 25 cm. The reinforcement at the base between the wall and the floor must include additional L bars (1.2\*1.2 12mm diameters as 5 bars per meter in both direction at both layers and at all the sides of the walls to maintain fixity between floor and walls and between each side the walls together. The roof of the reservoir is DESIGN FIXED SUPPORT. Therefore the length of the steel is 80 cm above the walls height and must bend in the roof . the roof is also reinforced by similar steel as the walls (2 layers each is reinforced with 5 bars, diameter 14 mm per meter in both directions). The and thickness of the roof is the same as walls ( 25 cm). the price includes all shuttering, reinforcement, concrete testing and necessary works to obtain fair face concrete from inside and outside of the reservoir. The price includes installing water level indicator according the PWA specifications. The price includes all works and materials for fixing 6” pipe inside the reservoir for the over flow with all 6” piping inside and outside the reservoir including building suitable riprap for the over flow and wash out. The price includes all works and materials for installing the pipes and fittings as 6” pipes and 6” gate valve, 6” dresser to install wash out manhole and inlet manhole and outlet manhole. All pipes must be 3.96 mm thickness lined with cement and galvanized. The price include the supply and install 6” air ventilation and roof steel cover 80x80 cm made of 3 mm sheets and 5x5x0.5 cm frame with lock. The price is also includes supply and install of 1”, 2” galvanized pipes 3 mm thickness to construct internal and external ladders wide 70 cm and steps each 30 cm. Bu using the specifications of pipes the price include supply and install galvanized pipes to build hand rail at the top of the reservoir at 1 m height. The main pipes are 2” and the secondary pipes are 1” | Lump sum | **19000** | 1 | **19000** |
|  | **Booster Pump and balance reservoir total costs** | | | | **44570** |
|  | **There is a need to supply and install 2700 meter 6” of steel pipes 4 mm thickness to connect and distribute water with proposed steel ground reservoir 1000 m3 reservoir; but this is another lot if you like to include or not in this tender??** | | | |  |

**Civil works for groundwater Booster room and Service Room well No. 15-18/006 in Noor Shams**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Item** | **Description** | **Unit** | **Unit Price /$US** | **Qty.** | **Total /$US** |
| **Description, Groundwater well Service Room** | | | | | |
| G1.4 | **Excavation** **and cleaning:** for the foundation of columns, tie beams of the building. The unit price is applied for excavation in all type of soil rock earth or mixed soil. It also includes backfilling materials and works with approved materials up to the required ground level and cleaning the site of the work from all surplus backfill materials or results of excavations. The unit price includes all backfill materials using base course grade A (as shown in Annex), and compaction on layers 20 cm until reaching 98% relative compaction density. | m3 | 10 | 30 | 300 |
| G2.4 | **Supply and install steel bars** in all the building elements (footings, tie beams, ground floor, columns, rib slab, etc). The price is includes transportation, fixing, curing, shaping and despite the bars’ sizes. See annex 3 **A3-2** | Ton | 1500 | 4 | 6000 |
| G3.4 | Supplying and executing all materials needed such as cement, gravel, sand, fine aggregate, water, stones, etc. For casting reinforced **concrete (B-300)** for footing, column nicks, columns, tie beams and of the building. The price also includes the Supply and installs of Latex Bituminous Emulsion (BE as nitcote:): The BE with viscosities in the range 0.5–10 Poise at 60°C, compatible with hydraulic binders like cement and lime as well as water-based polymer dispersions like natural and synthetic latex. The BE materials will be used to insulate the walls and footing from external water, backfill soil water content, and air humidity. The tenderer must supply brand names of such product and catalogues including manufacturing company for the intended painting materials that are going to be used for this tender works. The price also includes concrete tests. According to annex 3, and the enclosed drawings | m3 | 200 | 20 | 4000 |
| G4.4 | Supplying and executing all materials needed such as cement, gravel, sand, fine aggregate, water, ect. For casting 10 cm **plain concrete (B-250)** under the foundation and tie beams of the building. The price includes concrete tests. According to annex 3-1, and the enclosed drawings. The unit price includes all backfill materials using base course grade A (as shown in Annex), and compaction at least one layer 20 cm underneath the concrete layer. The compaction test must achieve 98% of relative compaction density. | m3 | 130 | 2 | 156 |
| G5.4 | Supplying and executing all materials needed such as cement, gravel, sand, fine aggregate, water, etc. For casting 10 cm **reinforced concrete (B-250) under the booster room floor** and in between the tie beams of the building. The price includes concrete tests. According to annex 3-1, and the enclosed drawings. The unit price includes steel bars mesh 5 ∅ 10 / m. The unit price includes all backfill materials using base course grade A (as shown in Annex), and compaction at least one layer 20 cm underneath the concrete layer. The compaction test must achieve 98% of relative compaction density. | m3 | 250 | 4 | 1000 |
| G6.4 | Supplying all materials, executing and constructing a **path around the building** with 120 cm width and 10 cm thickness and steel bars mesh 5 ∅ 10 / m. The price includes concrete tests. According to annex 3-1, and the enclosed drawings. The unit price includes all backfill materials using base course grade A (as shown in Annex), and compaction at least one layer 20 cm underneath the concrete layer. The compaction test must achieve 98% of relative compaction density. | m3 | 250 | 3.5 | 875 |
| G7.4 | Supplying and install ready mix concrete B300 for casting **ribbed slab** block 25 cm thick of the building. According to annex 3, and the enclosed drawings. The price includes supplying and installs hollow concrete blocks of 40X20X17 cm. Also the price includes all electrical and water and sanitation installation in the roof including all pvc pipes and fittings. The price also includes concrete tests. According to annex 3 and curing the concrete for week two time every day. | m3 | 200 | 16 | 3200 |
| G8.4 | Supplying and executing all materials needed such as cement, sand, fine aggregate, water, ect. For executing the **external plastering** (4coats). The first coat is made of water sand, and cement 1:1, the second coat is mix of cement, fine sand and crushed powder limestone 1:1:2 ,The third cost is composed fine crushed aggregates with white cement and lime 1:1:1 locally know as shepreze  The fourth face is composed of two coats of water proof materials as water proof and emulsion water base acrylic paint paints (super Gameesh and as APC paints) and of strong wash resistance for outside use. The outside colour is decided by the supervisor engineer | m2 | 10 | 200 | 2000 |
| G9.4 | Supplying and executing all materials needed such as cement, sand, fine aggregate, water, ect. For executing the **internal plastering** (4 coats). The first coat is san and cement 1:1, the second coat is mix of cement, fine sand and crushed powder limestone 1:1:2 , and the third coat is made of soft coat and made cement and lime 1:1. The fourth face is composed of two coats of emulsion water base acrylic paint paints. | m2 | 10 | 250 | 2500 |
| G10.4 | Supplying and executing **steel doors** and frame with dimension 100-110X250 cm. The door sheet (2 mm thickness) The outside frame is fixed over galvanized box frame of 25\*8cm and 2.5 mm thickness or made of steel angles not less than 5\*5 cm and 4 mm thickness. the unit price includes all steel doors in this tender outside frame should be fixed from all sides to reinforced concrete beam (not brick) It will be like concrete a ring beam 20\*20 cm and reinforced by 4 bars diameter 10 mm. The door is made of double steel sheets and braced by steel box 3\*6 cm 2mm every 0.4 meter height over the door width. The main internal frame is made of steel box profile 8\*4cm \*2.5 mm thickness The door is composed of one main part. The price includes all materials needed to complete the work such as, lock and painting two coats one as primer and the other as oil based. The color for all works in this tender must be referred to the supervisor engineer. | M2 | 250 | 8 | 2000 |
| G11.4 | Supplying all materials and executing aluminium **windows** according to the dimension shown in the attached drawings. The aluminium profile is 7000 or 4500 according to its location as for room walls and stair case or sanitary unity respectively. For the room windows it should be a sliding window (2 or 3 leaves). For the sanitary window it will be of swing type and for stair case it will be as shutter or vertically hinged. The price includes all materials needed such as glass, screen, locks … ect. | m2 | 160 | 8 | 1280 |
| G12.43 | Supplying all materials and executing an **external steel frame** and protection for each window. The protection bars are made of 16 mm steel and at least two steel solid profiles 5\*0.5 cm. The outer frame is made of steel box profile 4\*4 cm \*2 mm thickness. The unit price includes steel frame, and works and materials for painting as two faces (red oxide priming paint and zinc oxide base oil paint. All costs of transportation and any other costs for supply are included in the unit price. | m2 | 200 | 14 | 2800 |
| G13.4 | Supply all construction materials (including cement, sand, and adhesive materials and bonds) which are required to make the walls’ ceramic. This price for this item includes the supply of tiles of dimension not less 20\*30 wall ceramic grade A as Spanish tiles. The price including cleaning filling all spaces between each two row of tiles using special powder as MAPEI. | m2 | 20 | 40 | 800 |
| G14.4 | Supply and install all construction materials (including cement, sand fill under tiles, and adhesive materials and bonds) which are required to make the floor’ porcelain tiles. This price for this item includes the supply of tiles of dimension not less 40\*40 tiles grade A as Spanish tiles. The price including cleaning filling all spaces between each two row of tiles using special powder as MAPEI. and special product for the sanitary unit and water facilities. | m2 | 20 | 80 | 1600 |
| G15.4 | Supplying all materials needed and executing 4" plastic pipe from the roof of the building to the external canal for water drain. The price includes all materials needed to complete the work such as elbows, conical record, tee, other fitting etc. | ml | 10 | 15 | 150 |
| G16.4 | Supply of internal red wood door 70-90 cm wide and cover type oak. The door thickness is 4.5 cm, and a frame of 10 cm wide. The price includes the fixing frame and painting and lock. | m2 | 100 | 4 | 400 |
| G17.4 | Sanitary works: Supply and install all sanitary a distribution tank of capacity 1000 liters. The tank must be tested for no cracking or leakage and has a uniform thickness not less than 6 mm, internally smooth and made of high quality (density) of polyethylene resin suitable for drinking water The tank holder is made up of steel angles 5\*5\* cm \*0.5 cm thickness for the four legs; and the same will be used for the horizontal and vertical bracing. The legs end with supporting steel plates 10\*10\*0.5 cm The height of the hold legs should not be less than 1.2 meter. The main frame and its dimension should fit with size of the selected tank plus 5 cm from each side to enable total setting of the tank and with no deformation or punching that could occur at any of the edges. The steel angles spacing are places at maximum 25 cm and overlaid by 1 mm galvanized steel sheet fit the size of the steel base so as to avoid concentration of load and punching. The tank holder legs branched with angles to avoid buckling 3\*3\*0.3cm. The price includes painting two faces as for the previous specifications and any other costs to fix it steel frame; the price includes adding sun heater glasses 2-mirrors and 200 hot water tank with all necessary connections and fittings to link between the collection and distribution tank. This includes all steel, HDP plastic 3/4” and 1” pipes and copper fittings between the tank and internal water facilities as wash basin, flush toilet, bath basin..etc. the price includes excavation in all types of soil and rocks a hole of dimension 3\*3\*3 m, and include casting reinforced concrete B250 walls thickness 12cmand steel mesh 20\*20 cm bars diameter 12mm to build sanitary unit. Moreover, casting reinforced concrete B250 roof thickness 20 cm and reinforced by 2- steel meshes each 20\*20 cm diameter 12mm. The price includes all 2”, 3”, 4” pvc as Sn8, piping and connections between the service room toilet, kitchen and the cesspit. The price includes all costs to supply and install wash sink, wash basin, toilet flush, bath basin all of best quality as hans/GROHE; meanwhile including chrome taps. All connections include hot and cold water connections | Lump sum | 3000 | 1 | 3000 |
| G18.4 | **Wiring and Lighting for each room:** Supplying and executing all materials (as Gewis, and Philips) and suitable size wires and cables, inside the walls and the roof plastic pipes for wiring, on-off lighting fixtures, sockets, breakers, lamps, TV , telephone & internet connection, steel trenches needed for inside and outside lighting of the service room and yard) according to the following specifications:   * 6x36 W flourcent surface mounted double glass * 8x60 W lamps * Water heating as Atmor * 10 power sockets * 2-telephone points * Tv point * 2- flourcent (water proof) IP55 as Gaash type or equivalent for inside/ outside the room. * 2x30w emergency 16 hours duration lighting fixture to be fixed in accordance with the supervisor engineer's instructions. * All light cables will be 3x1.5 mm2 * All power cables will be 3x1.5 mm2   The price includes all the costs of material and works for the control lighting service and which is controlled by a separate Main Distribution Box. Its composed of power connections and breakers, bus bar. The power source is directly controlled through a double pole MCB and Main breaker 40 Amperes. It includes emergency breaker 2 mille Ampere and power breaker 16 Amperes. The distribution box should equipped with surge arrester and earth unit.  Lighting the outside of the rooms by External two projectors each of at least 400W Metal Halide water proof IP 55 with aluminum body (high quality) (the price includes 3/4" galvanized pipe (arm ) 2m for connecting projectors, they will be switched on from the service room. Distribution box for lighting suitable for 24 circuit breaker. Also the price includes conduits and all power cables (3x2.5mm). and all size of cables& all accessories needed to complete the work. Supplying materials and executing 4 power sockets, and one as 3-phase and the other two as 1-phase. The price includes supplying electric cables, leads, on-off keys, power sockets, trenches…etc. The price includes all any other missed works or materials to execute the lightening item | m2 | 1000 | 2 | 2000 |
| G19.4 | **Supply and install kitchens** accessories: this includes granite pargonza as show in the attached drawing, and price include all marble and tiles, aluminums closet above and below the kitchen granite block. | Lump sum | 800 | 1 | 800 |
| G20.4 | **Stair case steps and tiles:** Supply and install marble steps for the whole stair case of best local quality marble. The price includes all costs of materials as sand, cement, and other materials and necessary labor to carry this item. | Lump sum | 1000 | 1 | 1000 |
| G21.4 | * **Office furniture:** Supply and install computer table and box file archive shelves as L-shape (2x1)x2 meters made of red wood and Plywood. The price include supplying and fixing new   **computer desktop** AS DELL Inspiron 3000 desktop   * (3.1 GHz, Intel Core i5-4440 processor, 8GB DDR3 * 1TB 7,200RPM Hard Drive * Windows 7 Home Premium 64-bit * 8-in-1 Media Card Reader   **Screen as** : View Sonic VA2037A-LED 20-Inch LED-Lit LCD Monitor, 16:9, 5ms, Anti-Glare  **Printer:** HP LaserJet 5200 series printer  Software: The computer must be equipped with windows 7 edition and 2010 office and likened version Shamelite software for accountants | Lump sum | 3000 | 1 | 3000 |
| **The Service Room total costs** | | | | | 38861 |

**Electrical connection to local grid Booster and well pumps for well No. 15-18/006 in Noor Shams**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Item** | **Description** | **Unit** | **Unit Price /$US** | **Qty.** | **Total /$US** |
| **Electrical and Mechanical Works:**  In order to connect the well with electricity, a 22 KV electric overhead line must be erected from The High Voltage Main Line on Nablus –Tulkarem main street to the well location about 150 m length. The cables required are 3\*50+1\*50 mm2 ACSR and also 22 KV underground cable 3\*1\*50 mm2 CU, XLPE /22 KV cable. In the site of the well a pole mounted transformer with 400 KVA, 22/0.415 KV with all needed protection devices from both the HT & LT sides. | | | | | |
|  | Supply and install lattice pole (iron galvanized mesh) (12+2.5) 80\*90 cm. All bolts, nuts, washers including the base and pole must be Hot Dip Galvanized (H.D.G. ) | No | 4500 | 1 | 4500 |
|  | Supply and install lattice pole (iron galvanized U-pole) (12+2.5) 2U\*14 cm. All bolts, nuts, washers including the base and pole must be Hot Dip Galvanized (H.D.G. ) | No | 3000 | 2 | 6000 |
|  | Supply and install of 250 KVA 22/0.4 KV pole mounted transformer. | L.S | 15000 | 1 | 15000 |
|  | Supply and install of 22 KV isolated switch complete with all needed protections and isolation accessories and on arm. | No | 2500 | 1 | 2500 |
|  | Supply and install of L-side galvanized arm for the mesh pole, 3 m. | No | 400 | 1 | 400 |
|  | Supply and install 1\*50 mm2, 22 KV XLPE, CU cable. | Meter | 30 | 30 | 900 |
|  | Supply and install of L-side galvanized arm for the U pole, 3 m. | No | 400 | 2 | 800 |
|  | Supply and install of iron galvanized arm K-183 | No | 500 | 1 | 500 |
|  | Supply and install of iron galvanized arm K-1555 | No | 400 | 1 | 400 |
|  | Supply and install of iron galvanized arm K-1743 | No | 250 | 1 | 250 |
|  | Supply and install of iron galvanized arm K-68 | No | 500 | 1 | 500 |
|  | Supply and install of 50/8 mm2 ACSR | Meter | 2 | 450 | 900 |
|  | Supply and install of the following and despite of the quantities is needed for the whole connections   * pin insulator 850 complete * tension set 22 KV complete * 22 KV fuses set complete * 22 KV lighting arrestor complete. * 5 cm \*7/8" galvanized bolts complete. * 5 cm \*3/4" galvanized bolts complete. * 5 cm \*5/8" galvanized bolts complete. * 5 cm \*5/8" galvanized bolts complete. | Lump sum | 1 | 1500 | 1500 |
|  | Supply and install of low tension distribution board of 2- C-B each, 3\*160 A. and to be installed at the transformer pole including all bolts, holding bridges and connections. | L.S | 2800 | 1 | 2800 |
|  | Supply and install of anti climbing arm for the mesh pole complete with necessary bolts and nuts | No | 90 | 2 | 180 |
|  | Supply and install of anti climbing arm for the U- pole complete with necessary bolts and nuts | No | 60 | 2 | 120 |
|  | Supply and install of the following and despite of the quantities is needed for the whole connections   * line top connector 16-95 mm2 AL, for the HT. * solid wire CU 16mm2 * line tape CU/AL 6-50/16-95 * galvanized iron trench 2m\*20cm\*2mm * CU electrode 1.5 m\*5/8" * CU wires of 95 mm2 * CU wires of 95 mm2 * CU B.B 6/50 mm * f plastic cable cover 1m\*25 cm * cable s=end termination raychim kit50 mm2, 22 KV | Lump sum | 1 | 1200 | 1200 |
| **Electrical connection to local grid total costs** | |  | | | **38450** |

**Costs Summary**

|  |  |
| --- | --- |
| **Description** | **Total amount /$US** |
| **All Mechanical and Electrical works for the groundwater well. 15-18/006** |  |
| **The well pumping room total costs for the groundwater well. 15-18/006** |  |
| **Booster Pump and balance reservoir works for well room No. 15-18/006 in Noor Shams** |  |
| **The Service Room total costs for the groundwater well. 15-18/006** |  |
| **Total in words (includes) –$US** | |

**Company / Contractor Name: --------------------------------------------**

**Address: -----------------------------------------------------------------**

**Telephone: -------------------------------------- Fax: ---------------------**

**Signature and Stamp: --------------------------------**

**Date: -----------------------------**