UNHCR The UN Refugee Agency | Iraq

Annex B: Bill of Quantities (BOQ)
REQUEST FOR PROPOSAL: UNHCR RFP 358

LOT 2: Construction of Laboratory and Library and Renovation of WASH Facilities at Shakir Fatah School, Sulaymaniah Governorate

General notes:
1. All work items should be done according to IRAQI General Technical Specifications (IGTS), which comply with ACI-Code 1995 and apply according to the instructions of the supervisor Engineer.
2. All materials must be of the highest quality, being new and rigorously tested according to the Construction Works Specification by NCCL (1981 edition), and (ASTM) specifications. This emphasis on quality underscores the importance of your role in ensuring the integrity of the construction process.
4. The contractor shall provide samples for all materials to be used in the project before using them to get approval from the supervisor Engineer.
5. The contractor must check the designs for accuracy and adequacy. Otherwise, the Employer takes no risk of the contractor's failure to accomplish the work.
6. The contractor bears the responsibility of providing all required manpower, transportation, equipment, tools, machinery, and other resources unless otherwise stated. This underscores the weight of your role in successfully executing the project.
7. In case of any difference between BOQ, designs, and drawings, the instruction of the supervisor Engineer will govern.
8. After all work is finished, the site must be cleaned of all debris, and unwanted materials must be removed anywhere the municipality defines.

1	**Construction of Laboratory and Library for Shakir Fatah School**		
#	**Item Description**	**Unit**	**Qty.**
A	**Site Preparation**		
A1	**Site preparation:** Provide all the required machines for site preparation and demarcation according to Section 200 of I.G.T.S. and instructions of the site engineer. Removal of debris, grading, levelling to the appropriate level (+15cm to -15cm), clearance and layout and demolition of all existing materials such as (concrete, foundations, asphalt, and even rock layers) and transporting resulting materials (Debris) to an appropriate location outside municipalities border and approved by the site engineer, and transporting the resulting materials (Debris) to an appropriate location outside the municipality border and approved by the site engineer.	L.s.	1
A2	**Cutting and Excavation works for the foundation:** Excavation in all types of soils (even rock layers, asphalt, or existing foundation concretes), and the price includes compaction of the excavation base by using a compactor according to requirements of section 300 of I.G.T.S. and instruction of site engineer.	M^3	100
A3	**Backfilling works:** Supplying materials and filling with approved screened sub-base materials type B maximum size is 2" up to the DPC level for the building and where required within the area inside or outside of the fence such as aprons, walkways, garden, etc., with compaction (according to the specification) in layers 25 cm thickness, the compaction for garage and play yard must be not less than 90% MDD, and using anti termite chemical (Chlordane) to prevent and treat the white termite according to the instructions of the manufacturer and site engineer with all necessary works for the final two layers.	M^3	120
B	**CONCRETE WORKS:** Including supply of materials (steel reinforcement, connection steel wires, Ready mix concrete, plastic cover for fixing the steel reinforcement in the proper level, bolts, nuts, washers, G. I. pipes, etc.), and all necessary works, according to the section (600) of I.G.T.S, drawings and instructions of the site engineer. 1- all support for wooden forms work should be steel (jacks). 2- All steel bars must be according to ASTM A 615 Fy = 420 Mpa for all steel bars. 3. Allowable bearing capacity of soil = 120 KN / m2 (assumed). 4. Concrete compressive strength at 28 days, based on standard 150 mm cubes, should be at least 25 MPa for slabs and foundations and 30 MPa for columns. 5. The reinforcement details should be according to the ACI detailing manual 2004. 6. All formworks must be made of plywood or standard forms (not local way) for all structural parts.		
B1	**Lean Concrete:** Supply materials and cast plain concrete class (C10) 1:3:6, 10cm thickness under-raft foundations and for walkways to the required elevations.	M2	430
B2	**Raft Foundation**: Provide all materials and cast raft reinforced concrete (ready mix C 25) for the foundations 35cm thick (reinforced design). Top steel bars 12mm@20cm c/c in both directions and Bottom steel bars 16mm@15cm c/c in both directions, continuous with hook-shaped steel bars bending at the end for the top and bottom reverse direction, according to the attached drawings. All casting works must be smoothened by a copter instrument and using a vibrator during casting.	M^3	118
B3	**Reinforced concrete for (Slab, Beams, Tie Beam, lintel, parapets, etc.):** Supplying materials and casting reinforced concrete (1:2:4) for slab, beams, tie beams, parapets, columns, lintel, etc., according to the details for different sections using concrete compressive strength (fcu=25 MPa) for 28 days, the price includes supply and fix 3cm XPS blue board (extruded polystyrene sheets) under the slab concrete above the wooden formwork for interior rooms for thermal insulation, All casting works must be smoothened by a copter instrument and using a vibrator during casting, according to specifications and instructions of the site engineer.	M^3	105

#	Item Description	Unit	Qty.
B4	**Reinforced concrete for Column:** Supplying materials and casting reinforced concrete for columns, according to the details for different sections using concrete compressive strength (fcu=30 MPa) for 28 days, All casting works must be using a vibrator during casting, according to specifications and instructions of the site engineer.	M^3	9
C	**Masonry works:** Including provision of material, erection, pointing, and curing with all necessary work according to section (5) of I.G.T.S., drawings, and instructions of the site engineer.		
C1	**Hollow Concrete Blocks (20x20x40) cm Works:** Supplying materials and constructing walls with solid concrete blocks (20x20x40) cm and cement sand mortar (1:3) under DPC according to the specifications and instructions of the site engineer, with all necessary work.	M^3	4
C2	**Clay Bricks Works:** Supplying materials and construction of walls with load-bearing clay bricks (20 X 20 X 40 cm) (INTERLOCKING TYPE) weight not less than (14Kg), with cement mortar(1: 3) for above D.P.C level the price includes filling joints vertically by cement and sand 1:3 and fixing the bricks by G.I. metal holdfast 30cm long 4mm thick at every alternative course fixed to the wall.	M^3	75
D	**ELECTRICAL INSTALLATIONS:** Electrical points include the provision and installation of all wiring (three lines: line, neutral, and earth). 1.5 mm2 for illumination and 2.5 mm2 for the rest), inside PVC conduits 20-25 mm with thickness 1.8 mm galvanised boxes 0.9 mm thickness cables should be laid inside PVC pipes. All work should be done according to the specifications and instructions of a supervisor engineer. - The contractor is responsible for designing all electrical boards and networks and submitting them to UNHCR TU for approval before starting the works. �		
D1	Supply materials, install, connect, and test electrical LED lights (60x60cm)(50-80 W) with all annexed parts using (2x1.5)mm2 wires inside false ceiling (daylight type) with switch on/off all (2-3) lamp controlled by one switch.	Unit	36
D2	Supply, install, and test lighting points LED 18Watt (outdoor) IP 65 with all required using (single wires 1.5mm² with a suitable cable tray or cable conduit), light switch plug. The price includes installing photocells. **Note:** #15 lightings are for the new three classrooms, and #10 lightings are for the existing building corridor.	Unit	12
D3	Supply, install and test socket 13 Amp. Using single wire 2.5mm² with all the required works.	Unit	25
D4	Provide and install a Branch Circuit breaker 3 phase 60 A with all the required works and wirings.	Unit	3
D5	Supply, install and test FDB Circuit breaker, eight lines (Different circuit breakers), with primary MCCB 125A, including connections, interconnections, painting, lettering, loop earth, etc., as required. The price includes the provision of a protection box.	Unit	2
D6	Supply, install, and test industrial Duct Exhaust Fan size(12") mounted to the ceiling. The price includes supplying, installing and distribution six air deflector vents inside the false ceiling connecting to the 3'' PVC pipes discharged to the outside wall and covering the pipe with a PVC vent cap with flaps and a control switch.	Set	2
D7	Supply, install, and test copper cable 4 X 10mm2 with an insulator to connect the distribution boards with the main board inside 2" diameter PVC pipes in the ground. Install the cable tray above with all required and necessary works (such as hidden manholes) above dimension (40 X 40)cm, fixing two GZ pipes 2'' to the slab.	M.L.	50
D8	Supply, install, and test split points using copper cable 4x6mm2 inside PVC pipe with electric switch 45 Amp, with using mini 32x3 Amp +10Amp with box, also install 3/4'' PPR pipe inside the wall for the water drain, and 3''PVC pipe inside the slab.	Unit	2
D9	Supply, install and test the electric Ceiling Fan with the regulator(Panasonic, Toshiba or equivalent) the price includes installing the electrical points by isolation copper wire 1.5 mm2 and 10mm steel bar for hanging the fan according to of instruction of supervisor electrical engineer.	Unit	10
D10	Supply material, install, test and do earthing protection system for electric devices by using three copper rods 1.50m with dia 16mm inside three ground holes 80cm dia and 50cm deep and connecting the road with the mainboard by cable 1 X 16mm2 and distributed to (FDB) by 1 X 16mm2 finally by 1 X 2.5mm2 for sockets, the price includes concreting manhole 40*40cm with covering it and adding 5 Kg (humidity materials).	L.S.	1
D12	Supply, install, and test a Wall-Mounted air conditioner unit (48,000 BTU) (INVERTER TECHNOLOGY and ampere control); the work also includes installing a 45-amp Residual current circuit breaker with overcurrent protection—RCBO—and connecting it with the electrical source using (2X4)mm2 cable with all accessories. Fix a 3'' pipe to the wall and fill the hole with foam and adequate cover. The price consists of fixing and suspending the outdoor unit on the wall or making a proper steel stand.	Unit	2
D13	Supply, install, and test a Data Show (TV+USB+HBM+VGA+screen show). The price includes all necessary works according to the site engineer's instructions.	Set	1
E	**FINISHING: Including provision of all necessary materials and work and curing to do the finishing work. The works should be done according to sections 10, & 14 of I.G.T.S., drawings and instructions of the site engineer with all necessary works, and use SBR at a rate of 200gr per m2.**		
E1	Cement plastering: Provide materials, staff, and plastering with cement sand mortar 1:3, three layers (cement splatter dash, kafmal, saf) 20mm thick inside and outside the building. The final layer should be smooth, using aluminium straight edges for plastering guides. Using SBR at a rate of 200gr per m2, the price includes fixing steel wire mesh for the edges between walls and columns.	M^2	430

#	Item Description	Unit	Qty.
E2	Gypsum plastering for the block walls inside the rooms: Supplying materials and plastering with gypsum using gypsum approved by the site engineer in 2 layers with a minimum thickness of 25mm using aluminium straight edges for plastering guides each 80 cm for walls and roofs and the area indicated in the drawings, the works include a layer of cement splatter and pointing the wall before Gypsum works, also fixing steel wire mesh then using one layer of cement plastering for covering the wire mesh.	M^2	520
E3	Skirting: Supply materials and skirting in rooms using porcelain tiles (15 cm height) and tile adhesive materials (Kalakem flex type) according to the drawings and instructions of the site engineer.	ml	126
E4	**Acrylic internal paint:** Provide materials and staff to paint the interior walls of the building with Acrylic paint (colour approved by the site engineer) in three layers after the prime coat. All the required work to make the wall fair face before painting should be done using paste or any other work as indicated by the site engineer. The work should be done according to IGTS. Note: Products must be ISO 9001 certified for quality management.	M^2	520
E5	**External painting(Silicone)**: Provide materials and Painting with External painting (color approved by the site engineer) three layers after prime coat for the areas indicated in the drawings (for exterior walls). The work should be done according to the site engineer's specifications, drawings, and instructions. **Note: Products must be ISO 9001 certified for quality management.**	M^2	430
E6	**Oil painting 120 cm**: Provide materials and Paint 120 cm high (in Oil painting and colour approved by the site engineer) in three layers for the areas indicated in the drawings (for walls).	M^2	100
E7	**Gypsum False Ceiling**: Provide materials and fix gypsum false ceiling 60*60cm. The price includes hanging beams (Skka 38 mm height) every 120cm by screw, rod steel fisher, rod 3mm, connecting the beams by Skka 120cm,60cm long (32mm height), and all necessary works.	M^2	250
E8	**Sign board:** Supply and install PVC polyjam transparent sign board (0.9mX0.5m), with (10mm) thickness; the price includes printing the school's name, DoE and UNHCR logos with the foundation year in detail.	Unit	1
F	**Doors & Windows: Provide all necessary materials and install doors according to sections 11, 12, and 13 of I.G.T.S, details, and instructions of the site engineer with all the required works; the site engineer should approve prior samples.**		
F1	**Decorative Metal Door Works(Qasah):** Provide and install decorative metal doors(Qasah) for the entrances and halls, double-faced of plate thickness 1.50mm including glass pans, door frame 13.5*4.5cm 2.5mm thickness, Film Coated Residential Steel Entrance Door Glassy Finished Style, including special switch , gate lock, door stopper, rubber, polycarbonate filled, special guard bar, thermal paint & metal frames 6*22cm, Mercury glass 15x40cm with 3 cm Styrofoam polystyrene inside the door, Central lock system, with additional horizontal a lock with three concealed hinges with all necessary works, samples required for final approval.	M^2	6
F2	**Decorative Wooden Composite Doors:** Providing and installing standard decorative Composite wooden doors (HDF) melamine or Laminated thermoformed sheet water and the coloured, 200 mm minimum frame thickness and 100mm cornice outer measurement, double faces wooden plywood each face 8mm thickness, the sample should be provided for approval, The price includes installing 6 mm glass pans, switch (made-three locks), gate lock, hinges, rubber, door stopper, and wooden frames.	M^2	12
F3	**Steel guard bars:** Provide and install metal guard bars windows, with primer and two layers of oil paint, using a square bar 12 x 12 mm welded inside an angle frame 1.25"*1.25"*3mm, fixed by screw to the wall according to the details, and instructions of the site engineer.	M^2	32
F4	**Aluminum Windows:** Supply material and install Aluminum windows using a wide section 6cm profile width with a 2mm profile thickness plate. The price includes fixing a 4x3cm 3mm thickness steel pipe frame to the wall, a Double glass pan (4mm+6mm) thickness, ordinary or mushajar, rubber, handle, flywire mesh for opening Areas, cleaning the glasses by machine before composing.	M^2	32
F5	**Windows Marble Frame:** Provide materials and cover the windows frame (four sides) and staircase with marble 2cm thick and 30 cm wide. The price includes spinning off the outer and inner edges of the marble and using kalam paste FLEX type for fixing. The work should be done according to the specifications, drawings, and instructions of the site engineer.	M.L.	75
F6	**MDF wooden panels**: Provide and install MDF wooden panels (approved sample)to protect the walls with 18mm thickness and 20 cm width for classrooms; the price includes fixing the wall by using screw bolts each 30cm and covering the top using the same colour stickers. All work should be carried out according to specifications, drawings, and instructions from the supervisor engineer.	M.L.	84
F7	**Curtain:** Provide materials, & install stand curtain (Zebra Type) approved materials with all accessors.	M^2	40
E	**Finishing and Lab Plumber Works:** Provision of all necessary materials, work, and curing. The works should be done according to sections 10 & 14 of I.G.T.S., drawings and instructions of the site engineer with all necessary works, and use SBR at a rate of 200gr per m^2, the ratio of SBR to water(3-1).		
E1	**Porcelain Tiles for Floor:** Supply materials and paving Mat Porcelain Floor Tiles (60x60 cm) or (60x120 cm),14mm thickness (sample should be provided for approval) for classroom Non-slip, Acid-resistant, Low water-absorption 0.5% with all necessary works on a layer of cement sand mortar 1:3 mix ratio, also using cement mortar and sealing the joints with white cement & lime grout and SPR colour if required mixture), making 1.0 cm expansion joint each 25m2 filling with a flexible epoxy. The price includes cleaning the porcelain after the end of the work.	M^2	335

#	Item Description	Unit	Qty.
E2	**Porcelain Tiles Works for Walls:** supply materials and erection of porcelain tiles (as sample approved) 10mm thickness using (first class) on two layers of plastering of cement mortar (1: 2) using straight edges for toilet walls, above all washbasins and baths walls, according to the details, using SBR at a rate of 200gr per m2. The price includes erecting the backside of the tiles with a layer of cement splatter dash using SBR. The price includes using Aluminum straights for corners. The work should be done according to the specifications and instructions of the site engineer.	M^2	42
E3	Providing materials and fixing industrial marble counter top and wash basin 80cm deep(vertical and horizontal) in front to cover the face, each 2 m wash basin with water mixer + floor drains + Gully (Trap), using proper brackets and adhesive materials for fixing the basin with walls and fixing drain pipes inside walls(2.25"). The price includes all pipe accessories for cold and hot water and a heavy-duty chrome mixer tap; the price includes an Aluminum counter with a door and drawers . The work should be done according to the site engineer's specifications, drawings, and instructions.	M.L.	20
E4	Composite PPR water pipes: Supply and install water pipes of OD 25 mm, PN 16. The price includes all fittings and accessories, excavation (required depth), and backfilling 10cm of clean soil with all necessary works for cold water. With painting by anti-rust paint for galvanised only.	M.L.	40
E5	Connecting the building with the main source of water using an ordinary PPR pipe of 32 mm OD & PN20. The price includes excavating the trench (30x70 cm.), covering pipes with (10) cm of clean sand, and backfilling with all fitting and necessary works. The price also includes repairing asphalt or concrete pavement by 10cm if the pipe crosses these pavements.	M.L.	35
E6	**PVC pipes (4)" diameter:** Supply and install (4")dia. PVC pipes with 4.20 mm wall thickness with all necessary materials and fittings, according to section 1500 of I.G.T.S and the instructions of the site engineer with all the required work. The price includes casting concrete type C (1:2:4) around the pipes 15cm thick for all pipelines.	M.L.	20
E7	**PVC pipes (3)" diameter:** Supply and install (6")dia. PVC pipes, 5.7 mm wall thickness with all necessary materials and fittings, according to section 1500 of I.G.T.S and the instructions of the site engineer with all the required work. The price includes casting concrete type C (1:2:4) around the pipes 15cm thick for all pipelines.	M.L.	30
E8	**Water Mixer :** Provide materials and install chrome water mixer (hot and cold water) for the required places according to the site engineer's instructions.	No.	10
E9	**Floor drain (PVC) 4"dia.:** Provision of materials and erection of a 4" dia. Floor drain. The work includes excavations, crushed stone, and lean concrete with a thickness of 20cm, and connection to the receiving manholes by PVC pipe 4" dia, with drain nickel covers, with all necessary work.	No.	8
E10	**HDPE Water Tanks (Ground & Roof):** The work includes providing and installing a new 1000 Liters adequate storage capacity of UV-resistant HDPE vertical water tank, food grade with top/open solid cover and solid body of FOUR/4 Layers (the TWO/Outer Layers for maintaining water temperature/thermal resistance, middle Layer for sunlight protection/UV resistance and inner layer for algae & odour protection), white colour externally, Cooper/Brass embedded inlet & outlet with an overflow of suitable size/site requirements, manufactured from 100% virgin raw material not recycled (Polyethylene high density) with providing & installing float valves of 3/4" size, approved quality & sample (Certificate of Origin & Quality should be provided). The work also includes providing and installing all required fittings and valves, which should be suitable for polypropylene (PPR) composite water pipes. 3 Layers of side walls. The work also includes providing materials and workforce to manufacture a suitable steel stand base using steel pipes (10x10)cm 3mm thickness and aluminium checker plate 4mm,1m height brace the water tank on the top roof by installing a rigid, flat, and adequate size base on the existing concrete ground and roof by using a FLAT (NOT CORRUGATED) Sandwich Panel (suitable quality & size) of 5 cm thickness & 25 Kg/Cu.M density of core material under the bottom of HDPE water tanks, fixing/connecting the tank's body to the roof and masonry walls with tensile wire/chain with bolts, (excavation in different locations & layers, backfilling, connection with existing main/feeding lines, concrete works and all other necessary works). All work should be done according to the instructions of the Supervisor Engineer.	Set	2
E11	**Concrete block manholes:** Supply materials and construction manholes of different depths with internal dimensions using solid concrete blocks size 15X20X40 cm for walls. The price includes excavation, supply and laying of crushed stone with proper compaction, laying of plain concrete, block walls, plastering both sides (inner & outer), covering the internal side of the manholes by a mix of 1:2 water, SBR, and heavy GRP or Aheen covers due to drawings with frame, according to the details shown in the drawings.		
E11.1	40x40cm and cover 40x40cm	No.	4
E11.2	60x60 cm and cover 60x60cm	No.	4
E12	Centralized Hand Soap System: Supply materials and equipment to install a hidden hand soap system with 10 taps and a soap storage tank with PPR pipes under the porcelain tiles for the laboratory and all required accessories.	Set	1

2	Renovation of WASH Facilities for Shakir Fatah School		
#	Item Description	Unit	Qty.
A	**ELECTRICAL INSTALLATIONS:** Supply material, installation and operation test of Electric items below flush mounting by using 1*1.5mm2, 1*2.5mm2 and 1*4mm2 single core wires cable installed inside a heavy-duty PVC (20mm&25mm dia. 1.8mm thickness conduits, circular junction box, square GI box 1mm, adapter, couplings with all accessories) the work also include a switch and all requirement to implement the work entirely. (Note: lighting, fan and exhaust fan installed by 3*1*2.5mm2 wires, while13, 15 sockets installed by 3*1*2.5mm2 in 20mm conduits, and 32A switch installed by 3*1*4mm2 wires in 25mm conduits).		
A1	Supply materials, install, connect, and test electrical LED lights (18 -40W) with all annexed parts using (2x1.5)mm2 wires, (daylight type) with switch on/off all (2) lamp controlled by one button,the price includes removing the old lamp.	No.	16
A2	Supply, install, and test lighting points LED 20Watt (outdoor) IP 55 with all required wiring (single wires 1.5mm² with a suitable cable tray or cable conduit) and a light switch plug,the price includes removing the old lamp. The price includes installing photocells.	No.	6

#	Item Description	Unit	Qty.
A3	Supply, install, and test socket 13 Amp. using (wires 3x2.5mm²).The work should be done according to the instruction of the supervisor engineer.).	No.	4
A4	Supply, install, and test industrial Exhaust Fan size(8") and a control switch. mounted to the wall. The price includes removing the old fan.	Set	4
A5	Supply, install, and test 32 Amp (Grid) switch with indicator lamp for boiler.	No.	2
A6	Electrical Water Pump: Supply and install an electrical pump according to the following specifications. The price includes all required electrical cables 3x4 mm2 (up to 50m) into a PVC pipe and lay in a trench with dimensions 30 X 40 cm; then the backfilling with 10cm clean sand, 20cm clean soil, 10cm ordinary Concrete. Switches, pipes, water automatic PRESSURE SWITCH accessories, and connection with the school and a small steel protection pump room as indicated in drawing details:- Pump type KF1 (Pentax type Italian made), Size: 1.5" and H.P. = 1.5	No.	1

#	Item Description	Unit	Qty.
A7	Supply, install, and test a 200-litre production storage capacity electrical water heater with a 2000-watt thermostat. The tank plate is galvanised and 3mm thick. The work also includes all wiring, 4x3mm2 and a 30 Amp electric switch, plumbing works, pipes, fittings, and fixtures, which are complete.	No.	2
A8	Supply, install, and test Stainless steel Drinking water cooler min 100 litres, four taps Compressor capacity ¾ hp. The price includes the connection with the water source using water pipes of OD 25 mm, PN 16 with all fittings and accessories, excavation (required depth), and backfilling 10cm of clean soil with all necessary works. Also, the electrical connection using wire (3*2.5mm²).	No.	2
B	**Maintenance and Plumber Works:** Provision of all necessary materials, work, and curing. The works should be done according to sections 10 & 14 of I.G.T.S., drawings and instructions of the site engineer with all necessary works, and use SBR at a rate of 200gr per m², the ratio of SBR to water(3-1).		
B1	**Ceramic Tiles Works for Walls:** supply materials and erection of porcelain tiles (as sample approved) 10mm thickness using (first class) on two layers of plastering of cement mortar (1: 2) using straight edges for toilet walls, above all washbasins and baths walls, according to the details, using SBR at a rate of 200gr per m2. The price includes removing the old ceramic with a layer of cement splatter dash using SBR. The work should be done according to the specifications and instructions of the site engineer.	M²	5
B2	**Ceramic Tiles Works for floors:** Supply material and workshop for installing new porcelain tile approved 10mm thickness matt anti-slip type (sample should be provided to be approved) using cement mortar 1:3 ratio sealing the joints with white cement (approved flex type) with all the required. The price includes removing the old ceramic and casting plain concrete of 10cm thickness with a Compressive strength of 28 days 210 kg/cm2 (1:2:4) after grading and levelling, smoothing the surface with a handheld vibrator work according to specifications and instructions of the supervisor engineer.	M²	5
B3	Provide materials and fix Eastern W.C. Ceramic with Siphon/in-wall tank. + Gully (Trap) and cleanout accessories. The work includes removing the old W.C. basin with all accessories, according to the site engineer's specifications, drawings, and instructions.	No.	4
B4	Composite PPR water pipes: Supply and install water pipes of OD 25 mm, PN 16. The price includes all fittings and accessories, excavation (required depth), and backfilling 10cm of clean soil with all necessary works for cold water. With painting by anti-rust paint for galvanised only.	M.L.	40
B5	Connecting the building with the main source of water using an ordinary PPR pipe of 32 mm OD & PN20. The price includes excavating the trench (30x70 cm.), covering pipes with (10) cm of clean sand, and backfilling with all fitting and necessary works. The price also includes repairing asphalt or concrete pavement by 10cm if the pipe crosses these pavements.	M.L.	20
B6	**PVC pipes (4)" diameter:** Supply and install (4")dia. PVC pipes with 4.20 mm wall thickness with all necessary materials and fittings, according to section 1500 of I.G.T.S and the instructions of the site engineer with all the required work. The price includes casting concrete type C (1:2:4) around the pipes 15cm thick for all pipelines.	M.L.	10
B7	**PVC pipes (6)" diameter:** Supply and install (6")dia. PVC pipes, 5.7 mm wall thickness with all necessary materials and fittings, according to section 1500 of I.G.T.S and the instructions of the site engineer with all the required work. The price includes casting concrete type C (1:2:4) around the pipes 15cm thick for all pipelines.	M.L.	5
B8	**Taps 1/2":** Provide materials and install chrome taps size 1/2" for the required places according to the site engineer's instructions.	No.	16
B9	**Floor drain (PVC) 4"dia.:** Provide materials and erect a 4" dia. Floor drain. The work includes excavations, crushed stone, and lean concrete with a thickness of 20cm, and connection to the receiving manholes by PVC pipe 4" dia, with drain nickel covers, with all necessary work.	No.	4
B10	**HDPE Water Tanks (Ground & Roof):** The work includes providing and installing a new 1000 Liters adequate storage capacity of UV-resistant HDPE vertical water tank, food grade with top/open solid cover and solid body of FOUR/4 Layers (the TWO/Outer Layers for maintaining water temperature/thermal resistance, middle Layer for sunlight protection/UV resistance and inner layer for algae & odour protection), white colour externally, Cooper/Brass embedded inlet & outlet with an overflow of suitable size/site requirements, manufactured from 100% virgin raw material not recycled (Polyethylene high density) with providing & installing float valves of 3/4" size, approved quality & sample (Certificate of Origin & Quality should be provided). The work also includes providing and installing all required fittings and valves, which should be suitable for polypropylene (PPR) composite water pipes. 3 Layers of side walls. The work also includes providing materials and workforce to manufacture a suitable steel stand base using steel pipes (10x10)cm 3mm thickness and aluminium checker plate 4mm,1m height brace the water tank on the top roof by installing a rigid, flat, and adequate size base on the existing concrete ground and roof by using a FLAT (NOT CORRUGATED) Sandwich Panel (suitable quality & size) of 5 cm thickness & 25 Kg/Cu.M density of core material under the bottom of HDPE water tanks, fixing/connecting the tank's body to the roof and masonry walls with tensile wire/chain with bolts, (excavation in different locations & layers, backfilling, connection with existing main/feeding lines, concrete works and all other necessary works). All work should be done according to the instructions of the Supervisor Engineer.	Set	4
B11	**Concrete block manholes:** Supply materials and construction manholes of different depths with internal dimensions using solid concrete blocks size 15X20X40 cm for walls. The price includes excavation, supply and laying of crushed stone with proper compaction, laying of plain concrete, block walls, plastering both sides (inner & outer), covering the internal side of the manholes by a mix of 1:2 water, SBR, and heavy GRP or Aheen covers due to drawings with frame, according to the details shown in the drawings.		
B11.1	40x40cm and cover 40x40cm	No.	2
B12	Centralised Hand Soap System: Supply materials and equipment to install a hidden hand soap system with 4 taps and a soap storage tank with PPR pipes under the porcelain tiles and all required accessories.	Set	2
B13	**Roof Treatments:** Provide materials and workers to treat the building's roof using three coats of HYPERDESMO waterproof (UV resistant) roof guard in a 3mm layer thickness with a prime coat under the tiles. The price includes cleaning and washing, treating according to the specifications and instructions of the site engineer.	M²	50
B14	**Doors Maintenance Works**: Supply materials and maintain the existing doors. The price includes supplying a well-known heavy handle and gate lock. The work includes supporting the door frame, cement plastering, hinges, welding, rubber, and three-layer paint types for the doors.	No.	18
B15	**Windows Maintenance Works**: Supply materials and maintain the existing windows. The price includes supplying and installing glass, handles, and gate locks. The work includes supporting the frame, cement plastering, hinges, welding, rubber, and three-layer paint.	No.	8

#	Item Description	Unit	Qty.
B16	**Washing and maintaining the Sewerage System:** Provide manpower and equipment to maintain the general internal and external sewerage system for grey and black water. The work includes cleaning all the sewerage pipes by using a high-pressure jet vacuum machine or replacing PVC pipes (if needed) with all necessary fittings and accessories (Tee, Elbow 45/90 degree, valves, divider … etc.). If needed, the work includes cleaning and renovating manholes.	L.S.	1