

WORLD VISION INTERNATIONAL
DAWAM WASH Project
BoQ for Solar Powered Water Supply Project

Village/CDC: Ganj

District: Gurziwan

Province: Faryab

S/N	Activity/Item/Description	Unit	Quantity	Unit Cost AFN	Total Cost AFN	Remarks
A-(R.C.C Elevated Water Tank+ Valve Box)						
A1	Site Preparation: Proposed Tank and Valve box site preparation according to technical specification and engineering considerations.	M ²	64			
A2	Foundation Excavation: Proposed Tank and Valve box foundation (Soft and Semi soft cutting) According to attached technical drawing, technical specification and engineering considerations.	M ³	87.1			
A3	Foundation Graveling and Compaction: Footing Graveling and compaction 95% according to Technical requirments and site conditions.	M ³	4			
A4	Back Filling : Back filling by well-compacted materials (the compaction should be layer by layer according to Engineering technical considerations.	M ³	53.9			
A5	P.C.C (Plain Cement Concrete), M(1:2:4): in Water tank and Valve box , According to attached construction materials Specification with proper curing.	M ³	4			
A6	R.C.C (Reinforced Cement Concrete), M-(1:1:2): R.C.C work including Bar-bending and Form working, According to attached drawing, Specification and engineering consideration with proper Curing.	M ³	62.7			
A7	Water Stopper: Installation of Water Stopper best quality according to drawing.	M	19			
A8	Plastering Work (Interior of Water Tank) M(1:3): The plaster should have water proof admixture (ISOMAT) products according to technical requirements, with proper curing.	M ²	70.7			

A9	Plastering Work (Exterior Side of Water Tank) M(1:4): The Materials Should be according to engineering Specification(should be proper and clean).	M ²	227.3			
A10	Painting work Painting work of water tank Weather Shield 100% with Office Logo.	M ²	227.3			
A11	Roof Insulation: Supply and installation of Isogam according to Engineering technical requirement and specification.	M ²	24			
A12	Installation of Iron Gate. Installation of iron gate for tank manhole (3 mm Steel sheet) With its relevant features/fittings according to drawing.	M ²	0.55			
A13	Interior and Exterior Ladder of tank Supply and installation of ladder both in interior and exterior side of the Water tank according to Attached Drawing Specification.	M	5			
A14	Hand Rail Supply and installation of Hand rail of Water tank according to Attached Drawing Specification.	M	23			
A15	Main Ladder Supply and installation of Main Ladder with its steel protection cover with anti-rust painting according to Attached Drawing Specification.	M	12			
A16	Inlet GI Pipe. Supply and Installation Flanged GI Pipe Ø 3", Min Wall thickness =2.9 mm, Min Weight =6.25 Kg/M with Nut+bolt+Washer and other accessories.	M	13			
A17	Over flow Pipe: Supply and Installation Flanged GI Pipe Ø 2 1/2", Min Wall thickness =2.9 mm, Min Weight =5.2 Kg/M with Nut+bolt+Washer and other accessories.	M	13			
A18	Outlet Pipe : Supply and Installation Flanged GI Pipe Ø 3", Min Wall thickness =2.9 mm, Min Weight =6.25 Kg/M with Nut+bolt+Washer and other accessories.	M	12			
A19	Covering Glass wool: covering the inlet and outlet pipe with glass wool and iron sheet (th=0.5mm) with all required activities according to technical requirements	Job	1			
A20	Drain Out Pipe: Supply and Installation Flanged GI Pipe Ø 2", Min Wall thickness =2.6 mm, Min Weight =3.81 Kg/M with Nut+bolt+Washer and other accessories.	M	13			

A21	Ventilation Pipe: Supply and Installation GI Pipe Ø 2", Min Wall thickness =2.6mm, Min Weight =3.81Kg/M with 2 Elbows, and 1-Std.	M	1			
A22	PVC Rain Water Drain Pipe: Supply and Installation of PVC, class-C Pipe Ø 2", with all required activities and engineering considerations for roof rain water drainage.	M	13			
A23	Stone Masonry Work of Valve Box: Stone masonry for foundation and superstructure: use 1:4 ratio of mortar, stone shall have high bearing capacity and smooth surface for decoration. With it's all related activities according to the drawing and technical specification	M ³	4.3			
A24	Flanged Gate Valve : Supply and installation of Flanged Gate Valve (PN-10), Ø 1 1/ 2" with Nut Bolt and Washers and other accessories. And with relevant composite fitting, should be connected with (OD-40) GI pipe, according to attached drawing.	No	1			
A25	Flanged Gate Valve : Supply and installation of Flanged Gate Valve (PN-10), Ø 2" with Nut Bolt and Washers and other accessories. And with relevant composite fitting, should be connected with (OD-63) GI pipe, according to attached drawing.	No	1			
A26	Flanged Gate Valve : Supply and installation of Flanged Gate Valve (PN-10), Ø 3" with Nut Bolt and Washers and other accessories. And with relevant composite fitting to be connected with network main pipe(OD 90) mm HDPE pipes, according to attached drawing	No	1			
Sub Total for Elevated Tank and Valve Box						
Water Tank construcion should be according to attached drawing, Technical specification and Engineer recomendations, all concrete elements and other construcion process should be properly cured, the cosntruction materials (Sand, Gravel, Crushed Gravel, Portland Cement, Steel Bars and Pipe must be according to attached Specification).						
B	BoQ for House connection StandPost./ Total # of Stand post 240					
B1	Excavation Work: Excavation of Each stand post foundation according to Designed drawing and Site conditions.	M ³	1602			
B2	Stone bolder Pitching: Supply and pitching of stone in foundation and surrounding area of stand post.	M ³	41.4			
B3	P.C.C (Plain Cement Concrete) M(1:2:4) The construction materials should be according to attached Specification.	M ³	43.6			
B4	PVC Stand Pipe: Diameter=4", Class B, Min Wall thickness (3.4 mm), min Weigth=1.17 Kg/m	M	240			

B5	Back Filling & Earth work: Back Filling , Cleaning, Drain out, Site preparation according to site requirement.	M ³	1546			
Sub Total Cost of Stand Posts						
The stand post should be properly selected in houses, considering all Hyginic recomandaitons, water management should be properly considered.						
C	BoQ Well Boring and Development.					
C1	Site Preparation: Including leveling+Trimming and installation of Well drilling machine.	M ²	10			
C2	Well Drilling by Percussion Machine: Diameter=(16") inches, Depends on soil texture, The sampling should be recorded from each geological formations in proper sample box and Recording sheet.	M	100			Its Propsing depth, The actual depth will be depend to soil texture and geological strata.
C3	Gravel Packing: the Size of Gravel Packing (3-6) mm, the exact size will be declared after boring and Well Hydralological calculations, the Gravel should be clean and technical acceptable.	M ³	8.5			Depend of soil texture and geological starta
C4	Soil/Clay : Supply and applying Clay soil for Blocking the Casing side of water well, special precausion should be considered.	M ³	3.7			Depend of soil texture and geological starta
C5	Supply and Installation of PVC Casing and Filter Pipe: Diameter=(8") inches, Class D, Min Wall Thickness (10.3) mm, Min weight (10.3 kg/m) According to ASTM D1785 Sch.80, DIN 8061, DIN 8062, ASTM F480 Standards. (the length of filter and casing should be declared after drill analysis and ground strata)	M	100			the Extact Pipes Will be declared after well design
C6	R.C.C for Well Protection Box Construction, M(1:1.5:3) RCC (M:250) for Well protection box including Varnished steel form working, bar bending and other requirements according to drawing and technical specification.	M ³	1.43			
C7	Installation of Iron Gate: Installation of iron gate for well protection box, including anti-rust painting and be lockable (3 mm Steel sheet) With its relevant features/fittings according to drawing.	M ²	1.96			
C8	Supply and Installation of PVC fittings: Cable, Screw, Glue and other require materials.	L.s	1			
C9	Well Cleaning : Cleaning should be carried out by compressor Machine.	Job	1			
C10	Pump Test: Proper pump data should be recorded, the test should be min for 8 hours.	Job	1			

C11	Geo Physical Test: Geo Physical Test should be carried out for finding the required aquifier, the report should be shared with responsible WASH Engineer.	Job	1			Prior to Well Drilling Must be completed
Sub-Total Cost for Well Construction						
Well drilling should be according to site condition and attached technical drawing and its specification, each geological formation and starta should be properly sampled in Well sample box and relevant technical sampling record book, depth determination should be with close consultation of WASH engineer, well cleaning shold be propely carried out, during pump test the relevant data should be properly recorded to assure well yield and future responding for community demands.						
D	BoQ of Boundary Fencing for PV-System					
D1	Excavation in Foundation: Excavation according to drawing and technical requirements.	M ³	24.5			
D2	Stone Masonry Work: Stone masonry for foundation and superstructure: use 1:4 ratio of mortar, stone shall have high bearing capacity and smooth surface for decoration. With it's all related activities according to the drawing and technical specification	M ³	31.5			
D3	Pointing Work Pointing of stone masonry with 1:4mortar of cement and sand with it's all related activities according to required specification.	M ²	70			
D4	P.C.C (Plain Cement concrete) M(1:2:4) According to Attached Drawing and its specification	M ³	6.3			
D5	Fence Work : Supply and installation of GI-Pipes(wall Th=2.9mm, weigth=6.25 kg/m) , GI-Net Mesh (wire dia=3mm) and Barbed wire with all required activities acoording to attached drawing, technical requirements and engineeeirng recommendations.	M	70			
D6	Painting Work of Super Structure stone: Whether Shield Painting work (100%) with three coats.	M ²	119			
D7	Gravel Filling: Supply and laying of gravel at boundry fencing area according to techncial requirements with 10cm thickness.	M ³	26.6			
Sub-Total Cost for boundary wall Construction						

E	BoQ for Pipe networks					
E1	Excavation of Trench: Excavation of trench (Soft and Semi soft Soil) According attached Drawing and Specification.	M ³	2411			
E2	Back Filling of Trench: Back Filling of trench with proper compaction, curring and caution according to attached drawing.	M ³	1808			
E3	Back Filling with Soft Soil: Back Filling of trench with proper compaction, curring and caution,	M ³	603			
E4	House Connection System: House connection from main pipe to inside houses, public buildings (school, mosque and clinic) with its all accessories including 1/2" Saddle clamp, Elbow, Female threaded adapter, (MTA), Gate valve, Water meter, plastic meter box, Non return valve, Brass Water tap, Socket with 20m Pipe 20mm OD, HDPE 100, PN-20, Thickness 2.3 mm & Weight 0.133kg/m. as attached drawing	No	240			
E5	HDPE/Pipe/PN10/Dia=40mm (SDR17)- (W.T-2.4mm)- Weigth(0.295Kg/m), Comply ISO4427, DIN8074, ASTM D2239, ASTM D2737, ASTM D3035, ASTM D2515 All relevant marks should be attached in pipe (Bar, mesurment length, Standards).	M	5030			
E6	HDPE/Pipe/PN10/Dia=50mm (SDR17)- (W.T-3mm)- Weigth(0.453Kg/m)ISO4427, DIN8074, ASTM D2239, ASTM D2737, ASTM D3035, ASTM D2515 All relevant marks should be attached in pipe (Bar, mesurment length, Standards).	M	225			
E7	HDPE/Pipe/PN10/Dia=63mm (SDR17)- (W.T-3.8mm)- Weight(0.721Kg/m)ISO4427, DIN8074, ASTM D2239, ASTM D2737, ASTM D3035, ASTM D2516 All relevant marks should be attached in pipe (Bar, measurement length, Standards).	M	389			
E8	HDPE/Pipe/PN10/Dia=75mm (SDR17)- (W.T-4.5mm)- Weigth(1.02Kg/m)ISO4427, , Comply ISO4427, DIN8074, ASTM D2239, ASTM D2737, ASTM D3035, ASTM D2515 All relevant marks should be attached in pipe (Bar, mesurment length, Standards).	M	246			
E9	HDPE/Pipe/PN10/Dia=90mm (SDR17)- (W.T-5.4mm)- Weigth(1.46Kg/m)ISO4427, DIN8074, ASTM D2239, ASTM D2737, ASTM D3035, ASTM D2518 All relevant marks should be attached in pipe (Bar, mesurment length, Standards).	M	179			

E10	PE Fittings 10 Bars: (Flanged adapter, GI-Flanged Valve in pipe network, Sockets, Elbows, TEEs, Saddle Clamps, Reducers, M/F Adapter and etc.) with Supplying and installation according to drawing and its specifications.	L.s	1			
E11	Pipe Works (Plumbing): Supply, Installation, Laying and fitting of HDPE+GI pipes according to attached Drawing and its specification.	L.s	1			
Sub Total cost of Pipe network						
Selection of pipe alignment should be with close consultation of World Vision Afghanistan Technical engineer and attached drawing, The HDPE pipe should be tested in labartory according to MRRD requirment and the report should be submitted and varified by technical enigneer.						
F	BoQ for 01 PRV (Pressure Reducing Valve) Box					
F1	Excavation Work: Excavation of Each Valve Box foundation according to Designed drawing and Site conditions.	M ³	6.0			
F2	Stone Masonry Work: Stone masonry for foundation and superstructure: use 1:4 ratio of mortar, stone shall have high bearing capacity and smooth surface for decoration. With it's all related activities according to the drawing and technical specification	M ³	3.7			
F3	PRV (Pressure Reducing Valve) : Supply and installation of PRV (PN-10), Ø 2" with Nut Bolt and Washers and other accessories. And with relevant composite fitting to be connected with network main pipe(OD 63) mm HDPE pipes, according to attached drawing	No	1.0			
F4	R.C.C for Gate valve Box Cover, M(1:1.5:3) R.C.C work for gate valve box inluding Varnished Form, Bar bending and other technical requirments.	M ³	0.1			
F5	P.C.C (Plain Concrete and Cement)M(1:2:4) according to attached Drawing and technical specification	M ³	0.5			
F6	Back Filling & Earth work: Back Filling , Cleaning the site according to site requirement.	M ³	1.0			
Sub Total Cost of Pressure Reducing Valve Box						
PRV construcion should be according to attached drawing, Technical specifiation and Engineer recomendations, all concrete elements and other construcion process should be properly cured, the cosntruction materials (Sand, Gravel, Crushed Gravel, Portland Cement, Steel Bars and PRV should be PN-10).						
G	BoQ for 02 Gate Valve Boxes					
G1	Excavation Work: Excavation of Each Valve Box foundation according to Designed drawing and Site conditions.	M ³	12.0			
G2	Stone Masonry Work: Stone masonry for foundation and superstructure: use 1:4 ratio of mortar, stone shall have high bearing capacity and smooth surface for decoration. With it's all related activities according to the drawing and technical specification	M ³	7.4			

G3	Flanged Gate Valve : Supply and installation of Flanged Gate Valve (PN-10), Ø 2" with Nut Bolt and Washers and other accessories. And with relevant composite fitting to be connected with network main pipe(OD 63) mm HDPE pipes, according to attached drawing	No	1.0			
G4	Flanged Gate Valve : Supply and installation of Flanged Gate Valve (PN-10), Ø 1 3/4" with Nut Bolt and Washers and other accessories. And with relevant composite fitting to be connected with network main pipe(OD 40) mm HDPE pipes, according to attached drawing	No	1.0			
G5	R.C.C for Gate valve Box Cover, M(1:1.5:3) R.C.C work for gate valve box including Varnished Form, Bar bending and other technical requirements.	M ³	0.2			
G6	P.C.C (Plain Concrete and Cement)M(1:2:4) according to attached Drawing and technical specification	M ³	1.0			
G7	Back Filling & Earth work: Back Filling , Cleaning the site according to site requirement.	M ³	4.0			
Sub Total Cost of Gate Valve Box						
Gate Valve Box construction should be according to attached drawing, Technical specification and Engineer recommendations, all concrete elements and other construction process should be properly cured, the construction materials (Sand, Gravel, Crushed Gravel, Portland Cement, Steel Bars and Pipe must be according to attached Specification).						
H	BoQ for Solar Panels					
H1	Excavation of Foundation: Site preparation and excavation in foundation for solar frame:	M ³	2.0			
H2	Solar Panel: Providing and installation of Solar Panels according to MRRD Manual (European made or Equivalent meet by IEC, ISO, TUV and CE, Solar array rated power = 9.72 KW Solar module type: POLYCRYSTALLINE or MONOCRYSTALLINE Water proof PV junction boxes IP68 for each array including DC Fuses, DC switch disconnectors, bus bars ,terminals, ducts or trays, supports & labels suitable to the PV arrays loads. Contractor must submit manufacturer warranty for solar panel for a period not less than 25 years. Contractor must submit all the required certificates for each PV solar panel from Serial number of PV Panel should be certified by manufacturing company, for more details and electrical parameters refer to attached Design.	Watt	9720			The # of Solar depend to Redesign of Pump PV system

H3	Submersible pump with its Compatible inverter, control box and Fuse box in stainless steel. Eupean Made Technology Comply EN 1.4301 (AISI 304).EN 1.4301 (AISI 304). EN 1.4539 (AISI 904L). EN 1.4401 (AISI 316).. Rated power - P1- 6.567 Kw , P2-5.5KW Rated voltage: 3*380-400-415 V Main frequency: 50 Hz Compatible inverter: RSI 3x380-440V IP66 7.5kW 16A, Pure sine wave, VFD and soft starter Avg. water production per day: (107.4 m³/day), Total Dynamic Head is considered = 130.9 m. it is inital Assumed head the final will be declare after bore well and pump test. distance between tank and well =733 M. Solar pump P2- 5.5 KW according to the technical specification and requirement, Contractor must submit manufacturer warranty for solar Pump for a period not less than 2 years. Contractor must submit all the required certificates for solar pump Serial number of Solar pump should be certified by manufacturing company	set	1			the Pump Model Depend to Redesign of the system.
H4	Well Probe Sensor: Dry running sensor including Electrical Wire and other fittings , According to Attached Electrical parameters	set	1			
H5	Motor (Sumbersible drop Cable) 10 mm² 3-phase cable for power and 1-phase cable for ground according to drawing and technical requirements(Turkish made)	M	250		-	
H6	PV System-Inverter Cable (1x10mm2), Cable from PV-combiner Box to Inverter (Turkish made)	M	30			
H7	Grounding/Earthing. All system Should be proper Grounded by ground Rod and Copper Cable (PV, PV-Frame, Inverter, Sumersible and other electrical installed features)	LS	1			
H8	Pump Holding Rope : Plastic made, diameter=16 mm Double line with its relevant accessoires and features.	M	210			
H9	Electrical Conduite: Electrical Conduite for External Wire:	L.s	1			
H10	Circuite Breaker and Auto Fuses: Circuite Breaker and Auto fuseses should be installed to prevent system during electrical issues.	Set	1			
H11	HDPE/Pipe/PN16/Dia=90mm (SDR11)- (W.T-8.2mm)- Weigth(2.12Kg/m)ISO4427, DIN8074, ASTM D2239, ASTM D2737, ASTM D3035, ASTM D2531 All relevant marks should be attached in pipe (16 Bar, mesurment length, Standards).	M	814			

H12	PE and GI Fittings: PE and GI 16 Bars fittings for Summersible-Tank (PE Flanged Adapter, Flanged Elbow, Flanged Sockets and etc.) according to technical requirement and site conditions.	L.s	1			
H13	Boulder Stone Pitching: Bolder Stone pitching in foundation of Solar system frame according to drawing and technical requirements	M ³	0.4			
H14	P.C.C (Plain Concrete and Cement)M(1:2:4) according to attached Drawing and technical specification	M ³	0.4			
H15	RCC (Reinforced Concrete and Cement)-(M:200, 1:1.5:3) for Solar Stand: including Varnished steel form working, bar bending and other requirements according to drawing and technical specification.	M ³	4			
H16	PV-Solar Frame for Solar Panels: Supply and installation of Stand and frame for solar panels, able to be rotated manually (Steel pipe dia 6", th=4mm, Profile box 40 x 80, th=2mm)	Frame	4			
H17	Back Filling and Compaction: Back Filling, Draining out, and Site Cleaning of Solar system plant.	M ³	2			
H18	Sign Board: Supply and installation of metallic sign board.	No	1			
Sub Total cost of Solar Pannels						
Attached is the solar system Design, The Solar pump PV system has designed based on technical survey, the actual design will be determined after boring well to show well discharge, dynamic water table, draw down and etc. the contractor will be paid based on actual works.						
Grand Total for All BoQ (A+B+C+D+E+F+G+H)						

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Aug 8, 2024