

<b>PROJECT:</b>	<b>CONSTRUCTION AND UPGRADE OF THE PIPED WATER SYSTEMS IN THE ROHINGYA REFUGEE CAMPS AND HOST COMMUNITIES</b>
<b>DONOR:</b>	<b>UNICEF</b>
<b>SUBJECT:</b>	<b>BoQ</b>
<b>DATE:</b>	

**Overall Cost Summary (Mocharkhula and Camp 15 Block F&H)**

<b>Item No</b>	<b>Description of Items</b>	<b>Amount in BDT</b>
<b>Part A</b>	<b>Production Tubewell (PTW) at Mocharkhula</b>	-
<b>Sub-Total of Part A</b>		-
<b>Part B</b>	<b>Civil Works</b>	
Part B1	Pump House Building and OHT with Piling Works at Mocharkhula	-
Part B2	Site Master Plan at Mocharkhula	-
Part B3	Tank Site at Camp 15 Block F with Necessary Site Protection Works	-
Part B4	Tank Site at Camp 15 Block H	-
<b>Sub-Total of Part B</b>		-
<b>Part C</b>	<b>Electro-mechanical Works</b>	
Part C1	Mechanical Works (Submersible and Chlorine Pump with Accessories)	-
Part C2	Solar System Works (Main Energy Source) with Necessary Foundation Works	-
Part C3	Electrical Works	-
<b>Sub-Total of Part C</b>		-
<b>Part D</b>	<b>Water Networks Tap Stands and Piping &amp; Valve Arrangement</b>	
<b>Part D1</b>	<b>Water Network, HDPE PN 8, SDR 21 (with Valves and Chambers)</b>	
D1.1	Water Distribution Network at Mocharkhula and Camp 15 Block H (Part)	-
D1.2	Water Distribution Network at Camp 15 Block F	-
D1.3	Water Distribution Network at Camp 15 Block H (Part)	-
D1.4	Water Transmission Network from PTW to Camp 16 Block D	-
<b>Sub-Total of Part D1</b>		-
<b>Part D2</b>	<b>Tap Stand with Water Meter</b>	
D2.1	Tap Stand with Water Meter for Mocharkhula Host Community and Camp 15 Block H (Part) (27 Nos.)	-
D2.2	Tap Stand with Water Meter for Camp 15 Block F(8 Nos.)	-
D2.3	Tap Stand with Water Meter for Camp 15 Block H (2 Nos.)	-
<b>Sub-Total of Part D2</b>		-
<b>Part D3</b>	<b>Water Tank with Piping, Valve and Water Meter Arrangement</b>	
D3.1	Food Graded Plastic Overhead Water Reservoir	-
D3.2	Piping, Valve and Water Meter Arrangement at OHT and Tank Site	-
D3.3	Chamber (Gate Valve Chamber) 2 Nos.	-
D3.4	Chamber (Gate Valve and Water Meter Chamber) 2 Nos.	-
<b>Sub-Total of Part D3</b>		-
<b>Grand-Total (Summation of Sub-Total of Part A, B, C, D)</b>		-

Estimate for the work of Construction of one (1) number 350 mm X 150 mm diameter Production Well at Mocharkhola					
Item No	Description	Quantity	Unit	Rate (Tk)	Total Amount (Tk)
<b>A: Supply of materials</b>					
A1	Supply of E class (BS-3505; latest amendment) uPVC pipe for UWC with 350mm inner diameter in full section as per specification.	53	m		-
A2	Supply of E class (BS-3505; latest amendment) 350mm X 150mm diameter uPVC reducer as per specification.	1	No.		-
A3	Supply of E class (BS-3505; latest amendment) uPVC pipe for LWC with 150mm inner diameter in full sections as per specification.	210	m		-
A4	Supply of 30 slot strainless steel strainer (SS 304 latest amendment)	18	m		-
A5	Supply of E class (BS-3505; latest amendment) uPVC sand trap with 150mm inner diameter in full section 3m long as per specification.	3	m		-
<b>Sub Total</b>					-
<b>B: Construction of PTW</b>					
B1	Mobilize and transport all equipments, tools and necessary materials to the sites as per technical specification and direction of the authorized representative. Demobilize the same on completion of the work and clean the site as per technical specification.	LS	L.S		-
B2	Drilling an open bore hole 600mm dia up to UWC pipe length & 500 mm dia up to bottom of the borehole (approx. 300m depth) in continuous operation by reverse / direct circulation method including sediment sampling, lithology recording and protect bore hole from cave-in. All steps to be taken against cave-in during fixture lowering and gravel packing. All complete as per technical specification.				
	0-50m	50	m		-
	50m-100m	50	m		-
	100m-150m	50	m		-
	150m-200m	50	m		-
200m-250m	50	m		-	
B3	Installation of temporary casing pipe to protect the borehole from cave-in at required depth including supply of materials withdrawal of the casing pipe after work. All complete as per technical specification and direction of the authorized representative.	30	m		-
B4	Geophysical logging (SP, Resistivity/SPR, Gamma) up to the bottom of drilled depth conducted by renowned organization or agency getting prior approval from authorized representative.	1	No.		-
B5	Sediment analysis. All complete as per technical specification and direction of the authorized representative.	30	No.		-
B6	Fitting and fixing of E class (BS-3505; latest amendment) uPVC pipe for UWC with 350mm inner diameter in full section. The works in all respect to be completed as per approval from authorized representative.	53	m		-
B7	Fitting and fixing of E class (BS-3505; latest amendment) 350mmX150mm diameter uPVC reducer. The works in all respect to be completed as per approval of authority.	1	No.		-
B8	Fitting and fixing of E Class (BS-3505; latest amendment) uPVC pipe for LWC with 150mm inner diameter in full section. The works in all respect to be completed as per approval of authority.	210	m		-
B9	Supply of 30 slot strainless steel strainer fitting and fixing	18	m		-
B10	Fitting and fixing of E Class (BS-3505; latest amendment) uPVC sand trap with 150mm inner diameter and 3m long. The works in all respect to be completed as per approval of authority.	3	m		-
B11	Supply & Fitting of M.S. centralizer	35	No.		-
B12	Gravel shrouding, Supply and placing of specified gravel in annular space between well casing and wall of the drilled hole. All complete as per technical specification and direction of the authorized representative.	40	m <sup>3</sup>		-
B13	Providing cement grout seal around the tube well fixtures up to a minimum depth of 5 meter from ground level with supply of approved quality of cement and coarse sand including carrying, loading, unloading, mixing with water, pouring into the annular spaces, etc. all complete as per Technical Specification and accepted by the authorized representative.	5	m		-

**Estimate for the work of Construction of one (1) number 350 mm X 150 mm diameter Production Well at Mocharkhola**

Item No	Description	Quantity	Unit	Rate (Tk)	Total Amount (Tk)
<b>Sub Total</b>					-
<b>C: Tube Well Development</b>					
C1	<b>Compressed Air Primary wash:</b> washing by developing a pressure of at least 320 psi using compressor. The development will start with setting the educator pipe at the mid-point of the lowest screen segment and raised upward slowly one after another screen segment until the highest screen segment is reached. At each mid-point position, compressed air will be pumped for 10 minutes at a time before cleaning the water discharge valve to initially back washing.				
C1.1	Compressed Air Primary wash	Hour	3		-
C2	<b>Preliminary Operation:</b> wash the tube well at a low rate of approximately 50% of the designed capacity of the well. This operation shall be undertaken for a minimum of 3 hours and shall be in accordance with the approvals & directions of authorized representative				
C2.1	Development by 50% discharge of design capacity	Hour	3		-
C3	<b>Washing with Dispersant and Chlorination:</b> Preparing a solution of sodium hexametaphosphate (Calgon) or other approved dispersant mixed together with dry and loose calcium hypochlorite powder (Bleaching Powder) containing 65% available chlorine, washing the well screen slots, the gravel pack and the wall of the drilled hole using the solution, placing the solution by tremie pipe throughout the full length of the well screen for 24 hours, etc. all complete as per Technical Specification and accepted by authorized representative. Measurement shall be taken in cubic meter for the volume of water in the well.				
C3.1	Washing with Dispersant.	LS	LS		-
C4	<b>Development by High Velocity Water Jetting (<u>Based on site Condition</u>):</b> Carrying out high velocity water jetting by jetting tool which is capable of discharging horizontally at a rate of 100 meter per second velocity from four opposite nozzles using 75mm diameter jetting head and 50mm diameter jetting pipe inside the screen, all complete including preliminary washing, alternate surging, pumping, backwashing, etc. in accordance with Technical Specification and accepted by the authorized representative. Measurement shall be taken in linear meter for the length of screen inside the well.				
C4.1	Water jetting in/c alternate surging, backwashing.	LS	LS		-
C5	<b>Development by Over Pumping:</b> Carrying out step pumping at increasing rates from 75% to 150% of design capacity of the tube well by installing a high capacity pump of about 60 m <sup>3</sup> /hour with 45-60 meter head or required head for a minimum of 8 hours, all complete in accordance with Technical Specification and accepted by the authorized representative. Measurement shall be taken in hours to complete the development by over pumping.				
C5.1	Development by over pumping	Hour	8		-
C6	<b>Test for Verticality of PHP:</b> Carrying out the tests for verticality and straightness of the pump housing pipe (PHP) and providing the necessary equipment and devices required to carry out the tests, all complete in accordance with Technical Specification and accepted by the authorized representative.				
C6.1	Verticality test.	LS	LS		-
C7	<b>Step Drawdown Test:</b> Carrying out step drawdown test at 75%, 100%, 125% and 150% of the design well capacity for 1.5 hours continuous pumping at each step including discharge measurement, water level measurement, sand test, recording of test results, water testing, etc. all complete in accordance with Technical Specification and accepted by the authorized representative. Measurement shall be taken in hours to complete the step drawdown test.				
C7.1	Step drawdown test including all measurement.	Hour	6		-

**Estimate for the work of Construction of one (1) number 350 mm X 150 mm diameter Production Well at Mocharkhola**

<b>Item No</b>	<b>Description</b>	<b>Quantity</b>	<b>Unit</b>	<b>Rate (Tk)</b>	<b>Total Amount (Tk)</b>
<b>C8</b>	<b>Continous Discharge Test and Recovery Test:</b> The constant discharge test at the design well capacity for 8 hours continuous pumping including discharge measurement, water level measurement, sand test, recording of test results, water testing, etc.all complete in accordance with Technical Specification and accepted by the authorized representative.				
<b>C8.1</b>	Continous pumping test, Recovery Test including all measurement	Hour	8		-
<b>C9</b>	<b>Disinfecting the Tube Well:</b> Carrying out disinfecting the tube well by placing Calcium Hypochlorite Powder (Bleaching Powder) in a container, lowering and raising the container through the full depth of the well, etc. all complete in accordance with Technical Specification and accepted by the authorized representative.				
<b>C9.1</b>	Disinfecting the Tube Well.	1	LS		-
<b>C10</b>	<b>Protecting the Bore Hole against cave-in:</b> Protecting the bore hole against cave-in or collapse during drilling, fixture lowering and gravel packing using a solution of 100 kg Bentonite, 25 kg CMC and 5 kg Calcium Carbonate to 1000 liter of water including supply of chemicals, admixtures, etc. all complete as per specification and accepted by the authorized representative. Use of chemicals shall be measured in linear meter for total volume of water in the well.				
<b>C10.1</b>	Protecting the Bore Hole.	1	LS		-
<b>Sub Total</b>					-
<b>D: Water Quality Test</b>					
<b>D1</b>	Water quality parameter test as per technical specification	1 (Borehole different parameter)	LS(DPHE Package)		-
<b>Sub Total</b>					-
<b>Sub-Total Cost (A+B+C+D)</b>					-
<b>VAT and IT of Sub-Total Cost</b>					-
<b>Total Cost (Including VAT &amp; IT)</b>					-

**Detail Civil BOQ: Pump House Building and OHT with Piling Works at Mocharkhula**

Item SL.	Description of Items	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
1	3	4	5		
<b>Section-1: General &amp; Site Facilities Works</b>					
1.01	<b>Mobilization and cleaning site</b> before commencing actual physical work and during contract period and demobilization after completion of the works under contract to be accepted by the Engineer-in-charge. This work shall also cover cleaning and clearing, cutting or filling, dressing the project area on and in the ground to an extent that all the events of works of the project can be executed smoothly in a working environment with a particular attention on safety and security in all respects, and to stockpile the end outcome to a place for disposal agreed by the Engineer-in-charge, where, payments are to be based on ground area determined by the Engineer-in-charge and be proportionate to the percentage progress of work under contract as a whole in all respects and approved by the Engineer-in-charge.	sqm.	30.25		-
1.02	Safety net: Supplying temporary <b>safety net (hessian cloth)</b> around construction work place (along the height of the building) where public safety is likely to be endangered due to construction activities; which shall be supported using scaffolding around the building for brick work/ plaster; including fitting and fixing in position providing necessary anchors, wires, ties etc. all complete and accepted by the Engineer-in-charge. (Rate is excluding the cost of scaffolding)	sqm	330.00		-
<b>Sub Total for Mobilization Works [Section-1]</b>					-
<b>Section-1.1: Pile Works for Cast in Situ Piling Works</b>					
1.1.01	<b>Boring/drilling by wash or percussion method</b> for cast in situ pile up to the required depth and diameter with minimum 6 m long temporary steel casing, true to vertical, providing bentonite slurry and maintaining water level in the hole, washing the hole for at least 30 minutes, cleaning the bore hole and making the bore hole ready for placing steel cage and concreting including hire charge of rig set with winch machine, tripod stand, tremie pipe, cost of fuel, lubricant, mobilization, demobilization, maintenance, spares, stand-byes, insurance coverage, water, electricity and other charges all complete, approved and accepted by the Engineer-in-charge. Before commencing boring operation, contractor shall submit the method statement of cast-in-situ pile work including sequence of boring and casting, disposal of spoils to the Engineer-in-charge for approval. However, Engineer's approval shall not relieve the contractor of his responsibilities and obligations under contract.				
1.1.02	500 mm dia	meter	108.00		-
1.1.03	<b>Removing of spoils / mud</b> accumulated during boring for cast in situ pile by wash boring from working site to a safe distance by contractor's own arrangement i.e. with container set in truck or on cart including loading, unloading everything complete as per standard practice and accepted by the Engineer-in-charge. (Quantity should be given three times of solid volume of boring)	cum	254.34		-
1.1.04	<b>Cast in situ pile with reinforced cement concrete works</b> of high slump by adding high range water reducing admixture (ASTM C494 Type A or F) with minimum cement content relates to mix ratio 1 : 1.5 : 3 having minimum f'cr = 26 Mpa, and satisfying a specified compressive strength f'c = 21 Mpa at 28 days on standard cylinders as per standard practice of Code ACI/BNBC/ASTM & cement conforming to BDS EN-197-1- CEM -1,52.5 N / ASTM-C 150 Type – I, best quality coarse sand [Sylhet sand or coarse sand of equivalent F.M.2.2], 20 mm down well graded crushed stone chips conforming to ASTM C-33, including breaking chips, screening through proper sieves, making, placing re-bar cage in position, placing and removing tri-pod as per requirement, pouring the concrete in bore-hole with the help of a tremie pipe, maintaining the tremie pipe immersed in concrete by at least 1 meter throughout the period of concreting, maintaining required slump, etc. mixing the aggregates with standard mixer machine with hopper, casting in forms, all complete including water, electricity, testing of materials and concrete etc and other charges as per design, drawing etc all complete approved and accepted by the Engineer-in-charge. (Rate is excluding the cost of reinforcement and its fabrication, binding, welding, placing and admixture (approx doses 150 to 250 ml per bag of cement which is to be fixed upon consultation with design office)	cum	84.78		-
1.1.05	Providing and <b>making point welding</b> at contact point of the spiral binders at reasonable intervals with the main reinforcements by electric arc welding for construction of cast in situ bored pile carefully with highly oxidized electrodes, making the points prominent and accepted by the Engineer-in-charge (Rate is inclusive of all materials labour, tools and plants, electricity and all equipment).	Point	4,320.00		-
1.1.06	Providing and <b>making welded splice over two sides of contact</b> by welding of minimum 300 mm length at the lap of main reinforcement in re-bar cage to be placed in bore-hole where necessary by electric arc welding with highly oxidized electrodes making the joint prominent all complete and accepted by the Engineer-in-charge. (Rate is inclusive of all materials labour, tools and plants, electricity and all equipment).	meter of weld	21.60		-
1.1.07	Labour for <b>breaking head of hardened cast in situ bored pile/pre-cast pile</b> up to a required length by any means but without damaging the rest and removing the dismantled materials such as concrete to a safe distance including scraps and cleaning concrete from steel/M.S. rods, straightening and bending of pile bars, preparation and making platform where necessary, carrying, all sorts of handling, stacking the same properly after clearing, leveling and dressing the situ and clearing the bed etc. complete in all respect and accepted by the Engineer-in-charge. (Measurement will be given for the actual pile head volume to be broken)	cum	7.07		-

Item SL.	Description of Items	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
1.1.08	<b>Grade 500 (B500DWR: complying BDS ISO 6935-2:2016 / ASTM A615)</b> ribbed or deformed bar produced and marked according to Bangladesh standard, with minimum yield strength, $f_y$ (ReH)= 500 MPa and whatever is the yield strength within allowable limit as per BNBC/ ACI 318, the ratio of ultimate tensile strength $f_u$ to actual yield strength $f_y$ , shall be at least 1.25 and minimum elongation after fracture and minimum total elongation at maximum force is 17% and 8% respectively : up to ground floor.(To be used for pile work, earth retaining wall, boundary wall, water reservoir & other structures as per instruction of concerned design CHAPTER)	kg	1,951.62		-
	<b>Sub Total for Pile Works for Cast in Situ Piling Works [Section-1.1]</b>				-
<b>Section-2: Earth Excavation, Earth Filling, Brick Soling, CC, DPC etc. Civil Works in Foundation</b>					
2.01	<b>Earth Work, Earth/Sand Filling etc.</b>				
2.02	<b>Earth work in excavation</b> in all kinds of soil for foundation trenches including layout, providing center lines, local bench-mark pillars, levelling, ramming and preparing the base, fixing bamboo spikes and marking layout with chalk powder, providing necessary tools and plants, protecting and maintaining the trench dry etc., stacking, cleaning the excavated earth at a safe distance out of the area enclosed by the layout etc. all complete and accepted by the Engineer-in-charge, subject to submit method statement of carrying out excavation work to the Engineer-in-charge for approval. However, engineer's approval shall not relieve the contractor of his responsibilities and obligations under the contract.				
2.03	<b>Layout and marking for earthwork</b> in excavation in foundation accepted by the Engineer-in-charge. [Plinth area of the structure shall be considered for measurement]	sqm.	30.25		-
2.04	<b>Earthwork in excavation</b> in foundation trenches up to 1.5 m depth and maximum 10 m lead	cum	62.44		-
2.05	Extra rate for each additional 0.5 meter depth exceeding 1.5 meter.	cum	62.44		-
2.06	<b>Bailing out of trapped water</b> caused by inundation or rain, by pump from foundation trenches.	Hr.	60.00		-
2.07	<b>Earth filling</b> in foundation trenches and plinth in 150 mm layer with earth available within 90 m of the building site to achieve minimum dry density of 95% with optimum moisture content (Modified proctor test) including carrying watering, leveling, dressing and compacting to a specified percentage each layer up to finished level etc. all complete and accepted by Engineer-in-charge.	cum	24.98		-
2.08	<b>Sand filling</b> in foundation trenches and plinth with sand having minimum <b>F.M. 0.8</b> in 150 mm layers including leveling, watering and compaction to achieve minimum dry density of 95% with optimum moisture content (Modified proctor test) by ramming each layer up to finished level as per design supplied by the design office only, all complete and accepted by the Engineer-in-charge.				-
2.09	Foundation trenches	cum	40.30		-
2.10	FGL TO FLOOR TOP	cum	30.25		-
2.11	<b>Soling, Mass Concrete, Polythene etc.</b>				-
2.12	<b>One layer brick flat soling</b> in foundation or in floor with first class/picked jhama bricks (BDS 208) including preparation of bed and filling the interstices with local sand, leveling etc. complete and accepted by the Engineer-in-charge	sqm	49.13		-
2.13	<b>Mass concrete (1:3:6) in foundation</b> or in floor with cement, sand (F.M. 1.2) and picked jhama brick chips including breaking of chips, screening, mixing, laying, compacting to required level and curing for at least 7 days including the supply of water, electricity, costs of tools & plants and other charges etc. all complete and accepted by the Engineer-in-charge.(Cement: CEM-II/B-M)				-
2.14	Lean / blinding concrete in foundation (1:3:6) with cement, brick chips and sand of F.M. 1.2	cum	1.42		-
2.15	<b>Damp proof course (DPC)</b> (1:1.5:3) in cement concrete with cement, sand (F.M. 1.2) and picked jhama or stone chips including breaking chips, screening, centering, shuttering, casting, curing and finished with a coat of bitumen including the supply of water, electricity and other charges and costs of tools and plants etc. all complete and accepted by the Engineer -in-charge. (Cement: CEM-II/A-M)				-
2.16	<b>75 mm thick damp proof course</b> (1:1.5:3) with brick chips and 50% Sylhet sand (F.M. 2.2) and 50% local sand (F.M. 1.2)	sqm	4.44		-
2.17	<b>Supplying anti-termite chemicals named DURS BAN 20 EC / equivalent</b> and mixing the same with pure water in required proportion (For DURSBAN 20 EC 1 Liter in 19 liters of pure water) and spraying the emulsified mixture @ 5 liters per square meter of soil surface by chemical sprayer or by any other means to the sides and bottom of the foundation trench and over plinth filling or floor bed accepted by the Engineer-in-charge.	sqm	30.25		-
	<b>Sub Total Earth Excavation, Earth Filling, Brick Soling, CC, DPC etc. Civil Works in Foundation [Section-2]</b>				-
<b>Section-3: RCC WORKS: 1:1.35:2.7( measured on gross concrete section) (f'c = 28MPa, minimum f'cr = 33.5 MPa in nominal mix 1:1.35:2.7), with stone chips (100% sand of F.M. 2.2)</b>					
3.01					

Item SL.	Description of Items	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
3.02	<b>Reinforced cement concrete works</b> with minimum cement content relates to <b>mix ratio 1:1.35:2.7</b> having maximum water cement ratio = 0.40 and minimum f'cr = 33.5 MPa, satisfying a specified compressive strength f'c = 28 MPa at 28 days on standard cylinders as per standard practice of Code ACI/BNBC/ASTM, Cement conforming to BDS EN-197-1-CEM-I, 52.5N (52.5 MPa) / ASTM-C 150 Type – I, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded <b>stone chips</b> conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; mixing with standard mixer machine with hopper, fed by standard measuring boxes, casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering)				
3.03	R.C.C Works in <b>Individual Pile Cap</b>	cum	14.16		-
3.04	R.C.C Works in <b>Column Padestal</b>	cum	2.58		-
3.05	<b>R.C.C Works in Column</b>				-
3.06	Ground Floor [RL-1.150M to 4.75M]-3600	cum	8.06		-
3.07	1st Floor [RL-4.75M to 8.35M]-3600	cum	8.06		-
3.08	2nd Floor [RL-8.35M to 11.95M]-3600	cum	8.06		-
3.09	OHT BOTTOM [RL-11.95M to 15.55M]-3600	cum	8.06		-
3.10	Roof [RL-15.55M to 17.70M]-2000	cum	4.48		-
3.11	OHT WALL	cum	7.70		-
3.12					-
3.13	<b>RCC WORKS: 1:1.5:3( measured on gross concrete section) (f'c = 25MPa, minimum f'cr = 33.5 MPa in nominal mix 1 : 1.5 : 3), with stone chips (100% sand of F.M. 2.2)</b>				-
3.14	<b>Reinforced cement concrete works</b> with minimum cement content relates to <b>mix ratio 1:1.5:3</b> having maximum water cement ratio = 0.40 and minimum f'cr = 33.5 MPa, satisfying a specified compressive strength f'c = 25 MPa at 28 days on standard cylinders as per standard practice of Code ACI/BNBC/ASTM, Cement conforming to BDS EN-197-1-CEM-I, 52.5N (52.5 MPa) / ASTM-C 150 Type – I, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded <b>stone chips</b> conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; mixing with standard mixer machine with hopper, fed by standard measuring boxes, casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering)				-
3.15	R.C.C Works in <b>Grade Beam</b>	cum	2.22		-
3.16	<b>R.C.C Works in Floor/roof Beam</b>				-
3.17	Ground Floor [RL-1.150M to 4.75M]-3600	cum	1.55		-
3.18	1st Floor [RL-4.75M to 8.35M]-3600	cum	1.55		-
3.19	2nd Floor [RL-8.35M to 11.95M]-3600	cum	1.55		-
3.20	OHT BOTTOM [RL-11.95M to 15.55M]-3600	cum	2.05		-
3.21	Roof [RL-15.55M to 17.70M]-2000	cum	1.55		-
3.22	<b>R.C.C Works in Floor/roof Slab</b>				-
3.23	Ground Floor (plinth Level) [RL-0.15M to 1.150M]-1000	cum	4.80		-
3.24	Ground Floor [RL-1.150M to 4.75M]-3600	cum	4.80		-
3.25	OHT BOTTOM [RL-11.95M to 15.55M]-3600	cum	12.23		-
3.26	Roof [RL-15.55M to 17.70M]-2000	cum	4.54		-
3.27					-
3.28	<b>RCC WORKS: 1:2:4 (measured on gross concrete section) (f'c = 22 MPa, minimum f'cr = 30.5 MPa in nominal mix 1:2:4), with stone chips (100% sand of F.M. 2.2)</b>				-
3.29	<b>Reinforced cement concrete works</b> with minimum cement content relates to <b>mix ratio 1:2:4</b> having maximum water cement ratio = 0.40 and minimum f'cr = 30.5 MPa, satisfying a specified compressive strength f'c = 22 MPa at 28 days on standard cylinders as per standard practice of Code ACI/BNBC/ASTM, cement conforming to BDS EN-197-1-CEM-I, 52.5N (52.5 MPa) / ASTM-C 150 Type – I, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded <b>stone chips</b> conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), conducting necessary tests, making and placing shutter in position maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; mixing in standard mixer machine with hopper fed by standard measuring boxes, casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering)				-

Item SL.	Description of Items	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
3.30	<b>R.C.C Works in Stair case slab and steps</b>				-
3.31	Ground Floor (plinth Level) [RL-0.15M to 1.150M]-1000	cum	1.21		-
3.32	<b>R.C.C Works in Lintel</b>				-
3.33	Ground Floor [RL-1.150M to 4.75M]-3600	cum	0.26		-
3.34	<b>FORM WORK (Steel)</b>				-
3.35	Centering and shuttering, including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of <b>minimum 16 BWG</b> , angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for:[note: shutter oil as well as cup brush must be used in every case of reusing the shutter before placing the concrete]				-
3.36	Shuttering Works in <b>Pile Cap</b>	sqm	25.41		-
3.37	Shuttering Works in <b>Column Pedestal</b>	sqm	16.56		-
3.38	Shuttering Works in <b>Grade Beam</b>	sqm	14.80		-
3.39	<b>Shuttering Works in Column</b>				-
3.40	Ground Floor [RL-1.150M to 4.75M]-3600	sqm	51.84		-
3.41	1st Floor [RL-4.75M to 8.35M]-3600	sqm	51.84		-
3.42	2nd Floor [RL-8.35M to 11.95M]-3600	sqm	51.84		-
3.43	OHT BOTTOM [RL-11.95M to 15.55M]-3600	sqm	51.84		-
3.44	Roof [RL-15.55M to 17.70M]-2000	sqm	28.80		-
3.45	OHT WALL	sqm	88.00		-
3.46	<b>Shuttering Works in Floor/roof Beam</b>				-
3.47	Ground Floor [RL-1.150M to 4.75M]-3600	sqm	10.36		-
3.48	1st Floor [RL-4.75M to 8.35M]-3600	sqm	10.36		-
3.49	2nd Floor [RL-8.35M to 11.95M]-3600	sqm	10.36		-
3.50	OHT BOTTOM [RL-11.95M to 15.55M]-3600	sqm	13.68		-
3.51	Roof [RL-15.55M to 17.70M]-2000	sqm	10.36		-
3.52	<b>Shuttering Works in Floor/roof Slab</b>				-
3.53	Ground Floor (plinth Level) [RL-0.15M to 1.150M]-1000	sqm	33.66		-
3.54	Ground Floor [RL-1.150M to 4.75M]-3600	sqm	33.66		-
3.55	OHT BOTTOM [RL-11.95M to 15.55M]-3600	sqm	68.73		-
3.56	Roof [RL-15.55M to 17.70M]-2000	sqm	33.55		-
3.57					-
3.58	<b>Shuttering Works in Stair case slab and steps</b>				-
3.59	Ground Floor [RL-1.150M to 4.75M]-3600	sqm	9.60		-
3.60	<b>Shuttering Works in Lintel</b>				-
3.61	Ground Floor [RL-1.150M to 4.75M]-3600	sqm	4.22		-
	<b>Sub Total R.C.C Works with Shuttering [Section-3]</b>				-
<b>Section-4: M.S Reinforcement Works</b>					
4.01	Supplying, fabrication and fixing to detail as per design : ribbed or deformed bar reinforcement (excluding laboratory test fees) for Reinforced concrete, produced and marked in accordance with BDS ISO 6935-2:2016 (or standard subsequently released from BSTI) including straightening and cleaning rust, if any, bending and binding in position with supply of G.I. wires,conducting necessary laboratory tests etc. (excluding splices or laps) complete in all respect and accepted by the Engineer-in-charge (Measurement shall be recorded only on standard mass per unit length of bars, while dia of bars exceeds its standard)				-
4.02	<b>Grade 400 (B400DWR / B420DWR: complying BDS ISO 6935-2:2016 / ASTM A615)</b> ribbed or deformed bar produced and marked according to Bangladesh standard, with minimum yield strength, fy (ReH)= 400 MPa but fy not exceeding 480 MPa and whatever is the actual yield strength within allowable limit as per BNBC/ ACI 318, the ratio of ultimate tensile strength fu to yield strength fy, shall be at least 1.25 and minimum elongation after fracture and minimum total elongation at maximum force is 17% and 8% respectively : up to ground floor.				-
4.03	<b>Individual Pile Cap</b>	kg	1,089.94		-
4.04	<b>Column Pedestal</b>	kg	304.81		-
4.05	<b>Grade Beam</b>	kg	467.54		-
4.06	<b>Reinforcement Works in Column</b>				-
4.07	Ground Floor [RL-1.150M to 4.75M]-3600	kg	939.59		-
4.08	1st Floor [RL-4.75M to 8.35M]-3600	kg	939.59		-
4.09	2nd Floor [RL-8.35M to 11.95M]-3600	kg	939.59		-
4.10	OHT BOTTOM [RL-11.95M to 15.55M]-3600	kg	939.59		-
4.11	Roof [RL-15.55M to 17.70M]-2000	kg	473.79		-
4.12	OHT WALL	kg	925.28		-
4.13	<b>Reinforcement Works in Floor/roof Beam</b>				-
4.14	Ground Floor [RL-1.150M to 4.75M]-3600	kg	533.06		-
4.15	1st Floor [RL-4.75M to 8.35M]-3600	kg	533.06		-
4.16	2nd Floor [RL-8.35M to 11.95M]-3600	kg	533.06		-



Item SL.	Description of Items	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
4.17	OHT BOTTOM [RL-11.95M to 15.55M]-3600	kg	907.72		-
4.18	Roof [RL-15.55M to 17.70M]-2000	kg	533.06		-
4.19	<b>Reinforcement Works in Floor/roof Slab</b>				-
4.20	Ground Floor (plinth Level) [RL-0.15M to 1.150M]-1000	kg	452.07		-
4.21	Ground Floor [RL-1.150M to 4.75M]-3600	kg	622.89		-
4.22	OHT BOTTOM [RL-11.95M to 15.55M]-3600	kg	1,777.44		-
4.23	Roof [RL-15.55M to 17.70M]-2000	kg	622.89		-
4.24	<b>Reinforcement Works in Stair case slab and steps</b>				-
4.25	Ground Floor [RL-1.150M to 4.75M]-3600	kg	106.56		-
4.26	<b>Reinforcement Works in Lintel</b>				-
4.27	Ground Floor [RL-1.150M to 4.75M]-3600	kg	10.34		-
	<b>Sub Total M.S Reinforcement Works [Section-4]</b>				-
<b>Section-5: Brick,Pointing &amp; Plaster Works</b>					
5.01	Brick works with first class bricks with cement sand (F.M. 1.2) mortar (1:6) in foundation and plinth, filling the joints/interstices fully with mortar, racking out the joints, cleaning and soaking the bricks at least for 24 hours before use and curing at least for 7 days etc. all complete including cost of water, electricity and other charges and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M)	cum	10.05		-
5.02	Exposed 125 mm thick pointing ornamental brick work with automatic machine made first class bricks with cement sand (F.M. 1.2) mortar (1:4) and making bond with connected walls including necessary scaffolding, raking out joints, cleaning and soaking the bricks for at least 24 hours before use and washing of sand, curing at least for 7 days in all floors including cost of water, electricity and other charges etc. all complete and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M) In ground floor				-
5.03	Ground Floor [RL-1.150M to 4.75M]-3600	sqm	35.38		-
5.04	<b>Pointing Works(1:2)</b>				-
5.05	Rule pointing to brick wall with cement sand (F.M. 1.2) mortar (1:2) with fresh cement and raking out the joints, curing at least for 7 days, cost of water, electricity, scaffolding and other charges etc. all complete in all respect as per drawing and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M) ground floor.				-
5.06	Ground Floor [RL-1.150M to 4.75M]-3600	sqm	35.38		-
5.07	<b>Brick Wall Surface Plaster(1:4)</b>				-
5.08	Minimum 12 mm thick cement sand (F.M. 1.2) plaster (1:4) with fresh cement to both inner-and outer surface of wall, finishing the corner and edges including washing of sand, cleaning the surface, curing at least for 7 days, cost of water, electricity, scaffolding and other charges etc. all complete in all respect as per drawing and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M) ground floor.				-
5.09	Ground Floor [RL-1.150M to 4.75M]-3600	sqm	35.38		-
5.1	<b>RCC Surface Plaster(1:4)</b>				-
5.11	Minimum 6 mm thick cement sand (F.M. 1.2) plaster (1:4) with fresh cement to ceiling, R.C.C. columns, beams, surface of stair case, sunshades, cornices, railings, drop wall, louvers, fins and finishing the corners and edges including washing of sand, cleaning the surface, curing at least for 7 days, cost of water, electricity, scaffolding and other charges etc. all complete in all respect as per drawing and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M) ground floor.				-
5.12	Ground Floor [RL-1.150M to 4.75M]-3600	sqm	58.92		-
5.13	<b>Overhead Water Tank Area Finishing Items only</b>				-
5.14	Supply and application of 19mm thick (9.5 mm X 2 layer) water proof, damp proof, dry and breathable plaster on roof slab/ underground water reservoir/ overhead water reservoir/ basement/retaining wall with water proof, damp proof, dry and breathable Izonil cement (STN-EN -1015-11 , compressive strength 34 MPa ,max depth of water penetration into hardened plaster is < 1 mm) or equivalent compound in a proportion of 1:2.4 (Izonil cement or equivalent compound 1: sand 2.4) after cement grouting on existing concrete surface including finishing the corner and edges, washing sand, cleaning the surface scaffolding and curing at least 3 days etc. all completed in all respects as per direction of Engineering-in-charge. Above mentioned plaster includes glass fiber mesh of 10 mm X 10 mm grid and weight 110 gm/sqm placed in between two layers.	sqm	74.25		-
	<b>Sub Total Brick,Pointing &amp;Plaster Works [Section-5]</b>				-
<b>Section-6: Floor Finishing Works</b>					
6.01	25 mm thick artificial patent stone (1:2:4) flooring with cement, best quality coarse sand (50% quantity of Sylhet sand or coarse sand of equivalent F.M. 2.2 and 50% best quality local sand of FM 1.2) and 12 mm down well graded stone chips, laying the concrete in alternate panels, compacting and finishing the top with neat cement and curing at least for 7 days in all floors including cost of water, electricity and other charges etc. all complete and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M) In ground floor	sqm	30.25		-
	<b>Sub Total Floor Finishing Works [Section-6]</b>				-

Item SL.	Description of Items	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
<b>Section-7: Door,Glazing/Window Works</b>					
7.01	Supplying, fitting and fixing <b>M.S. door shutters</b> made with 38 mm x 38 mm x 6 mm angle outer frame, inner member 25 mm x 6 mm F.I. bar, cladding with 16 BWG M.S. sheet, 04 nos 75 mm long hinge, 02 nos. locking arrangement with 50 mm x 50 mm x 6 mm M.S. angle chowkat including all charges for welding, riveting etc. including cost of supplying all essential fittings like iron hinges, socket bolts, clamps, for fitting and fixing the frame, making necessary holes in brick walls and R.C.C works and fitting with C.C. (1:2:4) and mending good the damages including all cost of carriage, workshop charges, electricity and labour for fittings, fixing, curing etc. all complete and accepted by the Engineer-in-charge. (Rate is excluding the costs of painting).	sqm	2.10		-
7.02	Supplying, fitting and fixing of <b>aluminium sliding window with mosquito mesh</b> as per the U.S. Architectural Aluminium Manufacturer's Association (AAMA) standard specification and BDS 1879:2014 having minimum 1.2 mm thick outer bottom (95.00 mm, 38.00 mm outer bottom,0.72 kg/m ), minimum 1.2 mm thick outer top (95.00 mm, 28.5 mm outer top, 0.75 kg/m), minimum 1.2 mm thick shutter top (size 33 mm.26.80 mm,0.42 kg/m), minimum 1.2 mm thick shutter bottom (size 60mm, 24.40 mm,0.589 kg/m), minimum 1.2 mm thick outer side (95.00 mm, 19.50 mm outer side ,0.591 kg/m), minimum 1.2 mm thick shutter lock (size 49.20 mm 25.80 mm,0.543 kg/m) and minimum 1.2 mm thick inter lock (size 34.40 mm, 32.13 mm,0.562 kg/m) sections all aluminium members will be anodized to aluminium bronze/silver/ss/black colour with a coat not less than 15 micrones in thickness or powder coated to any colour with a coat not less than 25 micrones in thickness and density of 4 mg per square cm etc. including all accessories like sliding door key lock, sliding door wheel, sliding door mohiar, sliding door neoprene, bolts and nuts including sealants, keeping provision for fitting 5 mm thick glass including labour charge for fitting of accessories, making grooves and mending good damages, carriage, and electricity complete in all respect as per drawing and accepted by the Engineer-in-charge.				-
7.03	<b>Size up to: 1524 mm x 1372 mm</b>				-
7.04	Powder coated to any colour	sqm	6.08		-
7.05	Supplying, fitting and fixing in Aluminium door frames, windows, partitions and curtain wall <b>distortion free glass</b> of approved quality and shade including cost of fitting fixing all necessary accessories etc. complete in all respect as per drawing and accepted by the Engineer-in-charge.				-
7.06	<b>5mm thick clear glass</b>	sqm	6.08		-
<b>Sub Total Door,Glazing/Window Works [Section-7]</b>					-
<b>Section-8: Railing Works</b>					
8.01	<b>1st Floor, Roof Top &amp; OHT Top railing works</b>				-
8.02	Supplying, fitting and fixing verandah railing of standard height with 3mm thick 75mm x 50mm MS box for vertical post box @ 900 mm c/c fitting by welding on 150 mm x 100 mm x 6 mm anchor plate at base, base plate fitting with the floor by 50mm long royal bolt, 3mm thick 50mm x 38mm MS horizontal box fitting with the vertical post by welding @ 150 mm c/c including all other accessories and carrying, fabrication, applying 2 (two) coats of synthetic enamel paint of approved quality over an anti-corrosive prime coat etc. complete in all respect for all floors and accepted by the Engineer-in-charge. (Exposed area of railing will be considered for measurement, rate is excluding the cost of painting).	sqm	54.00		-
<b>Sub Total Railing Works [Section-8]</b>					-
<b>Section-9: Painting Works</b>					
9.01	<b>Plastic Emulsion Paint(Interior)</b>				-
9.02	<b>Interior super premium acrylic emulsion painting (odorless)</b> of approved best quality and colour delivered from authorized local agent of the manufacturer in a sealed container; applying to interior wall and ceiling with surface preparation including cleaning drying, making free from dirt, grease, wax, removing all chalked and scaled materials, fungus, mending good the surface defects using sand paper and necessary scaffolding; applying necessary interior sealer of specified brand on prepared surface; then applying necessary interior putty of specified brand for levelling, spot filling, crack filling and cutting by sand paper/zero water paper, finally applying 2 coats of interior emulsion paint spreading by brush/roller/spray & necessary scaffolding etc. upto desired finishing, elapsing specified time for drying or recoating; all complete in all floors accepted by the Engineer-in-charge.	sqm	35.38		-
9.03	<b>Water Repellent</b>				-
9.04	<b>Silicon based water repellent</b> of approved quality delivered from authorized local agent of the manufacturer in a sealed container; surface preparation including cleaning, drying, making free from dirt, grease, wax, removing all chalked and scaled materials, fungus, mending good the surface defects using sand paper and necessary scaffolding; applying 3 coats of silicon based water repellent on exposed brick surface/fair face surface spreading by brush/roller/spray & necessary scaffolding etc. upto desired finishing, elapsing specified time for drying or recoating; all complete in all floors and accepted by the Engineer-in-charge	sqm	35.38		-

Item SL.	Description of Items	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
9.05	<b>Premium synthetic enamel paint</b> of approved best quality and colour delivered from authorized local agent of the manufacturer in a sealed container, having high water resistance, high bondability, flexibility property; using specified brand thinner applying to metallic or wooden surface by brass/roller/spray in two coats over single coat anti-corrosive coating including cleaning, drying, making free from dirt, grease, wax, removing all chalked and scaled materials, all complete in all floors and accepted by the Engineer-in-charge.	sqm	19.40		-
	<b>Sub Total Painting Works</b> [Section-9]				-
<b>Section-10: Misc. Items</b>					-
10.01	Supplying, fitting, fixing in position a <b>pre-fabricated M.S ladder</b> with sefty railing and Sefty net for water tank roof top all complete complete as per drawing and design and accepted by the Engineer-in-charge. (Rate is excluding the cost of paint).	sqm	17.30		-
10.02	Supplying, fitting and fixing <b>window grill made of 12 mm x 12 mm M.S. solid bar @ 100mm c/c with outer frame of 38 mm x 6mm F.I. bar</b> and 25 mm x 6 mm F.I. bar for clamp as per design including fabrication, welding, cost of electricity workshop charges, labour charges for fitting and fixing grills in position, local carriage charges, cutting grooves, mending good the damages, tools and plants, finished with anti-corrosive painting (Red-Oxide) etc. complete for all floors approved and accepted by the Engineer-in-charge. (Total weight per sqm should be approx 19 kg and add or deduct @ Tk. 100.00 for each kg/sqm excess or less respectively)	sqm	6.08		-
	<b>Sub Total Misc. Items</b> [Section-10]				-
<b>Total</b>					-

BOUNDARY WALL					
Item SL.	Description of Items	Unit	Quantity	Unit Rate(BDT)	Amount (BDT)
1	3	4	5		
<b>Part-B2a Boundary wall &amp; Entry Gate</b>					
<b>Section-1: Earth Excavation, Earth Filling, etc. Civil Works in Foundation</b>					
1.01	<b>Earth work in excavation</b> in all kinds of soil for foundation trenches including. layout, providing center lines, local bench-mark pillars, leveling, ramming and preparing the base, fixing bamboo spikes and marking layout with chalk powder, providing necessary tools and plants, protecting and maintaining the trench dry etc., stacking, cleaning the excavated earth at a safe distance out of the area enclosed by the layout etc. all complete and accepted by the Engineer, subject to submit method statement of carrying out excavation work to the Engineer for approval. However, Engineer's approval shall not relieve the contractor of his responsibilities and obligations under the contract.				
1.02	<b>Layout and marking</b> for earthwork in excavation in foundation accepted by the Engineer-in-charge.	sqm	37.90		-
1.03	<b>Earthwork in excavation</b> in foundation trenches up to 1.5 m depth and maximum 10 m lead	cum	0.28		-
1.04	Sand filling in foundation trenches and plinth with sand having minimum <b>F.M. 0.8</b> in 150 mm layers including leveling, watering and compaction to achieve minimum dry density of 95% with optimum moisture content (Modified proctor test) by ramming each layer up to finished level as per design supplied by the design office only, all complete and accepted by the Engineer-in-charge.				-
1.05	Foundation trenches	cum	0.17		-
<b>Sub Total Earth Excavation, Earth Filling, etc. Civil Works in Foundation</b> [Section-2]					-
<b>Section-2: R.C.C Works With Shuttering</b>					
2.01	<b>Reinforced Cement Concrete, Shuttering &amp; M.S Reinforcement Works etc.</b>				
2.02	<b>RCC WORKS: 1:1.5:3( measured on gross concrete section)</b> <b>(f'c = 25MPa, minimum f'cr = 33.5 MPa in nominal mix 1 : 1.5 : 3), with stone chips (100% sand of F.M. 2.2)</b>				
2.03	<b>Reinforced cement concrete works</b> with minimum cement content relates to <b>mix ratio 1:1.5:3</b> having maximum water cement ratio = 0.40 and minimum f'cr = 33.5 MPa, satisfying a specified compressive strength f'c = 25 MPa at 28 days on standard cylinders as per standard practice of Code ACI/BNBC/ASTM, Cement conforming to BDS EN-197-1-CEM-I, 52.5N (52.5 MPa) / ASTM-C 150 Type – I, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded <b>stone chips</b> conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; mixing with standard mixer machine with hopper, fed by standard measuring boxes, casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering)				
2.04	R.C.C Works in Column	cum	0.86		-
2.05	<b>FORM WORK STEEL</b>				-
2.06	<b>Centering and shuttering, including strutting, propping</b> etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for:				-
2.07	Form Works in Column	sqm	34.44		-
<b>Sub Total R.C.C Works With Shuttering</b> [Section-2]					-
<b>Section-3: M.S Reinforcement Works</b>					
3.01	<b>Grade 400 (B400DWR / B420DWR: complying BDS ISO 6935-2:2016 / ASTM A615)</b> ribbed or deformed bar produced and marked according to Bangladesh standard, with minimum yield strength, fy (ReH)= 400 MPa but fy not exceeding 480 MPa and whatever is the actual yield strength within allowable limit as per BNBC/ ACI 318, the ratio of ultimate tensile strength fu to yield strength fy, shall be at least 1.25 and minimum elongation after fracture and minimum total elongation at maximum force is 17% and 8% respectively : up to ground floor.				
	Column	kg	218.53		-
<b>Sub Total M.S Reinforcement Works</b> [Section-3]					-
<b>Section-4: Works for barbed wire fencing</b>					

Item SL.	Description of Items	Unit	Quantity	Unit Rate(BDT)	Amount (BDT)
4.01	Providing <b>barbed wire fencing with RCC Pillars</b> supplying, fitting and fixing 8 lines of barbed wire horizontally (fixed with the post through 6 mm dia rods embedded in to the post) and 2 lines diagonally from post to post with 12 BWG 2 ply barbed wire, with 4 points barbs @ at least 112 mm c/c including 6 mm thick (1:4) cement plaster up to 1500 mm length of the pillars etc. complete and accepted by the Engineer-in-charge. (Rate is excluding the cost of concrete, reinforcement & plaster which is to be paid as per corresponding items in the schedule)	sqm	151.58		-
4.02	Supplying, fitting, fixing, and installation of <b>Entry Gate</b> MS 25 mm x 3 mm flat bar, 20 mesh 24 BWG wire mesh, brass hasp bolt, Clamp (all necessary works), all complete as per design, drawing and accepted by the Engineer-in-charge.	sqm	5.50		-
	<b>Sub Total Works for Grill , Barbed wire &amp; Painting Works [Section-4]</b>				-
			<b>TOTAL TK=</b>		-

One Meter Wide (HBB) Internal Road inside the Pump House Compound					
Item SL.	Description of Items	Unit	Quantity	Unit Rate(BDT)	Amount (BDT)
1	3	4	5		
<b>Part B2c</b>	<b>One Meter Wide (HBB) Internal Road</b>				
1	<b>Earthwork in box cutting</b> in all types of soil. Removing soil to a safe distance, maintaining proper alignment, camber and grade including leveling, dressing and compacting the sub grade as per drawing and accepted by the Engineer-in-charge.				
2	Depth up to 300 mm	sqm	22.89		-
3	<b>Sand filling</b> in foundation trenches and plinth with sand having minimum <b>F.M. 0.8</b> in 150 mm layers including leveling, watering and compaction to achieve minimum dry density of 95% with optimum moisture content (Modified proctor test) by ramming each layer up to finished level as per design supplied by the design office only, all complete and accepted by the Engineer-in-charge.	cum	6.87		-
4	<b>Single layer brick flat soling</b> in road work with first class or picked jhama bricks as per alignment, camber and grade including filling joints with sand (F.M. 0.80) etc. complete including cost of all materials and accepted by the Engineer-in-charge.	sqm	22.89		-
5	<b>Brick on edges pavement in herring bone bond (HBB)</b> with first class or picked jhama bricks as per alignment, camber and grade over 12 mm thick sand cushion (F.M. 0.80) including filling the joints with the same sand including cost of all materials and accepted by the Engineer-in-charge.	sqm	22.89		-
6	<b>Brick on end edging</b> (75 mm across the road) with first class or picked jhama bricks and filling the gaps with fine sand (F.M. 0.80) including cutting trenches, true to level and grade, removing earth, refilling and ramming the sides properly including cost of all materials and accepted by the Engineer-in-charge.	m	45.78		-
				<b>Total</b>	<b>-</b>

## Detail Civil BOQ: Tank Site at Camp 15 Block F with Necessary Site Protection Works

Item SL.	Description of Items	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
1	3	4	5		
<b>Section-1: Earth Excavation, Earth Filling, Brick Soling, CC, Protection etc. Civil Works in Foundation</b>					
1.01	<b>Earth Work, Earth/Sand Filling etc.</b>				
1.02	<b>Earth work in excavation</b> in all kinds of soil for foundation trenches including layout, providing center lines, local bench-mark pillars, levelling, ramming and preparing the base, fixing bamboo spikes and marking layout with chalk powder, providing necessary tools and plants, protecting and maintaining the trench dry etc., stacking, cleaning the excavated earth at a safe distance out of the area enclosed by the layout etc. all complete and accepted by the Engineer-in-charge, subject to submit method statement of carrying out excavation work to the Engineer-in-charge for approval. However, engineer's approval shall not relieve the contractor of his responsibilities and obligations under the contract.				
1.03	<b>Layout and marking for earthwork</b> in excavation in foundation accepted by the Engineer-in-charge. [Plinth area of the structure shall be considered for measurement]	sqm.	9.53		-
1.04	<b>Earthwork in excavation</b> in foundation trenches up to 1.5 m depth and maximum 10 m lead	cum	15.00		-
1.05	<b>Bailing out of trapped water</b> caused by inundation or rain, by pump from foundation trenches.	Hr.	20.00		-
1.06	<b>Earth filling</b> in foundation trenches and plinth in 150 mm layer with earth available within 90 m of the building site to achieve minimum dry density of 95% with optimum moisture content (Modified proctor test) including carrying watering, leveling, dressing and compacting to a specified percentage each layer up to finished level etc. all complete and accepted by Engineer-in-charge.	cum	3.00		-
1.07	<b>Sand filling</b> in foundation trenches and plinth with sand having minimum <b>F.M. 0.8</b> in 150 mm layers including leveling, watering and compaction to achieve minimum dry density of 95% with optimum moisture content (Modified proctor test) by ramming each layer up to finished level as per design supplied by the design office only, all complete and accepted by the Engineer-in-charge.	cum	3.48		-
1.08	<b>Soling, Mass Concrete, Polythene etc.</b>				-
1.09	<b>One layer brick flat soling</b> in foundation or in floor with first class/picked jhama bricks (BDS 208) including preparation of bed and filling the interstices with local sand, leveling etc. complete and accepted by the Engineer-in-charge	sqm	11.53		-
1.10	<b>Mass concrete (1:3:6) in foundation</b> or in floor with cement, sand (F.M. 1.2) and picked jhama brick chips including breaking of chips, screening, mixing, laying, compacting to required level and curing for at least 7 days including the supply of water, electricity, costs of tools & plants and other charges etc. all complete and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M)				-
1.11	Lean / blinding concrete in foundation (1:3:6) with cement, brick chips and sand of F.M. 1.2	cum	1.44		-
1.11	Supplying of <b>wooden ballah</b> having an average diameter not less than 150 mm (without barks) at one third distance from larger end with a minimum end diameter of 100 mm for retaining purpose and driving to a depth as per design and drawing by any method including all arrangement for staging, hoisting, carrying etc. complete and accepted by the Engineer-in-charge.	meter	656.00		-
	<b>Sub Total Earth Excavation, Earth Filling, Brick Soling, CC, DPC etc. Civil Works in Foundation [Section-1]</b>				-
<b>Section-2: R.C.C Works with Shuttering</b>					
2.01	<b>RCC WORKS: 1:2:4 (measured on gross concrete section) (f 'c = 22 MPa, minimum f 'cr = 30.5 MPa in nominal mix 1:2:4), with stone chips (100% sand of F.M. 2.2 )</b>				-

Item SL.	Description of Items	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
2.02	<b>Reinforced cement concrete works</b> with minimum cement content relates to <b>mix ratio 1:2:4</b> having maximum water cement ratio = 0.40 and minimum $f_{cr} = 30.5$ MPa, satisfying a specified compressive strength $f_c = 22$ MPa at 28 days on standard cylinders as per standard practice of Code ACI/BNBC/ASTM, cement conforming to BDS EN-197-1-CEM-I, 52.5N (52.5 MPa) / ASTM-C 150 Type – I, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded <b>stone chips</b> conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), conducting necessary tests, making and placing shutter in position maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; mixing in standard mixer machine with hopper fed by standard measuring boxes, casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering)				-
2.03	R.C.C Works in <b>Bottom Base</b>	cum	1.91		-
2.04	R.C.C Works in <b>Top Base</b>	cum	2.36		-
2.06	<b>FORM WORK (Steel)</b>				-
2.07	Centering and shuttering, including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of <b>minimum 16 BWG</b> , angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for:[note: shutter oil as well as cup brush must be used in every case of reusing the shutter before placing the concrete]				-
2.08	Shuttering Works in <b>Bottom Base</b>	sqm	2.40		-
2.09	Shuttering Works in <b>Top Base</b>	sqm	14.33		-
	<b>Sub Total R.C.C Works with Shuttering [Section-2]</b>				-
<b>Section-3: M.S Reinforcement Works</b>					
3.01	Supplying, fabrication and fixing to detail as per design : ribbed or deformed bar reinforcement (excluding laboratory test fees) for Reinforced concrete, produced and marked in accordance with BDS ISO 6935-2:2016 (or standard subsequently released from BSTI) including straightening and cleaning rust, if any, bending and binding in position with supply of G.I. wires, conducting necessary laboratory tests etc. (excluding splices or laps) complete in all respect and accepted by the Engineer-in-charge (Measurement shall be recorded only on standard mass per unit length of bars, while dia of bars exceeds its standard)				-
3.02	<b>Grade 400 (B400DWR / B420DWR: complying BDS ISO 6935-2:2016 / ASTM A615)</b> ribbed or deformed bar produced and marked according to Bangladesh standard, with minimum yield strength, $f_y (ReH) = 400$ MPa but $f_y$ not exceeding 480 MPa and whatever is the actual yield strength within allowable limit as per BNBC/ACI 318, the ratio of ultimate tensile strength $f_u$ to yield strength $f_y$ , shall be at least 1.25 and minimum elongation after fracture and minimum total elongation at maximum force is 17% and 8% respectively : up to ground floor.				-
3.03	<b>Bottom Base</b>	kg	197.16		-
3.04	<b>Top Base</b>	kg	138.38		-
	<b>Sub Total M.S Reinforcement Works [Section-3]</b>				-
<b>Section-4: Brick, Pointing &amp; Plaster Works</b>					
4.01	<b>Brick works with first class bricks with cement sand (F.M. 1:2) mortar (1:6) in foundation</b> and plinth, filling the joints/interstices fully with mortar, racking out the joints, cleaning and soaking the bricks at least for 24 hours before use and curing at least for 7 days etc. all complete including cost of water, electricity and other charges and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M)	cum	5.614975		-
4.03	<b>Brick Wall Surface Plaster(1:4)</b>				-
4.04	<b>Minimum 12 mm thick cement sand (F.M. 1:2) plaster (1:4)</b> with fresh cement to both inner and outer surface of wall, finishing the corner and edges including washing of sand, cleaning the surface, curing at least for 7 days, cost of water, electricity, scaffolding and other charges etc. all complete in all respect as per drawing and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M) ground floor.	sqm	10.2089		-



Item SL.	Description of Items	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
<b>Sub Total Brick,Pointing &amp;Plaster Works</b>					-
<b>[Section-4]</b>					
<b>Section-5: Painting Works</b>					
5.01	<b>Weather Coat Paint(Exterior)</b>				-
5.02	<b>Exterior premium acrylic emulsion paint</b> of approved best quality and color with high performance against dirt picking tendency and efflorescence resistance properties along with water resisting properties and resistance properties against fungi, fading and flaking from authorized local agent of the manufacturer in a sealed container; applying to exterior surface with surface preparation including cleaning drying, making free from dirt, grease, wax, removing all chalked and scaled materials, fungus, mending good the surface defects using sand paper and necessary scaffolding; applying necessary exterior sealer of specified brand on prepared surface; then applying necessary exterior putty of specified brand for levelling, spot filling, crack filling and cutting by sand paper/zero water paper; finally applying 2 coats of exterior emulsion paint spreading by brush/roller/spray & necessary scaffolding etc. upto desired finishing, elapsing specified time for drying or recoating; all complete in all floors and accepted by the Engineer-in-charge.	sqm	10.21		-
5.03	<b>Premium synthetic enamel paint</b> of approved best quality and colour delivered from authorized local agent of the manufacturer in a sealed container, having high water resistance, high bondibility, flexiblity property; using specified brand thinner applying to metallic or wooden surface by brass/roller/spray in two coats over single coat anti-corrosive coating including cleaning, drying, making free from dirt, grease, wax, removing all chalked and scaled materials, all complete in all floors and accepted by the Engineer-in-charge.	sqm	19.04		-
<b>Sub Total Painting Works</b>					-
<b>[Section-5]</b>					
<b>Section-6: Misc. Items</b>					
6.01	Supplying, fitting & fixing of <b>Water Tank guard made of 40 mm x 40 mm x 5 mm M.S. angle</b> around Tank & 40 mm x 5 mm Flat bar for Tie at the top including fitting and fixing with the angle by welding, fitting and fixing the angle by cutting grooves in R.C.C, fixing and finishing the same with C.C. (1:2:4) etc. cost of electricity and other charges all complete and accepted by the Engineer-in-charge	meter	11.2		-
<b>Sub Total Misc. Items</b>					-
<b>[Section-6]</b>					
				<b>Total</b>	-

### Detail Civil BOQ: Tank Site at Camp 15 Block H

Item SL.	Description of Items	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
1	3	4	5		
<b>Section-1: Earth Excavation, Earth Filling, Brick Soling, CC, DPC etc. Civil Works in Foundation</b>					
1.01	<b>Earth Work, Earth/Sand Filling etc.</b>				
1.02	<b>Earth work in excavation</b> in all kinds of soil for foundation trenches including layout, providing center lines, local bench-mark pillars, levelling, ramming and preparing the base, fixing bamboo spikes and marking layout with chalk powder, providing necessary tools and plants, protecting and maintaining the trench dry etc., stacking, cleaning the excavated earth at a safe distance out of the area enclosed by the layout etc. all complete and accepted by the Engineer-in-charge, subject to submit method statement of carrying out excavation work to the Engineer-in-charge for approval. However, engineer's approval shall not relieve the contractor of his responsibilities and obligations under the contract.				
1.03	<b>Layout and marking for earthwork</b> in excavation in foundation accepted by the Engineer-in-charge. [Plinth area of the structure shall be considered for measurement]	sqm.	9.53		-
1.04	<b>Earthwork in excavation</b> in foundation trenches up to 1.5 m depth and maximum 10 m lead	cum	14.05		-
1.05	<b>Bailing out of trapped water</b> caused by inundation or rain, by pump from foundation trenches.	Hr.	20.00		-
1.06	<b>Earth filling</b> in foundation trenches and plinth in 150 mm layer with earth available within 90 m of the building site to achieve minimum dry density of 95% with optimum moisture content (Modified proctor test) including carrying watering, leveling, dressing and compacting to a specified percentage each layer up to finished level etc. all complete and accepted by Engineer-in-charge.	cum	2.81		-
1.07	<b>Sand filling</b> in foundation trenches and plinth with sand having minimum <b>F.M. 0.8</b> in 150 mm layers including leveling, watering and compaction to achieve minimum dry density of 95% with optimum moisture content (Modified proctor test) by ramming each layer up to finished level as per design supplied by the design office only, all complete and accepted by the Engineer-in-charge.	cum	4.85		-
1.08	<b>Soling, Mass Concrete, Polythene etc.</b>				-
1.09	<b>One layer brick flat soling</b> in foundation or in floor with first class/picked jhama bricks (BDS 208) including preparation of bed and filling the interstices with local sand, leveling etc. complete and accepted by the Engineer-in-charge	sqm	11.53		-
1.10	<b>Mass concrete (1:3:6) in foundation</b> or in floor with cement, sand (F.M. 1.2) and picked jhama brick chips including breaking of chips, screening, mixing, laying, compacting to required level and curing for at least 7 days including the supply of water, electricity, costs of tools & plants and other charges etc. all complete and accepted by the Engineer-in-charge.(Cement: CEM-II/B-M)				-
1.11	Lean / blinding concrete in foundation (1:3:6) with cement, brick chips and sand of F.M. 1.2	cum	1.44		-
	<b>Sub Total Earth Excavation, Earth Filling, Brick Soling, CC, DPC etc. Civil Works in Foundation [Section-1]</b>				-
<b>Section-2: R.C.C Works with Shuttering</b>					
2.01	<b>RCC WORKS: 1:2:4 (measured on gross concrete section) (f 'c = 22 MPa, minimum f 'cr = 30.5 MPa in nominal mix 1:2:4), with stone chips (100% sand of F.M. 2.2 )</b>				

Item SL.	Description of Items	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
2.02	<b>Reinforced cement concrete works</b> with minimum cement content relates to <b>mix ratio 1:2:4</b> having maximum water cement ratio = 0.40 and minimum $f_{cr} = 30.5$ MPa, satisfying a specified compressive strength $f_c = 22$ MPa at 28 days on standard cylinders as per standard practice of Code ACI/BNBC/ASTM, cement conforming to BDS EN-197-1-CEM-I, 52.5N (52.5 MPa) / ASTM-C 150 Type – I, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded <b>stone chips</b> conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), conducting necessary tests, making and placing shutter in position maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; mixing in standard mixer machine with hopper fed by standard measuring boxes, casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering)				
2.03	R.C.C Works in <b>Bottom Base</b>	cum	1.91		-
2.04	R.C.C Works in <b>Top Base</b>	cum	2.36		-
2.06	<b>FORM WORK (Steel)</b>				-
2.07	Centering and shuttering, including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of <b>minimum 16 BWG</b> , angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for:[note: shutter oil as well as cup brush must be used in every case of reusing the shutter before placing the concrete]				-
2.08	Shuttering Works in <b>Bottom Base</b>	sqm	2.40		-
2.09	Shuttering Works in <b>Top Base</b>	sqm	14.33		-
	<b>Sub Total R.C.C Works with Shuttering [Section-2]</b>				-
<b>Section-3: M.S Reinforcement Works</b>					
3.01	Supplying, fabrication and fixing to detail as per design : ribbed or deformed bar reinforcement (excluding laboratory test fees) for Reinforced concrete, produced and marked in accordance with BDS ISO 6935-2:2016 (or standard subsequently released from BSTI) including straightening and cleaning rust, if any, bending and binding in position with supply of G.I. wires, conducting necessary laboratory tests etc. (excluding splices or laps) complete in all respect and accepted by the Engineer-in-charge (Measurement shall be recorded only on standard mass per unit length of bars, while dia of bars exceeds its standard)				
3.02	<b>Grade 400 (B400DWR / B420DWR: complying BDS ISO 6935-2:2016 / ASTM A615)</b> ribbed or deformed bar produced and marked according to Bangladesh standard, with minimum yield strength, $f_y (ReH) = 400$ MPa but $f_y$ not exceeding 480 MPa and whatever is the actual yield strength within allowable limit as per BNBC/ACI 318, the ratio of ultimate tensile strength $f_u$ to yield strength $f_y$ , shall be at least 1.25 and minimum elongation after fracture and minimum total elongation at maximum force is 17% and 8% respectively : up to ground floor.				
3.03	<b>Bottom Base</b>	kg	197.16		-
3.04	<b>Top Base</b>	kg	138.38		-
	<b>Sub Total M.S Reinforcement Works [Section-3]</b>				-
<b>Section-4: Brick, Pointing &amp; Plaster Works</b>					
4.01	<b>Brick works with first class bricks with cement sand (F.M. 1:2) mortar (1:6) in foundation</b> and plinth, filling the joints/interstices fully with mortar, racking out the joints, cleaning and soaking the bricks at least for 24 hours before use and curing at least for 7 days etc. all complete including cost of water, electricity and other charges and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M)	cum	8.2747		-
4.03	<b>Brick Wall Surface Plaster(1:4)</b>				

Item SL.	Description of Items	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
4.04	Minimum 12 mm thick cement sand (F.M. 1.2) plaster (1:4) with fresh cement to both inner-and outer surface of wall, finishing the corner and edges including washing of sand, cleaning the surface, curing at least for 7 days, cost of water, electricity, scaffolding and other charges etc. all complete in all respect as per drawing and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M) ground floor.	sqm	10.9942		-
	<b>Sub Total Brick,Pointing &amp;Plaster Works [Section-4]</b>				-
<b>Section-5: Painting Works</b>					
5.01	<b>Weather Coat Paint(Exterior)</b>				
5.02	<b>Exterior premium acrylic emulsion paint</b> of approved best quality and color with high performance against dirt picking tendency and efflorescence resistance properties along with water resisting properties and resistance properties against fungi, fading and flaking from authorized local agent of the manufacturer in a sealed container; applying to exterior surface with surface preparation including cleaning drying, making free from dirt, grease, wax, removing all chalked and scaled materials, fungus, mending good the surface defects using sand paper and necessary scaffolding; applying necessary exterior sealer of specified brand on prepared surface; then applying necessary exterior putty of specified brand for levelling, spot filling, crack filling and cutting by sand paper/zero water paper; finally applying 2 coats of exterior emulsion paint spreading by brush/roller/spray & necessary scaffolding etc. upto desired finishing, elapsing specified time for drying or recoating; all complete in all floors and accepted by the Engineer-in-charge.	sqm	10.99		-
5.03	<b>Premium synthetic enamel paint</b> of approved best quality and colour delivered from authorized local agent of the manufacturer in a sealed container, having high water resistance, high bondibility, flexibility property; using specified brand thinner applying to metallic or wooden surface by brass/roller/spray in two coats over single coat anti-corrosive coating including cleaning, drying, making free from dirt, grease, wax, removing all chalked and scaled materials, all complete in all floors and accepted by the Engineer-in-charge.	sqm	19.04		-
	<b>Sub Total Painting Works [Section-5]</b>				-
<b>Section-6: Misc. Items</b>					
6.01	Supplying, fitting & fixing of <b>Water Tank guard made of 40 mm x 40 mm x 5 mm M.S. angle</b> around Tank & 40 mm x 5 mm Flat bar for Tie at the top including fitting and fixing with the angle by welding, fitting and fixing the angle by cutting grooves in R.C.C, fixing and finishing the same with C.C. (1:2:4) etc. cost of electricity and other charges all complete and accepted by the Engineer-in-charge	meter	11.2		-
	<b>Sub Total Misc. Items [Section-6]</b>				-
				<b>Total</b>	-

## Part C1: Mechanical Works (Submersible Pump with Accessories)

SI	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
1	<p>Providing of &amp; testing (BUET / MIST or any other public organization) following capacity multistage Bore-well Submersible water Pump Motor set manufactured according to relevant BDS standard and ISO 9906:2012, Grade 3B / DIN / NEMA / IEC / BS / VDE / JIS &amp; ISO 9001:2015 standard. CE certified / UL listed comprising of 2900 RPM, single/ three phase submersible rewindable type (oil / water cooled ) motor having insulation: Class F &amp; Protection: IP68 (minimum), suitable for operation at 230 /400 V ± 5% , 50 Hz AC supply, in built non-return valve with at least 3Cx4 sq.mm submersible marine cable with required length and it shall be in a single length) including dry run with overflow protection sensor system with signal cable etc. complete in all respect manufactured by company having minimum 30 years of manufacturing experience.</p> <p>Country of Manufacture: EU Countries/USA/Japan/UK, in their own industry as per sample accepted / approved by the Engineer-in-charge. <b>(Brand: Wilo-Germany, Saer-Italy, KSB-Germany, Foras-Italy or Equivalent)</b></p>	Set	1		-
	Specification of Pump Motor Set :				
	Pump Type: Mixed flow, vertical installation, borehole type, multi stage submersible water pump.				
	Discharge: 6-48(25) m <sup>3</sup> /h, Total Dynamic Head: 89-27(48) m, Motor HP: 10 The head-Discharge point must be inside of +/- 10% of midpoint of the pump performance curve.				
	Motor Type: Heavy duty, water Lubricated, water filled, squirrel cage induction motor, re-windable and overhung type winding suitable for continuous operation.				
	Combined efficiency: Maximum combined efficiency to be quoted by the supplier and substantiated by performance curve and shall not be less than 60%				
	Material Specification of Pump Impeller, Shaft, diffuser, casing & Bowl: Stainless steel-304/316				
	The actual design discharge 25 m <sup>3</sup> /hr. The actual head is to be informed after the step drawdown test of PTW at the implementation stage.				
2	Providing of 100 mm (4") dia 3 meter (10'-0) long <b>column pipe</b> to be connected with submersible Pump Motor set made of GI column pipe "Special" grade (minimum thickness 4 mm ) with all standard accessories including special flange at both ends including anticorrosive painting etc. as per sample accepted / approved by the Engineer-in-charge.	each	10		-
3	Supply of 4mm thick 100 mm (4") minimum 1'-0" long <b>MS Nipple Pipe</b> (one end outer threaded and other end flanged) for interconnection of submersible pump delivery and with the first set of flanged riser pipe all complete	Set	1		-

SI	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
4	Installation, testing and commissioning of the deep well submersible pump-motor set by lowering down and connecting pump bowl assembly and column pipes with marine cable with the help of chain pulley after checking and testing the Pump Motor set including filling distilled water supplying and fixing a long bend, 6.35 mm thick 450mm dia. MS sheet tube-well cover required heavy duty holding clamp with nuts, bolts, and making all electrical and pipe connection complete as per direction of the Engineer-in-charge.	Set	1		-
5	Supplying, installing, fixing and jointing the following new pipes, fittings and specials (painted with enamel paints over a coat of anticorrosive primer) in correct position and alignment including supply of 2 nos 3mm thick rubber gaskets and hit dip GI Nut-Bolts for each flanged joints etc. all complete as per drawing and design and the direction of the Engineer-in-Charge.				-
5.1	100mm dia. 4mm thick MS Pipe	m	10		-
5.2	100 mm dia. 4mm thick 90o MS flanged bend	each	2		-
5.3	100mm dia. 4mm thick 45o MS flanged bend	each	2		-
5.4	100 x 100 x 100 x 75 mm MS cross (flanged)	each	1		-
5.5	100mm dia. CI flanged adapter with rubber ring	each	1		-
5.6	100 mm dia. Sluice Valve	each	2		-
5.7	75 mm dia. Sluice Valve	each	1		-
5.8	100 mm dia. Non-return Valve	each	1		-
5.9	20 mm dia. Automatic Air Release Valve	each	1		-
5.10	0 to +6 bar Pressure Gauge	each	1		-
5.11	20mm thick 200mm outer dia loose flange for 75mm dia. Pipe	each	5		-
5.12	20mm thick 220mm outer dia loose flange for 100mm dia. Pipe	each	10		-
5.13	100 mm x 75mm MS Reducer	each	1		-
5.14	75 mm dia. Ms Washout Pipe	m	5		-
5.15	75 mm dia. HDPE Washout Pipe	m	10		-
6	Supplying, Installing, fixing and jointing the 100 mm dia. <b>bulk water meter</b> to newly Installed PTW in correct position and alignment including supply of necessary fittings etc. all complete as per drawing specification and direction of Engineer-in-Charge.	each	2		-
7	<b>GV RCC Post:</b> Manufacturing, supplying & fixing in position RCC (1:2:4) Pillars of size 150mm x 150mm x 750mm, with 400mm x 400mm x 100mm base having 3 nos. 10mm dia MS bar each way at base, 4 nos. 10mm dia vertical bar and 8 nos. 6mm dia tie, including cost of form works, concreting, reinforcement, plastering at top, inscribing on exposed surface, finishing surface, curing, earth cutting, embedding 450mm below GL., backfilling, ramming etc. complete as per direction of E-I-C.	each	2		-
8	Supply and install chlorine dosing pump with polyethylene 50 liter tank and accessories and according to technical specifications complete as per direction of E-I-C.	each	1		-
<b>Total Amount, BDT</b>					<b>-</b>

Part C2: Solar System Works					
SI	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
1	<p><b>Solar Module:</b>  Supplying, installation, testing &amp; commissioning of 28 x <b>550Wp(2 strings, each of 14 modules) for on grid &amp; 1x250Wp for off grid solar module</b> with required quantities of mono / poly crystalline silicon solar PV modules as per following standards, specifications and certification. The system will be able to produce power for supplying to grid with required compatible solar cables (DC cables) and all necessary accessories to complete the installation providing one-year free operation &amp; maintenance of the system. Solar system shall have to comply following specification:</p>	Wp	15,650.00		-
	<p>I. Parameters for PV Module should be at Standard Test Condition of solar irradiance of 1000 W/m<sup>2</sup>, Cell Temperature of 25 degree Celsius and AM of 1.5g.  II. Solar PV module shall be in conformity with the requirement of BDS IEC 61215, IEC 61730 (latest edition) along with VDE/NEMA/JIS/BS standards. Certificate issued by the internationally recognized authority such as CE / TUV /DNV or equivalent certifying body shall have to be submitted by the bidder for the above mentioned international standard. Manufacturing facility should be ISO9001, ISO14001 quality management system certified.</p>				-
	<p>III. Solar modules shall be installed pointing to the right direction to capture most of the solar energy to transform it into electricity with the facility to be adjusted from the horizontal to 12 degree in summer and to 35 degree in winter to get the maximum efficiency and must face the true south in our country. For fixed panel mounting system, the panels must be tilted (22.5 ± 1) degree with horizontal and must face the true south in BANGLADESH.  IV. The average efficiency of PV module should be minimum 20%.  V. The complete PV module shall be diode protected at junction box to protect reverse current.  VI. Operating temperature range should be -40 to 85 Degree Celsius.</p>				-
	<p>VII. Power de-rating allowed should be not more than (-0.41%)/Degree Celsius  VIII. Panels should be constructed with anti-reflective glass, anti PID,  IX. Modules fitted with anodized aluminum frames or, if without frame, two-glass modules.</p>				-

SI	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
	<p>X. Resistance to a maximum pressure load of 5400 Pa and vacuum of 2400 Pa (according to BDS IEC 61215)</p> <p>XI. Each module will be provided with a clearly visible identifier bearing the name, the model of the module and a visual identification or a serial number which allows the traceability of the date of manufacture in accordance with standard NF EN 50380</p> <p>XII. Each combiner box of PV module shall be diode protected to ensure any back flow current to the PV array and may have fuse of adequate ratings in DC positive line of the PV array and wire terminals. The main combiner box shall have lightning surge protective device of as per nominal voltage of the combiner box both in positive and negative line in order to ensure the bypass diode always function even in thunder storm. The fuse, if exists, shall also have disconnection switch .The box shall be completely water proof according to IP 68.</p> <p>XIII. Product warranty against manufacturing defects : minimum 12 years and their replacement during this period</p> <p>XIV. Performance warranty: linear degradation, minimum 98% at 1 year, then linear with minimum 90% at 10 years, and 80% at 25 years.</p> <p><b>Solar panel from Lorentz, Germany or European equivalent.</b></p>				-
2	<p><b><u>NYyf Cable for DC Connection:</u></b> PVC insulated and PVC inner sheathed, Annealed Flexible Copper Conductor stranded cables shall be manufactured and tested according to relevant IEC/BDS/BS/VDE standards and as per detailed specification mentioned</p> <p>The work shall be carried out as per direction/approval/acceptance of the Engineer.</p> <p>Providing &amp; laying of PVC insulated &amp; PVC Inner sheathed cable <b>(NYyf) 1CX10.0 sqmm (For Solar PV Panel to DC Combiner Box to Inverter)</b></p>	m	300		-
3	<p><b><u>PV Combiner Box</u></b> including bus bar, double pole DC circuit breaker, surge protector devices, etc. all complete as per instruction of Engineer In Charge</p>	Set	1		-



SI	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
4	<p><b>Solar Submersible Pump controller:</b>  Supplying, installation, testing &amp; commissioning of 7.5 KW, 3-phase solar pump controller with heat sink assembly style. Controller shall also be protected for overload and over current protection from both DC and AC side. Controller shall be in accordance to the IEC 61800, EN, TUV or equivalent international standards and Engineer as per following specification :  Country of origin: Schneider(Germany) / ABB( Italy) / Nastec(Italy) / Lorentz(Germany).  Technical Data :  I. <b>Power KW: 7.5 KW</b>  II. Nominal Dc input Voltage:300-900VDC  III. Nominal AC input Voltage:370-420VAC  III. True sine wave inverter  IV. Ac frequency: 50 Hz  V. Integrated power point tracking  VI. Operating temperature range:10 °C-50 °c.  VII. Relative humidity: 5-95%,non-condensing  VIII. Efficiency : minimum 99%  IX. Noise &lt;50 dB at 1m distance  X. EMC filter: Integrated</p>	Set	1		-
	<p>XI. Communication port : RS 485 / RS 232. shall have the option to be incorporated GPRS module remote monitoring system.  XII. Degree of Protection: according to IP20 and IEC 60529.  XIII. Protection: Shall have lightning induced current by surge protective device of adequate rating both in DC and AC side in parallel at the entry and exit terminal of the inverter. Shall also have over load and over current protection from both DC and AC side. overcurrent, overvoltage, undervoltage, overheating, default phase, overload, shortcut, etc., and also include water level sensor failure protection, full water, dry running, weak sunshine warning special protection functions for solar pump system. Could record the detailed running status during failure &amp; has fault automatic reset function.  XIV. Compliance : ISO9001 &amp; ROHS (Restriction of Hazardous Substances) certified company &amp; CE/UL marking  Warranty: At least 03 yrs</p>				-

SI	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
5	<p><b>Charge Controller:</b> Supply fitting fixing of MPPT charge controller, high accuracy confirming certification by UL/ULC/VDC/VDE/ETL in accordance with the requirement of relevant IEC standards and shall have authentication to use CE, TUV and UL/ULC logo. Necessary catalogue, operation &amp; maintenance manual will be supplied by the bidder. All complete &amp; sample approved by Engineer-in-charge.</p> <p><b>Solar Charger: 12/24v, 20A</b> Brand : SMA/Morning Star/Outback/apollo Origin : USA/Germany Warranty : At least 03 yrs.</p>	Each	1		-
6	<p><b>Solar Battery with casing:</b> Supply, installation (with effective connection), testing &amp; commissioning of Solar battery with nominal voltage,12V,130AH or above@10HR or equivalent Deep Cycle heavy duty industrial type Lead Acid battery, positive plate: Tubular or solid thicker Plate, negative plate: Pasted float, Electrolyte Dilute Sulfuric Acid, specially suitable for Solar system. The term 32500"Solar" must be engraved at the body of Battery.</p> <p><b>Battery,12V,165AH</b> Battery rack/cabinet of sufficient size Brand: Hamko/Volvo/Rahim Afroz or equivalent Origin: Made in Bangladesh Warranty: At least 05 yrs.</p>	Each	1		-
7	<p><b>Solar Inverter for lighting load:</b> Supply, fitting, fixing &amp; testing the solar inverter, protected from lightning induced current by surge protective device of adequate rating both in DC and AC side in parallel at the entry and exit terminal of the inverter. The Inverter shall also be protected for overload and overcurrent protection from both DC and AC side. The inverter shall be tested and certified by UL/ULC/VDC/VDE/ETL in accordance with the requirement of relevant IEC standards and shall have authentication to use CE, TUV and UL/ULC logo.</p> <p><b>Solar Inverter: 500 watt 12 volt</b>, Pure Sine Wave, Efficiency 94% (minimum), Brand: Outback / Extruder / Deutsche Power / Victor (Netharland), Origin : USA / EU, Warranty: At least 03 yrs.</p>	Each	1		-
8	<p>Providing &amp; fixing 25.4 mm (1") dia 457 mm (1.5 ft) long solid copper rod with 6.6 mm thick 150 mm x 150 mm copper made base with sharp end top, fixed on the top of 2.0"( 2.5 - 3 mm thick ) dia 10' long GI pole by necessary accessories . The pole shall fixed on parapet wall with necessary CC work and other accessories for arresting lightning as per plan (enclosed) and as per direction of the engineer. [Fig : 4.19]</p>	set	2		-

SI	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
9	Providing & drawing no-2 HDDB wire through 12.7 mm. (½") dia G.I. pipe including fitting, fixing the G.I. pipe in wall or column complete as required.	m	60		-
	<b>Solar panel System installation</b>				-
18	Supplying, fitting and fixing <b>Solar panel System installation</b> of standard height with 5 mm thick 75mm x 75 mm MS box for vertical post box fitting by welding on 200mm x 200 mm x 8 mm anchor plate at base, base plate fitting with the roof floor by 16 mm long bolt, 5mm thick 75mm x 75mm MS horizontal box fitting with the vertical post by welding including all other accessories and carrying, fabrication, applying 2 (two) coats of synthetic enamel paint of approved quality over an anti-corrosive prime coat etc. complete in all respect for accepted by the Engineer-in-charge.	sqm	85.44		-
19	One layer brick flat soling	sqm	66.24		-
20	R.C.C Works in Individual Footing	cum	16.56		-
21	R.C.C Works in <b>Column Pedestal</b>	cum	5.18		-
22	Shuttering Works in <b>Footing</b>	sqm	55.20		-
23	Shuttering Works in <b>Column Pedestal</b>	sqm	82.80		-
24	Grade 400 (B400DWR / B420DWR: complying BDS ISO 6935-2:2016 / ASTM A615)	kg	1,311.63		-
	<b>GENERAL GUIDELINES/CRITERIA FOR SOLAR SYSTEM:</b>				-
	I.The bidder shall examine the site before the design of solar system & its components II.The bidder shall have facilities and proper tools and machineries for installing, testing & commissioning of solar panel. III.Adequate space & height shall be provided in the rows of panels for easy air flow to avoid excessive heat generation in the panel and to provide access for rain water drainage and damage to protect from dirty water. Minimum air gap between two panels shall be 25 mm.				-
	IV.All frames of the PV module, combiner box, inverter etc. shall be equipotential bonded and earthed with the building earth electrode which is conventional and / or chemical electrode system with soil conductivity enhancing material that the earth resistance must be less than 1 Ohm as per related standard and code of practice.				-
	V. The solar panel mounting shall be of galvanized iron or equivalent to ensure rust protection of the installation. All nut bolts shall be of stainless steel (SS) or galvanized mild steel (MS) materials. VI. After successful completion, testing & commissioning of the whole system the contractor shall have to train nominated person(s) of the user for a period of at least 2 days. VII. After completion of whole system and before handing over the system to the concerned authority, the contractor must have to provide minimum 30 days' satisfactory operation for performance evaluation.				-

SI	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
	VIII. Technical specification with catalogue of PV module, inverter must be submitted with technical offer. IX. Only approved cable shall be used for wiring. X. Sufficient AC and DC circuit breakers shall be used to ensure proper safety of the system.				-
<b>Total</b>					-

Part C3: Electrical Works					
SI	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
1	Supplying and fixing of <b>almirah type 18 SWG metal board With water tight arrangement</b> of depth 228mm (6") duly painted with powder coating with epoxy polyester resin on all surfaces of board (gray / off-white) having built in push type / suitable locking arrangement including metal bridges of suitable size for fixing of all electrical control devices complete with suitable anchoring arrangement in wall / column and keeping provision for cable inlets and exits as required (only front surface of the board will be considered for measurement) accepted/approved by the Engineer-in-charge.	sqm	0.5		-
2	Providing & fixing on a prepared board 500 volt grade following <b>triple-pole molded case circuit breaker (TPMCCB)</b> with thermal over-current and instantaneous electromagnetic short circuit release provision, Manufactured / Assembled and tested in accordance with IEC / VDE / NEMA / BS / JIS along with relevant BDS IEC standard. TPMCCBs accepted / approved by the Engineer-in-charge. 63 Amps. (Minimum 10-KA)	Each	2		-
3	Providing and fixing 500 V 3-phase <b>bus bar system</b> assembled in pre-laid board with porcelain insulators. There will be equal size holes on every bar at 0.5" interval and bar to bar gap shall be 2" - 3". Copper flat bar (5 nos) : 4 nos 15"x1"x8mm and 1 no 4"x1"x8mm for earthing mounted on insulator at both ends individually.	Each	1		-
4	Providing & fixing 250V, 50 Hz grade following concealed type <b>sub-distribution board</b> made of 18-SWG MS sheet complete with hinged type door, built-in type locking arrangement, one no. 60 A capacity bus-bar with required no. of holes thereon on insulators at both ends, copper blocks for neutral and earth terminal, SPMCBs Manufactured / Assembled and tested in accordance with IEC / VDE / NEMA / BS / JIS along with relevant BDS IEC standard having minimum breaking capacity 6 / 10-KA with thermal over current and instantaneous electromagnetic short circuit release, necessary arrangement for fixing of MCBs duly painted with powder coating with epoxy polyester resin on all surfaces of board (gray / off-white) etc. In front side there will be tempered thick fiber glass of minimum 8 mm thickness with rubber gaskets etc. with SPMCBs accepted / approved by the Engineer-in-charge. 4-Way SDB (with box size minimum 220mmx132mmx148mm) in-coming : 1 x 30 amps (6 KA) & out-going :4 x 5 / 10 / 15 amps SPMCB (6 KA) .	Each	1		-

SI	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
5	<p><b>Concealed conduit wiring</b> with the following PVC insulated stranded cable (BYA) &amp; PVC insulated Green / White color ECC wire (BYA) through PVC conduit of reputed manufacturer complete with 18 SWG GP sheet pull box with 3mm thick ebonite sheet cover, fixing materials, other accessories etc. as required including mending the damages good. All electrical contacts shall be of brass / copper connected through connector or soldering (no twisting shall be allowed) and cables shall be manufactured and tested according to relevant IEC / BDS / BS / VDE standards and as per detailed specification mentioned in <b>Annexure-1</b>. The work shall be carried out as per direction &amp; approval of the Engineer. Cables manufactured by govt. of Bangladesh owned / shared company ltd. (Eastern cables) approved by the Engineer. Cables manufactured by govt. of Bangladesh owned / shared company ltd. (Eastern cables) approved by the Engineer.</p> <p>1C-2x2.5sqmm (BYA) cable with 2.5sqmm (BYA) ECC wire through PVC pipe of minimum inner dia 16 mm having wall thickness of 1.5 mm</p>	m	15		-
6	<p><b>CONCEALED CONDUIT POINT WIRING</b></p> <p>Concealed conduit wiring for following point looping at the switch board with earth terminal with 1C-2x1.5 sqmm PVC insulated cable (BYA) &amp; same size PVC insulated ECC(BYA) Green / White color including circuit wiring with 1C-2x2.5 sqmm PVC insulated cable (BYA) &amp; same size PVC insulated ECC (BYA) (Green / White color) through PVC conduit (one conduit from switch board to common point on ceiling is considered to draw 3 pair of cable) of reputed manufacturer) of minimum 25 mm dia &amp; 1.5 mm wall thickness complete with 18 SWG GP sheet / PVC switch board pull box with 3mm thick ebonite sheet cover, fixing materials etc.(without switch) as required including mending the damages good. All electrical contacts shall be of brass / copper connected through connector or soldering (no twisting shall be allowed) and cables shall be manufactured and tested according to relevant IEC / BDS / BS / VDE standards and as per detailed specification mentioned in <b>Annexure-1</b>. The work shall be carried out as per direction &amp; approval of the Engineer. Cables manufactured by govt. of Bangladesh owned / shared company ltd. (Eastern cables) approved by the Engineer.</p>				-
6.1	Light / exhaust or wall bracket fan point	Point	10		-
6.2	Fan point	Point	1		-
7	<p>Providing &amp; fixing 250 volt single phase <b>13 / 15 / 16 / 20 Amps. 3-pin combined switch socket outlet (surface / Concealed type)</b> manufactured and tested in accordance with relevant IEC / VDE / NEMA / BS / JIS standards mounted on required size 18 SWG galvanized plain sheet board / Plastic Board (Self-extinguishing 650°C) of 76.2 mm. (3") depth. (Manufacturer shall have certificate of standard which they follow). Made in HONGKONG/ MALAYSIA / SINGAPORE / S KOREA / THAILAND</p>	Each	1		-

SI	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
8	Providing & fixing 250 volts. 5 / 6 amps (minimum) concealed type following switch / switch socket manufactured and tested in accordance with relevant IEC / VDE / NEMA / BS / JIS standards mounted on required size 18 SWG galvanized plain sheet / PVC board (Self-extinguishing 650°C) of 76.2 mm (3") depth. All electrical contacts shall be of brass / copper. Made in ENGLAND / GERMANY / JAPAN / USA or EU countries.				-
8.1	Four gang switch	Each	3		-
8.2	One gang switch & one 5 amps. 2-pin socket combined	Each	2		-
8.3	Gang type Fan Regulator. Assembled and made in BANGLADESH / CHINA / INDIA / TURKEY / VIETNAM	Each	1		-
9	<b>Ceiling Fan &amp; Related fittings</b>				-
9.1	Supplying & fixing <b>AC capacitor type ceiling fan (without regulator) 1442 mm. (56") Sweep, Input power : Maximum 65 watt.</b> of following specifications and sizes complete with minimum 305 mm (1 ft) long and 0.75 -1.0" dia, 2.3 mm thickness MS pipe down rod, tempered cast aluminum blades, 2.5 µf 400V AC capacitor, canopy, double Z ball bearing, best quality silicon sheet core, best quality copper made super enamel wire, aluminum alloyed casting body / metal body having safety pin with powder coated heat / docu paint as required as per BDS 818 etc. connecting PVC wire complete as required. Rated voltage : 230 volts Rated frequency : 50 Hz Rated speed : 300 rpm ± 5 % Service value : Minimum 3.5 m3 / min / watt Temperature rise : Maximum 55°C Class of Insulation : Minimum E Noise level : Maximum 60 dB at a distance of 1 meter.	Each	1		-
9.2	Providing & fixing <b>U type fan clamp</b> made of 12 mm. dia MS rod having at least 750 mm clearance around and shall be placed above the MS rod mesh of the roof slab including necessary bolts, nuts etc. as required as per sample approved by the Engineer.	Each	1		-
10	Providing & fixing of the <b>fancy bracket light Fittings</b> with carrier, brass holder, earth terminal, necessary wiring with 2 x 0.4 sq.mm stranded PVC insulated flexible FR cable etc. The fittings shall be suitable for use of LED lamp and complete sample to be accepted / approved by the Engineer-in-charge (with 2 years warranty). Light source: 1x12W LED Bulb Material: SS pipe (Size-30*30mm, thick- 1.2mm) & SS Sheet body, Alu Sheet, MS Sheet, Glass. L-100mm, H-220mm, P-120mm GLORIA cat. no. GWBL-2505-2861 Energy+ Cat No EPWL-30003 Cosmo Cat No-BDTCLGWB-01 Asha Cat No-ACS-BS-1221 G57 Crescent-CB-1802/1 or equivalent.	Each	6		-

SI	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
11	<p>Supply &amp; fixing <b>spot/Panel 18 W</b>, Approximate Dia -218 mm LED light fittings of following specifications:  Luminous efficacy:  i)For Spot/Bracket LED Light Fittings: 80 lm/W (min),  ii)For Panel/Tube Light Fittings: 100 lm/W (min)  Power Factor: minimum 0.95  Color Rendering Index(Ra) :  i) For Residential building Ra≥80  ii) For office and other types of buildings 70≤Ra&lt;85  Driver: Should be of IEC standard such as MEANWELL/OSRAM/ENERGY+/SIGNIFY(PHILIPS) or equivalent  LED chips :EPSTAR / OSRAM / SIGNIFY(PHILIPS) / CREE / BRIDGELUX or equivalent.  Color temperature : 3500K-6500K (Warm-White)  Model &amp; sample to be accepted / approved by the Engineer-in-charge (with 2 years warranty). Round panel (surface type)  Material: Alu Alloy, Acrylic  Gloria Cat No-GSDL-513  Energy + cat No-EPPLLED-2006  Cosmo cat no-BDTCL-LSRPL-01  Adex-AD SDL 830/840/865  Asha Cat no- ACS LPL-1451  Megaman-MXTL1013-Y  Walton WLED-DSPLR-200-UL or equivalent.</p>	Each	4		-
12	<p>Supply <b>68 pcs Hand Tool Set</b> Industrial including Hex Key with Ball-9Pcs, 1.5- 10mm CrV (YT-0505); Socket 1/4" 6PT CV Regular (4MM- YT-1401, 4.5mm- YT-1402, 5mm- YT-1403, 5.5mm- YT-1404, 6mm- YT-1405, 7mm- YT-1406, 8mm- YT-1407, 9mm- YT-1408, 10mm- YT-1409, 11mm- YT-1410, 12mm- YT-1411, 13mm- YT-1412; Tweezers 140mm (YT-6903); Electrician's Knife (YT-7601); Adjustable Wrench 6" 150 mm (YT-2071); Long Nose Pliers 160mm Insulated 1000V (YT-21154); Side Cutting Pliers 160mm Insulated 1000V (YT-21158); Measuring Tape 3mx16mm Nylon (YT-7150); Automatic Wire Stripper 175mm (YT-2268); Voltage Tester (YT-2861); Aluminum LED Torch, 9LED, Material Loop, Rubber Button, Color: Black (YT-08570); Utility Knife 9mm SK2 (YT-7502); Electrical Insulation Tape PVC 0.13mm 19mmx20m Black (YT-8165); Spinner Handle 1/4" DR. (YT-1427); Digital Millimeter (YT-73080); Desoldering Pump 19.5x190mm (YT-82742); Bit Adapter 1/4"x1/4" (YT-1297); Insulated Screwdriver 1000V 4x75mm (YT-2816); Insulated Screwdriver 1000V 5.5x125mm (YT-2818); Insulated Screwdriver PH1x80mm (YT-2822); Insulated Screwdriver PH2x100MM (YT-2823); Precision Screwdriver Set 6Pcs S2 (YT-25861); Soldering Iron 30W (YT-8271); Soldering Wire; Screwdriver Bits 20PCS; Aluminium LED Torch (9 LED, Material Loop, Rubber Button, Color: Black) which brand of Yato Brand YT-39009/equivalent</p>	Per set	1		-
13	<b>Earthing &amp; Construction Pit</b>				-



SI	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
13.1	<b>Earthing the electrical installation</b> with 40 mm (1.5") dia G.I. pipe (earth electrode) having 6.35 mm. dia hole across the pipe at 305 mm. interval securely bonded by soldering with 2 nos. of No-2 SWG HDDB earth leads (at the top of the electrode) with its protection by 20 mm. (3/4") dia G.I. pipe up-to plinth level run at a depth of 609.6 mm (2 ft) below G.L up-to main board to be earthed including necessary connecting copper sockets, bolts, nuts, etc. complete for maintaining earth resistance within 1 ohm. Depth of bottom of main electrode at 19050 mm. (62.5 ft) from GL & length of electrode 18288 mm. (60 ft).	Per set	5		-
13.2	Construction of <b>earthing inspection pit</b> inside measurement 600 mm x 600 mm with 250 mm thick brick in cement mortar (1:4) with 100mm thick RCC top slab (1:2:4) with 1% reinforcement 450 mm dia water sealed CI man-hole cover with locking arrangement including necessary earth works, site filling and one brick flat soling 75 mm thick (1:3:6) base concrete for making inlet channel & 12mm thick (1:2) cement plaster with neat finishing etc. all complete up to a depth of .75 meter.	Per set	5		-
				<b>Total Amount, BDT</b>	<b>-</b>

Water Distribution Network at Mocharkhula and Camp 15 Block H (Part)					
Sl	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
1	Cutting and removing the following types of road pavements for pipeline to a width of pipe diameter + 0.3 m including salvaging of materials, stacking the withdrawn materials to a safe place for reuse, etc. all complete as per specification, approved drawings, site requirements and direction of the Engineer in charge.				
1.01	HBB over brick flat soling Road	sqm	307.80		-
1.02	Bituminous road over khoa consolidation.	sqm	212.46		-
1.03	Concrete Road	sqm	0.00		-
1.04	RCC Road	sqm	0.00		-
2	Excavation in all kinds of soil for water pipeline, Thrust blocks, Sluice Valves, fittings and chamber, etc including layout and removal of obstacles (seen and unseen), unsuitable materials, taking precautions necessary for protection of electric & telephone cables, gas pipes, poles, bailing out water, shoring etc for trenches of minimum depth from road / ground surface of 1 m + pipe dia + 0.15 m and trench width of pipe dia + 0.30 m including trimming, dressing and levelling of trench bed, proper stacking of excavated earth by the side of the road, all complete as per specification, approved drawings and direction of the Engineer in charge.	cum	1434.64		-
3	Sand Filling in Excavation trenches and inside plinth by supplying sand (minimum FM 0.80) free from clay, vegetation and other organic matter and filling and compacting in layers by sprinkling water, dressing and leveling etc. in 150 mm thick pipe bedding surround and (a) for pipes in road verges to a height of 150 mm above the top of the pipe and (b) for pipes in roads pavement/ road crossing upto the bottom of the original road structure etc. all complete as per direction of Engineer-in-Charge.	cum	419.27		-
4	Backfilling with earth of the trench above pipe zone (from 150mm above the top of the pipe to road surface) including watering and compacting in layers not exceeding 150mm all complete as per direction of Engineer-in-Charge.	cum	1005.16		-
5	Supply and Installation of High Density Polyethylene (HDPE) Pipe of PE 100 PN 8 SDR 21 (ISO 4427-2:2007 (E)) have a minimum density of 0.955 grams per cubic centimeter. All HDPE pipe and fittings shall have a Hydrostatic Design Basis (HDB) of 1,600 psi by <b>Open Cut method</b> in accordance with technical specification and standard detailed drawings, of any diameter specified below. The rate includes cost for transportation of pipes to site from on-site store, cleaning of ends of pipes both inside and outside with acetone and dry cloth, jointing by butt fusion joint over the ground and laying the pipes in the trench as per technical specifications and direction of Engineering in charge.				-
5.01	OD 125 mm	Rm	0		-
5.02	OD 110 mm	Rm	608		-
5.03	OD 75 mm	Rm	654		-
5.04	OD 50 mm	Rm	1716		-
6	Supply and Installation of High Density Polyethylene (HDPE) Pipe of PE 100 PN 8 SDR 21 (ISO 4427-2:2007 (E)) have a minimum density of 0.955 grams per cubic centimeter. All HDPE pipe and fittings shall have a Hydrostatic Design Basis (HDB) of 1,600 psi by <b>HDD method</b> in accordance with technical specification and standard detailed drawings, of any diameter specified below. The rate includes cost for transportation of pipes to site from on-site store, cleaning of ends of pipes both inside and outside with acetone and dry cloth, jointing by butt fusion joint over the ground and laying the pipes in the trench as per technical specifications and direction of Engineering in charge.				-
6.01	Up to 20m of length; pipe dia. upto 160mm	Lumpsum	0.00		-
7	Supplying of valves, fitting and fixing of HDPE Pipe PN16, PE 100, SDR 11 (ISO 4427-3: 2007) and corresponding stanard as per standard drawings in accordance with the technical specification and the standard detailed drawings, of any diameter specified below. The rate includes for transportation of fittings to site, cleaning with acetone and dry cloth, jointing by butt fusion or electro fusion and laying of the fittings as per specifications and direction of Engineering in charge. <b>Here, moulded fittings has not considered based on the implementation practice in that area.</b>				-
7.01	<b>Bend - 90°, EF</b>				-
a.	160 mm	each			-
b.	110 mm	each			-
c.	75	each			-
d.	50	each			-
e.	20	each			-
7.02	<b>Bend - 45°, EF</b>				-
a.	160 mm	each			-
b.	110 mm	each			-
c.	75	each			-
d.	50	each			-
e.	20	each			-
7.03	<b>Bend - 22.5°</b>				-

SI	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
a.	160 mm	each			-
b.	110 mm	each			-
c.	75	each			-
d.	50	each			-
e.	20	each			-
<b>7.04</b>	<b>Tee, FE</b>				-
a.	160x20	each			-
b.	160x75	each			-
c.	160x110	each			-
d.	160x160	each			-
e.	110x20	each			-
f.	110x75	each			-
g.	110x110	each			-
h.	110x50	each			-
i.	75x75	each			-
j.	75x50	each			-
k.	75x20	each			-
l.	50x50	each			-
m.	50x20	each			-
<b>7.05</b>	<b>Reducer, EF</b>				-
a.	160x110	each			-
b.	160x75	each			-
c.	110x75	each			-
d.	110x50	each			-
e.	110x20	each			-
f.	75x50	each			-
g.	50x20	each			-
<b>7.06</b>	<b>Sleeve / Coupler</b>				-
a.	160	each			-
b.	110	each			-
c.	75	each			-
d.	50	each			-
e.	20	each			-
<b>7.07</b>	<b>GV, BS 5163</b>				-
a.	150	each			-
b.	100	each	2.00		-
c.	75	each	1.00		-
d.	50	each			-
e.	20	each			-
<b>7.08</b>	<b>ARV</b>				-
a.	20	each			-
<b>8</b>	<b>Crossings (Bridge/Culvert)</b>				-
8.01	Supplying and installation of MS plain ended casing pipes and complete <b>culvert /drain crossing</b> including flange adapter, nut, bolts and all required items, cutting, shaping, welding, jointing and fitting as per site requirement, breaking concrete / brickwork for installation of pipe and fixtures and mending good the damages, jointing with dresser coupling / flange adopter /flange with nut and bolts etc. as approved by the Engineer in Charge. (Rate is excluding the cost of Flange adopter /dresser coupling / flange with nut and bolts etc. & all other accessories as per drawing, design, specification). (Supplied materials should be eligible for use in the work if found satisfactory after testing, testing fee is included in rate) [welded ERW ASTM A 105 ]				-
a.	up to 160mm dia. pipe	nos.	5.00		-
8.02	Supplying and installation of MS plain ended casing pipes, air release valve and complete <b>bridge crossing</b> including flange adapter, nut, bolts and all required items, cutting, shaping, welding, jointing and fitting as per site requirement, breaking concrete / brickwork for installation of pipe and fixtures and mending good the damages etc. as approved by the Engineer in Charge. (Supplied materials should be eligible for use in the work if found satisfactory after testing, testing fee is included in rate) [welded ERW ASTM A 105 ]				-
a.	up to 160mm dia. pipe	Rm	0.00		-
9	Construction of sluice valve (gate valve) chamber as per standard drawing and design with 250mm thick brick work over 75 mm thick cement concrete (1: 2 :4) with supply of fresh cement, coarse sand of Fm 1.8 and 12 mm down graded picked jhama bricks over a layer of single brick flat soling,150 mm thick 3 part RCC slab (1:2:4) using specified MS road with recommended spacing, 12mm thick cement plaster (1:4) in/c NCF in inside wall of chamber, as per drawing, design, specification and direction of the Engineer mixing of materials, laying, compacting, levelling, curing, including supplying of all materials, their carriage, labourers, tools and equipment etc. all complete as per direction of the Engineer-in - charge.	each	3.00		-

SI	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
10	Construction of Air Release Valve chamber as per standard drawing and design with 250mm thick brick work over 75 mm thick cement concrete (1: 2 :4) with supply of fresh cement, coarse sand of Fm 1.8 and 12 mm down graded picked jhama bricks over a layer of single brick flat soling,150 mm thick 3 part RCC slab (1:2:4) using specified MS road with recommended spacing, 12mm thick cement plaster (1:4) in/c NCF in inside wall of chamber, as per drawing, design, specification and direction of the Engineer mixing of materials, laying, compacting, levelling, curing, including supplying of all materials, their carriage, labourers, tools and equipment etc. all complete as per direction of the Engineer-in - charge.	each	0.00		-
11	Construction of Washout chamber as per standard drawing and design with 250mm thick brick work over 75 mm thick cement concrete (1: 2 :4) with supply of fresh cement, coarse sand of Fm 1.8 and 12 mm down graded picked jhama bricks over a layer of single brick flat soling,150 mm thick 3 part RCC slab (1:2:4) using specified MS road with recommended spacing, 12mm thick cement plaster (1:4) in/c NCF in inside wall of chamber, as per drawing, design, specification and direction of the Engineer mixing of materials, laying, compacting, levelling, curing, including supplying of all materials, their carriage, labourers, tools and equipment etc. all complete as per direction of the Engineer-in - charge.	each	1.00		-
12	Supplying appropriate T-wrench, made of MS rod for operating gate valve of following diameter as per standrad drawing and direction of Engineer-in-charge.				-
12.01	160 mm dia	each			-
12.02	100 mm dia	each	1.00		-
12.03	75 mm dia	each	1.00		-
12.04	50 mm dia	each			-
13	Thrust Block in pipe line: Construction of concrete thrust and anchor blocks in Tee, Bend, SV, WO (Tee: 0.60x0.60x0.45; Bend: 0.60x0.45x0.30; WO: 0.60x0.60x0.60; SV: 0.45x0.45x0.30) of pipe line with Portland cement, sand (minimum FM 1.20) and 1st class/picked brick chips 20mm down graded (LAA value not exceeding 40), including shuttering, mixing by concrete mixer machine, casting, laying compacting and curing for the requisite period, breaking chips etc. all complete as per specification, drawing and direction of E-I-C. Cylinder crushing strength of concrete should not be less than 170kg/cm <sup>2</sup> at 28 days of curing (suggested mix proportion 1:2:4). Additional quantity of cement to be added if required to attain the strength at the contractors own cost.	cum	1.00		-
14	Pressure Testing: pressure testing of newly installed pipe lines for transmission and distribution line at 6 Bar (or as per instruction provided by the EIC) with supply of required testing equipment and materials & repairing of any type of defects/leakages detected during testing (at no extra cost), replacement of damaged pipes/fittings etc. including fresh water (potable) for testing purposes as per design, specification and direction of the Engineer-in-charge. Pressure test must be done as maximum 300 m segment basis and 06 Bar pressure must be retained for at least 12 hours. (This item includes Labour charge, carrying charge with VAT, Income Tax & Profit).				-
14.01	OD 125 mm	Rm	0.00		-
14.02	OD 110 mm	Rm	608.00		-
14.03	OD 75 mm	Rm	654.00		-
14.04	OD 50 mm	Rm	1716.00		-
15	Disinfection: Disinfection of pipe lines by supplying and using of required quantity bleaching powder ( 33% strength), making chlorinated water having chlorine residual concentration of at least 50 PPM. available free chlororine and applying to the pipe lines. After 24 hrs of retention, a chlorine residual should be minimum 20PPM, if it does not,steps to be repeated. After successful completion of the above test the system to be flushed until the chlorine residual is 0.5 PPM or equivalent of the water supply system. as per design, specification and direction of the Engineer-in-charge. (This item includes Labour charge, carrying charge with VAT, Income Tax & Profit).				-
15.01	OD 125 mm	Rm	0.00		-
15.02	OD 110 mm	Rm	608.00		-
15.03	OD 75 mm	Rm	654.00		-
15.04	OD 50 mm	Rm	1716.00		-
16	<b>Pre-commissioning and Commissioning works</b>	Lumpsum	1.00		-
17	Road Restoration: Restoration of the following types of road to original condition using suitable withdrawn material and with supply of required rest materials as per specification and direction of the complete as per direction of Engineer in charge:				-
17.01	HBB Road (50% reuse of withdrawn materials)	sqm	307.80		-

SI	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
17.02	Bituminous road: Withdrawn materials to be broken and compacted as per specification, 25 mm thick compacted pre-mixed bituminous carpeting with 12 mm down graded stone-chips (having LAA value <= 30%, water absorption not greater than 2%, flakiness index not greater than 35) of gradation as specified @ 0.34 cum of stone chips mixed with 23 kg heated bitumen of 60/70 penetration grade heated straight run bitumen satisfying the requirements of ASTM/AASHTO. Bitumen content % by wt. of total is 4.5% to 5.50% or as determined by job mix design. The bitumen and stone-chips shall be separately heated to a temperature of 140°C – 155°C and 150°C – 170°C respectively before mixing. The mixing shall be done at temperature between 140°C – 160°C at a separate place away from the fire. Mixture to be laid on 10 sqm of surface in proper camber, grade and super-elevation only on the prepared and accepted base or surface in a single appropriate layer to give the specified compacted thickness. The mixture should be rolled with appropriate steel drum roller (3-5 tons) & pneumatic multiple tire roller (8-10 tons) to full compaction. The rolling temperature shall be maintained not below 90°C including supplying of all materials, their carriage, labourers, tools and equipment etc. all complete as per direction of the Engineer-in-charge. The bitumen and stone-chips mixture shall be laid uniformly over 25 mm compacted bituminous carpeting with providing tack coat @ 7.50 kg of bitumen (60/70 penetration grade) per 10 sqm including heating bitumen up to 175°C to 185°C etc and tack coat @ 7.50 kg of bitumen (60/70 penetration grade) per 10 sqm including heating bitumen up to 175°C to 185°C etc.	sqm	212.46		-
17.03	Concrete road : Withdrawn materials to be broken and compacted as per specification, 75mm thick (1:2:4) proportion cement concrete with supply of fresh cement, coarse sand of Fm 1.8 and 12 mm down graded stone-chips, mixing of materials, laying, compacting, levelling, curing, including supplying of all materials, their carriage, labourers, tools and equipment etc. all complete as per direction of the Engineer-in-charge.	sqm	0.00		-
17.04	RCC road : Withdrawn RCC materials to be broken and compacted as per specification, 100 mm thick (1:2:4) proportion reinforced cement concrete with supply of fresh cement, coarse sand of Fm 1.8 and 12 mm down graded stone-chips, mixing of materials, laying, compacting, levelling, curing, including supplying of all RCC materials and using salvaged MS rod and supplying new MS rod and placing as per previous design their carriage, labourers, tools and equipment etc. all complete as per direction of the Engineer-in-charge. (75% reuse of withdrawn materials after necessary cleaning)	sqm	0.00		-
18	Preparation of Asbuilt Document in GIS and/or AutoCAD format and as per guideline of Project Manager	sqm	1.00		-
<b>Total Amount, BDT</b>					<b>-</b>

Camp 15 Block F (Part)					
SI	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
1	Cutting and removing the following types of road pavements for pipeline to a width of pipe diameter + 0.3 m including salvaging of materials, stacking the withdrawn materials to a safe place for reuse, etc. all complete as per specification, approved drawings, site requirements and direction of the Engineer in charge.				
1.01	HBB over brick flat soling Road	sqm	88.39		-
1.02	Bituminous road over khoa consolidation.	sqm	0.00		
1.03	Concrete Road	sqm	0.00		-
1.04	RCC Road	sqm	0.00		-
2	Excavation in all kinds of soil for water pipeline, Thrust blocks, Sluice Valves, fittings and chamber, etc including layout and removal of obstacles (seen and unseen), unsuitable materials, taking precautions necessary for protection of electric & telephone cables, gas pipes, poles, bailing out water, shoring etc for trenches of minimum depth from road / ground surface of 1 m + pipe dia + 0.15 m and trench width of pipe dia + 0.30 m including trimming, dressing and levelling of trench bed, proper stacking of excavated earth by the side of the road, all complete as per specification, approved drawings and direction of the Engineer in charge.	cum	108.19		-
3	Sand Filling in Excavation trenches and inside plinth by supplying sand (minimum FM 0.80) free from clay, vegetation and other organic matter and filling and compacting in layers by sprinkling water, dressing and leveling etc. in 150 mm thick pipe bedding surround and (a) for pipes in road verges to a height of 150 mm above the top of the pipe and (b) for pipes in roads pavement/ road crossing upto the bottom of the original road structure etc. all complete as per direction of Engineer-in-Charge.	cum	31.46		-
4	Backfilling with earth of the trench above pipe zone (from 150mm above the top of the pipe to road surface) including watering and compacting in layers not exceeding 150mm all complete as per direction of Engineer-in-Charge.	cum	76.05		-
5	Supply and Installation of High Density Polyethylene (HDPE) Pipe of PE 100 PN 8 SDR 21 (ISO 4427-2:2007 (E)) have a minimum density of 0.955 grams per cubic centimeter. All HDPE pipe and fittings shall have a Hydrostatic Design Basis (HDB) of 1,600 psi by Open Cut method in accordance with technical specification and standard detailed drawings, of any diameter specified below. The rate includes cost for transportation of pipes to site from on-site store, cleaning of ends of pipes both inside and outside with acetone and dry cloth, jointing by butt fusion joint over the ground and laying the pipes in the trench as per technical specifications and direction of Engineering in charge.				-
5.02	OD 125 mm	Rm	0.00		-
5.03	OD 110 mm	Rm	8.00		-
5.04	OD 75 mm	Rm	27.00		-
5.05	OD 50 mm	Rm	201.00		-
6	Supply and Installation of High Density Polyethylene (HDPE) Pipe of PE 100 PN 8 SDR 21 (ISO 4427-2:2007 (E)) have a minimum density of 0.955 grams per cubic centimeter. All HDPE pipe and fittings shall have a Hydrostatic Design Basis (HDB) of 1,600 psi by HDD method in accordance with technical specification and standard detailed drawings, of any diameter specified below. The rate includes cost for transportation of pipes to site from on-site store, cleaning of ends of pipes both inside and outside with acetone and dry cloth, jointing by butt fusion joint over the ground and laying the pipes in the trench as per technical specifications and direction of Engineering in charge.				-
6.01	Up to 20m of length; pipe dia. upto 160mm	Lumpsum	0.00		-
7	Supplying of valves, fitting and fixing of HDPE Pipe PN16, PE 100, SDR 11 (ISO 4427-3: 2007) and corresponding stanard as per standard drawings in accordance with the technical specification and the standard detailed drawings, of any diameter specified below. The rate includes for transportation of fittings to site, cleaning with acetone and dry cloth, jointing by butt fusion or electro fusion and laying of the fittings as per specifications and direction of Engineering in charge. <b>Here, moulded fittings has not considered based on the implementation practice in that area.</b>				-
7.01	<b>Bend - 90°, EF</b>				-
a.	160 mm	each			-
b.	110 mm	each			-
c.	75	each			-
d.	50	each			-
e.	20	each			-
7.02	<b>Bend - 45°, EF</b>				-
a.	160 mm	each			-
b.	110 mm	each			-
c.	75	each			-
d.	50	each			-

SI	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
e.	20	each			-
<b>7.03</b>	<b>Bend - 22.5°</b>				-
a.	160 mm	each			-
b.	110 mm	each			-
c.	75	each			-
d.	50	each			-
e.	20	each			-
<b>7.04</b>	<b>Tee, FE</b>				-
a.	160x20	each			-
b.	160x75	each			-
c.	160x110	each			-
d.	160x160	each			-
e.	110x20	each			-
f.	110x75	each			-
g.	110x110	each			-
h.	110x50	each			-
i.	75x75	each			-
j.	75x50	each			-
k.	75x20	each			-
l.	50x50	each			-
m.	50x20	each			-
<b>7.05</b>	<b>Reducer, EF</b>				-
a.	160x110	each			-
b.	160x75	each			-
c.	110x75	each			-
d.	110x50	each			-
e.	110x20	each			-
f.	75x50	each			-
g.	50x20	each			-
<b>7.06</b>	<b>Sleeve / Coupler</b>				-
a.	160	each			-
b.	110	each			-
c.	75	each			-
d.	50	each			-
e.	20	each			-
<b>7.07</b>	<b>GV, BS 5163</b>				-
a.	150	each			-
b.	100	each	0.00		-
c.	75	each			-
d.	50	each			-
e.	20	each			-
<b>7.08</b>	<b>ARV</b>				-
a.	20	each			-
8	<b>Crossings (Bridge/Culvert)</b>				-

SI	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
8.01	Supplying and installation of MS plain ended casing pipes and complete <b>culvert /drain crossing</b> including flange adapter, nut, bolts and all required items, cutting, shaping, welding, jointing and fitting as per site requirement, breaking concrete / brickwork for installation of pipe and fixtures and mending good the damages, jointing with dresser coupling / flange adopter /flange with nut and bolts etc. as approved by the Engineer in Charge. (Rate is excluding the cost of Flange adopter /dresser coupling / flange with nut and bolts etc. & all other accessories as per drawing, design, specification). (Supplied materials should be eligible for use in the work if found satisfactory after testing, testing fee is included in rate) [welded ERW ASTM A 105 ]				-
a.	up to 160mm dia. pipe	nos.	0.00		-
8.02	Supplying and installation of MS plain ended casing pipes, air release valve and complete <b>bridge crossing</b> including flange adapter, nut, bolts and all required items, cutting, shaping, welding, jointing and fitting as per site requirement, breaking concrete / brickwork for installation of pipe and fixtures and mending good the damages etc. as approved by the Engineer in Charge. (Supplied materials should be eligible for use in the work if found satisfactory after testing, testing fee is included in rate) [welded ERW ASTM A 105 ]				-
a.	up to 160mm dia. pipe	Rm	0.00		-
9	Construction of sluice valve (gate valve) chamber as per standard drawing and design with 250mm thick brick work over 75 mm thick cement concrete (1: 2 :4) with supply of fresh cement, coarse sand of Fm 1.8 and 12 mm down graded picked jhama bricks over a layer of single brick flat soling,150 mm thick 3 part RCC slab (1:2:4) using specified MS road with recommended spacing, 12mm thick cement plaster (1:4) in/c NCF in inside wall of chamber, as per drawing, design, specification and direction of the Engineer mixing of materials, laying, compacting, levelling, curing, including supplying of all materials, their carriage, labourers, tools and equipment etc. all complete as per direction of the Engineer-in - charge.	each	0.00		-
10	Construction of Air Release Valve chamber as per standard drawing and design with 250mm thick brick work over 75 mm thick cement concrete (1: 2 :4) with supply of fresh cement, coarse sand of Fm 1.8 and 12 mm down graded picked jhama bricks over a layer of single brick flat soling,150 mm thick 3 part RCC slab (1:2:4) using specified MS road with recommended spacing, 12mm thick cement plaster (1:4) in/c NCF in inside wall of chamber, as per drawing, design, specification and direction of the Engineer mixing of materials, laying, compacting, levelling, curing, including supplying of all materials, their carriage, labourers, tools and equipment etc. all complete as per direction of the Engineer-in - charge.	each	0.00		-
11	Construction of Washout chamber as per standard drawing and design with 250mm thick brick work over 75 mm thick cement concrete (1: 2 :4) with supply of fresh cement, coarse sand of Fm 1.8 and 12 mm down graded picked jhama bricks over a layer of single brick flat soling,150 mm thick 3 part RCC slab (1:2:4) using specified MS road with recommended spacing, 12mm thick cement plaster (1:4) in/c NCF in inside wall of chamber, as per drawing, design, specification and direction of the Engineer mixing of materials, laying, compacting, levelling, curing, including supplying of all materials, their carriage, labourers, tools and equipment etc. all complete as per direction of the Engineer-in - charge.	each	0.00		-
12	Supplying appropriate T-wrench, made of MS rod for operating gate valve of following diameter as per standrad drawing and direction of Engineer-in-charge.				-
12	125/160 mm dia	each	0.00		-
12	100 mm dia	each			-
12	75 mm dia	each			-
12	50 mm dia	each			-



Sl	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
13	Thrust Block in pipe line: Construction of concrete thrust and anchor blocks in Tee, Bend, SV, WO (Tee: 0.60x0.60x0.45; Bend: 0.60x0.45x0.30; WO: 0.60x0.60x0.60; SV: 0.45x0.45x0.30) of pipe line with Portland cement, sand (minimum FM 1.20) and 1st class/picked brick chips 20mm down graded (LAA value not exceeding 40), including shuttering, mixing by concrete mixer machine, casting, laying compacting and curing for the requisite period, breaking chips etc. all complete as per specification, drawing and direction of E-I-C. Cylinder crushing strength of concrete should not be less than 170kg/cm <sup>2</sup> at 28 days of curing (suggested mix proportion 1:2:4). Additional quantity of cement to be added if required to attain the strength at the contractors own cost.	cum	0.50		-

SI	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
14	Pressure Testing: pressure testing of newly installed pipe lines for transmission and distribution line at 6 Bar (or as per instruction provided by the EIC) with supply of required testing equipment and materials & repairing of any type of defects/leakages detected during testing (at no extra cost), replacement of damaged pipes/fittings etc. including fresh water (potable) for testing purposes as per design, specification and direction of the Engineer-in-charge. Pressure test must be done as maximum 300 m segment basis and 06 Bar pressure must be retained for at least 12 hours. (This item includes Labour charge, carrying charge with VAT, Income Tax & Profit).				-
14	OD 125 mm	Rm	0.00		-
14	OD 110 mm	Rm	8.00		-
14	OD 75 mm	Rm	27.00		-
14.1	OD 50 mm	Rm	201.00		-
15	Disinfection: Disinfection of pipe lines by supplying and using of required quantity bleaching powder ( 33% strength), making chlorinated water having chlorine residual concentration of at least 50 PPM. available free chlorine and applying to the pipe lines. After 24 hrs of retention, a chlorine residual should be minimum 20PPM, if it does not, steps to be repeated. After successful completion of the above test the system to be flushed until the chlorine residual is 0.5 PPM or equivalent of the water supply system. as per design, specification and direction of the Engineer-in-charge. (This item includes Labour charge, carrying charge with VAT, Income Tax & Profit).				-
15	OD 125 mm	Rm	0.00		-
15	OD 110 mm	Rm	8.00		-
15	OD 75 mm	Rm	27.00		-
15	OD 50 mm	Rm	201.00		-
16	<b>Pre-commissioning and Commissioning works</b>	Lumpsum	1.00		-
17	Road Restoration: Restoration of the following types of road to original condition using suitable withdrawn material and with supply of required rest materials as per specification and direction of the complete as per direction of Engineer in charge:				-
17	HBB Road (50% reuse of withdrawn materials)	sqm	88.39		-
17	Bituminous road: Withdrawn materials to be broken and compacted as per specification, 25 mm thick compacted pre-mixed bituminous carpeting with 12 mm down graded stone-chips (having LAA value <= 30%, water absorption not greater than 2%, flakiness index not greater than 35) of gradation as specified @ 0.34 cum of stone chips mixed with 23 kg heated bitumen of 60/70 penetration grade heated straight run bitumen satisfying the requirements of ASTM/AASHTO. Bitumen content % by wt. of total is 4.5% to 5.50% or as determined by job mix design. The bitumen and stone-chips shall be separately heated to a temperature of 140°C – 155°C and 150°C – 170°C respectively before mixing. The mixing shall be done at temperature between 140°C – 160°C at a separate place away from the fire. Mixture to be laid on 10 sqm of surface in proper camber, grade and super-elevation only on the prepared and accepted base or surface in a single appropriate layer to give the specified compacted thickness. The mixture should be rolled with appropriate steel drum roller (3-5 tons) & pneumatic multiple tire roller (8-10 tons) to full compaction. The rolling temperature shall be maintained not below 90°C including supplying of all materials, their carriage, labourers, tools and equipment etc. all complete as per direction of the Engineer-in-charge. The bitumen and stone-chips mixture shall be laid uniformly over 25 mm compacted bituminous carpeting with providing tack coat @ 7.50 kg of bitumen (60/70 penetration grade) per 10 sqm including heating bitumen up to 175°C to 185°C etc and tack coat @ 7.50 kg of bitumen (60/70 penetration grade) per 10 sqm including heating bitumen up to 175°C to 185°C etc.	sqm	0.00		-
17	Concrete road : Withdrawn materials to be broken and compacted as per specification, 75mm thick (1:2:4) proportion cement concrete with supply of fresh cement, coarse sand of Fm 1.8 and 12 mm down graded stone-chips, mixing of materials, laying, compacting, levelling, curing, including supplying of all materials, their carriage, labourers, tools and equipment etc. all complete as per direction of the Engineer-in-charge.	sqm	0.00		-

Sl	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
17	RCC road : Withdrawn RCC materials to be broaken and compacted as per specification, 100 mm thick (1:2:4) proportion reinforced cement concrete with supply of fresh cement, coarse sand of Fm 1.8 and 12 mm down graded stone-chips, mixing of materials, laying, compacting, levelling, curing, including supplying of all RCC materials and using salvaged MS rod and supplying new MS rod and placing as per previous design their carriage, labourers, tools and equipment etc. all complete as per direction of the Engineer-incharge. (75% reuse of withdrawn materials after nessary cleaning)	sqm	0.00		
18	Preparation of Asbuilt Document in GIS and/or AutoCAD format and as per guideline of Project Manager	sqm	1.00		-
<b>Total Amount, BDT</b>					<b>-</b>

Camp 15 Block H					
SI	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
1	Cutting and removing the following types of road pavements for pipeline to a width of pipe diameter + 0.3 m including salvaging of materials, stacking the withdrawn materials to a safe place for reuse, etc. all complete as per specification, approved drawings, site requirements and direction of the Engineer in charge.				
1.01	HBB over brick flat soling Road	sqm	10.05		-
1.02	Bituminous road over khoa consolidation.	sqm	0.00		
1.03	Concrete Road	sqm	0.00		
1.04	RCC Road	sqm	0.00		
2	Excavation in all kinds of soil for water pipeline, Thrust blocks, Sluice Valves, fittings and chamber, etc including layout and removal of obstacles (seen and unseen), unsuitable materials, taking precautions necessary for protection of electric & telephone cables, gas pipes, poles, bailing out water, shoring etc for trenches of minimum depth from road / ground surface of 1 m + pipe dia + 0.15 m and trench width of pipe dia + 0.30 m including trimming, dressing and levelling of trench bed, proper stacking of excavated earth by the side of the road, all complete as per specification, approved drawings and direction of the Engineer in charge.	cum	12.10		-
3	Sand Filling in Excavation trenches and inside plinth by supplying sand (minimum FM 0.80) free from clay, vegetation and other organic matter and filling and compacting in layers by sprinkling water, dressing and leveling etc. in 150 mm thick pipe bedding surround and (a) for pipes in road verges to a height of 150 mm above the top of the pipe and (b) for pipes in roads pavement/ road crossing upto the bottom of the original road structure etc. all complete as per direction of Engineer-in-Charge.	cum	3.49		-
4	Backfilling with earth of the trench above pipe zone (from 150mm above the top of the pipe to road surface) including watering and compacting in layers not exceeding 150mm all complete as per direction of Engineer-in-Charge.	cum	8.54		-
5	Supply and Installation of High Density Polyethylene (HDPE) Pipe of PE 100 PN 8 SDR 21 (ISO 4427-2:2007 (E)) have a minimum density of 0.955 grams per cubic centimeter. All HDPE pipe and fittings shall have a Hydrostatic Design Basis (HDB) of 1,600 psi by Open Cut method in accordance with technical specification and standard detailed drawings, of any diameter specified below. The rate includes cost for transportation of pipes to site from on-site store, cleaning of ends of pipes both inside and outside with acetone and dry cloth, jointing by butt fusion joint over the ground and laying the pipes in the trench as per technical specifications and direction of Engineering in charge.				-
5.02	OD 125 mm	Rm	0.00		-
5.03	OD 110 mm	Rm	0.00		-
5.04	OD 75 mm	Rm	12.00		-
5.05	OD 50 mm	Rm	39.00		-
6	Supply and Installation of High Density Polyethylene (HDPE) Pipe of PE 100 PN 8 SDR 21 (ISO 4427-2:2007 (E)) have a minimum density of 0.955 grams per cubic centimeter. All HDPE pipe and fittings shall have a Hydrostatic Design Basis (HDB) of 1,600 psi by HDD method in accordance with technical specification and standard detailed drawings, of any diameter specified below. The rate includes cost for transportation of pipes to site from on-site store, cleaning of ends of pipes both inside and outside with acetone and dry cloth, jointing by butt fusion joint over the ground and laying the pipes in the trench as per technical specifications and direction of Engineering in charge.				-
6.01	Up to 20m of length; pipe dia. upto 160mm	Lumpsum	0.00		-
7	Supplying of valves, fitting and fixing of HDPE Pipe PN16, PE 100, SDR 11 (ISO 4427-3: 2007) and corresponding stanard as per standard drawings in accordance with the technical specification and the standard detailed drawings, of any diameter specified below. The rate includes for transportation of fittings to site, cleaning with acetone and dry cloth, jointing by butt fusion or electro fusion and laying of the fittings as per specifications and direction of Engineering in charge. <b>Here, moulded fittings has not considered based on the implementation practice in that area.</b>				-
7.01	<b>Bend - 90°, EF</b>				-
a.	160 mm	each			-
b.	110 mm	each	3.00		-
c.	75	each	5.00		-
d.	50	each	10.00		-
e.	20	each	10.00		-
7.02	<b>Bend - 45°, EF</b>				-
a.	160 mm	each			-
b.	110 mm	each			-
c.	75	each			-

SI	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
d.	50	each			-
e.	20	each			-
<b>7.03</b>	<b>Bend - 22.5°</b>				-
a.	160 mm	each			-
b.	110 mm	each			-
c.	75	each			-
d.	50	each			-
e.	20	each			-
<b>7.04</b>	<b>Tee, FE</b>				-
a.	160x20	each			-
b.	160x75	each			-
c.	160x110	each			-
d.	160x160	each			-
e.	110x20	each			-
f.	110x75	each			-
g.	110x110	each			-
h.	110x50	each			-
i.	75x75	each	10.00		-
j.	75x50	each			-
k.	75x20	each			-
l.	50x50	each	10.00		-
m.	50x20	each	12.00		-
<b>7.05</b>	<b>Reducer, EF</b>				-
a.	160x110	each	6.00		-
b.	160x75	each	5.00		-
c.	110x75	each	5.00		-
d.	110x50	each	5.00		-
e.	110x20	each	10.00		-
f.	75x50	each	10.00		-
g.	50x20	each	10.00		-
<b>7.06</b>	<b>Sleeve / Coupler</b>				-
a.	160	each			-
b.	110	each			-
c.	75	each			-
d.	50	each			-
e.	20	each			-
<b>7.07</b>	<b>GV, BS 5163</b>				-
a.	150	each			-
b.	100	each	0.00		-
c.	75	each			-
d.	50	each			-
e.	20	each			-
<b>7.08</b>	<b>ARV</b>				-
a.	20	each			-
<b>8</b>	<b>Crossings (Bridge/Culvert)</b>				-

SI	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
8.01	Supplying and installation of MS plain ended casing pipes and complete <b>culvert /drain crossing</b> including flange adapter, nut, bolts and all required items, cutting, shaping, welding, jointing and fitting as per site requirement, breaking concrete / brickwork for installation of pipe and fixtures and mending good the damages, jointing with dresser coupling / flange adopter /flange with nut and bolts etc. as approved by the Engineer in Charge. (Rate is excluding the cost of Flange adopter /dresser coupling / flange with nut and bolts etc. & all other accessories as per drawing, design, specification). (Supplied materials should be eligible for use in the work if found satisfactory after testing, testing fee is included in rate) [welded ERW ASTM A 105 ]				-
a.	up to 160mm dia. pipe	nos.	0.00		-
8.02	Supplying and installation of MS plain ended casing pipes, air release valve and complete <b>bridge crossing</b> including flange adapter, nut, bolts and all required items, cutting, shaping, welding, jointing and fitting as per site requirement, breaking concrete / brickwork for installation of pipe and fixtures and mending good the damages etc. as approved by the Engineer in Charge. (Supplied materials should be eligible for use in the work if found satisfactory after testing, testing fee is included in rate) [welded ERW ASTM A 105 ]				-
a.	up to 160mm dia. pipe	Rm	0.00		-
9	Construction of sluice valve (gate valve) chamber as per standard drawing and design with 250mm thick brick work over 75 mm thick cement concrete (1: 2 :4) with supply of fresh cement, coarse sand of Fm 1.8 and 12 mm down graded picked jhama bricks over a layer of single brick flat soling,150 mm thick 3 part RCC slab (1:2:4) using specified MS road with recommended spacing, 12mm thick cement plaster (1:4) in/c NCF in inside wall of chamber, as per drawing, design, specification and direction of the Engineer mixing of materials, laying, compacting, levelling, curing, including supplying of all materials, their carriage, labourers, tools and equipment etc. all complete as per direction of the Engineer-in - charge.	each	0.00		-
10	Construction of Air Release Valve chamber as per standard drawing and design with 250mm thick brick work over 75 mm thick cement concrete (1: 2 :4) with supply of fresh cement, coarse sand of Fm 1.8 and 12 mm down graded picked jhama bricks over a layer of single brick flat soling,150 mm thick 3 part RCC slab (1:2:4) using specified MS road with recommended spacing, 12mm thick cement plaster (1:4) in/c NCF in inside wall of chamber, as per drawing, design, specification and direction of the Engineer mixing of materials, laying, compacting, levelling, curing, including supplying of all materials, their carriage, labourers, tools and equipment etc. all complete as per direction of the Engineer-in - charge.	each	0.00		-
11	Construction of Washout chamber as per standard drawing and design with 250mm thick brick work over 75 mm thick cement concrete (1: 2 :4) with supply of fresh cement, coarse sand of Fm 1.8 and 12 mm down graded picked jhama bricks over a layer of single brick flat soling,150 mm thick 3 part RCC slab (1:2:4) using specified MS road with recommended spacing, 12mm thick cement plaster (1:4) in/c NCF in inside wall of chamber, as per drawing, design, specification and direction of the Engineer mixing of materials, laying, compacting, levelling, curing, including supplying of all materials, their carriage, labourers, tools and equipment etc. all complete as per direction of the Engineer-in - charge.	each	0.00		-
12	Supplying appropriate T-wrench, made of MS rod for operating gate valve of following diameter as per standrad drawing and direction of Engineer-in-charge.				-
12.01	125 mm dia	each	0.00		-
12.02	100 mm dia	each			-
12.03	75 mm dia	each			-
12.04	50 mm dia	each			-

SI	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
13	Thrust Block in pipe line: Construction of concrete thrust and anchor blocks in Tee, Bend, SV, WO (Tee: 0.60x0.60x0.45; Bend: 0.60x0.45x0.30; WO: 0.60x0.60x0.60; SV: 0.45x0.45x0.30) of pipe line with Portland cement, sand (minimum FM 1.20) and 1st class/picked brick chips 20mm down graded (LAA value not exceeding 40), including shuttering, mixing by concrete mixer machine, casting, laying compacting and curing for the requisite period, breaking chips etc. all complete as per specification, drawing and direction of E-I-C. Cylinder crushing strength of concrete should not be less than 170kg/cm <sup>2</sup> at 28 days of curing (suggested mix proportion 1:2:4). Additional quantity of cement to be added if required to attain the strength at the contractors own cost.	cum	0.50		-

SI	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
14	Pressure Testing: pressure testing of newly installed pipe lines for transmission and distribution line at 6 Bar (or as per instruction provided by the EIC) with supply of required testing equipment and materials & repairing of any type of defects/leakages detected during testing (at no extra cost), replacement of damaged pipes/fittings etc. including fresh water (potable) for testing purposes as per design, specification and direction of the Engineer-in-charge. Pressure test must be done as maximum 300 m segment basis and 06 Bar pressure must be retained for at least 12 hours. (This item includes Labour charge, carrying charge with VAT, Income Tax & Profit).				-
14.02	OD 125 mm	Rm	0.00		-
14.03	OD 110 mm	Rm	0.00		-
14.04	OD 75 mm	Rm	12.00		-
14.05	OD 50 mm	Rm	39.00		-
15	Disinfection: Disinfection of pipe lines by supplying and using of required quantity bleaching powder ( 33% strength), making chlorinated water having chlorine residual concentration of at least 50 PPM. available free chlorine and applying to the pipe lines. After 24 hrs of retention, a chlorine residual should be minimum 20PPM, if it does not, steps to be repeated. After successful completion of the above test the system to be flushed until the chlorine residual is 0.5 PPM or equivalent of the water supply system. as per design, specification and direction of the Engineer-in-charge. (This item includes Labour charge, carrying charge with VAT, Income Tax & Profit).				-
15.01	OD 125 mm	Rm	0.00		-
15.02	OD 110 mm	Rm	0.00		-
15.03	OD 75 mm	Rm	12.00		-
15.04	OD 50 mm	Rm	39.00		-
16	<b>Pre-commissioning and Commissioning works</b>	Lumpsum	1.00		-
17	Road Restoration: Restoration of the following types of road to original condition using suitable withdrawn material and with supply of required rest materials as per specification and direction of the complete as per direction of Engineer in charge:				-
17.01	HBB Road (50% reuse of withdrawn materials)	sqm	20.09		-



SI	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
17.02	Bituminous road: Withdrawn materials to be broaken and compacted as per specification, 25 mm thick compacted pre-mixed bituminous carpeting with 12 mm down graded stone-chips (having LAA value <= 30%, water absorption not greater than 2%, flakiness index not greater than 35) of gradation as specified @ 0.34 cum of stone chips mixed with 23 kg heated bitumen of 60/70 penetration grade heated straight run bitumen satisfying the requirements of ASTM/AASHTO. Bitumen content % by wt. of total is 4.5% to 5.50% or as determined by job mix design. The bitumen and stone-chips shall be separately heated to a temperature of 140°C – 155°C and 150°C – 170°C respectively before mixing. The mixing shall be done at temperature between 140°C – 160°C at a separate place away from the fire.Mixture to be laid on 10 sqm of surface in proper camber, grade and super-elevation only on the prepared and accepted base or surface in a single appropriate layer to give the specified compacted thickness. The mixture should be rolled with appropriate steel drum roller (3-5 tons) & pneumatic multiple tire roller (8-10 tons) to full compaction. The rolling temperature shall be maintained not below 90°C including supplying of all materials, their carriage, labourers, tools and equipment etc. all complete as per direction of the Engineer-incharge.The bitumen and stone-chips mixture shall be laid uniformly over 25 mm compacted bituminous carpeting with providing tack coat @ 7.50 kg of bitumen (60/70 penetration grade) per 10 sqm including heating bitumen up to 175°C to 185°C etc and tack coat @ 7.50 kg of bitumen (60/70 penetration grade) per 10 sqm including heating bitumen up to 175°C to 185°C etc.	sqm	0.00		-
17.03	Concrete road : Withdrawn materials to be broaken and compacted as per specification, 75mm thick (1:2:4) proportion cement concrete with supply of fresh cement, coarse sand of Fm 1.8 and 12 mm down graded stone-chips, mixing of materials, laying, compacting, levelling, curing, including supplying of all materials, their carriage, labourers, tools and equipment etc. all complete as per direction of the Engineer-incharge.	sqm	0.00		
17.04	RCC road : Withdrawn RCC materials to be broaken and compacted as per specification, 100 mm thick (1:2:4) proportion reinforced cement concrete with supply of fresh cement, coarse sand of Fm 1.8 and 12 mm down graded stone-chips, mixing of materials, laying, compacting, levelling, curing, including supplying of all RCC materials and using salvaged MS rod and supplying new MS rod and placing as per previous design their carriage, labourers, tools and equipment etc. all complete as per direction of the Engineer-incharge. (75% reuse of withdrawn materials after necessary cleaning)	sqm	0.00		
18	<b>Preparation of Asbuilt Document in GIS and/or AutoCAD format and as per guideline of Project Manager</b>	sqm	1.00		-
<b>Total Amount, BDT</b>					<b>-</b>

Transmission					
SI	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
1	Cutting and removing the following types of road pavements for pipeline to a width of pipe diameter + 0.3 m including salvaging of materials, stacking the withdrawn materials to a safe place for reuse, etc. all complete as per specification, approved drawings, site requirements and direction of the Engineer in charge.				
1.01	HBB over brick flat soling Road	sqm	493.85		-
1.02	Bituminous road over khoa consolidation.	sqm	0.00		-
1.03	Concrete Road	sqm	0.00		-
1.04	RCC Road	sqm	0.00		-
2	Excavation in all kinds of soil for water pipeline, Thrust blocks, Sluice Valves, fittings and chamber, etc including layout and removal of obstacles (seen and unseen), unsuitable materials, taking precautions necessary for protection of electric & telephone cables, gas pipes, poles, bailing out water, shoring etc for trenches of minimum depth from road / ground surface of 1 m + pipe dia + 0.15 m and trench width of pipe dia + 0.30 m including trimming, dressing and levelling of trench bed, proper stacking of excavated earth by the side of the road, all complete as per specification, approved drawings and direction of the Engineer in charge.	cum	629.66		-
3	Sand Filling in Excavation trenches and inside plinth by supplying sand (minimum FM 0.80) free from clay, vegetation and other organic matter and filling and compacting in layers by sprinkling water, dressing and leveling etc. in 150 mm thick pipe bedding surround and (a) for pipes in road verges to a height of 150 mm above the top of the pipe and (b) for pipes in roads pavement/ road crossing upto the bottom of the original road structure etc. all complete as per direction of Engineer-in-Charge.	cum	195.63		-
4	Backfilling with earth of the trench above pipe zone (from 150mm above the top of the pipe to road surface) including watering and compacting in layers not exceeding 150mm all complete as per direction of Engineer-in-Charge.	cum	419.77		-
5	Supply and Installation of High Density Polyethylene (HDPE) Pipe of PE 100 PN 8 SDR 21 (ISO 4427-2:2007 (E)) have a minimum density of 0.955 grams per cubic centimeter. All HDPE pipe and fittings shall have a Hydrostatic Design Basis (HDB) of 1,600 psi by Open Cut method in accordance with technical specification and standard detailed drawings, of any diameter specified below. The rate includes cost for transportation of pipes to site from on-site store, cleaning of ends of pipes both inside and outside with acetone and dry cloth, jointing by butt fusion joint over the ground and laying the pipes in the trench as per technical specifications and direction of Engineering in charge.				-
5.01	OD 125 mm	Rm	1162.00		-
5.02	OD 110 mm	Rm	0.00		-
5.03	OD 75 mm	Rm	0.00		-
5.04	OD 50 mm	Rm	0.00		-
6	Supply and Installation of High Density Polyethylene (HDPE) Pipe of PE 100 PN 8 SDR 21 (ISO 4427-2:2007 (E)) have a minimum density of 0.955 grams per cubic centimeter. All HDPE pipe and fittings shall have a Hydrostatic Design Basis (HDB) of 1,600 psi by HDD method in accordance with technical specification and standard detailed drawings, of any diameter specified below. The rate includes cost for transportation of pipes to site from on-site store, cleaning of ends of pipes both inside and outside with acetone and dry cloth, jointing by butt fusion joint over the ground and laying the pipes in the trench as per technical specifications and direction of Engineering in charge.				-
6.01	Up to 20m of length; pipe dia. upto 160mm	Lumpsum	0.00		-
7	Supplying of valves, fitting and fixing of HDPE Pipe PN16, PE 100, SDR 11 (ISO 4427-3: 2007) and corresponding stanard as per standard drawings in accordance with the technical specification and the standard detailed drawings, of any diameter specified below. The rate includes for transportation of fittings to site, cleaning with acetone and dry cloth, jointing by butt fusion or electro fusion and laying of the fittings as per specifications and direction of Engineering in charge. <b>Here, moulded fittings has not considered based on the implementation practice in that area.</b>				-
7.01	<b>Bend - 90°, EF</b>				-
a.	160 mm	each			-
b.	110 mm	each			-
c.	75	each			-
d.	50	each			-
e.	20	each			-
7.02	<b>Bend - 45°, EF</b>				-
a.	160 mm	each			-
b.	110 mm	each			-
c.	75	each			-

SI	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
d.	50	each			-
e.	20	each			-
<b>7.03</b>	<b>Bend - 22.5°</b>				-
a.	160 mm	each			-
b.	110 mm	each			-
c.	75	each			-
d.	50	each			-
e.	20	each			-
<b>7.04</b>	<b>Tee, FE</b>				-
a.	160x20	each			-
b.	160x75	each			-
c.	160x110	each			-
d.	160x160	each			-
e.	110x20	each			-
f.	110x75	each			-
g.	110x110	each			-
h.	110x50	each			-
i.	75x75	each			-
j.	75x50	each			-
k.	75x20	each			-
l.	50x50	each			-
m.	50x20	each			-
<b>7.05</b>	<b>Reducer, EF</b>				-
a.	160x110	each			-
b.	160x75	each			-
c.	110x75	each			-
d.	110x50	each			-
e.	110x20	each			-
f.	75x50	each			-
g.	50x20	each			-
<b>7.06</b>	<b>Sleeve / Coupler</b>				-
a.	160	each			-
b.	110	each			-
c.	75	each			-
d.	50	each			-
e.	20	each			-
<b>7.07</b>	<b>GV, BS 5163</b>				-
a.	125	each	2.00		-
b.	100	each			-
c.	75	each			-
d.	50	each			-
e.	20	each			-
<b>7.08</b>	<b>ARV</b>				-
a.	20	each			-
<b>8</b>	<b>Crossings (Bridge/Culvert)</b>				-
8.01	Supplying and installation of MS plain ended casing pipes and complete <b>culvert /drain crossing</b> including flange adapter, nut, bolts and all required items, cutting, shaping, welding, jointing and fitting as per site requirement, breaking concrete / brickwork for installation of pipe and fixtures and mending good the damages, jointing with dresser coupling / flange adopter /flange with nut and bolts etc. as approved by the Engineer in Charge. (Rate is excluding the cost of Flange adopter /dresser coupling / flange with nut and bolts etc. & all other accessories as per drawing, design, specification). (Supplied materials should be eligible for use in the work if found satisfactory after testing, testing fee is included in rate) [welded ERW ASTM A 105 ]				-
a.	up to 160mm dia. pipe	nos.	0.00		-
8.02	Supplying and installation of MS plain ended casing pipes, air release valve and complete <b>bridge crossing</b> including flange adapter, nut, bolts and all required items, cutting, shaping, welding, jointing and fitting as per site requirement, breaking concrete / brickwork for installation of pipe and fixtures and mending good the damages etc. as approved by the Engineer in Charge. (Supplied materials should be eligible for use in the work if found satisfactory after testing, testing fee is included in rate) [welded ERW ASTM A 105 ]				-
a.	up to 160mm dia. pipe	Rm	0.00		-

SI	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
9	Construction of sluice valve (gate valve) chamber as per standard drawing and design with 250mm thick brick work over 75 mm thick cement concrete (1: 2 :4) with supply of fresh cement, coarse sand of Fm 1.8 and 12 mm down graded picked jhama bricks over a layer of single brick flat soling,150 mm thick 3 part RCC slab (1:2:4) using specified MS road with recommended spacing, 12mm thick cement plaster (1:4) in/c NCF in inside wall of chamber, as per drawing, design, specification and direction of the Engineer mixing of materials, laying, compacting, levelling, curing, including supplying of all materials, their carriage, labourers, tools and equipment etc. all complete as per direction of the Engineer-in - charge.	each	0.00		-
10	Construction of Air Release Valve chamber as per standard drawing and design with 250mm thick brick work over 75 mm thick cement concrete (1: 2 :4) with supply of fresh cement, coarse sand of Fm 1.8 and 12 mm down graded picked jhama bricks over a layer of single brick flat soling,150 mm thick 3 part RCC slab (1:2:4) using specified MS road with recommended spacing, 12mm thick cement plaster (1:4) in/c NCF in inside wall of chamber, as per drawing, design, specification and direction of the Engineer mixing of materials, laying, compacting, levelling, curing, including supplying of all materials, their carriage, labourers, tools and equipment etc. all complete as per direction of the Engineer-in - charge.	each	0.00		-
11	Construction of Washout chamber as per standard drawing and design with 250mm thick brick work over 75 mm thick cement concrete (1: 2 :4) with supply of fresh cement, coarse sand of Fm 1.8 and 12 mm down graded picked jhama bricks over a layer of single brick flat soling,150 mm thick 3 part RCC slab (1:2:4) using specified MS road with recommended spacing, 12mm thick cement plaster (1:4) in/c NCF in inside wall of chamber, as per drawing, design, specification and direction of the Engineer mixing of materials, laying, compacting, levelling, curing, including supplying of all materials, their carriage, labourers, tools and equipment etc. all complete as per direction of the Engineer-in - charge.	each	0.00		-
12	Supplying appropriate T-wrench, made of MS rod for operating gate valve of following diameter as per standrad drawing and direction of Engineer-in-charge.				-
12.01	125 mm dia	each	2.00		-
12.02	100 mm dia	each			-
12.03	75 mm dia	each			-
12.04	50 mm dia	each			-
13	Thrust Block in pipe line: Construction of concrete thrust and anchor blocks in Tee, Bend, SV, WO (Tee: 0.60x0.60x0.45; Bend: 0.60x0.45x0.30; WO: 0.60x0.60x0.60; SV: 0.45x0.45x0.30) of pipe line with Portland cement, sand (minimum FM 1.20) and 1st class/picked brick chips 20mm down graded (LAA value not exceeding 40), including shuttering, mixing by concrete mixer machine, casting, laying compacting and curing for the requisite period, breaking chips etc. all complete as per specification, drawing and direction of E-I-C. Cylinder crushing strength of concrete should not be less than 170kg/cm <sup>2</sup> at 28 days of curing (suggested mix proportion 1:2:4). Additional quantity of cement to be added if required to attain the strength at the contractors own cost.	cum	1.00		-
14	Pressure Testing: pressure testing of newly installed pipe lines for transmission and distribution line at 6 Bar (or as per instruction provided by the EIC) with supply of required testing equipment and materials & repairing of any type of defects/leakages detected during testing (at no extra cost), replacement of damaged pipes/fittings etc. including fresh water (potable) for testing purposes as per design, specification and direction of the Engineer-in-charge. Pressure test must be done as maximum 300 m segment basis and 06 Bar pressure must be retained for at least 12 hours. (This item includes Labour charge, carrying charge with VAT, Income Tax & Profit).				-
14.01	OD 125 mm	Rm	1162.00		-
14.02	OD 110 mm	Rm	0.00		-
14.03	OD 75 mm	Rm	0.00		-
14.04	OD 50 mm	Rm	0.00		-

SI	Description of Works	Unit	Qty.	Unit Price (BDT)	Total Price (BDT)
15	Disinfection: Disinfection of pipe lines by supplying and using of required quantity bleaching powder ( 33% strength), making chlorinated water having chlorine residual concentration of at least 50 PPM. available free chlorine and applying to the pipe lines. After 24 hrs of retention, a chlorine residual should be minimum 20PPM, if it does not, steps to be repeated. After successful completion of the above test the system to be flushed until the chlorine residual is 0.5 PPM or equivalent of the water supply system. as per design, specification and direction of the Engineer-in-charge. (This item includes Labour charge, carrying charge with VAT, Income Tax & Profit).				-
15.01	OD 125 mm	Rm	1162.00		-
15.02	OD 110 mm	Rm	0.00		-
15.03	OD 75 mm	Rm	0.00		-
15.04	OD 50 mm	Rm	0.00		-
16	<b>Pre-commissioning and Commissioning works</b>	Lumpsum	1.00		-
17	Road Restoration: Restoration of the following types of road to original condition using suitable withdrawn material and with supply of required rest materials as per specification and direction of the complete as per direction of Engineer in charge:				-
17.01	HBB Road (50% reuse of withdrawn materials)	sqm	493.85		-
17.02	Bituminous road: Withdrawn materials to be broken and compacted as per specification, 25 mm thick compacted pre-mixed bituminous carpeting with 12 mm down graded stone-chips (having LAA value <= 30%, water absorption not greater than 2%, flakiness index not greater than 35) of gradation as specified @ 0.34 cum of stone chips mixed with 23 kg heated bitumen of 60/70 penetration grade heated straight run bitumen satisfying the requirements of ASTM/AASHTO. Bitumen content % by wt. of total is 4.5% to 5.50% or as determined by job mix design. The bitumen and stone-chips shall be separately heated to a temperature of 140°C – 155°C and 150°C – 170°C respectively before mixing. The mixing shall be done at temperature between 140°C – 160°C at a separate place away from the fire. Mixture to be laid on 10 sqm of surface in proper camber, grade and super-elevation only on the prepared and accepted base or surface in a single appropriate layer to give the specified compacted thickness. The mixture should be rolled with appropriate steel drum roller (3-5 tons) & pneumatic multiple tire roller (8-10 tons) to full compaction. The rolling temperature shall be maintained not below 90°C including supplying of all materials, their carriage, labourers, tools and equipment etc. all complete as per direction of the Engineer-in-charge. The bitumen and stone-chips mixture shall be laid uniformly over 25 mm compacted bituminous carpeting with providing tack coat @ 7.50 kg of bitumen (60/70 penetration grade) per 10 sqm including heating bitumen up to 175°C to 185°C etc and tack coat @ 7.50 kg of bitumen (60/70 penetration grade) per 10 sqm including heating bitumen up to 175°C to 185°C etc.	sqm	0.00		-
17.03	Concrete road : Withdrawn materials to be broken and compacted as per specification, 75mm thick (1:2:4) proportion cement concrete with supply of fresh cement, coarse sand of Fm 1.8 and 12 mm down graded stone-chips, mixing of materials, laying, compacting, levelling, curing, including supplying of all materials, their carriage, labourers, tools and equipment etc. all complete as per direction of the Engineer-in-charge.	sqm	0.00		-
17.04	RCC road : Withdrawn RCC materials to be broken and compacted as per specification, 100 mm thick (1:2:4) proportion reinforced cement concrete with supply of fresh cement, coarse sand of Fm 1.8 and 12 mm down graded stone-chips, mixing of materials, laying, compacting, levelling, curing, including supplying of all RCC materials and using salvaged MS rod and supplying new MS rod and placing as per previous design their carriage, labourers, tools and equipment etc. all complete as per direction of the Engineer-in-charge. (75% reuse of withdrawn materials after necessary cleaning)	sqm	0.00		-
18	Preparation of Asbuilt Document in GIS and/or AutoCAD format and as per guideline of Project Manager	sqm	1.00		-
<b>Total Amount, BDT</b>					<b>-</b>

<b>D 2.1 Tap Stand with Water Meter for Mocharkhula Host Community and Camp 15 Block H (Part) (52 Nos.)</b>				
<b>Location</b>	<b>TS Position</b>	<b>Nos. of Tap Stand</b>	<b>Unit Rate in Tk.</b>	<b>Amount in Tk.</b>
<b>Mocharkhula Host Community</b>	At Uphill	4	-	-
	Except Uphill	23	-	-
	<b>Total</b>	<b>27</b>		<b>-</b>
<b>D 2.2 Tap Stand with Water Meter for Camp 15 Block F (111 Nos.)</b>				
<b>Camp 15 Block F&amp;H</b>	At Uphill	2	-	-
	Except Uphill	6	-	-
	<b>Total</b>	<b>8</b>		<b>-</b>
<b>Sub-Total of Tap Stand</b>				<b>-</b>
<b>D 2.3 Tap Stand with Water Meter for Camp 15 Block H (5 Nos.)</b>				
<b>Camp 15 Block F&amp;H</b>	At Uphill	1	-	-
	Except Uphill	1	-	-
	<b>Total</b>	<b>2</b>		<b>-</b>
<b>Sub-Total of Tap Stand</b>				<b>-</b>

Detail BOQ :Tap Stand uphill Location						
Item No.	PWD 2022	Description of items of works	Unit	Quantity	Rate (BDT)	Amount (BDT)
	02.1	<b>Earth work in excavation</b> in all kinds of soil for foundation trenches including layout, providing center lines, local bench-mark pillars, levelling, ramming and preparing the base, fixing bamboo spikes and marking layout with chalk powder, providing necessary tools and plants, protecting and maintaining the trench dry etc., stacking, cleaning the excavated earth at a safe distance out of the area enclosed by the layout etc. all complete and accepted by the Engineer-in-charge, subject to submit method statement of carrying out excavation work to the Engineer-in-charge for approval. However, engineer's approval shall not relieve the contractor of his responsibilities and obligations under the contract.				
	02.1.1	<b>Layout and marking for earthwork</b> in excavation in foundation accepted by the Engineer-in-charge. [Plinth area of the structure shall be considered for measurement]	sqm	3.1248		0.00
	02.1.2	<b>Earthwork in excavation</b> in foundation trenches up to 1.5 m depth and maximum 10 m lead	cum	0.484		0.00
	02.10.2	<b>Sand filling</b> in foundation trenches and plinth with sand having minimum <b>F.M. 0.8</b> in 150 mm layers including leveling, watering and compaction to achieve minimum dry density of 95% with optimum moisture content (Modified proctor test) by ramming each layer up to finished level as per design supplied by the design office only, all complete and accepted by the Engineer-in-charge.	cum	0.09		0.00
	03.1.1	<b>One layer brick flat soling</b> in foundation or in floor with first class/picked jhama bricks (BDS 208) including preparation of bed and filling the interstices with local sand, leveling etc. complete and accepted by the Engineer-in-charge	sqm	3.12		0.00
	03.4	<b>Mass concrete (1:3:6) in foundation</b> or in floor with cement, sand (F.M. 1.2) and picked jhama brick chips including breaking of chips, screening, mixing, laying, compacting to required level and curing for at least 7 days including the supply of water, electricity, costs of tools & plants and other charges etc. all complete and accepted by the Engineer-in-charge.(Cement: CEM-II/B-M)				0.00
	03.4.1	Lean / blinding concrete in foundation (1:3:6) with cement, brick chips and sand of F.M. 1.2	cum	0.53		0.00
	04.16	<b>125 mm brick works with first class bricks</b> with cement sand (F.M. 1.2) mortar (1:4) and making bond with connected walls including necessary scaffolding, raking out joints, cleaning and soaking the bricks for at least 24 hours before use and washing of sand, curing at least for 7 days in all floors including cost of water, electricity and other charges etc. all complete and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M) In ground floor	sqm	1.49		0.00
	15.2	<b>Minimum 12 mm thick cement sand (F.M. 1.2)</b> plaster with neat cement finishing to plinth wall with cement (1:4) up to 150 mm <b>below ground level</b> including washing of sand, finishing the edges and corners and curing at least for 7 days, cost of water, electricity, scaffolding and other charges etc. all complete in all respect as per drawing and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M) ground floor.	sqm	4.08		0.00

Item No.	PWD 2022	Description of items of works	Unit	Quantity	Rate (BDT)	Amount (BDT)
		Supplying, fitting and fixing of best quality country made <b>12 mm bib cock</b> made from copper or copper alloy, chromium plated. The faucet conforms BDS EN 200:2009. The faucet tap shall be free from any leakage, permeation and other abnormalities. The water hammer value shall be 1.47 Mpa or under. The faucet after it has been operated 100000 times it shall be free from a seat- leakage and shall satisfy the reverse flow preventing performance. The inside and outside surfaces of the faucet shall be smooth and be free from blowholes, fissures, remarkable flows or injurious defects. The chromium plating on the faucet shall be of class 2 grade 1. The final coating should be done with chromium of minimum 0.1 micron. The faucet shall be made leak proof and fixing in position with selected tape etc. , all complete approved and accepted by the Engineer- in- charge.				0.00
	26.29.3	12 mm CP open Bib Cock	Each	4.00		0.00
	26.46	<b>CPVC Pipes: Drainage Pipe</b>				0.00
		Supplying different inside dia best quality CPVC pressure pipe for water supply having specific gravity 1.35 - 1.45, and other physical, chemical, thermal, fire resistivity properties etc. as per BSTI approved manufacturer standards or ASTM, BS/ISO/IS standards fitting and fixing in position with sockets, bends, with all accessories such as round grating/domed roof grating, bends, sockets etc. approved and accepted by the Engineer-in-charge.				0.00
		50 mm dia wall thickness 3.7 mm - 4.3 mm	Meter	3.00		0.00
	26.42	Supplying, fitting and fixing of <b>G.I. pipe</b> with all special fittings, such as bends, elbows, sockets, reducing sockets, Tee, unions, jam-nuts etc. including cutting trenches where necessary and fitting the same with earth duly rammed and fixing in walls with holder bats and making hole in floors, walls and consequent mending good the damages etc. all complete in all respects approved and accepted by the Engineer- in- charge.				0.00
	26.42.3	<b>25 mm dia G.I. pipe</b> with wall thickness 3.35 mm, outside diameter min 31.7 mm, weight 2.59 kg/m, can withstand min 50 kg/cm <sup>2</sup> hydraulic pressure.	Meter	4.34		0.00
		Water meter with Box & Ball Valve	each	1		0.00
		Water meter Caging	Sqm	0.2924		0.00
					<b>Total =</b>	<b>-</b>



Detail BOQ :Tap Stand except uphill Location						
Item No.	PWD 2022	Description of items of works	Unit	Quantity	Rate (BDT)	Amount (BDT)
	02.1	<b>Earth work in excavation</b> in all kinds of soil for foundation trenches including layout, providing center lines, local bench-mark pillars, levelling, ramming and preparing the base, fixing bamboo spikes and marking layout with chalk powder, providing necessary tools and plants, protecting and maintaining the trench dry etc., stacking, cleaning the excavated earth at a safe distance out of the area enclosed by the layout etc. all complete and accepted by the Engineer-in-charge, subject to submit method statement of carrying out excavation work to the Engineer-in-charge for approval. However, engineer's approval shall not relieve the contractor of his responsibilities and obligations under the contract.				
	02.1.1	<b>Layout and marking for earthwork</b> in excavation in foundation accepted by the Engineer-in-charge. [Plinth area of the structure shall be considered for measurement]	sqm	1.5624		0.00
	02.1.2	<b>Earthwork in excavation</b> in foundation trenches up to 1.5 m depth and maximum 10 m lead	cum	0.2662		0.00
	02.10.2	<b>Sand filling</b> in foundation trenches and plinth with sand having minimum <b>F.M. 0.8</b> in 150 mm layers including leveling, watering and compaction to achieve minimum dry density of 95% with optimum moisture content (Modified proctor test) by ramming each layer up to finished level as per design supplied by the design office only, all complete and accepted by the Engineer-in-charge.	cum	0.23		0.00
	03.1.1	<b>One layer brick flat soling</b> in foundation or in floor with first class/picked jhama bricks (BDS 208) including preparation of bed and filling the interstices with local sand, leveling etc. complete and accepted by the Engineer-in-charge	sqm	1.56		0.00
	03.4	<b>Mass concrete (1:3:6) in foundation</b> or in floor with cement, sand (F.M. 1.2) and picked jhama brick chips including breaking of chips, screening, mixing, laying, compacting to required level and curing for at least 7 days including the supply of water, electricity, costs of tools & plants and other charges etc. all complete and accepted by the Engineer-in-charge.(Cement: CEM-II/B-M)				0.00
	03.4.1	Lean / blinding concrete in foundation (1:3:6) with cement, brick chips and sand of F.M. 1.2	cum	0.27		0.00
	04.16	<b>125 mm brick works with first class bricks</b> with cement sand (F.M. 1.2) mortar (1:4) and making bond with connected walls including necessary scaffolding, raking out joints, cleaning and soaking the bricks for at least 24 hours before use and washing of sand, curing at least for 7 days in all floors including cost of water, electricity and other charges etc. all complete and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M) In ground floor	sqm	1.68		0.00
	15.2	<b>Minimum 12 mm thick cement sand (F.M. 1.2)</b> plaster with neat cement finishing to plinth wall with cement (1:4) up to 150 mm <b>below ground level</b> including washing of sand, finishing the edges and corners and curing at least for 7 days, cost of water, electricity, scaffolding and other charges etc. all complete in all respect as per drawing and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M) ground floor.	sqm	3.92		0.00

Item No.	PWD 2022	Description of items of works	Unit	Quantity	Rate (BDT)	Amount (BDT)
		Supplying, fitting and fixing of best quality country made <b>12 mm bib cock</b> made from copper or copper alloy, chromium plated. The faucet conforms BDS EN 200:2009. The faucet tap shall be free from any leakage, permeation and other abnormalities. The water hammer value shall be 1.47 Mpa or under. The faucet after it has been operated 100000 times it shall be free from a seat- leakage and shall satisfy the reverse flow preventing performance. The inside and outside surfaces of the faucet shall be smooth and be free from blowholes, fissures, remarkable flows or injurious defects. The chromium plating on the faucet shall be of class 2 grade 1. The final coating should be done with chromium of minimum 0.1 micron. The faucet shall be made leak proof and fixing in position with selected tape etc. , all complete approved and accepted by the Engineer- in- charge.				0.00
	26.29.3	12 mm CP open Bib Cock	Each	2.00		0.00
	26.46	<b>CPVC Pipes: Drainage Pipe</b>				0.00
		Supplying different inside dia best quality CPVC pressure pipe for water supply having specific gravity 1.35 - 1.45, and other physical, chemical, thermal, fire resistivity properties etc. as per BSTI approved manufacturer standards or ASTM, BS/ISO/IS standards fitting and fixing in position with sockets, bends, with all accessories such as round grating/domed roof grating, bends, sockets etc. approved and accepted by the Engineer-in-charge.				0.00
		50 mm dia wall thickness 3.7 mm - 4.3 mm	Meter	3.00		0.00
	26.42	Supplying, fitting and fixing of <b>G.I. pipe</b> with all special fittings, such as bends, elbows, sockets, reducing sockets, Tee, unions, jam-nuts etc. including cutting trenches where necessary and fitting the same with earth duly rammed and fixing in walls with holder bats and making hole in floors, walls and consequent mending good the damages etc. all complete in all respects approved and accepted by the Engineer- in- charge.				0.00
	26.42.3	<b>25 mm dia G.I. pipe</b> with wall thickness 3.35 mm, outside diameter min 31.7 mm, weight 2.59 kg/m, can withstand min 50 kg/cm <sup>2</sup> hydraulic pressure.	Meter	3.44		0.00
		Water meter with Box & Ball Valve	each	1		0.00
		Water meter Caging	Sqm	0.2924		0.00
					<b>Total =</b>	<b>-</b>

**D3.1 Food Graded Plastic Overhead Water Reservoir for Camp 15 Block F&H**

<b>Item SL.</b>	<b>Description of Items</b>	<b>Unit</b>	<b>Quantity</b>	<b>Unit Rate (BDT)</b>	<b>Amount (BDT)</b>
1	Supplying, fitting and fixing of <b>food graded plastic overhead water reservoir /tank</b> including all necessary fittings, hardware and consumables etc. all complete approved and accepted by the Engineer- in- charge.				
2	10000 liter capacity	each	2		-

**D3.2 Piping, Valve and Water Meter Arrangement at OHT and Tank Site**

**Piping, Valve and Water Meter Arrangement at OHT Site**

Item SL.	Item Ref.	Description of Items	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
		Supplying, laying, fitting and fixing of best quality <b>HDPE pipe</b> having PE-100 (Hydrostatic Strength for PE-100 is 5.0 MPa & 12.4 Mpa at 80°C & 20°C respectively according to ISO 4427:2007(E)), PN-8, ISO 4427:2007(E) ) & SDR 21 and with necessary joints, fittings with all accessories complete approved and accepted by the Engineer- in-charge.				
1		110 mm dia. HDPE pipe	Meter	65.00		-
		100 mm dia. Water Meter	Each	1.00		-
2		100 mm gate Valve, BS 5163	Each	1.00		-
					<b>Sub total</b>	<b>-</b>

**Piping and Valve Arrangement at Camp 15 Block F&H**

Item SL.	Item Ref.	Description of Items	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
		Supplying, laying, fitting and fixing of best quality <b>HDPE pipe</b> having PE-100 (Hydrostatic Strength for PE-100 is 5.0 MPa & 12.4 Mpa at 80°C & 20°C respectively according to ISO 4427:2007(E)), PN-8, ISO 4427:2007(E) ) & SDR 21 and with necessary joints, fittings with all accessories complete approved and accepted by the Engineer- in-charge.				
1		50 mm dia. HDPE pipe	Meter	16.00		-
2		110 mm dia. HDPE pipe	Meter	20.00		-
3		50 mm HDPE Ball Valve	Each	2.00		-
4		100 mm gate Valve, BS 5163	Each	4.00		-
					<b>Sub total</b>	<b>-</b>

**Total -**

Detail BOQ :Gate Valve Chamber( Lower Elevated & uphill Location)						
Item No.	PWD 2022	Description of items of works	Unit	Quantity	Rate (BDT)	Amount (BDT)
	02.1	<b>Earth work in excavation</b> in all kinds of soil for foundation trenches including layout, providing center lines, local bench-mark pillars, levelling, ramming and preparing the base, fixing bamboo spikes and marking layout with chalk powder, providing necessary tools and plants, protecting and maintaining the trench dry etc., stacking, cleaning the excavated earth at a safe distance out of the area enclosed by the layout etc. all complete and accepted by the Engineer-in-charge, subject to submit method statement of carrying out excavation work to the Engineer-in-charge for approval. However, engineer's approval shall not relieve the contractor of his responsibilities and obligations under the contract.				
	02.1.1	<b>Layout and marking for earthwork</b> in excavation in foundation accepted by the Engineer-in-charge. [Plinth area of the structure shall be considered for measurement]	sqm	2.38		0
	02.1.2	<b>Earthwork in excavation</b> in foundation trenches up to 1.5 m depth and maximum 10 m lead	cum	2.975		0
		<b>Gate valve Base &amp; Block</b>				0
	03.4	<b>Mass concrete (1:3:6) in foundation</b> or in floor with cement, sand (F.M. 1.2) and picked jhama brick chips including breaking of chips, screening, mixing, laying, compacting to required level and curing for at least 7 days including the supply of water, electricity, costs of tools & plants and other charges etc. all complete and accepted by the Engineer-in-charge.(Cement: CEM-II/B-M)				0
	03.4.1	Lean / blinding concrete in foundation (1:3:6) with cement, brick chips and sand of F.M. 1.2	cum	0.18		0
		<b>Side Filling</b>				0
	02.10.2	<b>Sand filling</b> in foundation trenches and plinth with sand having minimum <b>F.M. 0.8</b> in 150 mm layers including leveling, watering and compaction to achieve minimum dry density of 95% with optimum moisture content (Modified proctor test) by ramming each layer up to finished level as per design supplied by the design office only, all complete and accepted by the Engineer-in-charge.	cum	0.73		0
		<b>RCC WORKS: 1:2:4 (measured on gross concrete section) (f'c = 19 MPa, minimum f'cr = 26 MPa in nominal mix 1:2:4), with brick-chips (Sand of F.M. 1.2 and F.M. 2.2 in equal proportion)</b>				0
	07.1	<b>Reinforced cement concrete works</b> with minimum cement content relates to <b>mix ratio 1:2:4</b> having maximum water cement ratio = 0.45 and minimum f'cr = 26 MPa, satisfying a specified compressive strength f'c= 19 MPa at 28 days on standard cylinders as per standard practice of Code ACI/BNBC/ASTM, cement conforming to BDS EN-197-1-CEM-I, 52.5N (52.5 MPa) / ASTM-C 150 Type – I, best quality sand [50% quantity of best local sand (F.M. 1.2) and 50% quantity of Sylhet sand or coarse sand of equivalent F.M. 2.2] and 20 mm down well graded <b>picked jhama brick chips</b> conforming to ASTM C-33 including conducting necessary tests, breaking chips and screening, making and placing shutter in position maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; mixing in standard mixer machine with hopper fed by standard measuring boxes, casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering).				0

Item No.	PWD 2022	Description of items of works	Unit	Quantity	Rate (BDT)	Amount (BDT)
		Top Slab	cum	0.36		0
		<b>FORMWORK (Wooden)</b>				0
	7.18	Centering and shuttering, including strutting, propping etc. and removal of form for:				0
		Top Slab	sqm	2.52		0
	08.1	Supplying, fabrication and fixing to detail as per design : ribbed or deformed bar reinforcement (excluding laboratory test fees) for Reinforced concrete, produced and marked in accordance with BDS ISO 6935-2:2016 (or standard subsequently released from BSTI) including straightening and cleaning rust, if any, bending and binding in position with supply of G.I. wires,conducting necessary laboratory tests etc. (excluding splices or laps) complete in all respect and accepted by the Engineer-in-charge (Measurement shall be recorded only on standard mass per unit length of bars, while dia of bars exceeds its standard)				0
	08.1.2	<b>Grade 400 (B400DWR / B420DWR: complying BDS ISO 6935-2:2016 / ASTM A615)</b> ribbed or deformed bar produced and marked according to Bangladesh standard, with minimum yield strength, fy (ReH)= 400 MPa but fy not exceeding 480 MPa and whatever is the actual yield strength within allowable limit as per BNBC/ ACI 318, the ratio of ultimate tensile strength fu to yield strength fy, shall be at least 1.25 and minimum elongation after fracture and minimum total elongation at maximum force is 17% and 8% respectively : up to ground floor.				0
		Top Slab	kg	23.81		0
	04.2	<b>Brick works of width one brick or one and a half brick length</b> of first class bricks with cement sand (F.M. 1.2) <b>mortar (1:6) in superstructure</b> including raking out joints, filling the interstices with mortar, cleaning and soaking the bricks at least for 24 hours before use and washing of sand, necessary scaffolding, curing at least for 7 days etc. all complete (measurement to given as 250 mm width for one brick length and 375 mm for one brick and a half brick length) and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M) In ground floor	cum	1.69		0
	15.2	<b>Minimum 12 mm thick cement sand (F.M. 1.2)</b> plaster with neat cement finishing to plinth wall with cement (1:4) up to 150 mm <b>below ground level</b> including washing of sand, finishing the edges and corners and curing at least for 7 days, cost of water, electricity, scaffolding and other charges etc. all complete in all respect as per drawing and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M) ground floor.	sqm	6.50		0
		Galvanized Iron Steps	each	4		0
				<b>for 01 nos</b>	<b>Total</b>	<b>0</b>
				<b>2 no. chamber</b>		<b>0</b>

Detail BOQ :Gate Valve & Water Meter Chamber						
Item No.	PWD 2022	Description of items of works	Unit	Quantity	Rate (BDT)	Amount (BDT)
1.01	02.1	<b>Earth work in excavation</b> in all kinds of soil for foundation trenches including layout, providing center lines, local bench-mark pillars, levelling, ramming and preparing the base, fixing bamboo spikes and marking layout with chalk powder, providing necessary tools and plants, protecting and maintaining the trench dry etc., stacking, cleaning the excavated earth at a safe distance out of the area enclosed by the layout etc. all complete and accepted by the Engineer-in-charge, subject to submit method statement of carrying out excavation work to the Engineer-in-charge for approval. However, engineer's approval shall not relieve the contractor of his responsibilities and obligations under the contract.				
1.02	02.1.1	<b>Layout and marking for earthwork</b> in excavation in foundation accepted by the Engineer-in-charge. [Plinth area of the structure shall be considered for measurement]	sqm	3.36		0
1.03	02.1.2	<b>Earthwork in excavation</b> in foundation trenches up to 1.5 m depth and maximum 10 m lead	cum	3.948		0
1.04		<b>Gate valve Base &amp; Block</b>				0
1.05	03.4	<b>Mass concrete (1:3:6) in foundation</b> or in floor with cement, sand (F.M. 1.2) and picked jhama brick chips including breaking of chips, screening, mixing, laying, compacting to required level and curing for at least 7 days including the supply of water, electricity, costs of tools & plants and other charges etc. all complete and accepted by the Engineer-in-charge.(Cement: CEM-II/B-M)				0
1.06	03.4.1	Lean / blinding concrete in foundation (1:3:6) with cement, brick chips and sand of F.M. 1.2	cum	0.27		0
1.07		<b>Side Filling</b>				0
1.08	02.10.2	<b>Sand filling</b> in foundation trenches and plinth with sand having minimum <b>F.M. 0.8</b> in 150 mm layers including leveling, watering and compaction to achieve minimum dry density of 95% with optimum moisture content (Modified proctor test) by ramming each layer up to finished level as per design supplied by the design office only, all complete and accepted by the Engineer-in-charge.	cum	0.85		0
1.09		<b>RCC WORKS: 1:2:4 (measured on gross concrete section) (f'c = 19 MPa, minimum f'cr = 26 MPa in nominal mix 1:2:4), with brick-chips (Sand of F.M. 1.2 and F.M. 2.2 in equal proportion)</b>				0

Item No.	PWD 2022	Description of items of works	Unit	Quantity	Rate (BDT)	Amount (BDT)
1.10	07.1	<b>Reinforced cement concrete works</b> with minimum cement content relates to <b>mix ratio 1:2:4</b> having maximum water cement ratio = 0.45 and minimum f <sub>cr</sub> = 26 MPa, satisfying a specified compressive strength f <sub>c</sub> = 19 MPa at 28 days on standard cylinders as per standard practice of Code ACI/BNBC/ASTM, cement conforming to BDS EN-197-1-CEM-I, 52.5N (52.5 MPa) / ASTM-C 150 Type – I, best quality sand [50% quantity of best local sand (F.M. 1.2) and 50% quantity of Sylhet sand or coarse sand of equivalent F.M. 2.2] and 20 mm down well graded <b>picked jhama brick chips</b> conforming to ASTM C-33 including conducting necessary tests, breaking chips and screening, making and placing shutter in position maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; mixing in standard mixer machine with hopper fed by standard measuring boxes, casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering).				0
1.11		Top Slab	cum	0.528		0
1.12		<b>FORMWORK (Wooden)</b>				0
1.13	7.18	Centering and shuttering, including strutting, propping etc. and removal of form for:				0
1.14		Top Slab	sqm	4		0
1.15	08.1	Supplying, fabrication and fixing to detail as per design : ribbed or deformed bar reinforcement (excluding laboratory test fees) for Reinforced concrete, produced and marked in accordance with BDS ISO 6935-2:2016 (or standard subsequently released from BSTI) including straightening and cleaning rust, if any, bending and binding in position with supply of G.I. wires, conducting necessary laboratory tests etc. (excluding splices or laps) complete in all respect and accepted by the Engineer-in-charge (Measurement shall be recorded only on standard mass per unit length of bars, while dia of bars exceeds its standard)				0
1.16	08.1.2	<b>Grade 400 (B400DWR / B420DWR: complying BDS ISO 6935-2:2016 / ASTM A615)</b> ribbed or deformed bar produced and marked according to Bangladesh standard, with minimum yield strength, f <sub>y</sub> (ReH)= 400 MPa but f <sub>y</sub> not exceeding 480 MPa and whatever is the actual yield strength within allowable limit as per BNBC/ ACI 318, the ratio of ultimate tensile strength f <sub>u</sub> to yield strength f <sub>y</sub> , shall be at least 1.25 and minimum elongation after fracture and minimum total elongation at maximum force is 17% and 8% respectively : up to ground floor.				0
1.17		Top Slab	kg	44.42		0
1.18	04.2	<b>Brick works of width one brick or one and a half brick length</b> of first class bricks with cement sand (F.M. 1.2) <b>mortar (1:6) in superstructure</b> including raking out joints, filling the interstices with mortar, cleaning and soaking the bricks at least for 24 hours before use and washing of sand, necessary scaffolding, curing at least for 7 days etc. all complete (measurement to given as 250 mm width for one brick length and 375 mm for one brick and a half brick length) and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M) In ground floor	cum	2.00		0
1.19	15.2	<b>Minimum 12 mm thick cement sand (F.M. 1.2) plaster</b> with neat cement finishing to plinth wall with cement (1:4) up to 150 mm <b>below ground level</b> including washing of sand, finishing the edges and corners and curing at least for 7 days, cost of water, electricity, scaffolding and other charges etc. all complete in all respect as per drawing and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M) ground floor.	sqm	8.50		0
1.20		Galvanized Iron Steps	each	4		0
		<b>Cost for each chamber in BDT</b>			<b>Total</b>	<b>0</b>
		<b>Cost for 2 chamber in BDT</b>			<b>Total</b>	<b>0</b>