

Office of Executive Engineer
Savar-Keraniganj Wellfield Plant, Dhaka WASA
Bhakurta, Savar, Dhaka

Name of Work: Construction of R.C.C Retaining wall for DTW 2-19 including Boundary wall & Sand Filling inside the pump Compound.

BOQ						
Item No.	Basis of Unit Rate	Description of Items	Quantity	Unit	Rate (BDT)	Total Amount (BDT)
A1	PWD -2022 1.6	Layout and marking for earthwork in excavation in foundation accepted by the Engineer-in-charge. [Plinth area of the structure shall be considered for measurement]	180.00	Sqm	33.001	5,940.180
A2	PWD 2022 02.1.2 & 2.1.3	Earth work in excavation 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. Earthwork in excavation in foundation trenches up to 1.5 m depth and maximum 10 m lead: in very soft / saturated / organic clayey soil / soil of semi-liquid state.	53.46	Cum	198.001	10,585.133
A3	PWD 2022 03.1.1	One layer brick flat soling in foundation or in floor with first class/picked jhama bricks including preparation of bed and filling the interstices with local sand, leveling etc. complete and accepted by the Engineer-in-charge	22.50	Sqm	518.001	11,655.023
A4	PWD 2022 02.10.1	Sand filling in foundation trenches and plinth with sand having F.M. 0.5 to 0.8 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.	614.42	Cum	1,088.001	668,489.574
A5	PWD 2022 03.5.1	Mass concrete (1:2:4) in foundation 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 Engineer-in-charge. (Cement: CEM-II/A-M) Mass concrete in foundation (1:2:4) with brick chips and local sand of F.M. 1.2.	1.92	Cum	8,886.001	17,061.122
A7	PWD 2022 07.3.2	Reinforced cement concrete works with minimum cement content relates to mix ratio 1:1.5:3 having minimum $f_{cr} = 30$ 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 stone chips conforming to ASTM C-33, 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 or mixing in batching plant, 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, testing charges of materials and cylinders as required, other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering). For Boundary Wall Footing, beam, column and approach road.	35.94	Cum	14,201.001	510,383.976
A38	PWD 2022 07.12.2	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 minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for: In raft/mat/floor slab up to plinth level	136.96	Sqm	587.001	80,396.831
A9	PWD 2022 08.1.2	Supplying, fabrication and fixing to detail as per design : ribbed or deformed bar reinforcement for Reinforced cement concrete, produced and marked in accordance with BDS ISO 6935 - 2: 2006 (or standard subsequently released from BSTI) including straightening and cleaning rust, if any, bending and binding in position with supply of G.I. wires, necessary laboratory tests (excluding splices or laps) etc. 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). Grade 400 (RB 400 /RB 400W: complying BDS ISO 6935-2:2006) 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 450 MPa and whatever is the 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 16% and 8% respectively : up to ground floor.	4871.64	Kg	100.001	487,168.872

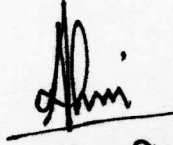
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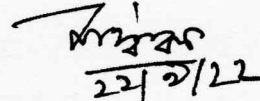
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Item No.	Basis of Unit Rate	Description of Items	Quantity	Unit	Rate (BDT)	Total Amount (BDT)
A11	PWD 2022 04.16	125 mm brick works with first class bricks with cement sand (F.M. 1:2) mortar (1:4) and making bond with connected walls including necessary 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/A-M) In ground floor.	34.40	Sqm	1,185.001	40,764.034
A12	PWD 2022 15.2	Minimum 12 mm thick cement sand (F.M. 1:2) plaster with neat cement finishing to plinth wall with cement (1:4) up to 150 mm below ground level 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/A-M) ground floor.	103.20	Sqm	362.001	37,358.503
A13	PWD 2022 24.7.1	Brick on end edging (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.	15.00	m	140.001	2,100.015
A14	PWD 2022 3.7	Supplying and laying of single layer polythene sheet weighing one kilogram per 6.5 square meter in floor or any where below cement concrete complete in all respect and accepted by Engineer-in-charge.	22.50	Sqm	47.001	1,057.523
A15	PWD 2022 8.7.1	Manufacturing, supplying, fitting and fixing Expansion Joint for gap upto 100mm with 125mmx50mmx6mm and 75mmx50mmx6mm galvanized MS angle and 8mm thick galvanized MS plate etc. all complete as per drawing, design and accepted by the Engineer-in-charge.	6.00	m	7,765.001	46,590.006
A16	PWD 2022 16.1.2	Exterior premium acrylic emulsion paint 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.	103.20	Sqm	298.001	30,753.703
A19	PWD 2022 21.9	Supplying, fitting and fixing 12 BWG barbed wire fencing in a circular shape of 600 mm dia and 100 mm pitch fitted with MS rod casing (made by 8 nos. 10 mm dia plain bar in a circular pattern and placed at equal interval), 38 x 38 x 6 mm M.S. angle post (300 mm embedded in R.C.C. or in brick work with a cement concrete base of 75 mm x 75 mm x 300 mm) and 600 mm vertical and 450 mm inclined placed @ 3.0 m c/c including straightening, binding the joints with 18 BWG wire, making holes in the angle etc. including supply of all necessary materials complete in all respect and accepted by the Engineer-in-charge. (Rate is excluding the cost of Painting).	31.00	m	2,436.001	75,516.031
A39	PWD 2022 26.31	Supplying different inside dia best quality uPVC soil, waste and ventilation pipe having specific gravity 1.35 - 1.45, wall thickness 2.5 mm - 3.0 mm, and other physical, chemical, thermal, fire resistivity properties etc. as per BSI approved manufacturer standards or ASTM, BS/ISO/IS standards fitting and fixing in position with sockets, bends, of uPVC Pipe with all accessories such as Round grating /domed roof grating bands, sockets etc. approved and accepted by the Engineer-in-charge. 50 mm inside dia wall thickness 2.5 mm - 3.0 mm	10.00	m	564.001	5,640.010
B1	PWD 2022 32.5.1.1	Dismantling of unserviceable/damaged brick works (with cement or lime mortar) of thickness 250 mm in foundation and superstructure and removal of debris to a safe distance	11.78	Cum	538.001	6,334.962
B2	PWD 2022 32.6.1.1	Dismantling of R.C.C. beam, lintel, column, drop wall, sun shade from any height and removal of debris to a safe distance.	1.82	Cum	3,928.001	7,129.322
B3	PWD 2022 26.74.6	Construction of septic tank of different sizes with walls of brick work in cement mortar (1:6) having a lining of minimum 125 mm R.C.C. cast against the walls as per approved type plan over a brick flat soling and 150 mm thick reinforced cement concrete flooring (1:2:4) with 125 mm thick walls in partition and 12 mm thick cement plaster (1:4) with N.C.F. to insides of walls on floor and all around outside walls by 450 mm height at top including supplying, fitting and fixing of two R.C.C. Tees and providing 450 mm dia water sealed heavy type C.I. manhole cover with locking/unlocking arrangement and 100 mm thick R.C.C (1:2:4) top slab, including centering, shuttering, fabricating, casting and curing etc. complete up to required depth including necessary earth work in excavation and shoring, bailing out water and side filling including the cost of all materials, operations and incidental charges. etc. all complete as per type plan approved and accepted by the Engineer-in-charge (Rate is including cost of reinforcement and its fabrication, binding and placing (10 Users)	1.00	Each	56,659.001	56,659.001
B4	PWD rate, 2018, Item- 26.86.2	Construction of soak well of different sizes (medium and large sizes) with 250 mm thick solid brick work and 250 mm honey comb brick work with cement mortar (1:6) as per design over R.C.C. (1:2:4) well curb with 1% reinforcement up to the depth as per drawing with 450 mm dia water sealed heavy type C.I. manhole cover with locking arrangement, filling the well up to the required depth with graded khoa and sand including supplying and fabricating M.S. rod, casting, curing including necessary earth work in excavation, side filling and bailing out water including cost of all materials etc. all complete as per drawing, design approved and accepted by the (Rate is including cost of reinforcement and its fabrication, binding and placing) Engineer-in-charge.	1.00	Each	37,667.001	37,667.001

Item No.	Basis of Unit Rate	Description of Items	Quantity	Unit	Rate (BDT)	Total Amount (BDT)
85	PWD rate, 2022, Item-01.7	Mobilization and cleaning site 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.	225.00	Sqm	218.001	49,050.225
86	PWD rate, 2022, Item-2.2	Bailing out of trapped water caused by inundation or rain, by pump from foundation trenches.	120.00	Hrs	474.001	56,880.120
Total=						2,245,181.167
In Word: Twenty two lac Fourty five thousand one hundred and Eighty one point one six seven only.						


 22.09.2022
 মোঃ রেজাউল করিম
 উপ-সহকারী প্রকৌশলী
 সাতার-কোমলগঞ্জ ওয়েলফেয়ার প্রকৌশলী, ঢাকা ওয়াশা।


 22/9/22
 জাকর ইকবাল চৌধুরী
 সহকারী প্রকৌশলী
 সাতার-কোমলগঞ্জ ওয়েলফেয়ার প্রকৌশলী, ঢাকা ওয়াশা।

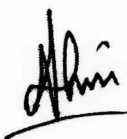
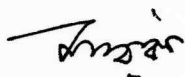

 22/9/22
 মাসুদুল আলম
 নির্বাহী প্রকৌশলী
 সাতার-কোমলগঞ্জ ওয়েলফেয়ার প্রকৌশলী, ঢাকা ওয়াশা।

Office of Executive Engineer
Savar-Keraniganj Wellfield Plant, Dhaka WASA
 Bhakurta, Savar, Dhaka

Name of Work: Construction of R.C.C Retaining wall for DTW 2-19 including Boundary wall & Sand Filling inside the pump Compound.

Calculation: Retaining Wall & Boundary wall

Item No.	Description of Item/Work	Length (m)	Width (m)	Height (m)	Area (m ²)	Volume (m ³)	Weight (Kg/m)	No. of Item	Total Quantity	Unit
A1	Layout and Marking for Earthwork				180.00			1	180.00	Sqm
A2	Existing Soil Excavation									
	a) Base	18.0	2.7	1.1		53.46		1	53.46	
								Total:	53.46	Cum
A5	Mass Concrete in Foundation (1:2:4)									
	a) Base	16.0	2.4	0.05		1.92		1	1.92	
								Total:	1.92	Cum
A8	RCC Works (1:1.5:3) f _c = 25 MPa									
	a) Base	16.00	2.4	0.4		15.36		1	15.36	
	b) Retaining Wall	16.00	0.325	3.1		16.12		1	16.12	
								Total:	31.48	Cum
A7	RCC Works (1:1.5:3) f _c = 25 MPa									
	a) Column	2.15	0.25	0.25		0.13		8	1.08	
								Total:	1.08	Cum
A38	Steel Formwork									
	a) Base	17.64		0.4	7.056			2	14.11	
	b) Retaining Wall	16		3.1	49.6			2	99.20	
	c) Column	1		2.15	2.15			11	23.65	
								Total:	136.96	Sqm
A4	Sand Backfilling									
	a) Existing Soil Excavation								53.46	
	b) (-) Footing								-15.36	
	c) (-) Retaining Wall	16	0.25	0.6		2.4		1	-2.40	
	d) (-) Mass Concrete								-1.92	
								Total:	33.78	Cum
A9	Reinforcement (Grade 400)									
	a) Base Long Bar (16mm dia)	15.30					1.579	50	1207.94	
	b) Base Short Bar (16mm dia)	2.60					1.579	302	1239.83	
	c) R/W Inside Ver. Bar (16mm dia)	2.80					1.579	76	336.01	
	d) R/W Inside Ver. Bar (16mm dia)	4.10					1.579	76	492.02	
	e) R/W Outside Ver. Bar (16mm dia)	4.10					1.579	17	110.06	
	f) R/W Inside Hor. Bar (12mm dia)	15.30					0.888	32	434.76	
	g) R/W Outside Hor. Bar (12mm dia)	15.30					0.888	32	434.76	
	h) Column Long Bar (16mm dia)	3.15					1.579	32	159.16	
	i) Column Stirrup (10mm dia)	1.00					0.616	222	136.75	
								Total:	4551.29	Kg


Item No.	Description of Item/Work	Length (m)	Width (m)	Height (m)	Area (m ²)	Volume (m ³)	Weight (Kg/m)	No. of Item	Total Quantity	Unit
A11	125mm Brick Work with Mortar (1:4)									
	a) 125mm Boundary Wall	16		2.15	34.4			1	34.40	
	Total:								34.40	Sqm
A12	12mm Thick Plastering (1:4)									
	a) Boundary Wall	16		2.15	34.40			2	68.80	
	a) RCC Retaining Wall	16		2.15	34.40			1	34.40	
	Total:								103.20	Sqm
A16	Boundary Wall Painting									
	a) Boundary Wall	16		2.15	34.40			2	68.80	
	a) RCC Retaining Wall	16		2.15	34.40			1	34.40	
	Total:								103.20	Sqm
A19	Circular Barbed Wire	31						1	31.00	m
A39	100mm PVC Pipe for Weep Hole	0.5						20	10.00	m
B1	Dismantling of Brick wall for Septic tank	7.85	1.5	1.00				1	11.78	Cum
B2	Dismantling of R.C.C for Septic tank									
	a) Base	2.42	1.5	0.3				1	1.09	Cum
	b) Slab	2.42	1.5	0.2				1	0.73	
	Total=								1.82	
B3	Construction of Septic tank							1	1.00	Each
B4	Construction of Soak well							1	1.00	Each
B5	Mobilization	15.00	15.00					1	225.00	Sqm
B6	Dewatering	30.00						4	120	Hrs

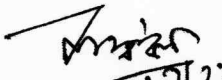
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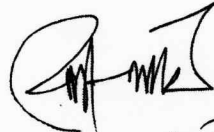
Name of Work: Construction of R.C.C Retaining wall for DTW 2-19 including Boundary wall & Sand Filling inside the pump Compound.

Calculation: Land Development & Approach Road Construction

Item No.	Description of Item/Work	Length (m)	Width (m)	Height (m)	Area (m ²)	Volume (m ³)	Weight (Kg/m)	No. of Item	Total Quantity	Unit
A4	Sand Filling inside the compound			2.5	232.26	580.644		1	580.64	Cum
A3	Single Layer Brick Flat Soling under Approach Road	7.500	3.000		22.500			1	22.50	m
								Total =	22.50	
A13	Brick on end edging (75mm across)	7.500						2	15.00	m
								Total =	15.00	
A14	Providing and lying polythene sheet	7.500	3.000		22.500			1	22.50	Sqm
								Total =	22.50	
A15	Filling of expansion joints up to a depth of 40mm with bitumen mixed with coarse sand (FM2.5). 20mm wide.	3.000						2	6.00	m
								Total =	6.00	
A7	RCC for Pavement (1:1.5:3) F _c =25MPa	7.500	3.000	0.150		3.375		1	3.38	Cum
								Total =	3.38	
A9	Reinforcement for Pavement (Grade 400)									kg
	12mm Dia	8.500					0.887	21	158.33	
	150mm C/C									
	12mm Dia	3.200					0.887	51	144.76	
	150mm C/C									
	Dowel Bar 20mm Dia	0.500					2.466	14	17.26	
	500mm c/c									
								Total =	320.35	


22.9.2022
মোঃ রেজাউল করিম
উপ-সহকারী প্রকৌশলী
সড়ক-কোম্পানি প্রকল্প পরিচালক প্রকৌশলী, ঢাকা ওয়াসা।


২২/৯/২২
মোঃ ইকবাল চৌধুরী
সহকারী প্রকৌশলী
সড়ক-কোম্পানি প্রকল্প পরিচালক প্রকৌশলী, ঢাকা ওয়াসা।


২২/৯/২২
মাসুদুল আলিম
নিবাহী প্রকৌশলী
সড়ক-কোম্পানি প্রকল্প পরিচালক প্রকৌশলী, ঢাকা ওয়াসা।