



GOVERNMENT OF BIHAR

PUBLIC HEALTH ENGINEERING DEPARTMENT

MODEL ESTIMATES

FOR

CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME

UNDER MUKHYAMANTRI GRAMIN PEYJAL YOJNA

FOR

100, 150 AND 200 HOUSEHOLDS

WITH

DIFFERENT TYPES OF TUBEWELLS

AND

8 Mtr. M.S.STAGING WITH WATER STORAGE

FOR NON QUALITY AFFECTED & WITH IRP FOR QUALITY AFFECTED AREAS

2017-18

S.N.	Particulars	Quantity	Unit	Rate	Amount
		29.53	M ²	Rs.87.40	Rs.2,580.92
14-B	12mm Cment plaster in coarse sand				
13.11	1:6 (1cement : 6 Coarse Sand)				
	No	Length	Width	Height (av.)	Sub Qty.
	In side				
	2	4.00		2.68	= 21.440
	2	3.00		2.68	= 16.080
	Outside				
	2	4.50		3.00	= 27.000
	2	3.50		3.00	= 21.000
	Chajja				
	2	1.10		0.450	= 0.990
	1	1.10		0.500	= 0.550
	2	0.45		0.063	= 0.057
	In Column				
	16	0.3		5.00	= 24.000
	In beams				
	14	3.95		0.30	= 16.590
	14	2.95		0.30	= 12.390
	In steps				
	1	0.90		0.15	= 0.135
	1	0.60		0.15	= 0.090
	1	0.30		0.15	= 0.045
					<u>140.367</u>
	Deduction				
	Door & Winsow				
	1	0.9		2.10	= 1.890
	1	0.90		1.20	= 1.080
					<u>1.080</u>
					Net Plaster
					<u>139.287</u>
				139.287 M ²	P/M ² Rs.101.20 Rs.14,095.81
14C-	Providing 12mm cement plaster (1:6) including				
13.11	providing 1.5mm neat cement punning				
.4	No	Length	Width	Height (av.)	Sub Qty.
+	In Dado				
13.26	2	4.00		0.22	= 1.760
	2	3.00		0.22	= 1.320
	In floors				
	1	4.0		3.0	= 12.000
	In steps				
	1	0.90		0.15	= 0.135
	1	0.60		0.15	= 0.090
	1	0.30		0.15	= 0.045
	Outside plinth				
	2	4.50		0.45	= 4.050
	2	3.50		0.45	= 3.150
					<u>22.550</u>
				22.550 M ²	P/M ² Rs.101.20 Rs.32.30 Rs.133.50 Rs.3,010.43
16-	Finishing walls with water proofing cement paint of				
13.79	approved brand and manufacture and of required				
.1	shade to give an even shade				
	New work (three or more coats)			168.82 M ²	M ² Rs.63.20 Rs.10,669.22
17-	Applying priming coat & painting with ready mixed				
13.81	paint of approved brand and manufacture in all sheds				
.3 +	to give an even shade				
13.82	with ready mixed zinc chromate yellow primer of app.				
.1	Brand on new steel work (two or more coats)				
	In Door				

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Various types of Model Estimates for Construction of Rural Piped Water Supply Schemes with 8 metre high Steel staging for 5000/10000 Ltr. water storage						
Sl. No.	No. of Households in the Ward	Type and size of Tubewell	Estimated Cost in Rs. Lakh	Page No.		
1	100	150mm X 90m deep Gravel packed T/W	12.486	1	-	12
2	100	125mm X 75mm dia & 90M deep T/W for alluvial soil	11.934	13	-	24
3	100	125mm X 75mm dia & 90M deep T/W for rocky strata	12.348	25	-	36
4	100	200/165 mm dia 90 M deep drilled Tubewell by DTH Rig machine	11.774	37	-	48
5	150	150mm X 90m deep Gravel packed T/W	14.703	49	-	60
6	150	125mm X 75mm dia & 125M deep T/W for alluvial soil	14.569	61	-	72
7	150	125mm X 75mm dia & 125M deep T/W for rocky strata	15.139	73	-	84
8	150	200/165 mm dia 90 M deep drilled Tubewell by DTH Rig machine	13.991	85	-	96
9	200	150mm X 90m deep Gravel packed T/W	16.018	97	-	108
10	200	150mm X 100mm dia & 125M deep T/W for alluvial soil	16.282	109	-	121
11	200	150mm X 100mm dia & 125M deep T/W for rocky strata	16.849	122	-	134
12	200	200/165 mm dia 90 M deep drilled Tubewell by DTH Rig machine	15.306	135	-	146
13	100	125mm X 75mm dia & 90M deep T/W for alluvial soil with IRP	16.580	147	-	159
14	150	125mm X 75mm dia & 90M deep T/W for alluvial soil with IRP	21.222	160	-	172
15	200	150mm X 100mm dia & 90M deep T/W for alluvial soil with IRP	25.006	173	-	186
16	Drawing of steel staging			187	-	188



GOVERNMENT OF BIHAR

PUBLIC HEALTH ENGINEERING DEPARTMENT

MODEL ESTIMATE

FOR

CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME

FOR A WARD HAVING 100 HOUSE HOLDS

ESTIMATED COST-- Rs. 12.486 Lac

2017-18

GOVERNMENT OF BIHAR
Public Health Engineering Department
ABSTRACT OF COST

NAME OF WORK:- CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME FOR WARD HAVING 100 HOUSE HOLDS

S.N.	Description	Total Amount
1	Construction of 150mm X 90m deep Gravel packed T/W etc. all complete and as per direction of E/I. (As per sub Estimate no.- 1)	Rs.1,65,744.00
2	Constructing masonry Chamber 100x100x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for Tube Well, and RCC top slab 1:1.5:3 mix (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:2:4(1 cement : 2 fine sand : 4 graded stone aggregate 20 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick with 5% cico fnished with a floating coat of neat cement, out side plastering with cement mortar 1:4 (1 cement : 4coarse sand) 12 mm thick complete as per standard specifications & direction of E/I. (As per sub Estimate no.- 2)	Rs.13,210.00
3	Providing and Laying Distribution network of High Density Polyethylene pipe (HDPE pipe) including 5000 liter PVC tank installed at 8M high MS staging etc all complete as per direction of E/I. (As per sub Estimate no.- 3)	Rs.3,90,355.94
4	Supply Installation, commissioning and testing of single phase 2 H.P. submersible pump set having discharging capacity 2.5 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I. (As per sub Estimate no.- 4)	Rs.64,403.00
5	Providing house connection for each house hold including supplying all materials, labours, tools and making ferrule connection with 20 mm dia MDPE and 15mm CPVC Pipes with all fittings etc all complete. (As per sub Estimate no.- 5)	Rs.1,51,300.00
6	Providing and erecting 8M high staging with ladder of ISA65x65x6 and 16mm dia MS bar as trade @ 400mm c/c and GI enclosure to house electric switch panel & treatment unit (where required) of suitably designed MS section of angle, channel, etc. as per drawing attached. (As per sub Estimate no.- 6)	Rs.4,51,200.00
TOTAL		Rs.12,36,212.94
Add 1% Contingency		Rs.12,362.13
G. TOTAL		Rs.12,48,575.07
Say		Rs.12,48,600.00

(Rs. Twelve Lakh Forty eight Thousand Six hundred) only

note:

- i) Road cutting cost may increase or decrease as per actuals.
- ii) Strongly advised that pipeline should be laid before construction of Naali-Gali.
- iii) This is a model estimate. Hence the quantity may increase or decrease based on actual site conditions.

Variable inter alia includes

- i) Hydro geomorphological condition.
- ii) Location of source vis-à-vis population/ house holds.
- iii) Quality of works and materials shall be maintained as per standard specifications and direction of E/I.

Technical approval accorded for Rs.12,48,600.00 (Rs. Twelve Lakh Forty eight Thousand Six hundred) only

(Sub Estimate - 1)

(A) Construction of 150mm X 90m deep Gravel packed T/W					
S. No.	Particulars	Quantity	Unit	Rate	Amount
1	Transportation of machine, equipments including all accessories etc.	1 No.	Each	Rs.1,010.00	Rs.1,010.00
2	Boring/drilling bore well of required dia for casing/strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer-in-charge, upto 90 metre depth below ground level. (All types of soil)				
	400mm dia bore from GL to 90.0M	90 Mtr.	P/M	Rs.529.30	Rs.47,637.00
3A	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC (UPVC) medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer-in-charge.				
	(a) 150 mm nominal size dia	59 M	P/M	Rs.615.30	Rs.36,302.70
3B	Supplying, assembling, lowering and fixing in vertical position in bore well unplasticized PVC (UPVC) medium well screen (RMS) pipes with ribs, conforming to IS: 12818, including hire & labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer-in-charge.				
	150 mm nominal size dia	30.0 M	P/M	Rs.554.30	Rs.16,629.00
4	Supplying fitting & fixing the following Fitting of approved make and specification at work site complete job.				
	(a) 150mm center guide Nos. in each T/W	9 Nos.	Each	Rs.150.00	Rs.1,350.00
	(b) 150 mm dia well plug	1 No	Each	Rs.205.10	Rs.205.10
	(b) 150 mm dia M.S. Clamp 1.6 M long (one Pair)	1 No	Each	Rs.1,031.10	Rs.1,031.10
5	Supplying 3mm to 6 mm Well washed assorted pea gravel and doing surrounding around the annular space between bore hole & 125mm pipe uniformity up to the depth 10 mtr. below G.L all work complete as per direction of E/I.	11 M ³	P/M ³	Rs.917.00	Rs.10,087.00
6	Carriage of Pea gravel from Dhalbhumigarh (taken av distance 400Km)	11 M ³	P/M ³	Rs.4,336.54	Rs.47,701.94
7	Supplying all materials laobours and equipments to seal T/W up to the depth of 12 mtr below G.L. by Sticky clay to prevent contamination from surface from all complete job as per direction of E/I.	1 Item	Each	Rs.51.01	Rs.51.01
8	Supplying all materials laobours and equipments including 150mm dia G.I. Cap /C.I. Cap over the casing of 150mm dia T/W properly all complete.	1 No.	Each	Rs.205.10	Rs.205.10
9	Carriage of necessary equipment & materials.	1 No.	Each	Rs.287.50	Rs.287.50
10	Supplying all tools equipments & labour for flushing washing and developing the T/W to give clean & clear water and all complete job as per direction of E/I.	5 H	P / H	Rs.649.40	Rs.3,247.00
TOTAL					Rs.1,65,744.45
Say					Rs.1,65,744.00

Analysis of Chamber for TW

Supplying materials, labours and constructing chamber of following dimension having 250mm thick wall in C.M. (1:4) in cluding 12mm C.P. (1:3) with punning inside, R.C.C. cover slab with C.I. Surface box , 20mm dia foot rest at 150mm interval 10mm dia lifting ring etc. all complete.

SIZE **1.00 M** x **1.00 M** x **0.75 M deep**

<u>S.O.R. No.</u>	<u>Particulars</u>	<u>No.</u>	<u>L</u>	<u>W</u>	<u>H</u>	<u>Qty.</u>	<u>Unit</u>	<u>Rate</u>	<u>Amount</u>	
1	Earth work in excavation	1	1.75	1.75	1.0	3.063 M ³	P/M ³	Rs.230.50	Rs.705.91	
S.O.R. No. 2.8										
2	Sand filling	1	1.75	1.75	0.075	0.230 M ³	P/M ³	Rs.204.40	Rs.46.95	
S.O.R. No. 2.28										
3	Brick flat soling	1	1.75	1.75		3.063 M ²	P/M ²	Rs.253.80	Rs.777.26	
S.O.R. 11.72										
4	P.C.C. (1:2:4) in foundation	1	1.75	1.75	0.10	0.306 M ³				
S.O.O. 4.1.3										
						0.306 M ³	P/M ³	Rs.3,850.50	Rs.1,179.22	
5	B/Work in (1:4) C.M.	2	2.50	0.25	0.75	0.938 M ³	P/M ³	Rs.4,724.40	Rs.4,429.13	
S.O.R. No. 6.1.12/1										
6	R.C.C. Cover slab(1:1.5:3)	1	1.50	1.50	0.15	0.338 M ³	P/M ³	Rs.5,139.70	Rs.1,734.65	
S.O.R. No. 5.2.2 & 5.9.3										
	shuttering	2	1.50	1.50	0.15	3.15 M ²	P/M ²	Rs.291.00	Rs.916.65	
7	C.P. (1:3) with 5% Cico & neat cement									
S.O.R. Internal face										
No.		2	1.00	1.00	1.00	4.00 M ²				
13.17.1	Bed surface	1	1.00	1.00		1.00 M ²				
+13.36.1						5.00 M ²	P/M ²	Rs.166.30	Rs.831.50	
8	C.P. (1:4) out side of wall	2	1.50	1.50	0.75	4.5 M ²	P/M ²	Rs.114.70	Rs.516.15	
S.O.R. No. 13.11.2										
9	8mm dia T.S. Rod									
S.O.R. No. 5.22.7A										
			0.338 M ³ x	70 Kg/ M3		23.625 Kg.	P/Kg	Rs.56.00	Rs.1,323.00	
10	Lifting Ring of 10mm dia Rod					4 No.	Each	Rs.30.00	Rs.120.00	
									Total	
									Rs.12,580.41	
11	Carriage of materials 5%									Rs.629.02
									Rs.13,209.43	

Say Rs.13,210.00

Sub Est. No. 3

WATER SUPPLY DISTRIBUTION SYSTEM

S.N.	Particulars	Quantity	Unit	Rate	Amount
1A	Earthwork in excavation over areas (exceeding 30 cm in depth 1.5 in width as well as 10 sqm on plan) including disposal of excavated earth lead upto 50m and lift upto 1.5m, disposal earth to be levelled and neatly dressed.				
	75mm dia Pipe	150.00	0.30	1.10 =	49.50
	63mm dia Pipe	150.00	0.30	1.10 =	49.50
	50mm dia Pipe	300.00	0.30	1.10 =	99.00
	40mm dia Pipe	400.00	0.30	1.10 =	132.00
				330.00 M ³	
	Add 5% extra for fittings =			16.50 M ³	
				346.50 M ³	
				P/M ³	Rs.230.50
1B	Provision for PCC road cutting and its restoration	11.25	M ³	P/M ³	Rs.4,428.80
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	339.57	M ³	P/M ³	Rs.74.50
					Rs.25,297.97
3	Providing and laying High Density Polyethylene pipe (HDPE pipe) of 20 mm to 225 mm OD and pressure 6.0 Kg/cm ² and 10 Kg/cm ² suitable for water supply which is available in all standard, like ISI-4984/1995 and various grades like PE-80, PE-100 including required specials. Rates are inclusive of , all taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete as per direction of Engineer-in-charge.				
3A	HDPE pipe of materials grade PE100- PN10 (dia in mm)				
	75mm dia Pipe from PVC Tank to Distribution main	10.00	M	P/M	Rs.239.81
	75mm dia Pipe	150.00	M	P/M	Rs.239.81
	63mm dia Pipe	150.00	M	P/M	Rs.168.77
3B	HDPE pipe of materials grade PE100- PN8 (dia in mm)				
	50mm dia Pipe	300.00	M	P/M	Rs.89.99
	40mm dia Pipe	400.00	M	P/M	Rs.59.78
	40mm dia Pipe from T/well to PVC Tank	12.00	M	P/M	Rs.59.78
4	Providing and fixing brass gate valve with C.I. wheel of approved quality (screwed end).				
	75mm dia Pipe	3 Nos.	Each	Rs.1,351.60	Rs.4,054.80
	63mm dia Pipe	2 Nos.	Each	Rs.1,351.60	Rs.2,703.20
	50mm dia Pipe	2 Nos.	Each	Rs.811.40	Rs.1,622.80
	40mm dia Pipe	4 Nos.	Each	Rs.613.90	Rs.2,455.60

S.N.	Particulars	Quantity	Unit	Rate	Amount
5 18.33	Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size), necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard specifications & direction of E/I.	9	Nos. Each	Rs.5,807.50	Rs.52,267.50
	Work for additional depth				
	Brick work (1:4) in foundation				
	2 1.10 0.25 0.35 0.193				
	2 0.60 0.25 0.35 0.105				
					0.298
		2.678	CuM CuM	Rs.4,724.40	Rs.12,649.58
	Plaster (1:3)				
	8 1.10 0.35 3.08	27.72	SqM SqM	Rs.128.20	Rs.3,553.70
6	Carriage 10% of item 5				Rs.6,847.08
7 18.48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, ISI : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	5000	Ltrs. P/Ltr.	Rs.6.60	Rs.33,000.00
8	Providing and fixing PTMT extension nipple for water tank pipe, fittings of approved quality and colour.				
	40mm dia	2	Nos. each	Rs.250.00	Rs.500.00
	75mm dia	1	No. each	Rs.400.00	Rs.400.00
				TOTAL	Rs.3,90,355.94

Sub Est. No. 4

Model estimate for supply, installation & commissioning of single phase 2 H.P submersible motor pump set with all accessories including extension of L.T. line from nearest source up-to pumping

Sl. No.	Particulars	Quantity	Unit	Rate	Amount	
1	2	3	4	5	6	
[A]	<p>Supply Installation, commissioning and testing of single phase 2 H.P. submersible pump set having discharging capacity 2.5 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I.</p> <p>(i) 40 mm dia x 3 mtrs long medium class G.I column pipe both end threaded and one end socketed- 6(six)nos</p> <p>(ii) 1x3x1.5 mm² flat copper conductor submersible cable -40 (forty) mtrs.</p> <p>(iii) 40 mm dia union socket- 1(one) no.</p> <p>(iv) 50 mm dia x 250 mm long G.I. nipple- 1 (one) no.</p> <p>(v) 40 mm dia G.I Elbow—1(One) no.</p> <p>(vi) 40 mm dia M.S. clamps—2(Two) Pairs.</p> <p>(vii) 40 mmx 250 mm long G.I nipple- 1(One) no.</p> <p>(viii) Tube well cap for 125 mm dia T/Well – 1(one) no.</p> <p>(ix) 40 mm dia x 50 mm dia reducer socket –1(one) no.</p>	1	(one) job	p/job	Rs.30,500.00	Rs.30,500.00

[B]	Supply Installation, commissioning and testing of floor mounted outdoor type L.T feeder pillar single phase starter controll pannel operated on 220 V, 3 phase , 50 c/s for 2 HP Submersible pump set made of MS sheet (minimum 2 mm thick) duly spray power coated painting with following accessories made of M.S sheet (minimum 2mm thick) duly spray powder coated painting with following accessories (i) 95-272 V range single phase 5 KVA automatic voltage stabilizer make-Sen & Pandit/ Vertex/ISI marked If any. 1 No. (ii) Suitable single phase starter control panel for above motor of BCH /L&Tmake – 1(one) no.	1 (one) job	p/job	Rs.28,500.00	Rs.28,500.00
[C]	Supplying & fitting 2.5 mm ² copper service cable from power point from nearest source up-to pumping station..	20 mtrs	P/Mt	Rs.130.00	Rs.2,600.00
[D]	Providing all materials and labour required for doing earthing station with G.I earth pipe of 40 mm dia x 4.5 mtrs 20fts. long G.I pipe including accessories excavation of earth , providing masonry enclosure with cover plate having locking arrangement and watering pipe etc.with salt, charcoal,etc.as per IE & IS specification.	1 job	p/job	Rs.2,803.00	Rs.2,803.00
Total Rs.				Rs.64,403.00	

Sub Est. No. 5

Estimate for the work - House service connection					
SUB-ESTIMATE					
S.No.	Description	Qty	Unit	Rate	Amount
1A	Providing and fixing MDPE (PE 80 GradeCompound) pipes PN-12.5 (12.5kg/Sqcm) as per ISO 4427 and specification for waterapplication rates are inclusive of , taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete asper direction of Engineer-in-charge.complete.				
	MDPE Pipe 20mm dia nominal bore	6.00	PM	Rs.19.97	Rs.119.82
1B	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall				
18.7.1	15 mm nomonal bore	1.0	PM	Rs.138.70	Rs.138.70
2	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and amming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil				
2.8.1	6.00 0.30 0.60 1.08	1.08	CuM	Rs.230.50	Rs.248.94
3 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead	1.06	CuM	Rs.74.50	Rs.78.85
4	Providing and fixing brass ferrule with CI mouth cover incuding boring and tapping the main:				
18.20.1	15mm nominal bore	1	Each	Rs.254.10	Rs.254.10
	Providing and fixing P.P. Black service Saddle (Brass threaded)	1	Each	Rs.400.00	Rs.400.00
5	Providing and fixing brass bib cock of approved quality :				
18.15.1	15mm nominal bore	1	Each	Rs.273.00	Rs.273.00
	Total				Rs.1,513.41
	Say				Rs.1,513.00

Total Nos. of House Holds= 100 Nos. @ Rs.1,513.00 Rs.1,51,300.00

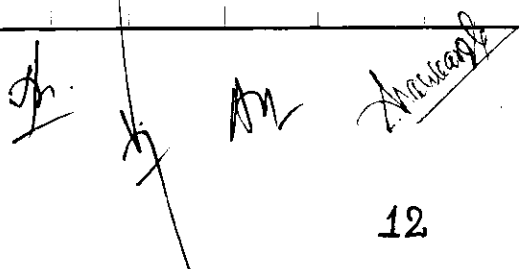
Sub Est. No. 6

8 M HIGH STEEL STRUCTURE STAGING FOR 5000/10000 LITER PVC TANK

S.N.	Particulars	Quantity	Unit	Rate	Amount
1 10.3	Structural steel work riveted or bolted in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved primer all complete for 8M high staging with ladder of ISA65x65x6 and 16mm dia MS bar as trade @ 400mm c/c and GI enclosure to house electric switch panel & treatment unit (where required) of suitably designed MS section of angle, channel, etc. as per drawing attached.	4224 Kg	P/Kg	Rs.69.20	Rs.2,92,300.80
2 2.8.1	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All Kinds of soil				
	base of footing				
	4 1.95 1.95 1.35 =				20.534
	Under Tie beam				
	2 2.30 0.25 0.275 =				0.316
	2 1.30 0.25 0.275 =				0.179
		21.029	21.029 M ³	Rs.230.50	Rs.4,847.07
3- 2.28	Supplying and filling in plinth with local sand and under floors including watering, ramming, consolidating and dressing complete.				
	base of footing				
	4 1.95 1.95 0.10 =				1.521
	Under Tie beam				
	2 3.95 0.25 0.10 =				0.198
	2 2.95 0.25 0.10 =				0.148
	Floor				
	1 4.00 3.00 0.10 =				1.200
		3.066	3.066 M ³	Rs.204.40	Rs.626.69
4- 11.72	Providing designation of 100A Brick flat Soling joints filled with local sand including cost of watering, taxes & royalty all complete as per specification & direction of E/I.				
	base of footing				
	4 1.95 1.95 =				15.210
	Under Tie beam				
	2 3.95 0.25 =				1.975
	2 2.95 0.25 =				1.475
	Floor				
	1 4.00 3.00 =				12.000
		30.660	30.660 M ²	Rs.253.80	Rs.7,781.51
5 4.1.2	Providing and laying in position cement concrete of specified grade exluding the cost of centring and shuttering-all work upto plinth level. 1:1.5:3(1 Cement :1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)				
	base of footing				
	4 1.95 1.95 0.075 =				1.141
	Floor				
	1 4.00 3.00 0.10 =				1.200
		2.341	2.341 M ³	Rs.4,373.20	Rs.10,236.57

S.N.	Particulars	Quantity	Unit	Rate	Amount	
6 5.1.2	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of entering, shuttering, finishing and reinforcement- All work upto plinth level 1:1:5:3(1 cement: 1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)					
	Tie beam					
	1 3.95 0.25 0.25 =	0.247				
	1 2.95 0.25 0.25 =	0.184				
	base of footing					
	4 1.80 1.80 0.30 =	3.888				
	4 0.45 0.45 0.15 =	0.122				
	Column below GL					
	4 0.30 0.30 0.65 =	0.234				
	Column above GL					
	4 0.30 0.30 0.15 =	0.054				
		4.729	4.729 M ³	P/M ³	Rs.4,530.30	Rs.21,422.66
7- 5.9.1	Centring and shuttering including strutting, propping etc. and removal of form for.					
	2 3.95 0.25 =	1.975				
	2 2.95 0.25 =	1.475				
	16 1.80 0.30 =	8.640				
	16 0.45 0.15 =	1.080				
	16 0.30 0.65 =	3.120				
	16 0.30 0.15 =	0.720				
		17.010	17.010 M ²	P/M ²	Rs.169.00	Rs.2,874.69
8- 5.2.2	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete. 8 mm to 16 mm tor steel Total Reinforcement. @1.25% of Vol. Of Concrete					
		464.00 Kg.	P/Kg.	Rs.56.00	Rs.25,984.00	
9 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of oundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead (50% of E/W in excavation)	10.514 M ³	P/M ³	Rs.74.50	Rs.783.31	
10 13.26	Neat cement punning					
	1 4.00 3.00 =	12.000	12.000 M ²	P/M ²	Rs.32.30	Rs.387.60
11- 10.7.1	Providing and fixing 1mm thick M.S. sheet door with frame of 40x40x6mm angle iron and 3mm M.S. gusset plates at the junctions and corners, all necessary fittings complete, including applying a priming coat of approved steel primer. Using flats 30x6 mm for diagonal braces and central cross piece.					
	Door					
	1 0.9 2.10 =	1.890				
	Window					
	1 1.2 0.90 =	1.080				
	Total	2.970	2.970 M ³	P/M ³	Rs.2,503.00	Rs.7,433.91

S.N.	Particulars	Quantity	Unit	Rate	Amount	
12- 12.1.4	Providing corrugated G.S. sheet roofing fixed with G.I.J. or hooks, bolts and nuts 8 mm diameter with bitumen and G. I. limpet washers or with G.I. limpet washers filled with white lead and including a coat of approved steel primer and two coats of approved paint on over lapping of sheets complete (upto a pitch of 60°) excluding the cost of purlins, rafters and trusses. 0.8mm thick with zinc coating not less than 275 gm/mz					
	Roof					
	1 4.50 3.50 =				15.750	
	Wall					
	1 16.00 3.00 =				48.000	
					63.750	
	Deduct for door & window					
	1 0.9 2.10 =				1.890	
	1 1.2 0.90 =				1.080	
					2.970	
	Net Qty =	60.780	M ²	Rs.729.70	Rs.44,351.17	
13 10.19	Providing and fixing anchor bolt of 16 mm dia and 0.60 Mtr length embedded in R.C.C pedestal all complete as per direction of Engineer in charge. @4x4x0.95kg	15.15	Kg	P/kg	Rs.73.60	Rs.1,115.04
14- 13.82.1	Painting with ready mixed paint of approved brand and manufacture in all shades to give an even shade: New steel work (two or more coats) Frame work					
	0.5 16.00 8.00 =				64.000	
	0.5 5.00 4.00 =				10.000	
	Roof sheet					
	2 4.50 3.50 =				31.500	
	Top sheet					
	2 5.00 4.00 =				40.000	
	Gl sheet wall					
	2 16.00 3.00 =				96.000	
					241.500	
		241.50	M ²	Rs.63.60	Rs.15,359.40	
15	Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & direction of E/I.					
	(a) Bricks (7 Km. Pucca & 1 Km. Kachha lead)	990 Nos.	%0 nos.	Rs.606.10	Rs.600.04	
	(b) Coarse Sand (100 Km. lead)	3.040 M ³	P/M ³	Rs.1,221.09	Rs.3,712.11	
	(c) Stone Chips (150 Km. lead)	6.070 M ³	P/M ³	Rs.1,746.29	Rs.10,599.98	
	(d) Local Sand (2 Km. Pucca & 1 Km. Kachha lead)	3.530 M ³	P/M ³	Rs.217.23	Rs.766.82	
				TOTAL	Rs.4,51,183.37	
				say	Rs.4,51,200.00	





GOVERNMENT OF BIHAR

PUBLIC HEALTH ENGINEERING DEPARTMENT

MODEL ESTIMATE

FOR

CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME

FOR A WARD HAVING 100 HOUSEHOLDS

ESTIMATED COST-- Rs. 11.934Lac

2017-18

GOVERNMENT OF BIHAR
Public Health Engineering Department

ABSTRACT OF COST

NAME OF WORK:- CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME FOR WARD HAVING 100 HOUSE HOLDS

S.N.	Description	Total Amount
1	Construction of 125mm X75mmx 90m deep T/W etc. all complete and as per direction of E/I. (As per sub Estimate no.- 1)	Rs.1,11,137.68
2	Constructing masonry Chamber 100x100x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for Tube Well, and RCC top slab 1:1.5:3 mix (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:2:4(1 cement : 2 fine sand : 4 graded stone aggregate 20 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick with 5% cico fnished with a floating coat of neat cement, out side plastering with cement mortar 1:4 (1 cement : 4coarse sand) 12 mm thick complete as per standard specifications & direction of E/I. (As per sub Estimate no.- 2)	Rs.13,210.00
3	Providing and Laying Distribution network of High Density Polyethylene pipe (HDPE pipe) including 5000 liter PVC tank installed at 8M high MS staging etc all complete as per direction of E/I. (As per sub Estimate no.- 3)	Rs.3,90,355.94
4	Supply Installation, commissioning and testing of single phase 2 H.P. submersible pump set having discharging capacity 2.5 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I. (As per sub Estimate no.- 4)	Rs.64,403.00
5	Providing house connection for each house hold including supplying all materials, labours, tools and making ferrule connection with 20 mm dia MDPE and 15mm CPVC Pipes with all fittings etc all complete. (As per sub Estimate no.- 5)	Rs.1,51,300.00
6	Providing and erecting 8M high staging with ladder of ISA65x65x6 and 16mm dia MS bar as trade @ 400mm c/c and GI enclosure to house electric switch panel & treatment unit (where required) of suitably designed MS section of angle, channel, etc. as per drawing attached. (As per sub Estimate no.- 6)	Rs.4,51,200.00
TOTAL		Rs.11,81,606.62
Add 1% Contingency		Rs.11,816.07
G. TOTAL		Rs.11,93,422.69
Say		Rs.11,93,400.00

(Rs. Eleven Lakh Ninety three Thousand Four Hundred) only

note:

- Road cutting cost may increase or decrease as per actuals.
- Strongly advised that pipeline should be laid before construction of Naali-Gali.
- This is a model estimate. Hence the quantity may increase or decrease based on actual site conditions.

Variable inter alia includes

- Hydro geomorphological condition.
- Location of source vis-à-vis population/ house holds.
- Quality of works and materials shall be maintained as per standard specifications and direction of E/I.

Technical approval accorded for Rs.11,93,400.00 (Rs. Eleven Lakh Ninety three Thousand Four Hundred) only

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10.4.17

Sub Est. No. 1

CONSTRUCTION OF 125MM X 75MM DIA & 90M DEEP TUBE WELL

S.No.	Description	Qty.	Unit	Rate	Amount
1	Boring/drilling bore well of required dia for casing/strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer -in-charge, upto 90 metre depth below ground level. (All types of soil)				
24.1.1.1	(a) 300mm dia bore from G.L. to 90.0M	90.0 M	P/M	Rs.378.00	Rs.34,020.00
2	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC (UPVC) medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings				
	(b) 125 mm nominal size dia	30.0 M	P/M	Rs.462.50	Rs.13,875.00
24.3.5	(b) 75 mm nominal size dia	34.0 M	P/M	Rs.328.50	Rs.11,169.00
24.4.5	(c) 75 mm dia U.P.V.C. strainer	21.0 M	P/M	Rs.420.30	Rs.8,826.30
3	Providing all materials, tools & labours and fixing the following fittings etc. all complete as per specification & direction of E/I.				
	(a) 125 mm dia P.V.C. well cap	1 No.	Each	Rs.166.60	Rs.166.60
	(b) 125 mm dia center guide	4 Nos.	Each	Rs.100.00	Rs.400.00
	(c) 75 mm dia center guide	6 Nos.	Each	Rs.75.00	Rs.450.00
	(d) 75 mm dia P.V.C. pipe shoe plug	1 No.	Each	Rs.185.00	Rs.185.00
	(e)125mm x 75 mm dia P.V.C. Reducer	1 No.	Each	Rs.475.00	Rs.475.00
	(d)125mm dia M.S.Clamp	1 No.	Each	Rs.974.60	Rs.974.60
4a	Providing all materials, labours, & equipments for fixing				
24.6	tubewell with peagravel of Dalbhumigarh to size 4mm to 8mm approx. as suitable for strata including carriage washing, placing and packing the same in position around				
	the tubewell etc. all complete as per direction of E/I.	6.5 M ³	P/M ³	Rs.917.00	Rs.5,960.50
4b	Carriage of Pea Gravel from Dhalbhumigarh (taken av distance 400km.)	6.5 M ³	P/M ³	Rs.4,336.54	Rs.28,187.48
5	Development of tube well in accordance with IS : 2800				
24.12	(part I) and IS: 11189, to establish maximum rate of usable water yield without sand content (beyond permissible limit), with required capacity air compressor, running the compressor for required time till well is fully developed, measuring yield of well by "V" notch method or any other approved method, measuring static level & draw down etc. by step draw down method, collecting water sampl & getting tested in approved laboratory, disinfection of tubewell, all complete,including hire & labour charges of air compressor, tools & accessories etc., all as per requirement and direction of Engineer-in-charge.	3 Hrs.	Each	Rs.649.40	Rs.1,948.20
6	Supplying all materials and labours for arrangement for additional water required during the drilling period for 40 Hrs & site clearance & leveling etc. And providing the soap duster etc. to staff engaged in drilling etc. all complete work as per specification & direction of E.I..	1 No.	Each	Rs.4,500.00	Rs.4,500.00
TOTAL					Rs.1,11,137.68

(Sub Estimate - 2)

Analysis of Chamber for TW

Supplying materials, labours and constructing chamber of following dimension having 250mm thick wall in C.M. (1:4) including 12mm C.P. (1:3) with punning inside, R.C.C. cover slab with C.I. Surface box, 20mm dia foot rest at 150mm interval 10mm dia lifting ring etc. all complete.

SIZE	1.00 M	x	1.00 M	x	0.75 M deep
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<u>S.O.R. No.</u>	<u>Particulars</u>	<u>No.</u>	<u>L</u>	<u>W</u>	<u>H</u>	<u>Qty.</u>	<u>Unit</u>	<u>Rate</u>	<u>Amount</u>
1	Earth work in excavation	1	1.75	1.75	1.0	3.063 M ³	P/M ³	Rs.230.50	Rs.705.91
S.O.R. No. 2.8									
2	Sand filling	1	1.75	1.75	0.075	0.230 M ³	P/M ³	Rs.204.40	Rs.46.95
S.O.R. No. 2.28									
3	Brick flat soling	1	1.75	1.75		3.063 M ²	P/M ²	Rs.253.80	Rs.777.26
S.O.R. 11.72									
4	P.C.C. (1:2:4) in foundation	1	1.75	1.75	0.10	0.306 M ³			
S.O.O. 4.1.3									
						0.306 M ³	P/M ³	Rs.3,850.50	Rs.1,179.22
5	B/Work in (1:4) C.M.	2	2.50	0.25	0.75	0.938 M ³	P/M ³	Rs.4,724.40	Rs.4,429.13
S.O.R. No. 6.1.12/1									
6	R.C.C. Cover slab(1:1.5:3)	1	1.50	1.50	0.15	0.338 M ³	P/M ³	Rs.5,139.70	Rs.1,734.65
S.O.R. No. 5.2.2 & 5.9.3									
	shuttering	2	1.50	1.50	0.15	3.15 M ²	P/M ²	Rs.291.00	Rs.916.65
7	C.P. (1:3) with 5% Cico & neat cement								
S.O.R. No.	Internal face	2	1.00	1.00	1.00	4.00 M ²			
13.17.1	Bed surface	1	1.00	1.00		1.00 M ²			
+13.36.1						5.00 M ²	P/M ²	Rs.166.30	Rs.831.50
8	C.P. (1:4) out side of wall	2	1.50	1.50	0.75	4.5 M ²	P/M ²	Rs.114.70	Rs.516.15
S.O.R. No. 13.11.2									
9	8mm dia T.S. Rod								
S.O.R. No. 5.22.7A									
			0.338 M ³ x	70 Kg/ M3		23.625 Kg.	P/Kg	Rs.56.00	Rs.1,323.00
10	Lifting Ring of 10mm dia Rod					4 No.	Each	Rs.30.00	Rs.120.00
11	Carriage of materials 5%							Total	Rs.12,580.41
									Rs.629.02
									<u>Rs.13,209.43</u>
								Say	Rs.13,210.00

Sub Est. No. 3

WATER SUPPLY DISTRIBUTION SYSTEM

S.N.	Particulars	Quantity	Unit	Rate	Amount	
1A	Earthwork in excavation over areas (exceeding 30 cm in depth 1.5 in width as well as 10 sqm on plan) including disposal of excavated earth lead upto 50m and lift upto 1.5m, disposal earth to be levelled and neatly dressed.					
	75mm dia Pipe	150.00	0.30	1.10 =	49.50	
	63mm dia Pipe	150.00	0.30	1.10 =	49.50	
	50mm dia Pipe	300.00	0.30	1.10 =	99.00	
	40mm dia Pipe	400.00	0.30	1.10 =	132.00	
				330.00 M ³		
	Add 5% extra for fittings =			16.50 M ³		
		346.50	M ³	P/M ³	Rs.230.50	Rs.79,868.25
1B	Provision for PCC road cutting and its restoration	11.25	M ³	P/M ³	Rs.4,428.80	Rs.49,824.00
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	339.57	M ³	P/M ³	Rs.74.50	Rs.25,297.97
3	Providing and laying High Density Polyethylene pipe (HDPE pipe) of 20 mm to 225 mm OD and pressure 6.0 Kg/cm ² and 10 Kg/cm ² suitable for water supply which is available in all standard, like ISI-4984/1995 and various grades like PE-80, PE-100 including required specials. Rates are inclusive of , all taxes and duties (Exise duty @12.50% & CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete as per direction of Engineer-in-charge.					
3A	HDPE pipe of materials grade PE100- PN10 (dia in mm)					
	75mm dia Pipe from PVC Tank to Distribution main	10.00	M	P/M	Rs.239.81	Rs.2,398.10
	75mm dia Pipe	150.00	M	P/M	Rs.239.81	Rs.35,971.50
	63mm dia Pipe	150.00	M	P/M	Rs.168.77	Rs.25,315.50
3B	HDPE pipe of materials grade PE100- PN8 (dia in mm)					
	50mm dia Pipe	300.00	M	P/M	Rs.89.99	Rs.26,997.00
	40mm dia Pipe	400.00	M	P/M	Rs.59.78	Rs.23,912.00
	40mm dia Pipe from T/well to PVC Tank	12.00	M	P/M	Rs.59.78	Rs.717.36
4	Providing and fixing brass gate valve with C.I. wheel of approved quality (screwed end).					
	75mm dia Pipe	3	Nos	Each	Rs.1,351.60	Rs.4,054.80
	63mm dia Pipe	2	Nos	Each	Rs.1,351.60	Rs.2,703.20
	50mm dia Pipe	2	Nos	Each	Rs.811.40	Rs.1,622.80
	40mm dia Pipe	4	Nos	Each	Rs.613.90	Rs.2,455.60

S.N.	Particulars	Quantity	Unit	Rate	Amount
5 18.33	Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size), necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard specifications & direction of E/I. Work for additional depth	9 Nos	Each	Rs. 5,807.50	Rs. 52,267.50
	Brick work (1:4) in foundation				
	2	1.10	0.25	0.35	0.193
	2	0.60	0.25	0.35	0.105
					0.298
	Plaster (1:3)	2.678	CuM	Rs. 4,724.40	Rs. 12,649.58
	8	1.10	0.35	3.08	27.72
			SqM	Rs. 128.20	Rs. 3,553.70
6	Carriage 10% of item 5				Rs. 6,847.08
7 18.48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, ISI : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	5000	LtrsP/Ltr.	Rs. 6.60	Rs. 33,000.00
8	Providing and fixing PTMT extension nipple for water tank pipe, fittings of approved quality and colour.				
	40mm dia	2	No each	Rs. 250.00	Rs. 500.00
	75mm dia	1	No. each	Rs. 400.00	Rs. 400.00
				TOTAL	Rs. 3,90,355.94

Sub Est. No. 4

Model estimate for supply, installation & commissioning of single phase 2 H.P submersible motor pump set with all accessories including extension of L.T. line from nearest source up-to

Sl. No.	Particulars	Quantity	Unit	Rate	Amount	
1	2	3	4	5	6	
[A]	<p>Supply Installation, commissioning and testing of single phase 2 H.P. submersible pump set having discharging capacity 2.5 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/l.</p> <p>(i) 40 mm dia x 3 mtrs long medium class G.I column pipe both end threaded and one end socketed- 6(six)nos</p> <p>(ii) 1x3x1.5 mm² flat copper conductor submersible cable -40 (forty) mtrs.</p> <p>(iii) 40 mm dia union socket- 1(one) no.</p> <p>(iv) 50 mm dia x 250 mm long G.I. nipple- 1 (one) no.</p> <p>(v) 40 mm dia G.I Elbow—1(One) no.</p> <p>(vi) 40 mm dia M.S. clamps—2(Two) Pairs.</p> <p>(vii) 40 mmx 250 mm long G.I nipple- 1(One) no.</p> <p>(viii) Tube well cap for 125 mm dia T/Well – 1(one) no.</p> <p>(ix) 40 mm dia x 50 mm dia reducer socket –1(one) no.</p>	1	(one) job	p/job	Rs.30,500.00	Rs.30,500.00

[B]	Supply Installation, commissioning and testing of floor mounted outdoor type L.T feeder pillar single phase starter controll pannel operated on 220 V, 3 phase , 50 c/s for 2 HP Submersible pump set made of MS sheet (minimum 2 mm thick) duly spray power coated painting with following accessories made of M.S sheet (minimum 2mm thick) duly spray powder coated painting with following accessories (i) 95-272 V range single phase 5 KVA automatic voltage stabilizer make- Sen & Pandit/ Vertex/ISI marked If any. 1 No. (ii) Suitable single phase starter control panel for above motor of BCH /L&Tmake - 1(one) no.	1 (one) job	p/job	Rs.28,500.00	Rs.28,500.00
[C]	Supplying & fitting 2.5 mm ² copper service cable from power point from nearest source up-to pumping station..	20 mtrs	P/Mt	Rs.130.00	Rs.2,600.00
[D]	Providing all materials and labour required for doing earthing station with G.I earth pipe of 40 mm dia x 4.5 mtrs 20fts. long G.I pipe including accessories excavation of earth , providing masonry enclosure with cover plate having locking arrangement and watering pipe etc.with salt, charcoal,etc.as per IE & IS specification.	1 job	p/job	Rs.2,803.00	Rs.2,803.00
Total Rs.					Rs.64,403.00

Sub Est. No. 5

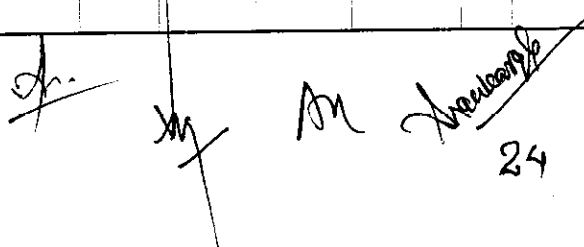
Estimate for the work - House service connection					
SUB-ESTIMATE					
S.No.	Description	Qty	Unit	Rate	Amount
1A	Providing and fixing MDPE (PE 80 GradeCompound) pipes PN-12.5 (12.5kg/Sqcm) as per ISO 4427 and specification for waterapplication rates are inclusive of , taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete asper direction of Engineer-in-charge.complete.				
	MDPE Pipe 20mm dia nominal bore	6.00	PM	Rs.19.97	Rs.119.82
1B	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall				
18.7.1	15 mm nomonal bore	1.0	PM	Rs.138.70	Rs.138.70
2	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and amming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil				
2.8.1	6.00 0.30 0.60 1.08	1.08	CuM	Rs.230.50	Rs.248.94
3 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead	1.06	CuM	Rs.74.50	Rs.78.85
4	Providing and fixing brass ferrule with CI mouth cover incuding boring and tapping the main:				
18.20.1	15mm nominal bore	1	Each	Rs.254.10	Rs.254.10
	Providing and fixing P.P. Black service Saddle (Brass threaded)	1	Each	Rs.400.00	Rs.400.00
5	Providing and fixing brass bib cock of approved quality :				
18.15.1	15mm nominal bore	1	Each	Rs.273.00	Rs.273.00
	Total				Rs.1,513.41
	Say				Rs.1,513.00

Total Nos. of House Holds= 100 Nos. @ Rs.1,513.00 Rs.1,51,300.00

Sub Est. No. 6								
8 M HIGH STEEL STRUCTURE STAGING FOR 5000/10000 LITER PVC TANK								
S.N.	Particulars				Quantity	Unit	Rate	Amount
1 10.3	Structural steel work riveted or bolted in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved primer all complete for 8M high staging with ladder of ISA65x65x6 and 16mm dia MS bar as trade @ 400mm c/c and GI enclosure to house electric switch panel & treatment unit (where required) of suitably designed MS section of angle, channel, etc. as per drawing attached.				4224 Kg	P/Kg	Rs.69.20	Rs.2,92,300.80
2 2.8.1	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All Kinds of soil							
	base of footing							
	4	1.95	1.95	1.35	=		20.534	
	Under Tie beam							
	2	2.30	0.25	0.275	=		0.316	
	2	1.30	0.25	0.275	=		0.179	
							21.029	
					21.029 M ³	P/M ³	Rs.230.50	Rs.4,847.07
3- 2.28	Supplying and filling in plinth with local sand and under floors including watering, ramming consolidating and dressing complete.							
	base of footing							
	4	1.95	1.95	0.10	=		1.521	
	Under Tie beam							
	2	3.95	0.25	0.10	=		0.198	
	2	2.95	0.25	0.10	=		0.148	
	Floor							
	1	4.00	3.00	0.10	=		1.200	
							3.066	
					3.066 M ³	P/M ³	Rs.204.40	Rs.626.69
4- 11.72	Providing designation of 100A Brick flat Soling joints filled with local sand including cost of watering, taxes & royalty all complete as per specification & direction of E/I.							
	base of footing							
	4	1.95	1.95		=		15.210	
	Under Tie beam							
	2	3.95	0.25		=		1.975	
	2	2.95	0.25		=		1.475	
	Floor							
	1	4.00	3.00		=		12.000	
							30.660	
					30.660 M ²	P/M ²	Rs.253.80	Rs.7,781.51
5 4.1.2	Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering-all work upto plinth level.							
	1:1.5:3(1 Cement :1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)							
	base of footing							
	4	1.95	1.95	0.075	=		1.141	
	Floor							
	1	4.00	3.00	0.10	=		1.200	
							2.341	
					2.341 M ³	P/M ³	Rs.4,373.20	Rs.10,236.57

S.N.	Particulars	Quantity	Unit	Rate	Amount	
6 5.1.2	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of entering, shuttering, finishing and reinforcement. All work upto plinth level 1:1:5:3(1 cement: 1.5 coarse sand:3 graded stone aggregate 20 mm nominal size) Tie beam					
	1 3.95 0.25 0.25 = 0.247					
	1 2.95 0.25 0.25 = 0.184					
	base of footing					
	4 1.80 1.80 0.30 = 3.888					
	4 0.45 0.45 0.15 = 0.122					
	Column below GL					
	4 0.30 0.30 0.65 = 0.234					
	Column above GL					
	4 0.30 0.30 0.15 = 0.054					
	4.729	4.729 M ³	P/M ³	Rs.4,530.30	Rs.21,422.66	
7- 5.9.1	Centring and shuttering including strutting, propping etc. and removal of form for.					
	2 3.95 0.25 = 1.975					
	2 2.95 0.25 = 1.475					
	16 1.80 0.30 = 8.640					
	16 0.45 0.15 = 1.080					
	16 0.30 0.65 = 3.120					
	16 0.30 0.15 = 0.720					
	17.010	17.010 M ²	P/M ²	Rs.169.00	Rs.2,874.69	
8- 5.22	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete. 8 mm to 16 mm tor steel					
	Total Reinforcement. @1.25% of Vol. Of Concrete =	464.00 Kg.	P/Kg.	Rs.56.00	Rs.25,984.00	
9 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead (50% of E/W in excavation)	10.514 M ³	P/M ³	Rs.74.50	Rs.783.31	
10 13.26	Neat cement punning					
	1 4.00 3.00 = 12.000	12.000 M ²	P/M ²	Rs.32.30	Rs.387.60	
11- 10.7.1	Providing and fixing 1mm thick M.S. sheet door with frame of 40x40x6mm angle iron and 3mm M.S. gusset plates at the junctions and corners, all necessary fittings complete, including applying a priming coat of approved steel primer. Using flats 30x6 mm for diagonal braces and central cross piece.					
	Door					
	1 0.9 2.10 = 1.890					
	Window					
	1 1.2 0.90 = 1.080					
	Total =	2.970	2.970 M ³	P/M ³	Rs.2,503.00	Rs.7,433.91

S.N.	Particulars	Quantity	Unit	Rate	Amount	
12- 12.1.4	Providing corrugated G.S. sheet roofing fixed with G.I.J. or hooks, bolts and nuts 8 mm diameter with bitumen and G. I. limpet washers or with G.I. limpet washers filled with white lead and including a coat of approved steel primer and two coats of approved paint on over lapping of sheets complete (upto a pitch of 60°) excluding the cost of purlins, rafters and trusses. 0.8mm thick with zinc coating not less than 275 gm/mz					
	Roof					
	1 4.50 3.50	=		15.750		
	Wall					
	1 16.00 3.00	=		48.000		
				63.750		
	Deduct for door & window					
	1 0.9 2.10	=		1.890		
	1 1.2 0.90	=		1.080		
				2.970		
	Net Qty =	60.780	M ²	Rs.729.70	Rs.44,351.17	
13 10.19	Providing and fixing anchor bolt of 16 mm dia and 0.60 Mtr length embedded in R.C.C pedestal all complete as per direction of Engineer in charge. @4x4x0.95kg	15.15	Kg	P/kg	Rs.73.60	Rs.1,115.04
14- 13.82.1	Painting with ready mixed paint of approved brand and manufacture in all shades to give an even shade: New steel work (two or more coats) Frame work					
	0.5 16.00 8.00	=		64.000		
	0.5 5.00 4.00	=		10.000		
	Roof sheet					
	2 4.50 3.50	=		31.500		
	Top sheet					
	2 5.00 4.00	=		40.000		
	GI sheet wall					
	2 16.00 3.00	=		96.000		
		241.500	M ²	Rs.63.60	Rs.15,359.40	
15	Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & direction of E/I.					
	(a) Bricks (7 Km. Pucca & 1 Km. Kachha lead)	990	Nos.	%0 nos.	Rs.606.10	Rs.600.04
	(b) Coarse Sand (100 Km. lead)	3.040	M ³	P/M ³	Rs.1,221.09	Rs.3,712.11
	(c) Stone Chips (150 Km. lead)	6.070	M ³	P/M ³	Rs.1,746.29	Rs.10,599.98
	(d) Local Sand (2 Km. Pucca & 1 Km. Kachha le	3.530	M ³	P/M ³	Rs.217.23	Rs.766.82
				TOTAL		Rs.4,51,183.37
				say		Rs.4,51,200.00



 24



GOVERNMENT OF BIHAR

PUBLIC HEALTH ENGINEERING DEPARTMENT

MODEL ESTIMATE

FOR

CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME

FOR A WARD HAVING 100 HOUSEHOLDS

ESTIMATED COST-- Rs. 12.348 Lac

2017-18

GOVERNMENT OF BIHAR
Public Health Engineering Department
ABSTRACT OF COST

NAME OF WORK:- CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME FOR WARD HAVING 100 HOUSE HOLDS

S.N.	Description	Total Amount
1	Construction of 125mm X75mmx 90m deep T/W for rocky strata etc. all complete and as per direction of E/I. (As per sub Estimate no.- 1)	Rs.1,52,096.68
2	Constructing masonry Chamber 100x100x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for Tube Well, and RCC top slab 1:1.5:3 mix (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:2:4(1 cement : 2 fine sand : 4 graded stone aggregate 20 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick with 5% cico fnished with a floating coat of neat cement, out side plastering with cement mortar 1:4 (1 cement : 4coarse sand) 12 mm thick complete as per standard specifications & direction of E/I. (As per sub Estimate no.- 2)	Rs.13,210.00
3	Providing and Laying Distribution network of High Density Polyethylene pipe (HDPE pipe) including 5000 liter PVC tank installed at 8M high MS staging etc all complete as per direction of E/I. (As per sub Estimate no.- 3)	Rs.3,90,355.94
4	Supply Installation, commissioning and testing of single phase 2 H.P. submersible pump set having discharging capacity 2.5 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I. (As per sub Estimate no.- 4)	Rs.64,403.00
5	Providing house connection for each house hold including supplying all materials, labours, tools and making ferrule connection with 20 mm dia MDPE and 15mm CPVC Pipes with all fittings etc all complete. (As per sub Estimate no.- 5)	Rs.1,51,300.00
6	Providing and erecting 8M high staging with ladder of ISA65x65x6 and 16mm dia MS bar as trade @ 400mm c/c and GI enclosure to house electric switch panel & treatment unit (where required) of suitably designed MS section of angle, channel, etc. as per drawing attached. (As per sub Estimate no.- 6)	Rs.4,51,200.00
TOTAL		Rs.12,22,565.62
Add 1% Contingency		Rs.12,225.66
G. TOTAL		Rs.12,34,791.28
Say		Rs.12,34,800.00

(Rs. Twelve Lakh Thirty four Thousand Eight Hundred) only

note:

- i) Road cutting cost may increase or decrease as per actuals.
 - ii) Strongly advised that pipeline should be laid before construction of Naali-Gali.
 - iii) This is a model estimate. Hence the quantity may increase or decrease based on actual site
- Variable inter alia includes**
- i) Hydro geomorphological condition.
 - ii) Location of source vis-à-vis population/ house holds.
 - iii) Quality of works and materials shall be maintained as per standard specifications and direction of E/I.

Technical approval accorded for Rs.12,34,800.00 (Rs. Twelve Lakh Thirty four Thousand Eight Hundred) only

Sub Est. No. 1
CONSTRUCTION OF 125MM X 75MM DIA & 90M DEEP TUBE WELL
(For Rocky strata including Boulders)

S.No.	Description	Qty.	Unit	Rate	Amount
1	Boring/drilling bore well of required dia for casing/strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer -in-charge, upto 90 metre depth below ground level. (Rocky strata including Boulders)				
24.1.1.1	(a) 300mm dia bore from G.L. to 90.0M	90.0 M	P/M	Rs.833.10	Rs.74,979.00
2	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC (UPVC) medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer -in-charge.				
	(b) 125 mm nominal size dia	30.0 M	P/M	Rs.462.50	Rs.13,875.00
24.3.5	(b) 75 mm nominal size dia	34.0 M	P/M	Rs.328.50	Rs.11,169.00
24.4.5	(c) 75 mm dia U.P.V.C. strainer	21.0 M	P/M	Rs.420.30	Rs.8,826.30
3	Providing all materials, tools & labours and fixing the following fittings etc. all complete as per specification & direction of E/I.				
	(a) 125 mm dia P.V.C. well cap	1 No.	Each	Rs.166.60	Rs.166.60
	(b) 125 mm dia center guide	4 Nos.	Each	Rs.100.00	Rs.400.00
	(c) 75 mm dia center guide	6 Nos.	Each	Rs.75.00	Rs.450.00
	(d) 75 mm dia P.V.C. pipe shoe plug	1 No.	Each	Rs.185.00	Rs.185.00
	(e)125mm x 75 mm dia P.V.C. Reducer	1 No.	Each	Rs.475.00	Rs.475.00
	(d)125 mm dia M.S.Clamp	1 No.	Each	Rs.974.60	Rs.974.60
4a 24.6	Providing all materials, labours, & equipments for fixing tubewell with peagravel of Dalbhumigarh to size 4mm to 8mm approx. as suitable for strata including carriage washing, placing and packing the same in position around the tubewell etc. all complete as per direction of E/I.	6.5 M ³	P/M ³	Rs.917.00	Rs.5,960.50
4b	Carriage of Pea Gravel from Dhalbhumigarh (taken av distance 400km.)	6.5 M ³	P/M ³	Rs.4,336.54	Rs.28,187.48
5 24.12	Development of tube well in accordance with IS : 2800 (part I) and IS: 11189, to establish maximum rate of usable water yield without sand content (beyond permissible limit), with required capacity air compressor, running the compressor for required time till well is fully developed, measuring yield of well by "V" notch method or any other approved method, measuring static level & draw down etc. by step draw down method, collecting water sampl & getting tested in approved laboratory, disinfection of tubewell, all complete,including hire & labour charges of air compressor, tools & accessories etc., all as per requirement and direction of Engineer-in-charge.	3 Hrs.	Each	Rs.649.40	Rs.1,948.20
6	Supplying all materials and labours for arrangement for additional water required during the drilling period for 40 Hrs & site clearance & leveling etc. And providing the soap duster etc. to staff engaged in drilling etc. all complete work as per specification & direction of E.I..	1 No.	Each	Rs.4,500.00	Rs.4,500.00
		TOTAL			Rs.1,52,096.68

(Sub Estimate - 2)

Analysis of Chamber for TW

Supplying materials, labours and constructing chamber of following dimension having 250mm thick wall in C.M. (1:4) including 12mm C.P. (1:3) with punning inside, R.C.C. cover slab with C.I. Surface box . 20mm dia foot rest at 150mm interval 10mm dia lifting ring etc. all complete.

SIZE	1.00 M	x	1.00 M	x	0.75 M deep
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S.O.R. No.	Particulars	No.	L	W	H	Qty.	Unit	Rate	Amount	
1	Earth work in excavation	1	1.75	1.75	1.0	3.063 M ³	P/M ³	Rs.230.50	Rs.705.91	
S.O.R. No. 2.8										
2	Sand filling	1	1.75	1.75	0.075	0.230 M ³	P/M ³	Rs.204.40	Rs.46.95	
S.O.R. No. 2.28										
3	Brick flat soling	1	1.75	1.75		3.063 M ²	P/M ²	Rs.253.80	Rs.777.26	
S.O.R. 11.72										
4	P.C.C. (1:2:4) in foundation	1	1.75	1.75	0.10	0.306 M ³				
S.O.O. 4.1.3										
5	B/Work in (1:4) C.M.	2	2.50	0.25	0.75	0.306 M ³	P/M ³	Rs.3,850.50	Rs.1,179.22	
S.O.R. No. 6.1.12/1										
6	R.C.C. Cover slab(1:1.5:3)	1	1.50	1.50	0.15	0.338 M ³	P/M ³	Rs.5,139.70	Rs.1,734.65	
S.O.R. No. 5.2.2 & 5.9.3										
	shuttering	2	1.50	1.50	0.15	3.15 M ²	P/M ²	Rs.291.00	Rs.916.65	
S.O.R. No. 13.17.1										
7	C.P. (1:3) with 5% Cico & neat cement	2	1.00	1.00	1.00	4.00 M ²				
+13.36.1										
	Bed surface	1	1.00	1.00		1.00 M ²				
						5.00 M ²	P/M ²	Rs.166.30	Rs.831.50	
S.O.R. No. 13.11.2										
8	C.P. (1:4) out side of wall	2	1.50	1.50	0.75	4.5 M ²	P/M ²	Rs.114.70	Rs.516.15	
S.O.R. No. 5.22.7A										
			0.338 M ³ x	70	Kg/ M ³	23.625 Kg.	P/Kg	Rs.56.00	Rs.1,323.00	
10	Lifting Ring of 10mm dia Rod					4 No.	Each	Rs.30.00	Rs.120.00	
									Total	Rs.12,580.41
										Rs.629.02
										<u>Rs.13,209.43</u>
									Say	Rs.13,210.00

Sub Est. No. 3

WATER SUPPLY DISTRIBUTION SYSTEM

S.N.	Particulars	Quantity	Unit	Rate	Amount
1A	Earthwork in excavation over areas (exceeding 30 cm in depth 1.5 in width as well as 10 sqm on plan) including disposal of excavated earth lead upto 50m and lift upto 1.5m, disposal earth to be levelled and neatly dressed.				
	75mm dia Pipe	150.00	0.30	1.10 =	49.50
	63mm dia Pipe	150.00	0.30	1.10 =	49.50
	50mm dia Pipe	300.00	0.30	1.10 =	99.00
	40mm dia Pipe	400.00	0.30	1.10 =	132.00
				330.00 M ³	
	Add 5% extra for fittings =			16.50 M ³	
				346.50 M ³	
1B	Provision for PCC road cutting and its restoration	11.25 M ³	P/M ³	Rs.230.50	Rs.79,868.25
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	339.57 M ³	P/M ³	Rs.74.50	Rs.25,297.97
3	Providing and laying High Density Polyethylene pipe (HDPE pipe) of 20 mm to 225 mm OD and pressure 6.0 Kg/cm ² and 10 Kg/cm ² suitable for water supply which is available in all standard, like ISI-4984/1995 and various grades like PE-80, PE-100 including required specials. Rates are inclusive of , all taxes and duties (Exise duty @12.50% & CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete as per direction of Engineer-in-charge.				
3A	HDPE pipe of materials grade PE100- PN10 (dia in mm)				
	75mm dia Pipe from PVC Tank to Distribution main	10.00 M	P/M	Rs.239.81	Rs.2,398.10
	75mm dia Pipe	150.00 M	P/M	Rs.239.81	Rs.35,971.50
	63mm dia Pipe	150.00 M	P/M	Rs.168.77	Rs.25,315.50
3B	HDPE pipe of materials grade PE100- PN8 (dia in mm)				
	50mm dia Pipe	300.00 M	P/M	Rs.89.99	Rs.26,997.00
	40mm dia Pipe	400.00 M	P/M	Rs.59.78	Rs.23,912.00
	40mm dia Pipe from T/well to PVC Tank	12.00 M	P/M	Rs.59.78	Rs.717.36
4	Providing and fixing brass gate valve with C.I. wheel of approved quality (screwed end).				
	75mm dia Pipe	3 Nos.	Each	Rs.1,351.60	Rs.4,054.80
	63mm dia Pipe	2 Nos.	Each	Rs.1,351.60	Rs.2,703.20
	50mm dia Pipe	2 Nos.	Each	Rs.811.40	Rs.1,622.80
	40mm dia Pipe	4 Nos.	Each	Rs.613.90	Rs.2,455.60

S.N.	Particulars	Quantity	Unit	Rate	Amount
5 18.33	Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size), necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard specifications & direction of E/I. Work for additional depth	9 Nos.	Each	Rs.5,807.50	Rs.52,267.50
	Brick work (1:4) in foundation				
	2 1.10 0.25 0.35 0.193				
	2 0.60 0.25 0.35 0.105				
					0.298
		2.678 CuM	CuM	Rs.4,724.40	Rs.12,649.58
	Plaster (1:3)				
	8 1.10 0.35 3.08	27.72 SqM	SqM	Rs.128.20	Rs.3,553.70
6	Carriage 10% of item 5				Rs.6,847.08
7 18.48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, ISI : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	5000 Ltrs.	P/Ltr.	Rs.6.60	Rs.33,000.00
8	Providing and fixing PTMT extension nipple for water tank pipe, fittings of approved quality and colour.				
	40mm dia	2 Nos.	each	Rs.250.00	Rs.500.00
	75mm dia	1 No.	each	Rs.400.00	Rs.400.00
					Rs.3,90,355.94

Sub Est. No. 4

Model estimate for supply, installation & commissioning of single phase 2 H.P submersible motor pump set with all accessories including extension of L.T. line from nearest source up-to

Sl. No.	Particulars	Quantity	Unit	Rate	Amount	
1	2	3	4	5	6	
[A]	<p>Supply Installation, commissioning and testing of single phase 2 H.P. submersible pump set having discharging capacity 2.5 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I.</p> <p>(i) 40 mm dia x 3 mtrs long medium class G.I column pipe both end threaded and one end socketed- 6(six)nos</p> <p>(ii) 1x3x1.5 mm² flat copper conductor submersible cable -40 (forty) mtrs.</p> <p>(iii) 40 mm dia union socket- 1(one) no.</p> <p>(iv) 50 mm dia x 250 mm long G.I. nipple- 1 (one) no.</p> <p>(v) 40 mm dia G.I Elbow—1(One) no.</p> <p>(vi) 40 mm dia M.S. clamps—2(Two) Pairs.</p> <p>(vii) 40 mmx 250 mm long G.I nipple- 1(One) no.</p> <p>(viii) Tube well cap for 125 mm dia T/Well – 1(one) no.</p> <p>(ix) 40 mm dia x 50 mm dia reducer socket –1(one) no.</p>	1	(one) job	p/job	Rs.30,500.00	Rs.30,500.00

[B]	Supply Installation, commissioning and testing of floor mounted outdoor type L.T feeder pillar single phase starter controll pannel operated on 220 V, 3 phase , 50 c/s for 2 HP Submersible pump set made of MS sheet (minimum 2 mm thick) duly spray power coated painting with following accessories made of M.S sheet (minimum 2mm thick) duly spray powder coated painting with following accessories (i) 95-272 V range single phase 5 KVA automatic voltage stabilizer make-Sen & Pandit/ Vertex/ISI marked If any. 1 No. (ii) Suitable single phase starter control panel for above motor of BCH /L&Tmake - 1(one) no.	1 (one) job	p/job	Rs.28,500.00	Rs.28,500.00
[C]	Supplying & fitting 2.5 mm ² copper service cable from power point from nearest source up-to pumping station..	20 mtrs	P/Mt	Rs.130.00	Rs.2,600.00
[D]	Providing all materials and labour required for doing earthing station with G.I earth pipe of 40 mm dia x 4.5 mtrs 20fts. long G.I pipe including accessories excavation of earth , providing masonry enclosure with cover plate having locking arrangement and watering pipe etc.with salt, charcoal,etc.as per IE & IS specification.	1 job	p/job	Rs.2,803.00	Rs.2,803.00
Total Rs.					Rs.64,403.00

Sub Est. No. 5

Estimate for the work - House service connection									
SUB-ESTIMATE									
S.No.	Description	Qty	Unit	Rate	Amount				
1A	Providing and fixing MDPE (PE 80 GradeCompound) pipes PN-12.5 (12.5kg/Sqcm) as per ISO 4427 and specification for waterapplication rates are inclusive of , taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete asper direction of Engineer-in-charge.complete.								
	MDPE Pipe 20mm dia nominal bore	6.00	PM	Rs.19.97		Rs.119.82			
1B	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall								
18.7.1	15 mm nomonal bore	1.0	PM	Rs.138.70		Rs.138.70			
2	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and amming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil								
2.8.1		6.00	0.30	0.60	1.08	1.08	CuM	Rs.230.50	Rs.248.94
3	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead								
2.26					1.06	1.06	CuM	Rs.74.50	Rs.78.85
4	Providing and fixing brass ferrule with CI mouth cover incuding boring and tapping the main:								
18.20.1	15mm nominal bore	1	Each	Rs.254.10		Rs.254.10			
	Providing and fixing P.P. Black service Saddle (Brass threaded)	1	Each	Rs.400.00		Rs.400.00			
5	Providing and fixing brass bib cock of approved quality :								
18.15.1	15mm nominal bore	1	Each	Rs.273.00		Rs.273.00			
	Total								Rs.1,513.41
	Say								Rs.1,513.00

Total Nos. of House Holds=

100 Nos. @

Rs.1,513.00

Rs.1,51,300.00

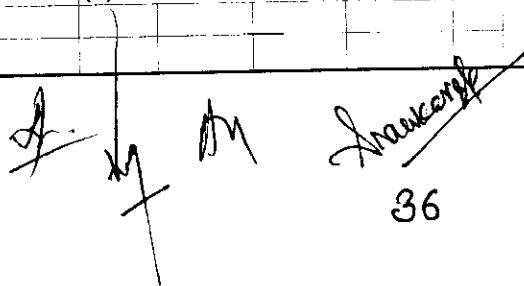
Sub Est. No. 6

8 M HIGH STEEL STRUCTURE STAGING FOR 5000/10000 LITER PVC TANK

S.N.	Particulars	Quantity	Unit	Rate	Amount
1 10.3	Structural steel work riveted or bolted in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved primer all complete for 8M high staging with ladder of ISA65x65x6 and 16mm dia MS bar as trade @ 400mm c/c and GI enclosure to house electric switch panel & treatment unit (where required) of suitably designed MS section of angle, channel, etc. as per drawing attached.	4224 Kg	P/Kg	Rs.69.20	Rs.2,92,300.80
2 2.8.1	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including rassing of sides and ramming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All Kinds of soil				
	base of footing				
	4 1.95 1.95 1.35 =				20.534
	Under Tie beam				
	2 2.30 0.25 0.275 =				0.316
	2 1.30 0.25 0.275 =				0.179
					21.029
		21.029 M ³	P/M ³	Rs.230.50	Rs.4,847.07
3- 2.28	Supplying and filling in plinth with local sand and under floors including watering, ramming consolidating and dressing complete.				
	base of footing				
	4 1.95 1.95 0.10 =				1.521
	Under Tie beam				
	2 3.95 0.25 0.10 =				0.198
	2 2.95 0.25 0.10 =				0.148
	Floor				
	1 4.00 3.00 0.10 =				1.200
					3.066
		3.066 M ³	P/M ³	Rs.204.40	Rs.626.69
4- 11.72	Providing designation of 100A Brick flat Soling, joints filled with local sand including cost of watering, taxes & royalty all complete as per specification & direction of E/l.				
	base of footing				
	4 1.95 1.95 =				15.210
	Under Tie beam				
	2 3.95 0.25 =				1.975
	2 2.95 0.25 =				1.475
	Floor				
	1 4.00 3.00 =				12.000
					30.660
		30.660 M ²	P/M ²	Rs.253.80	Rs.7,781.51
5 4.1.2	Providing and laying in position cement concrete of specified grade exluding the cost of centring and shuttering-all work upto plinth level. 1:1.5:3(1 Cement :1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)				
	base of footing				
	4 1.95 1.95 0.075 =				1.141
	Floor				
	1 4.00 3.00 0.10 =				1.200
					2.341
		2.341 M ³	P/M ³	Rs.4,373.20	Rs.10,236.57

S.N.	Particulars					Quantity	Unit	Rate	Amount	
6 5.1.2	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of entering, shuttering, finishing and reinforcement- All work upto plinth level									
	1:1:5:3(1 cement: 1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)									
	Tie beam									
	1	3.95	0.25	0.25	=	0.247				
	1	2.95	0.25	0.25	=	0.184				
	base of footing									
	4	1.80	1.80	0.30	=	3.888				
	4	0.45	0.45	0.15	=	0.122				
	Column below GL									
	4	0.30	0.30	0.65	=	0.234				
	Column above GL									
	4	0.30	0.30	0.15	=	0.054				
						4.729	4.729 M ³	P/M ³	Rs.4,530.30	Rs.21,422.66
7- 5.9.1	Centring and shuttering including strutting, propping etc. and removal of form for.									
	2	3.95	0.25		=	1.975				
	2	2.95	0.25		=	1.475				
	16	1.80	0.30		=	8.640				
	16	0.45	0.15		=	1.080				
	16	0.30	0.65		=	3.120				
	16	0.30	0.15		=	0.720				
						17.010	17.010 M ²	P/M ²	Rs.169.00	Rs.2,874.69
8- 5.2.2	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete.									
	8 mm to 16 mm tor steel									
	Total Reinforcement.									
	@1.25% of Vol. Of Concrete									
					=	464.00 Kg.	P/Kg.	Rs.56.00	Rs.25,984.00	
9 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of oundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead (50% of E/W in excavation)					10.514 M ³	P/M ³	Rs.74.50	Rs.783.31	
10 13.26	Neat cement punning									
	1	4.00	3.00		=	12.000	12.000 M ²	P/M ²	Rs.32.30	Rs.387.60
11- 10.7.1	Providing and fixing 1mm thick M.S. sheet door with frame of 40x40x6mm angle iron and 3mm M.S. gusset plates at the junctions and corners, all necessary fittings complete, including applying a priming coat of approved steel primer.									
	Using flats 30x6 mm for diagonal braces and central cross piece.									
	Door									
	1	0.9	2.10		=	1.890				
	Window									
	1	1.2	0.90		=	1.080				
				Total	=	2.970	2.970 M ³	P/M ³	Rs.2,503.00	Rs.7,433.91

S.N.	Particulars	Quantity	Unit	Rate	Amount	
12- 12.1.4	Providing corrugated G.S. sheet roofing fixed with G.I.J. or hooks, bolts and nuts 8 mm diameter with bitumen and G. I. limpet washers or with G.I. limpet washers filled with white lead and including a coat of approved steel primer and two coats of approved paint on over lapping of sheets complete (upto a pitch of 60°) excluding the cost of purlins, rafters and trusses. 0.8mm thick with zinc coating not less than 275 gm/mz					
	Roof					
	1 4.50 3.50 =	15.750				
	Wall					
	1 16.00 3.00 =	48.000				
		63.750				
	Deduct for door & window					
	1 0.9 2.10 =	1.890				
	1 1.2 0.90 =	1.080				
		2.970				
	Net Qty =	60.780	60.780 M ²	M ²	Rs.729.70	Rs.44,351.17
13 10.19	Providing and fixing anchor bolt of 16 mm dia and 0.60 Mtr length embedded in R.C.C pedestal all complete as per direction of Engineer in charge. @4x4x0.95kg	15.15 Kg	P/kg	Rs.73.60	Rs.1,115.04	
14- 13.82.1	Painting with ready mixed paint of approved brand and manufacture in all shades to give an even shade: New steel work (two or more coats)					
	Frame work					
	0.5 16.00 8.00 =	64.000				
	0.5 5.00 4.00 =	10.000				
	Roof sheet					
	2 4.50 3.50 =	31.500				
	Top sheet					
	2 5.00 4.00 =	40.000				
	GI sheet wall					
	2 16.00 3.00 =	96.000				
		241.500	241.50 M ²	M ²	Rs.63.60	Rs.15,359.40
15	Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & direction of E/I.					
	(a) Bricks (7 Km. Pucca & 1 Km. Kachha lead)	990 Nos.	%0 nos.	Rs.606.10	Rs.600.04	
	(b) Coarse Sand (100 Km. lead)	3.040 M ³	P/M ³	Rs.1,221.09	Rs.3,712.11	
	(c) Stone Chips (150 Km. lead)	6.070 M ³	P/M ³	Rs.1,746.29	Rs.10,599.98	
	(d) Local Sand (2 Km. Pucca & 1 Km. Kachha lead)	3.530 M ³	P/M ³	Rs.217.23	Rs.766.82	
				TOTAL	Rs.4,51,183.37	
				say	Rs.4,51,200.00	



 36



GOVERNMENT OF BIHAR

PUBLIC HEALTH ENGINEERING DEPARTMENT

MODEL ESTIMATE

FOR

CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME

FOR A WARD HAVING 100 HOUSEHOLDS

ESTIMATED COST-- Rs. 11.774 Lac

2017-18

GOVERNMENT OF BIHAR
Public Health Engineering Department
ABSTRACT OF COST

NAME OF WORK:- CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME FOR WARD HAVING 100 HOUSE HOLDS

S.N.	Description	Total Amount
1	Construction of 200/165 mm dia. 90 Mtr deep Drilled High Yield Tubewell By DTH RIG Machine with Blue casing U.P.V.C. Pipe etc. all complete and as per direction of E/I. (As per sub Estimate no.- 1)	Rs.95,242.91
2	Constructing masonry Chamber 100x100x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for Tube Well, and RCC top slab 1:1.5:3 mix (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:2:4(1 cement : 2 fine sand : 4 graded stone aggregate 20 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick with 5% cico fnished with a floating coat of neat cement, out side plastering with cement mortar 1:4 (1 cement : 4coarse sand) 12 mm thick complete as per standard specifications & direction of E/I. (As per sub Estimate no.- 2)	Rs.13,210.00
3	Providing and Laying Distrubtion network of High Density Polyethylene pipe (HDPE pipe) including 5000 liter PVC tank installed at 8M high MS staging etc all complete as per direction of E/I. (As per sub Estimate no.- 3)	Rs.3,90,355.94
4	Supply Installation, commissioning and testing of single phase 2 H.P. submersible pump set having discharging capacity 2.5 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I. (As per sub Estimate no.- 4)	Rs.64,403.00
5	Providing house connection for each house hold including supplying all materials, labours, tools and making ferrule connection with 20 mm dia MDPE and 15mm CPVC Pipes with all fittings etc all complete. (As per sub Estimate no.- 5)	Rs.1,51,300.00
6	Providing and erecting 8M high staging with ladder of ISA65x65x6 and 16mm dia MS bar as trade @ 400mm c/c and GI enclosure to house electric switch panel & treatment unit (where required) of suitably designed MS section of angle, channel, etc. as per drawing attached. (As per sub Estimate no.- 6)	Rs.4,51,200.00
TOTAL		Rs.11,65,711.85
Add 1% Contingency		Rs.11,657.12
G. TOTAL		Rs.11,77,368.97
Say		Rs.11,77,400.00

(Rs. Eleven Lakh Seventy seven Thousand Four Hundred) only

note:

- i) Road cutting cost may increase or decrease as per actuals.
- ii) Strongly advised that pipeline should be laid before construction of Naali-Gali.
- iii) This is a model estimate. Hence the quantity may increase or decrease based on actual site conditions.

Variable inter alia includes

- i) Hydro geomorphological condition.
- ii) Location of source vis-à-vis population/ house holds.
- iii) Quality of works and materials shall be maintained as per standard specifications and direction of E/I.

Technical approval accorded for Rs.11,77,400.00 (Rs. Eleven Lakh Seventy seven Thousand Four Hundred) only

[Handwritten signatures and initials]

[Handwritten signature and date: 10.4.19]

Estimate no.- 1

MODEL ESTIMATE OF CONSTRUCTION OF 200/165 MM DIA. 90 MTR DEEP DRILLED HIGH YIELD TUBEWELL BY DTH RIG MACHINE WITH BLUE CASING U.P.V.C. PIPE					
S. NO.	Particulars	Quantity	unit	Rate	Amount
1(A)	Drilling of 200mm x 165mm x 125 meter deep borewell in all kinds of soil and rock in rural area for installation of pump set with Hydraulic DTH Rig machine, all complete including supplying all materials, tools, drilling rig, Air Compressor and equipments, as well as fuel, lubricants and cost of transportation of Rig machine and other vehicles up to the site etc all complete as per specification and direction of E/I.				
5					
6	(i) Up to 50 mtrs depth below GL	50	P/M	Rs.729.52	Rs.36,476.00
7	(ii) Beyond 50 mtrs. Up to 90 Mtrs.	40	P/M	Rs.867.88	Rs.34,715.20
8	2	24	P/M	Rs.921.70	Rs.22,120.80
	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC (UPVC) medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer -in-charge. (200mm dia)				
9	3	1	Each	Rs.51.01	Rs.51.01
	Supplying labour, cement and calcium chloride or betonites solution and equipments for grouting to casing pipe as per specification and direction of E/I.				
10	4	2.5	P/Hr	Rs.649.40	Rs.1,623.50
	Supplying all tools labors and equipments and doing washing flushing & developing of drilled tube well to give clean and clear water (min. 2.50 Hours)all complete as per direction of E/I.				
11	5	1	Each	Rs.256.40	Rs.256.40
	Supplying labors and equipments including 200 mm dia M.S. Cap & Fitting & Fixing over the tube well properly and taking out as per direction of E/I.				
12	TOTAL				Rs.95,242.91

(Sub Estimate - 2)

Analysis of Chamber for TW

Supplying materials, labours and constructing chamber of following dimension having 250mm thick wall in C.M. (1:4) including 12mm C.P. (1:3) with punning inside, R.C.C. cover slab with C.I. Surface box, 20mm dia foot rest at 150mm interval 10mm dia lifting ring etc. all complete.

SIZE	1.00 M	x	1.00 M	x	0.75 M deep
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<u>S.O.R. No.</u>	<u>Particulars</u>	<u>No.</u>	<u>L</u>	<u>W</u>	<u>H</u>	<u>Qty.</u>	<u>Unit</u>	<u>Rate</u>	<u>Amount</u>
1	Earth work in excavation	1	1.75	1.75	1.0	3.063 M ³	P/M ³	Rs.230.50	Rs.705.91
S.O.R. No. 2.8									
2	Sand filling	1	1.75	1.75	0.075	0.230 M ³	P/M ³	Rs.204.40	Rs.46.95
S.O.R. No. 2.28									
3	Brick flat soling	1	1.75	1.75		3.063 M ²	P/M ²	Rs.253.80	Rs.777.26
S.O.R. 11.72									
4	P.C.C. (1:2:4) in foundation	1	1.75	1.75	0.10	0.306 M ³			
S.O.O. 4.1.3						0.306 M ³	P/M ³	Rs.3,850.50	Rs.1,179.22
5	B/Work in (1:4) C.M.	2	2.50	0.25	0.75	0.938 M ³	P/M ³	Rs.4,724.40	Rs.4,429.13
S.O.R. No. 6.1.12/1									
6	R.C.C. Cover slab(1:1.5:3)	1	1.50	1.50	0.15	0.338 M ³	P/M ³	Rs.5,139.70	Rs.1,734.65
S.O.R. No. 5.2.2 & 5.9.3									
	shuttering	2	1.50	1.50	0.15	3.15 M ²	P/M ²	Rs.291.00	Rs.916.65
7	C.P. (1:3) with 5% Cico & neat cement								
S.O.R. Internal face		2	1.00	1.00	1.00	4.00 M ²			
No. Bed surface		1	1.00	1.00		1.00 M ²			
+13.36.1						5.00 M ²	P/M ²	Rs.166.30	Rs.831.50
8	C.P. (1:4) out side of wall	2	1.50	1.50	0.75	4.5 M ²	P/M ²	Rs.114.70	Rs.516.15
S.O.R. No. 13.11.2									
9	8mm dia T.S. Rod								
S.O.R. No. 5.22.7A									
			0.338 M ³ x		70 Kg/M ³	23.625 Kg.	P/Kg	Rs.56.00	Rs.1,323.00
10	Lifting Ring of 10mm dia Rod					4 No.	Each	Rs.30.00	Rs.120.00
11	Carriage of materials 5%								
								Total	Rs.12,580.41
									Rs.629.02
									<u>Rs.13,209.43</u>

Say Rs.13,210.00

Sub Est. No. 3

WATER SUPPLY DISTRIBUTION SYSTEM

S.N.	Particulars	Quantity	Unit	Rate	Amount
1A	Earthwork in excavation over areas (exceeding 30 cm in depth 1.5 in width as well as 10 sqm on plan) including disposal of excavated earth lead upto 50m and lift upto 1.5m, disposal earth to be levelled and neatly dressed.				
	75mm dia Pipe	150.00	0.30	1.10 =	49.50
	63mm dia Pipe	150.00	0.30	1.10 =	49.50
	50mm dia Pipe	300.00	0.30	1.10 =	99.00
	40mm dia Pipe	400.00	0.30	1.10 =	132.00
				330.00 M ³	
	Add 5% extra for fittings =			16.50 M ³	
				346.50 M ³	P/M ³
				11.25 M ³	P/M ³
					Rs.230.50
					Rs.79,868.25
1B	Provision for PCC road cutting and its restoration				
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.				
		339.57 M ³	P/M ³	Rs.74.50	Rs.25,297.97
3	Providing and laying High Density Polyethylene pipe (HDPE pipe) of 20 mm to 225 mm OD and pressure 6.0 Kg/cm ² and 10 Kg/cm ² suitable for water supply which is available in all standard, like ISI-4984/1995 and various grades like PE-80, PE-100 including required specials. Rates are inclusive of , all taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete as per direction of Engineer-in-charge.				
3A	HDPE pipe of materials grade PE100- PN10 (dia in mm)				
	75mm dia Pipe from PVC Tank to Distribution main	10.00 M	P/M	Rs.239.81	Rs.2,398.10
	75mm dia Pipe	150.00 M	P/M	Rs.239.81	Rs.35,971.50
	63mm dia Pipe	150.00 M	P/M	Rs.168.77	Rs.25,315.50
3B	HDPE pipe of materials grade PE100- PN8 (dia in mm)				
	50mm dia Pipe	300.00 M	P/M	Rs.89.99	Rs.26,997.00
	40mm dia Pipe	400.00 M	P/M	Rs.59.78	Rs.23,912.00
	40mm dia Pipe from T/well to PVC Tank	12.00 M	P/M	Rs.59.78	Rs.717.36
4	Providing and fixing brass gate valve with C.I. wheel of approved quality (screwed end).				
	75mm dia Pipe	3 Nos.	Each	Rs.1,351.60	Rs.4,054.80
	63mm dia Pipe	2 Nos.	Each	Rs.1,351.60	Rs.2,703.20
	50mm dia Pipe	2 Nos.	Each	Rs.811.40	Rs.1,622.80
	40mm dia Pipe	4 Nos.	Each	Rs.613.90	Rs.2,455.60

S.N.	Particulars	Quantity	Unit	Rate	Amount
5 18.33	Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size), necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard specifications & direction of E/I.	9 Nos.	Each	Rs.5,807.50	Rs.52,267.50
	Work for additional depth				
	Brick work (1:4) in foundation				
	2 1.10 0.25 0.35 0.193				
	2 0.60 0.25 0.35 0.105				
		2.678	CuM	Rs.4,724.40	Rs.12,649.58
	Plaster (1:3)				
	8 1.10 0.35 3.08	27.72	SqM	Rs.128.20	Rs.3,553.70
6	Carriage 10% of item 5				Rs.6,847.08
7 18.48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, ISI : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	5000 Ltrs.	P/Ltr.	Rs.6.60	Rs.33,000.00
8	Providing and fixing PTMT extension nipple for water tank pipe, fittings of approved quality and colour.				
	40mm dia	2 Nos.	each	Rs.250.00	Rs.500.00
	75mm dia	1 No.	each	Rs.400.00	Rs.400.00
				TOTAL	Rs.3,90,355.94

Sub Est. No. 4

Model estimate for supply, installation & commissioning of single phase 2 H.P submersible motor pump set with all accessories including extension of L.T. line from nearest source up-to pumping

Sl. No.	Particulars	Quantity	Unit	Rate	Amount	
1	2	3	4	5	6	
[A]	Supply Installation, commissioning and testing of single phase 2 H.P. submersible pump set having discharging capacity 2.5 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I.	1	(one) job	p/job	Rs.30,500.00	Rs.30,500.00
	(i) 40 mm dia x 3 mtrs long medium class G.I column pipe both end threaded and one end socketed- 6(six)nos					
	(ii) 1x3x1.5 mm ² flat copper conductor submersible cable -40 (forty) mtrs.					
	(iii) 40 mm dia union socket- 1(one) no.					
	(iv) 50 mm dia x 250 mm long G.I. nipple- 1 (one) no.					
	(v) 40 mm dia G.I Elbow—1(One) no.					
	(vi) 40 mm dia M.S. clamps—2(Two) Pairs.					
	(vii) 40 mmx 250 mm long G.I nipple- 1(One) no.					
	(viii) Tube well cap for 125 mm dia T/Well – 1(one) no.					
	(ix) 40 mm dia x 50 mm dia reducer socket –1(one) no.					

[B]	Supply Installation, commissioning and testing of floor mounted outdoor type L.T feeder pillar single phase starter controll pannel operated on 220 V, 3 phase , 50 c/s for 2 HP Submersible pump set made of MS sheet (minimum 2 mm thick) duly spray power coated painting with following accessories made of M.S sheet (minimum 2mm thick) duly spray powder coated painting with following accessories (i) 95-272 V range single phase 5 KVA automatic voltage stabilizer make- Sen & Pandit/ Vertex/ISI marked If any. 1 No. (ii) Suitable single phase starter control panel for above motor of BCH /L&Tmake – 1(one) no.	1 (one) job	p/job	Rs.28,500.00	Rs.28,500.00
[C]	Supplying & fitting 2.5 mm ² copper service cable from power point from nearest source up-to pumping station..	20 mtrs	P/Mt	Rs.130.00	Rs.2,600.00
[D]	Providing all materials and labour required for doing earthing station with G.I earth pipe of 40 mm dia x 4.5 mtrs 20fts. long G.I pipe including accessories excavation of earth , providing masonry enclosure with cover plate having locking arrangement and watering pipe etc.with salt, charcoal,etc.as per IE & IS specification.	1 job	p/job	Rs.2,803.00	Rs.2,803.00
Total Rs.					Rs.64,403.00

Sub Est. No. 5

Estimate for the work - House service connection								
SUB-ESTIMATE								
S.No.	Description	Qty	Unit	Rate	Amount			
1A	Providing and fixing MDPE (PE 80 GradeCompound) pipes PN-12.5 (12.5kg/Sqcm) as per ISO 4427 and specification for waterapplication rates are inclusive of , taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete asper direction of Engineer-in-charge.complete.							
	MDPE Pipe 20mm dia nominal bore	6.00	PM	Rs.19.97		Rs.119.82		
1B	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall							
18.7.1	15 mm nomonal bore	1.0	PM	Rs.138.70		Rs.138.70		
2	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and amming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil							
2.8.1		6.00	0.30	0.60	1.08	CuM	Rs.230.50	Rs.248.94
3 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead	1.06	CuM	Rs.74.50		Rs.78.85		
4	Providing and fixing brass ferrule with CI mouth cover incuding boring and tapping the main:							
18.20.1	15mm nominal bore	1	Each	Rs.254.10		Rs.254.10		
	Providing and fixing P.P. Black service Saddle (Brass threaded)	1	Each	Rs.400.00		Rs.400.00		
5	Providing and fixing brass bib cock of approved quality :							
18.15.1	15mm nominal bore	1	Each	Rs.273.00		Rs.273.00		
	Total					Rs.1,513.41		
	Say					Rs.1,513.00		

Total Nos. of House Holds=

100 Nos. @

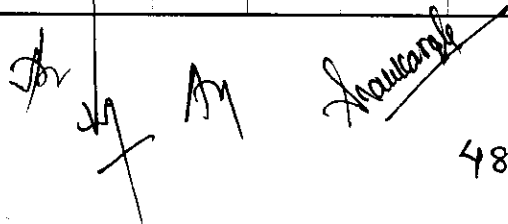
Rs.1,513.00

Rs.1,51,300.00

Sub Est. No. 6								
8 M HIGH STEEL STRUCTURE STAGING FOR 5000/10000 LITER PVC TANK								
S.N.	Particulars				Quantity	Unit	Rate	Amount
1 10.3	Structural steel work riveted or bolted in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved primer all complete for 8M high staging with ladder of ISA65x65x6 and 16mm dia MS bar as trade @ 400mm c/c and GI enclosure to house electric switch panel & treatment unit (where required) of suitably designed MS section of angle, channel, etc. as per drawing attached.				4224 Kg	P/Kg	Rs.69.20	Rs.2,92,300.80
2 2.8.1	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including rassing of sides and ramming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All Kinds of soil							
	base of footing							
	4	1.95	1.95	1.35	=			20.534
	Under Tie beam							
	2	2.30	0.25	0.275	=			0.316
	2	1.30	0.25	0.275	=			0.179
								21.029
						21.029 M ³		Rs.4,847.07
3- 2.28	Supplying and filling in plinth with local sand and under floors including watering, ramming consolidating and dressing complete.							
	base of footing							
	4	1.95	1.95	0.10	=			1.521
	Under Tie beam							
	2	3.95	0.25	0.10	=			0.198
	2	2.95	0.25	0.10	=			0.148
	Floor							
	1	4.00	3.00	0.10	=			1.200
								3.066
						3.066 M ³	Rs.204.40	Rs.626.69
4- 11.72	Providing designation of 100A Brick flat Soling joints filled with local sand including cost of watering, taxes & royalty all complete as per specification & direction of E/I.							
	base of footing							
	4	1.95	1.95		=			15.210
	Under Tie beam							
	2	3.95	0.25		=			1.975
	2	2.95	0.25		=			1.475
	Floor							
	1	4.00	3.00		=			12.000
								30.660
						30.660 M ²	Rs.253.80	Rs.7,781.51
5 4.1.2	Providing and laying in position cement concrete of specified grade exluding the cost of centring and shuttering-all work upto plinth level. 1:1.5:3(1 Cement :1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)							
	base of footing							
	4	1.95	1.95	0.075	=			1.141
	Floor							
	1	4.00	3.00	0.10	=			1.200
								2.341
						2.341 M ³	Rs.4,373.20	Rs.10,236.57

S.N.	Particulars				Quantity	Unit	Rate	Amount	
6 5.1.2	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of entering, shuttering, finishing and reinforcement. All work upto plinth level								
	1:1.5:3(1 cement: 1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)								
	Tie beam								
	1	3.95	0.25	0.25 =	0.247				
	1	2.95	0.25	0.25 =	0.184				
	base of footing								
	4	1.80	1.80	0.30 =	3.888				
	4	0.45	0.45	0.15 =	0.122				
	Column below GL								
	4	0.30	0.30	0.65 =	0.234				
	Column above GL								
	4	0.30	0.30	0.15 =	0.054				
					4.729	4.729 M ³	P/M ³	Rs.4,530.30	Rs.21,422.66
7- 5.9.1	Centring and shuttering including strutting, propping etc. and removal of form for.								
	2	3.95	0.25	=	1.975				
	2	2.95	0.25	=	1.475				
	16	1.80	0.30	=	8.640				
	16	0.45	0.15	=	1.080				
	16	0.30	0.65	=	3.120				
	16	0.30	0.15	=	0.720				
					17.010	17.010 M ²	P/M ²	Rs.169.00	Rs.2,874.69
8- 5.2.2	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete.								
	8 mm to 16 mm tor steel								
	Total Reinforcement @1.25% of Vol. Of Concrete				=	464.00 Kg.	P/Kg.	Rs.56.00	Rs.25,984.00
9 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of oundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead (50% of E/W in excavation)				10.514 M ³	P/M ³	Rs.74.50	Rs.783.31	
10 13.26	Neat cement punning								
	1	4.00	3.00	=	12.000	12.000 M ²	P/M ²	Rs.32.30	Rs.387.60
11- 10.7.1	Providing and fixing 1mm thick M.S. sheet door with frame of 40x40x6mm angle iron and 3mm M.S. gusset plates at the junctions and corners, all necessary fittings complete, including applying a priming coat of approved steel primer.								
	Using flats 30x6 mm for diagonal braces and central cross piece.								
	Door								
	1	0.9	2.10	=	1.890				
	Window								
	1	1.2	0.90	=	1.080				
				Total =	2.970	2.970 M ³	P/M ³	Rs.2,503.00	Rs.7,433.91

S.N.	Particulars	Quantity	Unit	Rate	Amount	
12-12.1.4	Providing corrugated G.S. sheet roofing fixed with G.I.J. or hooks, bolts and nuts 8 mm diameter with bitumen and G. I. limpet washers or with G.I. limpet washers filled with white lead and including a coat of approved steel primer and two coats of approved paint on over lapping of sheets complete (upto a pitch of 60°) excluding the cost of purlins, rafters and trusses. 0.8mm thick with zinc coating not less than 275 gm/mz					
	Roof					
	1 4.50 3.50 =				15.750	
	Wall					
	1 16.00 3.00 =				48.000	
					63.750	
	Deduct for door & window					
	1 0.9 2.10 =				1.890	
	1 1.2 0.90 =				1.080	
					2.970	
	Net Qty =	60.780	M ²	Rs.729.70	Rs.44,351.17	
13-10.19	Providing and fixing anchor bolt of 16 mm dia and 0.60 Mtr length embedded in R.C.C pedestal all complete as per direction of Engineer in charge. @4x4x0.95kg	15.15	Kg	P/kg	Rs.73.60	Rs.1,115.04
14-13.82.1	Painting with ready mixed paint of approved brand and manufacture in all shades to give an even shade: New steel work (two or more coats)					
	Frame work					
	0.5 16.00 8.00 =				64.000	
	0.5 5.00 4.00 =				10.000	
	Roof sheet					
	2 4.50 3.50 =				31.500	
	Top sheet					
	2 5.00 4.00 =				40.000	
	GI sheet wall					
	2 16.00 3.00 =				96.000	
		241.50	M ²	Rs.63.60	Rs.15,359.40	
15	Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & direction of E/I.					
	(a) Bricks (7 Km. Pucca & 1 Km. Kachha lead)	990 Nos.	%0 nos.	Rs.606.10	Rs.600.04	
	(b) Coarse Sand (100 Km. lead)	3.040 M ³	P/M ³	Rs.1,221.09	Rs.3,712.11	
	(c) Stone Chips (150 Km. lead)	6.070 M ³	P/M ³	Rs.1,746.29	Rs.10,599.98	
	(d) Local Sand (2 Km. Pucca & 1 Km. Kachha lead)	3.530 M ³	P/M ³	Rs.217.23	Rs.766.82	
				TOTAL	Rs.4,51,183.37	
				say	Rs.4,51,200.00	



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GOVERNMENT OF BIHAR

PUBLIC HEALTH ENGINEERING DEPARTMENT

MODEL ESTIMATE

FOR

CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME

FOR A WARD HAVING 150 HOUSE HOLDS

ESTIMATED COST-- Rs. 14.703 Lac

2017-18

GOVERNMENT OF BIHAR
Public Health Engineering Department
ABSTRACT OF COST

NAME OF WORK:- CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME FOR WARD HAVING 150 HOUSE HOLDS

S.N.	Description	Total Amount
1	Construction of 150mm X 90m deep Gravel packed T/W etc. all complete and as per direction of E/I. (As per sub Estimate no.- 1)	Rs.1,65,744.00
2	Constructing masonry Chamber 100x100x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for Tube Well, and RCC top slab 1:1.5:3 mix (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:2:4(1 cement : 2 fine sand : 4 graded stone aggregate 20 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick with 5% cico finished with a floating coat of neat cement, out side plastering with cement mortar 1:4 (1 cement : 4coarse sand) 12 mm thick complete as per standard specifications & direction of E/I. (As per sub Estimate no.- 2)	Rs.13,210.00
3	Providing and Laying Distribution network of High Density Polyethylene pipe (HDPE pipe) including 10000 liter PVC tank installed at 8M high MS staging etc all complete as per direction of E/I. (As per sub Estimate no.- 3)	Rs.5,05,053.21
4	Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I. (As per sub Estimate no.- 4)	Rs.93,603.00
5	Providing house connection for each house hold including supplying all materials, labours, tools and making ferrule connection with 20 mm dia MDPE and 15mm CPVC Pipes with all fittings etc all complete. (As per sub Estimate no.- 5)	Rs.2,26,950.00
6	Providing and erecting 8M high staging with ladder of ISA65x65x6 and 16mm dia MS bar as trade @ 400mm c/c and GI enclosure to house electric switch panel & treatment unit (where required) of suitably designed MS section of angle, channel, etc. as per drawing attached. (As per sub Estimate no.- 6)	Rs.4,51,200.00
TOTAL		Rs.14,55,760.21
Add 1% Contingency		Rs.14,557.60
G. TOTAL		Rs.14,70,317.81
Say		Rs.14,70,300.00

(Rs. Fourteen Lakh Seventy Thousand Three Hundred) only

note:

- i) Road cutting cost may increase or decrease as per actuals.
- ii) Strongly advised that pipeline should be laid before construction of Naali-Gali.
- iii) This is a model estimate. Hence the quantity may increase or decrease based on actual site conditions.

Variable inter alia includes

- i) Hydro geomorphological condition.
- ii) Location of source vis-à-vis population/ house holds.
- iii) Quality of works and materials shall be maintained as per standard specifications and direction of E/I.

Technical approval accorded for Rs.14,70,300.00 (Rs. Fourteen Lakh Seventy Thousand Three Hundred) only

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(Sub Estimate - 1)

(A) Construction of 150mm X 90m deep Gravel packed T/W					
S. No.	Particulars	Quantity	Unit	Rate	Amount
1	Transportation of machine, equipments including all accessories etc.	1 No.	Each	Rs.1,010.00	Rs.1,010.00
2	Boring/drilling bore well of required dia for casing/strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer-in-charge, upto 90 metre depth below ground level. (All types of soil)				
	400mm dia bore from GL to 90.0M	90 Mtr.	P/M	Rs.529.30	Rs.47,637.00
3A	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC (UPVC) medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer-in-charge.				
	(a) 150 mm nominal size dia	59 M	P/M	Rs.615.30	Rs.36,302.70
3B	Supplying, assembling, lowering and fixing in vertical position in bore well unplasticized PVC (UPVC) medium well screen (RMS) pipes with ribs, conforming to IS: 12818, including hire & labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer-in-charge.				
	150 mm nominal size dia	30.0 M	P/M	Rs.554.30	Rs.16,629.00
4	Supplying fitting & fixing the following Fitting of approved make and specification at work site complete job.				
	(a) 150mm center guide Nos. in each T/W	9 Nos.	Each	Rs.150.00	Rs.1,350.00
	(b) 150 mm dia well plug	1 No	Each	Rs.205.10	Rs.205.10
	(b) 150 mm dia M.S. Clamp 1.6 M long (one Pair)	1 No	Each	Rs.1,031.10	Rs.1,031.10
5	Supplying 3mm to 6 mm Well washed assorted pea gravel and doing surrounding around the annular space between bore hole & 125mm pipe uniformity up to the depth 10 mtr. below G.L all work complete as per direction of E/I.	11 M ³	P/M ³	Rs.917.00	Rs.10,087.00
6	Carriage of Pea gravel from Dhalbhumigarh (taken av distance 400Km)	11 M ³	P/M ³	Rs.4,336.54	Rs.47,701.94
7	Supplying all materials laobours and equipments to seal T/W up to the depth of 12 mtr below G.L. by Sticky clay to prevent contamination from surface from all complete job as per direction of E/I.	1 Item	Each	Rs.51.01	Rs.51.01
8	Supplying all materials laobours and equipments including 150mm dia G.I. Cap /C.I. Cap over the casing of 150mm dia T/W properly all complete.	1 No.	Each	Rs.205.10	Rs.205.10
9	Carriage of necessary equipment & materials.	1 No.	Each	Rs.287.50	Rs.287.50
10	Supplying all tools equipments & labour for flushing washing and developing the T/W to give clean & clear water and all complete job as per direction of E/I.	5 H	P / H	Rs.649.40	Rs.3,247.00
TOTAL					Rs.1,65,744.45
Say					Rs.1,65,744.00

(Sub Estimate - 2)

Analysis of Chamber for TW

Supplying materials, labours and constructing chamber of following dimension having 250mm thick wall in C.M. (1:4) including 12mm C.P. (1:3) with punning inside, R.C.C. cover slab with C.I. Surface box, 20mm dia foot rest at 150mm interval 10mm dia lifting ring etc. all complete.

SIZE	1.00 M	x	1.00 M	x	0.75 M deep
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<u>S.O.R. No.</u>	<u>Particulars</u>	<u>No.</u>	<u>L</u>	<u>W</u>	<u>H</u>	<u>Qty.</u>	<u>Unit</u>	<u>Rate</u>	<u>Amount</u>
1	Earth work in excavation	1	1.75	1.75	1.0	3.063 M ³	P/M ³	Rs.230.50	Rs.705.91
S.O.R. No. 2.8									
2	Sand filling	1	1.75	1.75	0.075	0.230 M ³	P/M ³	Rs.204.40	Rs.46.95
S.O.R. No. 2.28									
3	Brick flat soling	1	1.75	1.75		3.063 M ²	P/M ²	Rs.253.80	Rs.777.26
S.O.R. 11.72									
4	P.C.C. (1:2:4) in foundation	1	1.75	1.75	0.10	0.306 M ³			
S.O.O. 4.1.3									
						0.306 M ³	P/M ³	Rs.3,850.50	Rs.1,179.22
5	B/Work in (1:4) C.M.	2	2.50	0.25	0.75	0.938 M ³	P/M ³	Rs.4,724.40	Rs.4,429.13
S.O.R. No. 6.1.12/1									
6	R.C.C. Cover slab(1:1.5:3)	1	1.50	1.50	0.15	0.338 M ³	P/M ³	Rs.5,139.70	Rs.1,734.65
S.O.R. No. 5.2.2 & 5.9.3									
	shuttering	2	1.50	1.50	0.15	3.15 M ²	P/M ²	Rs.291.00	Rs.916.65
7	C.P. (1:3) with 5% Cico & neat cement								
S.O.R. Internal face									
	Bed surface	1	1.00	1.00		1.00 M ²			
+13.36.1									
						5.00 M ²	P/M ²	Rs.166.30	Rs.831.50
8	C.P. (1:4) out side of wall	2	1.50	1.50	0.75	4.5 M ²	P/M ²	Rs.114.70	Rs.516.15
S.O.R. No. 13.11.2									
9	8mm dia T.S. Rod								
S.O.R. No. 5.22.7A									
			0.338 M ³ x	70	Kg/ M ³	23.625 Kg.	P/Kg	Rs.56.00	Rs.1,323.00
10	Lifting Ring of 10mm dia Rod					4 No.	Each	Rs.30.00	Rs.120.00
									Total
									Rs.12,580.41
									Rs.629.02
									<u>Rs.13,209.43</u>
									Say Rs.13,210.00

Sub Est. No. 3

WATER SUPPLY DISTRIBUTION SYSTEM

S.N.	Particulars	Quantity	Unit	Rate	Amount	
1A	Earthwork in excavation over areas (exceeding 30 cm in depth 1.5 in width as well as 10 sqm on plan) including disposal of excavated earth lead upto 50m and lift upto 1.5m, disposal earth to be levelled and neatly dressed.					
	75mm dia Pipe	195.00	0.30	1.10 =	64.35	
	63mm dia Pipe	195.00	0.30	1.10 =	64.35	
	50mm dia Pipe	390.00	0.30	1.10 =	128.70	
	40mm dia Pipe	520.00	0.30	1.10 =	171.60	
		429.00	M ³			
	Add 5% extra for fittings =	21.45	M ³			
		450.45	M ³	P/M ³	Rs.230.50	Rs.1,03,828.73
1B	Provision for PCC road cutting and its restoration	14.63	M ³	P/M ³	Rs.4,428.80	Rs.64,793.34
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	441.44	M ³	P/M ³	Rs.74.50	Rs.32,887.35
3	Providing and laying High Density Polyethylene pipe (HDPE pipe) of 20 mm to 225 mm OD and pressure 6.0 Kg/cm ² and 10 Kg/cm ² suitable for water supply which is available in all standard, like ISI-4984/1995 and various grades like PE-80, PE-100 including required specials. Rates are inclusive of , all taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete as per direction of Engineer-in-charge.					
3A	HDPE pipe of materials grade PE100- PN10 (dia in mm)					
	75mm dia Pipe from PVC Tank to Distribution main	14.00	M	P/M	Rs.239.81	Rs.3,357.34
	75mm dia Pipe	195.00	M	P/M	Rs.239.81	Rs.46,762.95
	63mm dia Pipe	195.00	M	P/M	Rs.168.77	Rs.32,910.15
3B	HDPE pipe of materials grade PE100- PN8 (dia in mm)					
	50mm dia Pipe	390.00	M	P/M	Rs.89.99	Rs.35,096.10
	40mm dia Pipe	520.00	M	P/M	Rs.59.78	Rs.31,085.60
	50mm dia Pipe from T/well to PVC Tank	12.00	M	P/M	Rs.89.99	Rs.1,079.88
4	Providing and fixing brass gate valve with C.I. wheel of approved quality (screwed end).					
	75mm dia Pipe		3 Nos.	Each	Rs.1,351.60	Rs.4,054.80
	63mm dia Pipe		2 Nos.	Each	Rs.1,351.60	Rs.2,703.20
	50mm dia Pipe		3 Nos.	Each	Rs.811.40	Rs.2,434.20
	40mm dia Pipe		3 Nos.	Each	Rs.613.90	Rs.1,841.70

S.N.	Particulars	Quantity	Unit	Rate	Amount
5 18.33	Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size), necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard specifications & direction of E/I.	9	Nos. Each	Rs.5,807.50	Rs.52,267.50
	Work for additional depth				
	Brick work (1:4) in foundation				
	2 1.10 0.25 0.35 0.193				
	2 0.60 0.25 0.35 0.105				
	0.298 2.678 CuM CuM			Rs.4,724.40	Rs.12,649.58
	Plaster (1:3)				
	8 1.10 0.35 3.08	27.72	SqM SqM	Rs.128.20	Rs.3,553.70
6	Carriage 10% of item 5				Rs.6,847.08
7 18.48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, ISI : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	10000	Ltrs. P/Ltr.	Rs.6.60	Rs.66,000.00
8	Providing and fixing PTMT extension nipple for water tank pipe, fittings of approved quality and colour.				
	50mm dia	2	Nos. each	Rs.250.00	Rs.500.00
	75mm dia	1	No. each	Rs.400.00	Rs.400.00
				TOTAL	Rs.5,05,053.21

Sub Est. No. 4

Model estimate for supply, installation & commissioning of single phase 3 H.P submersible motor pump set with all accessories including extension of L.T. line from nearest source up-to pumping station.

Sl. No.	Particulars	Quantity	Unit	Rate	Amount
1	2	3	4	5	6
[A.]	<p>Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of F/I.</p> <p>(i) 50 mm dia x 3 mtrs long medium class G.I column pipe both end thread and one end socketed- 6(six)nos</p> <p>(ii) 1x3x2.5 mm² flat copper conductor submersible cable -40 (forty) mtrs.</p> <p>(iii) 50 mm dia union socket- 1(one) no.</p> <p>(iv) 65 mm dia x 250 mm long G.I. nipple- 1 (one) no.</p> <p>(v) 50 mm dia G.I Elbow—1(One) no.</p> <p>(vi) 50 mm dia M.S. clamps—2(Two) Pairs.</p> <p>(vii) 50 mmx 250 mm long G.I nipple- 1(One) no.</p> <p>(viii) Tube well cap for T/Well - 1(one) no.</p> <p>(ix) 50 mm dia x 65 mm dia reducer socket -1(one) no.</p>	1 (one) job	p/job	Rs.42,700.00	Rs.42,700.00

[B]	Supply Installation, commissioning and testing of floor mounted outdoor type L.T feeder pillar single phase starter controll pannel operated on 220 V, 3 phase , 50 c/s for 3 HP Submersible pump set made of MS sheet (minimum 2 mm thick) duly spray power coated painting with following accessories made of M.S sheet (minimum 2mm thick) duly spray powder coated painting with following accessories (i) 90-220 V range single phase 7.5 KVA automatic voltage stabilizer make- Sen & Pandit/ Vertex/ISI marked If any. 1 No. (ii) Suitable single phase starter control panel for above motor of BCH /L&Tmake – 1(one) no.	1 (one) job	p/job	Rs.45,500.00	Rs.45,500.00
[C]	Supplying & fitting 2.5 mm ² copper service cable from power point from nearest source up-to pumping station..	20 mtrs	P/Mt	Rs.130.00	Rs.2,600.00
[D]	Providing all materials and labour required for doing earthing station with G.I earth pipe of 40 mm dia x 4.5 mtrs 20fts. long G.I pipe including accessories excavation of earth , providing masonry enclosure with cover plate having locking arrangement and watering pipe etc.with salt, charcoal,etc.as per IE & IS specification.	1 job	p/job	Rs.2,803.00	Rs.2,803.00
				Total Rs.	Rs.93,603.00

Sub Est. No. 5

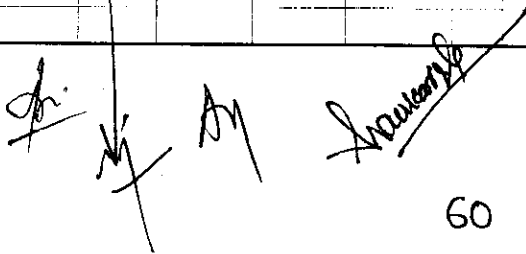
Estimate for the work - House service connection						
SUB-ESTIMATE						
S.No.	Description	Qty	Unit	Rate	Amount	
1A	Providing and fixing MDPE (PE 80 GradeCompound) pipes PN-12.5 (12.5kg/Sqcm) as per ISO 4427 and specification for waterapplication rates are inclusive of , taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete asper direction of Engineer-in-charge.complete.					
	MDPE Pipe 20mm dia nominal bore	6.00	PM	Rs.19.97		Rs.119.82
1B	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall					
18.7.1	15 mm nomonal bore	1.0	PM	Rs.138.70		Rs.138.70
2	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and amming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil					
2.8.1	6.00 0.30 0.60 1.08	1.08	CuM	Rs.230.50		Rs.248.94
3 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead	1.06	CuM	Rs.74.50		Rs.78.85
4	Providing and fixing brass ferrule with CI mouth cover incuding boring and tapping the main:					
18.20.1	15mm nominal bore	1	Each	Rs.254.10		Rs.254.10
	Providing and fixing P.P. Black service Saddle (Brass threaded)	1	Each	Rs.400.00		Rs.400.00
5	Providing and fixing brass bib cock of approved quality :					
18.15.1	15mm nominal bore	1	Each	Rs.273.00		Rs.273.00
	Total					Rs.1,513.41
	Say					Rs.1,513.00

Total Nos. of House Holds= 150 Nos. @ Rs.1,513.00 Rs.2,26,950.00

Sub Est. No. 6										
8 M HIGH STEEL STRUCTURE STAGING FOR 5000/10000 LITER PVC TANK										
S.N.	Particulars					Quantity	Unit	Rate	Amount	
1 10.3	Structural steel work riveted or bolted in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved primer all complete for 8M high staging with ladder of ISA65x65x6 and 16mm dia MS bar as trade @ 400mm c/c and GI enclosure to house electric switch panel & treatment unit (where required) of suitably designed MS section of angle, channel, etc. as per drawing attached.					4224 Kg	P/Kg	Rs.69.20	Rs.2,92,300.80	
2 2.8.1	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including rearing of sides and ramming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All Kinds of soil									
	base of footing									
	4	1.95	1.95	1.35	=	20.534				
	Under Tie beam									
	2	2.30	0.25	0.275	=	0.316				
	2	1.30	0.25	0.275	=	0.179				
						21.029	M ³	P/M ³	Rs.230.50	Rs.4,847.07
3- 2.28	Supplying and filling in plinth with local sand and under floors including watering, ramming consolidating and dressing complete.									
	base of footing									
	4	1.95	1.95	0.10	=	1.521				
	Under Tie beam									
	2	3.95	0.25	0.10	=	0.198				
	2	2.95	0.25	0.10	=	0.148				
	Floor									
	1	4.00	3.00	0.10	=	1.200				
						3.066	M ³	P/M ³	Rs.204.40	Rs.626.69
4- 11.72	Providing designation of 100A Brick flat Soling joints filled with local sand including cost of watering, taxes & royalty all complete as per specification & direction of E/I.									
	base of footing									
	4	1.95	1.95		=	15.210				
	Under Tie beam									
	2	3.95	0.25		=	1.975				
	2	2.95	0.25		=	1.475				
	Floor									
	1	4.00	3.00		=	12.000				
						30.660	M ²	P/M ²	Rs.253.80	Rs.7,781.51
5 4.1.2	Providing and laying in position cement concrete of specified grade exluding the cost of centring and shuttering-all work upto plinth level. 1:1.5:3(1 Cement :1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)									
	base of footing									
	4	1.95	1.95	0.075	=	1.141				
	Floor									
	1	4.00	3.00	0.10	=	1.200				
						2.341	M ³	P/M ³	Rs.4,373.20	Rs.10,236.57

S.N.	Particulars					Quantity	Unit	Rate	Amount	
6 5.1.2	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of centring, shuttering, finishing and reinforcement- All work upto plinth level 1:1:5:3(1 cement: 1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)									
	Tie beam									
	1	3.95	0.25	0.25	=	0.247				
	1	2.95	0.25	0.25	=	0.184				
	base of footing									
	4	1.80	1.80	0.30	=	3.888				
	4	0.45	0.45	0.15	=	0.122				
	Column below GL									
	4	0.30	0.30	0.65	=	0.234				
	Column above GL									
	4	0.30	0.30	0.15	=	0.054				
						4.729	4.729 M ³	P/M ³	Rs.4,530.30	Rs.21,422.66
7- 5.9.1	Centring and shuttering including strutting, propping etc. and removal of form for.									
	2	3.95	0.25		=	1.975				
	2	2.95	0.25		=	1.475				
	16	1.80	0.30		=	8.640				
	16	0.45	0.15		=	1.080				
	16	0.30	0.65		=	3.120				
	16	0.30	0.15		=	0.720				
						17.010	17.010 M ²	P/M ²	Rs.169.00	Rs.2,874.69
8- 5.2.2	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete. 8 mm to 16 mm tor steel									
	Total Reinforcement. @1.25% of Vol. Of Concrete					=	464.00 Kg.	P/Kg.	Rs.56.00	Rs.25,984.00
9 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead (50% of E/W in excavation)					10.514	M ³	P/M ³	Rs.74.50	Rs.783.31
10 13.26	Neat cement punning									
	1	4.00	3.00		=	12.000	12.000 M ²	P/M ²	Rs.32.30	Rs.387.60
11- 10.7.1	Providing and fixing 1mm thick M.S. sheet door with frame of 40x40x6mm angle iron and 3mm M.S. gusset plates at the junctions and corners, all necessary fittings complete, including applying a priming coat of approved steel primer. Using flats 30x6 mm for diagonal braces and central cross piece.									
	Door									
	1	0.9	2.10		=	1.890				
	Window									
	1	1.2	0.90		=	1.080				
				Total	=	2.970	2.970 M ³	P/M ³	Rs.2,503.00	Rs.7,433.91

S.N.	Particulars	Quantity	Unit	Rate	Amount	
12- 12.1.4	Providing corrugated G.S. sheet roofing fixed with G.I.J. or hooks, bolts and nuts 8 mm diameter with bitumen and G. I. limpet washers or with G.I. limpet washers filled with white lead and including a coat of approved steel primer and two coats of approved paint on over lapping of sheets complete (upto a pitch of 60°) excluding the cost of purlins, rafters and trusses. 0.8mm thick with zinc coating not less than 275 gm/mz					
	Roof					
	1 4.50 3.50 =				15.750	
	Wall					
	1 16.00 3.00 =				48.000	
					63.750	
	Deduct for door & window					
	1 0.9 2.10 =				1.890	
	1 1.2 0.90 =				1.080	
					2.970	
	Net Qty =	60.780	M ²	Rs.729.70	Rs.44,351.17	
13 10.19	Providing and fixing anchor bolt of 16 mm dia and 0.60 Mtr length embedded in R.C.C pedestal all complete as per direction of Engineer in charge. @4x4x0.95kg	15.15	Kg	P/kg	Rs.73.60	Rs.1,115.04
14- 13.82.1	Painting with ready mixed paint of approved brand and manufacture in all shades to give an even shade:					
	New steel work (two or more coats)					
	Frame work					
	0.5 16.00 8.00 =				64.000	
	0.5 5.00 4.00 =				10.000	
	Roof sheet					
	2 4.50 3.50 =				31.500	
	Top sheet					
	2 5.00 4.00 =				40.000	
	GI sheet wall					
	2 16.00 3.00 =				96.000	
					241.500	
		241.50	M ²	Rs.63.60	Rs.15,359.40	
15	Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & direction of E/I.					
	(a) Bricks (7 Km. Pucca & 1 Km. Kachha lead)	990	Nos.	%0 nos.	Rs.606.10	Rs.600.04
	(b) Coarse Sand (100 Km. lead)	3.040	M ³	P/M ³	Rs.1,221.09	Rs.3,712.11
	(c) Stone Chips (150 Km. lead)	6.070	M ³	P/M ³	Rs.1,746.29	Rs.10,599.98
	(d) Local Sand (2 Km. Pucca & 1 Km. Kachha lead)	3.530	M ³	P/M ³	Rs.217.23	Rs.766.82
					TOTAL	Rs.4,51,183.37
					say	Rs.4,51,200.00





GOVERNMENT OF BIHAR

PUBLIC HEALTH ENGINEERING DEPARTMENT

MODEL ESTIMATE

FOR

CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME

FOR A WARD HAVING 150 HOUSE HOLDS

ESTIMATED COST-- Rs. 14.569 Lac

2017-18

GOVERNMENT OF BIHAR
Public Health Engineering Department
ABSTRACT OF COST

NAME OF WORK:- CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME FOR WARD HAVING 150 HOUSE HOLDS

S.N.	Description	Total Amount
1	Construction of 125 mm x75mmX 125m deep T/W etc. all complete and as per direction of E/I. (As per sub Estimate no.- 1)	Rs.1,52,506.32
2	Constructing masonry Chamber 100x100x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for Tube Well, and RCC top slab 1:1.5:3 mix (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:2:4(1 cement : 2 fine sand : 4 graded stone aggregate 20 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick with 5% cico finished with a floating coat of neat cement, out side plastering with cement mortar 1:4 (1 cement : 4coarse sand) 12 mm thick complete as per standard specifications & direction of E/I. (As per sub Estimate no.- 2)	Rs.13,210.00
3	Providing and Laying Distribution network of High Density Polyethyene pipe (HDPE pipe) including 10000 liter PVC tank installed at 8M high MS staging etc all complete as per direction of E/I. (As per sub Estimate no.- 3)	Rs.5,05,053.21
4	Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I. (As per sub Estimate no.- 4)	Rs.93,603.00
5	Providing house connection for each house hold including supplying all materials, labours, tools and making ferrule connection with 20 mm dia MDPE and 15mm CPVC Pipes with all fittings etc all complete. (As per sub Estimate no.- 5)	Rs.2,26,950.00
6	Providing and erecting 8M high staging with ladder of ISA65x65x6 and 16mm dia MS bar as trade @ 400mm c/c and GI enclosure to house electric switch panel & treatment unit (where required) of suitably designed MS section of angle, channel, etc. as per drawing attached. (As per sub Estimate no.- 6)	Rs.4,51,200.00
TOTAL		Rs.14,42,522.53
Add 1% Contingency		Rs.14,425.23
G. TOTAL		Rs.14,56,947.76
Say		Rs.14,56,900.00

(Rs. Fourteen Lakh Fifty six Thousand nine Hundred) only

note:

- i) Road cutting cost may increase or decrease as per actuals.
- ii) Strongly advised that pipeline should be laid before construction of Naali-Gali.
- iii) This is a model estimate. Hence the quantity may increase or decrease based on actual site conditions.

Variable inter alia includes

- i) Hydro geomorphological condition.
- ii) Location of source vis-à-vis population/ house holds.
- iii) Quality of works and materials shall be maintained as per standard specifications and direction of E/I.

Technical approval accorded for Rs.14,56,900.00 (Rs. Fourteen Lakh Fifty six Thousand nine Hundred) only

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10.4.17

Sub Est. No. 1

CONSTRUCTION OF 125MM X 75MM DIA & 125M DEEP TUBE WELL

S.No.	Description	Qty.	Unit	Rate	Amount
1	Boring/drilling bore well of required dia for casing/strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer -in-charge, upto 90 metre depth below ground level. (All types of soil)				
24.1.1.1	(a) 300mm dia bore from G.L. to 30.0M	30.0 M	P/M	Rs.378.00	Rs.11,340.00
	(b) 300mm dia bore from 30.0 m to 60.0M	30.0 M	P/M	Rs.378.00	Rs.11,340.00
	(c) 300mm dia bore from 60M to 90.0M	30.0 M	P/M	Rs.378.00	Rs.11,340.00
24.2.1.1	(d) 300mm dia bore from 90.0M to 150.0M	35.0 M	P/M	Rs.441.10	Rs.15,438.50
2	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC (UPVC) medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer -in-charge.				
	(b) 125 mm nominal size dia	30.0 M	P/M	Rs.462.50	Rs.13,875.00
24.3.5	(b) 75 mm nominal size dia	69.0 M	P/M	Rs.328.50	Rs.22,666.50
24.4.5	(c) 75 mm dia U.P.V.C. strainer	21.0 M	P/M	Rs.420.30	Rs.8,826.30
3	Providing all materials, tools & labours and fixing the following fittings etc. all complete as per specification & direction of E/I.				
	(a) 125 mm dia P.V.C. well cap	1 No.	Each	Rs.166.60	Rs.166.60
	(b) 125 mm dia center guide	4 Nos.	Each	Rs.100.00	Rs.400.00
	(c) 75 mm dia center guide	6 Nos.	Each	Rs.75.00	Rs.450.00
	(d) 75 mm dia P.V.C. pipe shoe plug	1 No.	Each	Rs.185.00	Rs.185.00
	(e)125mm x 75 mm dia P.V.C. Reducer	1 No.	Each	Rs.475.00	Rs.475.00
	(d)125mm dia M.S.Clamp	1 No.	Each	Rs.974.60	Rs.974.60
4a	Providing all materials, labours, & equipments for fixing				
24.6	tubewell with peagravel of Dalbhumigarh to size 4mm to 8mm approx. as suitable for strata including carriage washing, placing and packing the same in position around the tubewell etc. all complete as per direction of E/I.	9.0 M ³	P/M ³	Rs.917.00	Rs.8,253.00
4b	Carriage of Pea Gravel from Dhalbhumigarh (taken av distance 400km.)	9.0 M ³	P/M ³	Rs.4,336.54	Rs.39,028.82
5	Development of tube well in accordance with IS : 2800				
24.12	(part I) and IS: 11189, to establish maximum rate of usable water yield without sand content (beyond permissible limit), with required capacity air compressor, running the compressor for required time till well is fully developed, measuring yield of well by "V" notch method or any other approved method, measuring static level & draw down etc. by step draw down method, collecting water sampl & getting tested in approved laboratory, disinfection of tubewell, all complete,including hire & labour charges of air compressor, tools & accessories etc., all as per requirement and direction of Engineer-in-charge.	5 Hrs.	Each	Rs.649.40	Rs.3,247.00
6	Supplying all materials and labours for arrangement for additional water required during the drilling period for 40 Hrs & site clearance & leveling etc. And providing the soap duster etc. to staff engaged in drilling etc. all complete work as per specification & direction of E.I..	1 No.	Each	Rs.4,500.00	Rs.4,500.00
TOTAL					Rs.1,52,506.32

(Sub Estimate - 2)

Analysis of Chamber for TW

Supplying materials, labours and constructing chamber of following dimension having 250mm thick wall in C.M. (1:4) including 12mm C.P. (1:3) with punning inside, R.C.C. cover slab with C.I. Surface box, 20mm dia foot rest at 150mm interval 10mm dia lifting ring etc. all complete.

SIZE	1.00 M	x	1.00 M	x	0.75 M deep
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<u>S.O.R. No.</u>	<u>Particulars</u>	<u>No.</u>	<u>L</u>	<u>W</u>	<u>H</u>	<u>Qty.</u>	<u>Unit</u>	<u>Rate</u>	<u>Amount</u>
1	Earth work in excavation	1	1.75	1.75	1.0	3.063 M ³	P/M ³	Rs.230.50	Rs.705.91
S.O.R. No. 2.8									
2	Sand filling	1	1.75	1.75	0.075	0.230 M ³	P/M ³	Rs.204.40	Rs.46.95
S.O.R. No. 2.28									
3	Brick flat soling	1	1.75	1.75		3.063 M ²	P/M ²	Rs.253.80	Rs.777.26
S.O.R. 11.72									
4	P.C.C. (1:2:4) in foundation	1	1.75	1.75	0.10	0.306 M ³			
S.O.O. 4.1.3									
						0.306 M ³	P/M ³	Rs.3,850.50	Rs.1,179.22
5	B/Work in (1:4) C.M.	2	2.50	0.25	0.75	0.938 M ³	P/M ³	Rs.4,724.40	Rs.4,429.13
S.O.R. No. 6.1.12/1									
6	R.C.C. Cover slab(1:1.5:3)	1	1.50	1.50	0.15	0.338 M ³	P/M ³	Rs.5,139.70	Rs.1,734.65
S.O.R. No. 5.2.2 & 5.9.3									
	shuttering	2	1.50	1.50	0.15	3.15 M ²	P/M ²	Rs.291.00	Rs.916.65
7	C.P. (1:3) with 5% Cico & neat cement								
S.O.R. Internal face		2	1.00	1.00	1.00	4.00 M ²			
No.									
13.17.1	Bed surface	1	1.00	1.00		1.00 M ²			
+13.36.1						5.00 M ²	P/M ²	Rs.166.30	Rs.831.50
8	C.P. (1:4) out side of wall	2	1.50	1.50	0.75	4.5 M ²	P/M ²	Rs.114.70	Rs.516.15
S.O.R. No. 13.11.2									
9	8mm dia T.S. Rod								
S.O.R. No. 5.22.7A									
		0.338 M ³ x	70	Kg/ M ³		23.625 Kg.	P/Kg	Rs.56.00	Rs.1,323.00
10	Lifting Ring of 10mm dia Rod					4 No.	Each	Rs.30.00	Rs.120.00
11	Carriage of materials 5%							Total	Rs.12,580.41
									Rs.629.02
									<u>Rs.13,209.43</u>

Say Rs.13,210.00

Sub Est. No. 3

WATER SUPPLY DISTRIBUTION SYSTEM

S.N.	Particulars	Quantity	Unit	Rate	Amount
1A	Earthwork in excavation over areas (exceeding 30 cm in depth 1.5 in width as well as 10 sqm on plan) including disposal of excavated earth lead upto 50m and lift upto 1.5m, disposal earth to be levelled and neatly dressed.				
	75mm dia Pipe	195.00	0.30	1.10 =	64.35
	63mm dia Pipe	195.00	0.30	1.10 =	64.35
	50mm dia Pipe	390.00	0.30	1.10 =	128.70
	40mm dia Pipe	520.00	0.30	1.10 =	171.60
					429.00 M ³
	Add 5% extra for fittings =				21.45 M ³
		450.45	M ³	P/M ³	Rs.230.50
		14.63	M ³	P/M ³	Rs.4,428.80
1B	Provision for PCC road cutting and its restoration				Rs.1,03,828.73
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	441.44	M ³	P/M ³	Rs.74.50
3	Providing and laying High Density Polyethylene pipe (HDPE pipe) of 20 mm to 225 mm OD and pressure 6.0 Kg/cm ² and 10 Kg/cm ² suitable for water supply which is available in all standard, like ISI-4984/1995 and various grades like PE-80, PE-100 including required specials. Rates are inclusive of , all taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete as per direction of Engineer-in-charge.				Rs.32,887.35
3A	HDPE pipe of materials grade PE100- PN10 (dia in mm)				
	75mm dia Pipe from PVC Tank to Distribution main	14.00	M	P/M	Rs.239.81
	75mm dia Pipe	195.00	M	P/M	Rs.239.81
	63mm dia Pipe	195.00	M	P/M	Rs.168.77
3B	HDPE pipe of materials grade PE100- PN8 (dia in mm)				
	50mm dia Pipe	390.00	M	P/M	Rs.89.99
	40mm dia Pipe	520.00	M	P/M	Rs.59.78
	50mm dia Pipe from T/well to PVC Tank	12.00	M	P/M	Rs.89.99
4	Providing and fixing brass gate valve with C.I. wheel of approved quality (screwed end).				
	75mm dia Pipe			3 Nos	Each
				Rs.1,351.60	Rs.4,054.80
	63mm dia Pipe			2 Nos	Each
				Rs.1,351.60	Rs.2,703.20
	50mm dia Pipe			3 Nos	Each
				Rs.811.40	Rs.2,434.20
	40mm dia Pipe			3 Nos	Each
				Rs.613.90	Rs.1,841.70

S.N.	Particulars	Quantity	Unit	Rate	Amount
5 18.33	Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size), necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard specifications & direction of E/I.	9 Nos	Each	Rs. 5,807.50	Rs. 52,267.50
	Work for additional depth				
	Brick work (1:4) in foundation				
	2 1.10 0.25 0.35 0.193				
	2 0.60 0.25 0.35 0.105				
		0.298	2.678 Cuft CuM	Rs. 4,724.40	Rs. 12,649.58
	Plaster (1:3)				
	8 1.10 0.35 3.08	27.72	Sqft SqM	Rs. 128.20	Rs. 3,553.70
6	Carriage 10% of item 5				Rs. 6,847.08
7 18.48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, ISI : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	10000	LtrsP/Ltr.	Rs. 6.60	Rs. 66,000.00
8	Providing and fixing PTMT extension nipple for water tank pipe, fittings of approved quality and colour.				
	50mm dia	2	No each	Rs. 250.00	Rs. 500.00
	75mm dia	1	No. each	Rs. 400.00	Rs. 400.00
				TOTAL	Rs. 5,05,053.21

Sub Est. No. 4

Model estimate for supply, installation & commissioning of single phase 3 H.P submersible motor pump set with all accessories including extension of L.T. line from nearest source up-to pumping station.

Sl. No.	Particulars	Quantity	Unit	Rate	Amount
1	2	3	4	5	6
[A.]	<p>Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/l.</p> <p>(i) 50 mm dia x 3 mtrs long medium class G.I column pipe both end thread and one end socketed- 6(six)nos (ii) 1x3x2.5 mm² flat copper conductor submersible cable -40 (forty) mtrs. (iii) 50 mm dia union socket- 1(one) no. (iv) 65 mm dia x 250 mm long G.I. nipple- 1 (one) no. (v) 50 mm dia G.I Elbow—1(One) no. (vi) 50 mm dia M.S. clamps—2(Two) Pairs. (vii) 50 mmx 250 mm long G.I nipple- 1(One) no. (viii) Tube well cap for T/Well – 1(one) no.</p>	1 (one) job	p/job	Rs.42,700.00	Rs.42,700.00

	(ix) 50 mm dia x 65 mm dia reducer socket –1(one) no.				
[B]	Supply Installation, commissioning and testing of floor mounted outdoor type L.T feeder pillar single phase starter controll pannel operated on 220 V, 3 phase , 50 c/s for 3 HP Submersible pump set made of MS sheet (minimum 2 mm thick) duly spray power coated painting with following accessories made of M.S sheet (minimum 2mm thick) duly spray powder coated painting with following accessories (i) 90-220 V range single phase 7.5 KVA automatic voltage stabilizer make- Sen & Pandit/ Vertex/ISI marked If any. 1 No. (ii) Suitable single phase starter control panel for above motor of BCH /L&Tmake – 1(one) no.	1 (one) job	p/job	Rs.45,500.00	Rs.45,500.00
[C]	Supplying & fitting 2.5 mm ² copper service cable from power point from nearest source up-to pumping station..	20 mtrs	P/Mt	Rs.130.00	Rs.2,600.00
[D]	Providing all materials and labour required for doing earthing station with G.I earth pipe of 40 mm dia x 4.5 mtrs 20fts. long G.I pipe including accessories excavation of earth , providing masonry enclosure with cover plate having locking arrangement and watering pipe etc.with salt, charcoal,etc.as per IE & IS specification.	1 job	p/job	Rs.2,803.00	Rs.2,803.00
				Total Rs.	Rs.93,603.00

Sub Est. No. 5

Estimate for the work - House service connection								
SUB-ESTIMATE								
S.No.	Description	Qty	Unit	Rate	Amount			
1A	Providing and fixing MDPE (PE 80 GradeCompound) pipes PN-12.5 (12.5kg/Sqcm) as per ISO 4427 and specification for waterapplication rates are inclusive of , taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete asper direction of Engineer-in-charge.complete.							
	MDPE Pipe 20mm dia nominal bore	6.00	PM	Rs.19.97		Rs.119.82		
1B	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall							
18.7.1	15 mm nomonal bore	1.0	PM	Rs.138.70		Rs.138.70		
2	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and amming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil							
2.8.1		6.00	0.30	0.60	1.08	CuM	Rs.230.50	Rs.248.94
3 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead	1.06	CuM	Rs.74.50		Rs.78.85		
4	Providing and fixing brass ferrule with CI mouth cover incuding boring and tapping the main:							
18.20.1	15mm nominal bore	1	Each	Rs.254.10		Rs.254.10		
	Providing and fixing P.P. Black service Saddle (Brass threaded)	1	Each	Rs.400.00		Rs.400.00		
5	Providing and fixing brass bib cock of approved quality :							
18.15.1	15mm nominal bore	1	Each	Rs.273.00		Rs.273.00		
	Total					Rs.1,513.41		
	Say					Rs.1,513.00		

Total Nos. of House Holds=

150 Nos. @

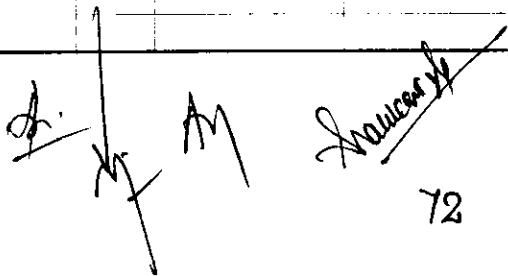
Rs.1,513.00

Rs.2,26,950.00

Sub Est. No. 6									
8 M HIGH STEEL STRUCTURE STAGING FOR 5000/10000 LITER PVC TANK									
S.N.	Particulars				Quantity	Unit	Rate	Amount	
1 10.3	Structural steel work riveted or bolted in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved primer all complete for 8M high staging with ladder of ISA65x65x6 and 16mm dia MS bar as trade @ 400mm c/c and GI enclosure to house electric switch panel & treatment unit (where required) of suitably designed MS section of angle, channel, etc. as per drawing attached.				4224 Kg	P/Kg	Rs.69.20	Rs.2,92,300.80	
2 2.8.1	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including rassing of sides and ramming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All Kinds of soil								
	base of footing								
	4	1.95	1.95	1.35	=		20.534		
	Under Tie beam								
	2	2.30	0.25	0.275	=		0.316		
	2	1.30	0.25	0.275	=		0.179		
							21.029		
						21.029 M ³	P/M ³	Rs.230.50	Rs.4,847.07
3- 2.28	Supplying and filling in plinth with local sand and under floors including watering, ramming consolidating and dressing complete.								
	base of footing								
	4	1.95	1.95	0.10	=		1.521		
	Under Tie beam								
	2	3.95	0.25	0.10	=		0.198		
	2	2.95	0.25	0.10	=		0.148		
	Floor								
	1	4.00	3.00	0.10	=		1.200		
							3.066		
						3.066 M ³	P/M ³	Rs.204.40	Rs.626.69
4- 11.72	Providing designation of 100A Brick flat Soling joints filled with local sand including cost of watering, taxes & royalty all complete as per specification & direction of E/I.								
	base of footing								
	4	1.95	1.95		=		15.210		
	Under Tie beam								
	2	3.95	0.25		=		1.975		
	2	2.95	0.25		=		1.475		
	Floor								
	1	4.00	3.00		=		12.000		
							30.660		
						30.660 M ²	P/M ²	Rs.253.80	Rs.7,781.51
5 4.1.2	Providing and laying in position cement concrete of specified grade exluding the cost of centring and shuttering-all work upto plinth level.								
	1:1.5:3(1 Cement :1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)								
	base of footing								
	4	1.95	1.95	0.075	=		1.141		
	Floor								
	1	4.00	3.00	0.10	=		1.200		
							2.341		
						2.341 M ³	P/M ³	Rs.4,373.20	Rs.10,236.57

S.N.	Particulars					Quantity	Unit	Rate	Amount	
6 5.1.2	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of entering, shuttering, finishing and reinforcement- All work upto plinth level 1:1.5:3(1 cement: 1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)									
	Tie beam									
	1	3.95	0.25	0.25	=	0.247				
	1	2.95	0.25	0.25	=	0.184				
	base of footing									
	4	1.80	1.80	0.30	=	3.888				
	4	0.45	0.45	0.15	=	0.122				
	Column below GL									
	4	0.30	0.30	0.65	=	0.234				
	Column above GL									
	4	0.30	0.30	0.15	=	0.054				
						4.729				
						4.729 M ³	P/M ³	Rs.4,530.30	Rs.21,422.66	
7- 5.9.1	Centring and shuttering including strutting, propping etc. and removal of form for.									
	2	3.95	0.25		=	1.975				
	2	2.95	0.25		=	1.475				
	16	1.80	0.30		=	8.640				
	16	0.45	0.15		=	1.080				
	16	0.30	0.65		=	3.120				
	16	0.30	0.15		=	0.720				
						17.010				
						17.010 M ²	P/M ²	Rs.169.00	Rs.2,874.69	
8- 5.2.2	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete. 8 mm to 16 mm tor steel									
	Total Reinforcement.									
	@1.25% of Vol. Of Concrete =					464.00	Kg.	P/Kg.	Rs.56.00	Rs.25,984.00
9 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of oundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead (50% of E/W in excavation)					10.514	M ³	P/M ³	Rs.74.50	Rs.783.31
10 13.26	Neat cement punning									
	1	4.00	3.00		=	12.000				
						12.000 M ²	P/M ²	Rs.32.30	Rs.387.60	
11- 10.7.1	Providing and fixing 1mm thick M.S. sheet door with frame of 40x40x6mm angle iron and 3mm M.S. gusset plates at the junctions and corners, all necessary fittings complete, including applying a priming coat of approved steel primer. Using flats 30x6 mm for diagonal braces and central cross piece.									
	Door									
	1	0.9	2.10		=	1.890				
	Window									
	1	1.2	0.90		=	1.080				
						Total = 2.970				
						2.970 M ³	P/M ³	Rs.2,503.00	Rs.7,433.91	

S.N.	Particulars	Quantity	Unit	Rate	Amount
12- 12.1.4	Providing corrugated G.S. sheet roofing fixed with G.I.J. or hooks, bolts and nuts 8 mm diameter with bitumen and G. I. limpet washers or with G.I. limpet washers filled with white lead and including a coat of approved steel primer and two coats of approved paint on over lapping of sheets complete (upto a pitch of 60°) excluding the cost of purlins, rafters and trusses. 0.8mm thick with zinc coating not less than 275 gm/mz				
	Roof				
	1 4.50 3.50 =				15.750
	Wall				
	1 16.00 3.00 =				48.000
					63.750
	Deduct for door & window				
	1 0.9 2.10 =				1.890
	1 1.2 0.90 =				1.080
					2.970
	Net Qty =	60.780	M ²	Rs.729.70	Rs.44,351.17
13 10.19	Providing and fixing anchor bolt of 16 mm dia and 0.60 Mtr length embedded in R.C.C pedestal all complete as per direction of Engineer in charge. @4x4x0.95kg	15.15 Kg	P/kg	Rs.73.60	Rs.1,115.04
14- 13.82.1	Painting with ready mixed paint of approved brand and manufacture in all shades to give an even shade:				
	New steel work (two or more coats)				
	Frame work				
	0.5 16.00 8.00 =				64.000
	0.5 5.00 4.00 =				10.000
	Roof sheet				
	2 4.50 3.50 =				31.500
	Top sheet				
	2 5.00 4.00 =				40.000
	GI sheet wall				
	2 16.00 3.00 =				96.000
		241.500	241.50 M ²	Rs.63.60	Rs.15,359.40
15	Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & direction of E/I.				
	(a) Bricks (7 Km. Pucca & 1 Km. Kachha lead)	990 Nos.	%0 nos.	Rs.606.10	Rs.600.04
	(b) Coarse Sand (100 Km. lead)	3.040 M ³	P/M ³	Rs.1,221.09	Rs.3,712.11
	(c) Stone Chips (150 Km. lead)	6.070 M ³	P/M ³	Rs.1,746.29	Rs.10,599.98
	(d) Local Sand (2 Km. Pucca & 1 Km. Kachha lead)	3.530 M ³	P/M ³	Rs.217.23	Rs.766.82
				TOTAL	Rs.4,51,183.37
				say	Rs.4,51,200.00



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GOVERNMENT OF BIHAR

PUBLIC HEALTH ENGINEERING DEPARTMENT

MODEL ESTIMATE

FOR

CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME

FOR A WARD HAVING 150 HOUSE HOLDS

ESTIMATED COST-- Rs. 15.139 Lac

2017-18

GOVERNMENT OF BIHAR
Public Health Engineering Department
ABSTRACT OF COST

NAME OF WORK:- CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME FOR WARD HAVING 150 HOUSE HOLDS

S.N.	Description	Total Amount
1	Construction of 125 mm x75mmX 125m deep T/W for rocky strata etc. all complete and as per direction of E/I. (As per sub Estimate no.- 1)	Rs.2,08,868.82
2	Constructing masonry Chamber 100x100x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for Tube Well, and RCC top slab 1:1.5:3 mix (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:2:4(1 cement : 2 fine sand : 4 graded stone aggregate 20 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick with 5% cico finished with a floating coat of neat cement, out side plastering with cement mortar 1:4 (1 cement : 4coarse sand) 12 mm thick complete as per standard specifications & direction of E/I. (As per sub Estimate no.- 2)	Rs.13,210.00
3	Providing and Laying Distribution network of High Density Polyethylene pipe (HDPE pipe) including 10000 liter PVC tank installed at 8M high MS staging etc all complete as per direction of E/I. (As per sub Estimate no.- 3)	Rs.5,05,053.21
4	Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I. (As per sub Estimate no.- 4)	Rs.93,603.00
5	Providing house connection for each house hold including supplying all materials, labours, tools and making ferrule connection with 20 mm dia MDPE and 15mm CPVC Pipes with all fittings etc all complete. (As per sub Estimate no.- 5)	Rs.2,26,950.00
6	Providing and erecting 8M high staging with ladder of ISA65x65x6 and 16mm dia MS bar as trade @ 400mm c/c and GI enclosure to house electric switch panel & treatment unit (where required) of suitably designed MS section of angle, channel, etc. as per drawing attached. (As per sub Estimate no.- 6)	Rs.4,51,200.00
TOTAL		Rs.14,98,885.03
Add 1% Contingency		Rs.14,988.85
G. TOTAL		Rs.15,13,873.88
Say		Rs.15,13,900.00

(Rs.Fifteen Lakh Thirteen Thousand Nine Hundred) only

note:

- i) Road cutting cost may increase or decrease as per actuals.
- ii) Strongly advised that pipeline should be laid before construction of Naali-Gali.
- iii) This is a model estimate. Hence the quantity may increase or decrease based on actual site conditions.

Variable inter alia includes

- i) Hydro geomorphological condition.
- ii) Location of source vis-à-vis population/ house holds.
- iii) Quality of works and materials shall be maintained as per standard specifications and direction of E/I.

Technical approval accorded for Rs.15,13,900.00 (Rs.Fifteen Lakh Thirteen Thousand Nine Hundred) only

Sub Est. No. 1

CONSTRUCTION OF 125 MM X 75MM DIA & 125M DEEP TUBE WELL

(For Rocky strata including Boulders)

S.No.	Description	Qty.	Unit	Rate	Amount	
1	Boring/drilling bore well of required dia for casing/strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer -in-charge, upto 90 metre depth below ground level. (Rocky strata including Boulders)					
24.1.1.1	(a) 300mm dia bore from G.L. to 30.0M	30.0 M	P/M	Rs.833.10	Rs.24,993.00	
	(b) 300mm dia bore from 30.0 m to 60.0M	30.0 M	P/M	Rs.833.10	Rs.24,993.00	
	(c) 300mm dia bore from 60M to 90.0M	30.0 M	P/M	Rs.833.10	Rs.24,993.00	
24.2.1.1	(d) 300mm dia bore from 90.0M to 150.0M	35.0 M	P/M	Rs.881.20	Rs.30,842.00	
2	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC (UPVC) medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer -in-charge.					
	(b) 125 mm nominal size dia	30.0 M	P/M	Rs.462.50	Rs.13,875.00	
24.3.5	(b) 75 mm nominal size dia	69.0 M	P/M	Rs.328.50	Rs.22,666.50	
24.4.5	(c) 75 mm dia U.P.V.C. strainer	21.0 M	P/M	Rs.420.30	Rs.8,826.30	
3	Providing all materials, tools & labours and fixing the following fittings etc. all complete as per specification & direction of E/I.					
	(a) 125 mm dia P.V.C. well cap	1 No.	Each	Rs.166.60	Rs.166.60	
	(b) 125 mm dia center guide	4 Nos.	Each	Rs.100.00	Rs.400.00	
	(c) 75 mm dia center guide	6 Nos.	Each	Rs.75.00	Rs.450.00	
	(d) 75 mm dia P.V.C. pipe shoe plug	1 No.	Each	Rs.185.00	Rs.185.00	
	(e) 125mm x 75 mm dia P.V.C. Reducer	1 No.	Each	Rs.475.00	Rs.475.00	
24.14.1	(d) 125mm dia M.S.Clamp	1 No.	Each	Rs.974.60	Rs.974.60	
4a	Providing all materials, labours, & equipments for fixing					
24.6	tubewell with peagravel of Dalbhumigarh to size 4mm to 8mm approx. as suitable for strata including carriage washing, placing and packing the same in position around the tubewell etc. all complete as per direction of E/I.	9.0 M ³	P/M ³	Rs.917.00	Rs.8,253.00	
4b	Carriage of Pea Gravel from Dhalbhumigarh (taken av distance 400km.)	9.0 M ³	P/M ³	Rs.4,336.54	Rs.39,028.82	
5	Development of tube well in accordance with IS : 2800 (part I) and IS: 11189, to establish maximum rate of usable water yield without sand content (beyond permissible limit), with required capacity air compressor, running the compressor for required time till well is fully developed, measuring yield of well by "V" notch method or any other approved method, measuring static level & draw down etc. by step draw down method, collecting water sampl & getting tested in approved laboratory, disinfection of tubewell, all complete, including hire & labour charges of air compressor, tools & accessories etc., all as per requirement and direction of Engineer-in-charge.	5 Hrs.	Each	Rs.649.40	Rs.3,247.00	
24.12	6	Supplying all materials and labours for arrangement for additional water required during the drilling period for 40 Hrs & site clearance & leveling etc. And providing the soap duster etc. to staff engaged in drilling etc. all complete work as per specification & direction of E.I..	1 No.	Each	Rs.4,500.00	Rs.4,500.00
TOTAL					Rs.2,08,868.82	

(Sub Estimate - 2)

Analysis of Chamber for TW

Supplying materials, labours and constructing chamber of following dimension having 250mm thick wall in C.M. (1:4) including 12mm C.P. (1:3) with punning inside, R.C.C. cover slab with C.I. Surface box, 20mm dia foot rest at 150mm interval 10mm dia lifting ring etc. all complete.

SIZE	1.00 M	x	1.00 M	x	0.75 M deep
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<u>S.O.R. No.</u>	<u>Particulars</u>	<u>No.</u>	<u>L</u>	<u>W</u>	<u>H</u>	<u>Qty.</u>	<u>Unit</u>	<u>Rate</u>	<u>Amount</u>
1	Earth work in excavation	1	1.75	1.75	1.0	3.063 M ³	P/M ³	Rs.230.50	Rs.705.91
S.O.R. No. 2.8									
2	Sand filling	1	1.75	1.75	0.075	0.230 M ³	P/M ³	Rs.204.40	Rs.46.95
S.O.R. No. 2.28									
3	Brick flat soling	1	1.75	1.75		3.063 M ²	P/M ²	Rs.253.80	Rs.777.26
S.O.R. 11.72									
4	P.C.C. (1:2:4) in foundation	1	1.75	1.75	0.10	0.306 M ³			
S.O.O. 4.1.3									
						0.306 M ³	P/M ³	Rs.3,850.50	Rs.1,179.22
5	B/Work in (1:4) C.M.	2	2.50	0.25	0.75	0.938 M ³	P/M ³	Rs.4,724.40	Rs.4,429.13
S.O.R. No. 6.1.12/1									
6	R.C.C. Cover slab(1:1.5:3)	1	1.50	1.50	0.15	0.338 M ³	P/M ³	Rs.5,139.70	Rs.1,734.65
S.O.R. No. 5.2.2 & 5.9.3									
	shuttering	2	1.50	1.50	0.15	3.15 M ²	P/M ²	Rs.291.00	Rs.916.65
7	C.P. (1:3) with 5% Cico & neat cement								
S.O.R. No.	Internal face	2	1.00	1.00	1.00	4.00 M ²			
13.17.1	Bed surface	1	1.00	1.00		1.00 M ²			
+13.36.1						5.00 M ²	P/M ²	Rs.166.30	Rs.831.50
8	C.P. (1:4) out side of wall	2	1.50	1.50	0.75	4.5 M ²	P/M ²	Rs.114.70	Rs.516.15
S.O.R. No. 13.11.2									
9	8mm dia T.S. Rod								
S.O.R. No. 5.22.7A									
		0.338 M ³ x		70 Kg/M ³		23.625 Kg.	P/Kg	Rs.56.00	Rs.1,323.00
10	Lifting Ring of 10mm dia Rod					4 No.	Each	Rs.30.00	Rs.120.00
11	Carriage of materials 5%							Total	Rs.12,580.41
									Rs.629.02
									<u>Rs.13,209.43</u>

Say Rs.13,210.00

Sub Est. No. 3

WATER SUPPLY DISTRIBUTION SYSTEM

S.N.	Particulars	Quantity	Unit	Rate	Amount
1A	Earthwork in excavation over areas (exceeding 30 cm in depth 1.5 in width as well as 10 sqm on plan) including disposal of excavated earth lead upto 50m and lift upto 1.5m, disposal earth to be levelled and neatly dressed.				
	75mm dia Pipe	195.00	0.30	1.10 =	64.35
	63mm dia Pipe	195.00	0.30	1.10 =	64.35
	50mm dia Pipe	390.00	0.30	1.10 =	128.70
	40mm dia Pipe	520.00	0.30	1.10 =	171.60
					429.00 M ³
	Add 5% extra for fittings =				21.45 M ³
		450.45	M ³	P/M ³	Rs.230.50
		14.63	M ³	P/M ³	Rs.4,428.80
					Rs.1,03,828.73
1B	Provision for PCC road cutting and its restoration				
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	441.44	M ³	P/M ³	Rs.74.50
					Rs.32,887.35
3	Providing and laying High Density Polyethylene pipe (HDPE pipe) of 20 mm to 225 mm OD and pressure 6.0 Kg/cm ² and 10 Kg/cm ² suitable for water supply which is available in all standard, like ISI-4984/1995 and various grades like PE-80, PE-100 including required specials. Rates are inclusive of , all taxes and duties (Exise duty @12.50% & CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete as per direction of Engineer-in-charge.				
3A	HDPE pipe of materials grade PE100- PN10 (dia in mm)				
	75mm dia Pipe from PVC Tank to Distribution main	14.00	M	P/M	Rs.239.81
					Rs.3,357.34
	75mm dia Pipe	195.00	M	P/M	Rs.239.81
					Rs.46,762.95
	63mm dia Pipe	195.00	M	P/M	Rs.168.77
					Rs.32,910.15
3B	HDPE pipe of materials grade PE100- PN8 (dia in mm)				
	50mm dia Pipe	390.00	M	P/M	Rs.89.99
					Rs.35,096.10
	40mm dia Pipe	520.00	M	P/M	Rs.59.78
					Rs.31,085.60
	50mm dia Pipe from T/well to PVC Tank	12.00	M	P/M	Rs.89.99
					Rs.1,079.88
4	Providing and fixing brass gate valve with C.I. wheel of approved quality (screwed end).				
	75mm dia Pipe	3	Nos	Each	Rs.1,351.60
					Rs.4,054.80
	63mm dia Pipe	2	Nos	Each	Rs.1,351.60
					Rs.2,703.20
	50mm dia Pipe	3	Nos	Each	Rs.811.40
					Rs.2,434.20
	40mm dia Pipe	3	Nos	Each	Rs.613.90
					Rs.1,841.70

S.N.	Particulars	Quantity	Unit	Rate	Amount	
5 18.33	Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size), necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard specifications & direction of E/I.	9 Nos	Each	Rs.5,807.50	Rs.52,267.50	
	Work for additional depth					
	Brick work (1:4) in foundation	2	1.10	0.25	0.35	0.193
		2	0.60	0.25	0.35	0.105
					0.298	
		2.678	Cu	CuM	Rs.4,724.40	Rs.12,649.58
	Plaster (1:3)	8	1.10	0.35	3.08	27.72
			Sq	SqM	Rs.128.20	Rs.3,553.70
6	Carriage 10% of item 5					Rs.6,847.08
7 18.48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, ISI : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	10000	Ltrs	P/Ltr.	Rs.6.60	Rs.66,000.00
8	Providing and fixing PTMT extension nipple for water tank pipe, fittings of approved quality and colour.	2 Nos	each	Rs.250.00	Rs.500.00	
	50mm dia	1 No.	each	Rs.400.00	Rs.400.00	
	75mm dia					
				TOTAL	Rs.5,05,053.21	

Sub Est. No. 4

Model estimate for supply, installation & commissioning of single phase 3 H.P submersible motor pump set with all accessories including extension of L.T. line from nearest source up-to pumping station.

Sl. No.	Particulars	Quantity	Unit	Rate	Amount
1	2	3	4	5	6
[A.]	<p>Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I.</p> <p>(i) 50 mm dia x 3 mtrs long medium class G.I column pipe both end thread and one end socketed- 6(six)nos (ii) 1x3x2.5 mm² flat copper conductor submersible cable -40 (forty) mtrs. (iii) 50 mm dia union socket- 1(one) no. (iv) 65 mm dia x 250 mm long G.I. nipple- 1 (one) no. (v) 50 mm dia G.I Elbow—1(One) no. (vi) 50 mm dia M.S. clamps—2(Two) Pairs. (vii) 50 mmx 250 mm long G.I nipple- 1(One) no. (viii) Tube well cap for T/Well – 1(one) no.</p>	1 (one) job	p/job	Rs.42,700.00	Rs.42,700.00

	(ix) 50 mm dia x 65 mm dia reducer socket –1(one) no.				
[B]	Supply Installation, commissioning and testing of floor mounted outdoor type L.T feeder pillar single phase starter controll pannel operated on 220 V, 3 phase , 50 c/s for 3 HP Submersible pump set made of MS sheet (minimum 2 mm thick) duly spray power coated painting with following accessories made of M.S sheet (minimum 2mm thick) duly spray powder coated painting with following accessories (i) 90-220 V range single phase 7.5 KVA automatic voltage stabilizer make- Sen & Pandit/ Vertex/ISI marked If any. 1 No. (ii) Suitable single phase starter control panel for above motor of BCH /L&Tmake – 1(one) no.	1 (one) job	p/job	Rs.45,500.00	Rs.45,500.00
[C]	Supplying & fitting 2.5 mm ² copper service cable from power point from nearest source up-to pumping station..	20 mtrs	P/Mt	Rs.130.00	Rs.2,600.00
[D]	Providing all materials and labour required for doing earthing station with G.I earth pipe of 40 mm dia x 4.5 mtrs 20fts. long G.I pipe including accessories excavation of earth , providing masonry enclosure with cover plate having locking arrangement and watering pipe etc.with salt, charcoal,etc.as per IE & IS specification.	1 job	p/job	Rs.2,803.00	Rs.2,803.00
				Total Rs.	Rs.93,603.00

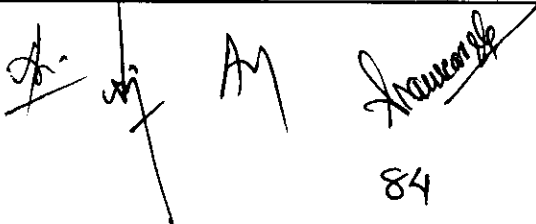
Sub Est. No. 5

Estimate for the work - House service connection						
SUB-ESTIMATE						
S.No.	Description	Qty	Unit	Rate	Amount	
1A	Providing and fixing MDPE (PE 80 GradeCompound) pipes PN-12.5 (12.5kg/Sqcm) as per ISO 4427 and specification for waterapplication rates are inclusive of , taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete asper direction of Engineer-in-charge.complete.					
	MDPE Pipe 20mm dia nominal bore	6.00	PM	Rs.19.97		Rs.119.82
1B	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall					
18.7.1	15 mm nomonal bore	1.0	PM	Rs.138.70		Rs.138.70
2	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and amming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil					
2.8.1	6.00 0.30 0.60 1.08	1.08	CuM	Rs.230.50		Rs.248.94
3 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead	1.06	CuM	Rs.74.50		Rs.78.85
4	Providing and fixing brass ferrule with CI mouth cover incuding boring and tapping the main:					
18.20.1	15mm nominal bore	1	Each	Rs.254.10		Rs.254.10
	Providing and fixing P.P. Black service Saddle (Brass threaded)	1	Each	Rs.400.00		Rs.400.00
5	Providing and fixing brass bib cock of approved quality :					
18.15.1	15mm nominal bore	1	Each	Rs.273.00		Rs.273.00
	Total					Rs.1,513.41
	Say					Rs.1,513.00
Total Nos. of House Holds=		150 Nos.	@	Rs.1,513.00		Rs.2,26,950.00

Sub Est. No. 6									
8 M HIGH STEEL STRUCTURE STAGING FOR 5000/10000 LITER PVC TANK									
S.N.	Particulars				Quantity	Unit	Rate	Amount	
1 10.3	Structural steel work riveted or bolted in built up sections, truss and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved primer all complete for 8M high staging with ladder of ISA65x65x6 and 16mm dia MS bar as trade @ 400mm c/c and GI enclosure to house electric switch panel & treatment unit (where required) of suitably designed MS section of angle, channel, etc. as per drawing attached.				4224 Kg	P/Kg	Rs.69.20	Rs.2,92,300.80	
2 2.8.1	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including rassing of sides and ramming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All Kinds of soil								
	base of footing								
	4	1.95	1.95	1.35	=			20.534	
	Under Tie beam								
	2	2.30	0.25	0.275	=			0.316	
	2	1.30	0.25	0.275	=			0.179	
								21.029	
						21.029 M ³	P/M ³	Rs.230.50	Rs.4,847.07
3- 2.28	Supplying and filling in plinth with local sand and under floors including watering, ramming consolidating and dressing complete.								
	base of footing								
	4	1.95	1.95	0.10	=			1.521	
	Under Tie beam								
	2	3.95	0.25	0.10	=			0.198	
	2	2.95	0.25	0.10	=			0.148	
	Floor								
	1	4.00	3.00	0.10	=			1.200	
								3.066	
						3.066 M ³	P/M ³	Rs.204.40	Rs.626.69
4- 11.72	Providing designation of 100A Brick flat Soling joints filled with local sand including cost of watering, taxes & royalty all complete as per specification & direction of E/I.								
	base of footing								
	4	1.95	1.95		=			15.210	
	Under Tie beam								
	2	3.95	0.25		=			1.975	
	2	2.95	0.25		=			1.475	
	Floor								
	1	4.00	3.00		=			12.000	
								30.660	
						30.660 M ²	P/M ²	Rs.253.80	Rs.7,781.51
5 4.1.2	Providing and laying in position cement concrete of specified grade exluding the cost of centring and shuttering-all work upto plinth level. 1:1.5:3(1 Cement :1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)								
	base of footing								
	4	1.95	1.95	0.075	=			1.141	
	Floor								
	1	4.00	3.00	0.10	=			1.200	
								2.341	
						2.341 M ³	P/M ³	Rs.4,373.20	Rs.10,236.57

S.N.	Particulars					Quantity	Unit	Rate	Amount	
6 5.1.2	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of centring, shuttering, finishing and reinforcement- All work upto plinth level 1:1:5:3(1 cement: 1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)									
	Tie beam									
	1	3.95	0.25	0.25	=	0.247				
	1	2.95	0.25	0.25	=	0.184				
	base of footing									
	4	1.80	1.80	0.30	=	3.888				
	4	0.45	0.45	0.15	=	0.122				
	Column below GL									
	4	0.30	0.30	0.65	=	0.234				
	Column above GL									
	4	0.30	0.30	0.15	=	0.054				
						4.729				
						4.729 M ³	P/M ³	Rs.4,530.30	Rs.21,422.66	
7- 5.9.1	Centring and shuttering including strutting, propping etc. and removal of form for.									
	2	3.95	0.25		=	1.975				
	2	2.95	0.25		=	1.475				
	16	1.80	0.30		=	8.640				
	16	0.45	0.15		=	1.080				
	16	0.30	0.65		=	3.120				
	16	0.30	0.15		=	0.720				
						17.010				
						17.010 M ²	P/M ²	Rs.169.00	Rs.2,874.69	
8- 5.2.2	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete. 8 mm to 16 mm tor steel									
	Total Reinforcement @1.25% of Vol. Of Concrete									
					=	464.00 Kg.	P/Kg.	Rs.56.00	Rs.25,984.00	
9 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of oundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead (50% of E/W in excavation)					10.514 M ³	P/M ³	Rs.74.50	Rs.783.31	
10 13.26	Neat cement punning									
	1	4.00	3.00		=	12.000	12.000 M ²	P/M ²	Rs.32.30	Rs.387.60
11- 10.7.1	Providing and fixing 1mm thick M.S. sheet door with frame of 40x40x6mm angle iron and 3mm M.S. gusset plates at the junctions and corners, all necessary fittings complete, including applying a priming coat of approved steel primer. Using flats 30x6 mm for diagonal braces and central cross piece.									
	Door									
	1	0.9	2.10		=	1.890				
	Window									
	1	1.2	0.90		=	1.080				
					Total =	2.970	2.970 M ³	P/M ³	Rs.2,503.00	Rs.7,433.91

S.N.	Particulars	Quantity	Unit	Rate	Amount	
12- 12.1.4	Providing corrugated G.S. sheet roofing fixed with G.I.J. or hooks, bolts and nuts 8 mm diameter with bitumen and G. I. limpet washers or with G.I. limpet washers filled with white lead and including a coat of approved steel primer and two coats of approved paint on over lapping of sheets complete (upto a pitch of 60°) excluding the cost of purlins, rafters and trusses. 0.8mm thick with zinc coating not less than 275 gm/mz					
	Roof					
	1 4.50 3.50 =				15.750	
	Wall					
	1 16.00 3.00 =				48.000	
					63.750	
	Deduct for door & window					
	1 0.9 2.10 =				1.890	
	1 1.2 0.90 =				1.080	
					2.970	
	Net Qty =	60.780	M ²	Rs.729.70	Rs.44,351.17	
13 10.19	Providing and fixing anchor bolt of 16 mm dia and 0.60 Mtr length embedded in R.C.C pedestal all complete as per direction of Engineer in charge. @4x4x0.95kg	15.15	Kg	P/kg	Rs.73.60	Rs.1,115.04
14- 13.82.1	Painting with ready mixed paint of approved brand and manufacture in all shades to give an even shade: New steel work (two or more coats)					
	Frame work					
	0.5 16.00 8.00 =				64.000	
	0.5 5.00 4.00 =				10.000	
	Roof sheet					
	2 4.50 3.50 =				31.500	
	Top sheet					
	2 5.00 4.00 =				40.000	
	GI sheet wall					
	2 16.00 3.00 =				96.000	
		241.50	M ²	Rs.63.60	Rs.15,359.40	
15	Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & direction of E/I.					
	(a) Bricks (7 Km. Pucca & 1 Km. Kachha lead)	990 Nos.	%0 nos.	Rs.606.10	Rs.600.04	
	(b) Coarse Sand (100 Km. lead)	3.040 M ³	P/M ³	Rs.1,221.09	Rs.3,712.11	
	(c) Stone Chips (150 Km. lead)	6.070 M ³	P/M ³	Rs.1,746.29	Rs.10,599.98	
	(d) Local Sand (2 Km. Pucca & 1 Km. Kachha lead)	3.530 M ³	P/M ³	Rs.217.23	Rs.766.82	
				TOTAL	Rs.4,51,183.37	
				say	Rs.4,51,200.00	



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GOVERNMENT OF BIHAR

PUBLIC HEALTH ENGINEERING DEPARTMENT

MODEL ESTIMATE

FOR

CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME

FOR A WARD HAVING 150 HOUSE HOLDS

ESTIMATED COST-- Rs. 13.991 Lac

2017-18

GOVERNMENT OF BIHAR
Public Health Engineering Department
ABSTRACT OF COST

NAME OF WORK:- CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME FOR WARD HAVING 150 HOUSE HOLDS

S.N.	Description	Total Amount
1	Construction of 200/165 mm dia. 90 Mtr deep Drilled High Yield Tubewell By DTH RIG Machine with Blue casing U.P.V.C. Pipe etc. all complete and as per direction of E/I. (As per sub Estimate no.- 1)	Rs.95,242.91
2	Constructing masonry Chamber 100x100x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for Tube Well, and RCC top slab 1:1.5:3 mix (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:2:4(1 cement : 2 fine sand : 4 graded stone aggregate 20 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick with 5% cico frished with a floating coat of neat cement, out side plastering with cement mortar 1:4 (1 cement : 4coarse sand) 12 mm thick complete as per standard specifications & direction of E/I. (As per sub Estimate no.- 2)	Rs.13,210.00
3	Providing and Laying Distribution network of High Density Polyethylene pipe (HDPE pipe) including 10000 liter PVC tank installed at 8M high MS staging etc all complete as per direction of E/I. (As per sub Estimate no.- 3)	Rs.5,05,053.21
4	Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I. (As per sub Estimate no.- 4)	Rs.93,603.00
5	Providing house connection for each house hold including supplying all materials, labours, tools and making ferrule connection with 20 mm dia MDPE and 15mm CPVC Pipes with all fittings etc all complete. (As per sub Estimate no.- 5)	Rs.2,26,950.00
6	Providing and erecting 8M high staging with ladder of ISA65x65x6 and 16mm dia MS bar as trade @ 400mm c/c and GI enclosure to house electric switch panel & treatment unit (where required) of suitably designed MS section of angle, channel, etc. as per drawing attached. (As per sub Estimate no.- 6)	Rs.4,51,200.00
TOTAL		Rs.13,85,259.12
Add 1% Contingency		Rs.13,852.59
G. TOTAL		Rs.13,99,111.71
Say		Rs.13,99,100.00

(Rs. Thirteen Lakh Ninety nine Thousand One Hundred) only

note:

- i) Road cutting cost may increase or decrease as per actuals.
- ii) Strongly advised that pipeline should be laid before construction of Naali-Gali.
- iii) This is a model estimate. Hence the quantity may increase or decrease based on actual site conditions.

Variable inter alia includes

- i) Hydro geomorphological condition.
- ii) Location of source vis-à-vis population/ house holds.
- iii) Quality of works and materials shall be maintained as per standard specifications and direction of E/I.

Technical approval accorded for Rs.13,99,100.00 (Rs. Thirteen Lakh Ninety nine Thousand One Hundred) only

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Sensha
10.4.17

Estimate no.- 1

2	MODEL ESTIMATE OF CONSTRUCTION OF 200/165 MM DIA. 90 MTR DEEP DRILLED HIGH YIELD TUBEWELL BY DTH RIG MACHINE WITH BLUE CASING U.P.V.C. PIPE					
3						
4	S. NO.	Particulars	Quantity	unit	Rate	Amount
5	1(A)	Drilling of 200mm x 165mm x 125 meter deep borewell in all kinds of soll and rock in rural area for installation of pump set with Hydaraulic DTH Rig machine, all complete including supplying all materials, tools, drilling rig, Air Compressor and equipments, as well as fuel, lubricants and cost of transportation of Rig machine and other vehicles up to the site etc all complete as per specification and direction of E/l.				
6		(i) Up to 50 mtrs depth below GL	50	P/M	Rs.729.52	Rs.36,476.00
7		(ii) Beyond 50 mtrs. Up to 90 Mtrs.	40	P/M	Rs.867.88	Rs.34,715.20
8	2	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC (UPVC) medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer -in-charge. (200mm dia)	24	P/M	Rs.921.70	Rs.22,120.80
9	3	Supplying labour, cement and calcium chloride or betonites solution and equipments for grouting to casing pipe as per specification and direction of E/l.	1	Each	Rs.51.01	Rs.51.01
10	4	Supplying all tools labors and equipments and doing washing fiushing & developing of drilled tube well to give clean and clear water (min. 2.50 Hours)all complete as per direction of E/l.	2.5	P/Hr	Rs.649.40	Rs.1,623.50
11	5	Supplying labors and equipments including 200 mm dia M.S. Cap & Fitting & Fixing over the tube well properly and taking out as per direction of E/l.	1	Each	Rs.256.40	Rs.256.40
12	TOTAL					Rs.95,242.91

(Sub Estimate - 2)
Analysis of Chamber for TW

Supplying materials, labours and constructing chamber of following dimension having 250mm thick wall in C.M. (1:4) including 12mm C.P. (1:3) with punning inside, R.C.C. cover slab with C.I. Surface box, 20mm dia foot rest at 150mm interval 10mm dia lifting ring etc. all complete.

SIZE			1.00 M	x	1.00 M	x	0.75 M deep
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S.O.R. No.	Particulars	No.	L	W	H	Qty.	Unit	Rate	Amount	
1	Earth work in excavation	1	1.75	1.75	1.0	3.063 M ³	P/M ³	Rs.230.50	Rs.705.91	
S.O.R. No. 2.8										
2	Sand filling	1	1.75	1.75	0.075	0.230 M ³	P/M ³	Rs.204.40	Rs.46.95	
S.O.R. No. 2.28										
3	Brick flat soling	1	1.75	1.75		3.063 M ²	P/M ²	Rs.253.80	Rs.777.26	
S.O.R. 11.72										
4	P.C.C. (1:2:4) in foundation	1	1.75	1.75	0.10	0.306 M ³				
S.O.O. 4.1.3										
5	B/Work in (1:4) C.M.	2	2.50	0.25	0.75	0.306 M ³	P/M ³	Rs.3,850.50	Rs.1,179.22	
S.O.R. No. 6.1.12/1										
6	R.C.C. Cover slab(1:1.5:3)	1	1.50	1.50	0.15	0.338 M ³	P/M ³	Rs.5,139.70	Rs.1,734.65	
S.O.R. No. 5.2.2 & 5.9.3										
	shuttering	2	1.50	1.50	0.15	3.15 M ²	P/M ²	Rs.291.00	Rs.916.65	
7	C.P. (1:3) with 5% Cico & neat cement									
S.O.R. Internal face										
		2	1.00	1.00	1.00	4.00 M ²				
No. 13.17.1										
	Bed surface	1	1.00	1.00		1.00 M ²				
+13.36.1										
						5.00 M ²	P/M ²	Rs.166.30	Rs.831.50	
8	C.P. (1:4) out side of wall	2	1.50	1.50	0.75	4.5 M ²	P/M ²	Rs.114.70	Rs.516.15	
S.O.R. No. 13.11.2										
9	8mm dia T.S. Rod									
S.O.R. No. 5.22.7A										
			0.338 M ³ x	70	Kg/M ³	23.625 Kg.	P/Kg	Rs.56.00	Rs.1,323.00	
10	Lifting Ring of 10mm dia Rod					4 No.	Each	Rs.30.00	Rs.120.00	
									Total	
									Rs.12,580.41	
11	Carriage of materials 5%									Rs.629.02
									<u>Rs.13,209.43</u>	
Say Rs.13,210.00										

Sub Est. No. 3

WATER SUPPLY DISTRIBUTION SYSTEM

S.N.	Particulars	Quantity	Unit	Rate	Amount
1A	Earthwork in excavation over areas (exceeding 30 cm in depth 1.5 in width as well as 10 sqm on plan) including disposal of excavated earth lead upto 50m and lift upto 1.5m, disposal earth to be levelled and neatly dressed.				
	75mm dia Pipe	195.00	0.30	1.10 =	64.35
	63mm dia Pipe	195.00	0.30	1.10 =	64.35
	50mm dia Pipe	390.00	0.30	1.10 =	128.70
	40mm dia Pipe	520.00	0.30	1.10 =	171.60
				429.00 M ³	
	Add 5% extra for fittings =			21.45 M ³	
				450.45 M ³	
			P/M ³	Rs.230.50	Rs.1,03,828.73
1B	Provision for PCC road cutting and its restoration	14.63	M ³	P/M ³	Rs.4,428.80
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	441.44	M ³	P/M ³	Rs.74.50
					Rs.32,887.35
3	Providing and laying High Density Polyethylene pipe (HDPE pipe) of 20 mm to 225 mm OD and pressure 6.0 Kg/cm ² and 10 Kg/cm ² suitable for water supply which is available in all standard, like ISI-4984/1995 and various grades like PE-80, PE-100 including required specials. Rates are inclusive of , all taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete as per direction of Engineer-in-charge.				
3A	HDPE pipe of materials grade PE100- PN10 (dia in mm)				
	75mm dia Pipe from PVC Tank to Distribution main	14.00	M	P/M	Rs.239.81
					Rs.3,357.34
	75mm dia Pipe	195.00	M	P/M	Rs.239.81
					Rs.46,762.95
	63mm dia Pipe	195.00	M	P/M	Rs.168.77
					Rs.32,910.15
3B	HDPE pipe of materials grade PE100- PN8 (dia in mm)				
	50mm dia Pipe	390.00	M	P/M	Rs.89.99
					Rs.35,096.10
	40mm dia Pipe	520.00	M	P/M	Rs.59.78
					Rs.31,085.60
	50mm dia Pipe from T/well to PVC Tank	12.00	M	P/M	Rs.89.99
					Rs.1,079.88
4	Providing and fixing brass gate valve with C.I. wheel of approved quality (screwed end).				
	75mm dia Pipe	3	No: Each	Rs.1,351.60	Rs.4,054.80
	63mm dia Pipe	2	No: Each	Rs.1,351.60	Rs.2,703.20
	50mm dia Pipe	3	No: Each	Rs.811.40	Rs.2,434.20
	40mm dia Pipe	3	No: Each	Rs.613.90	Rs.1,841.70

S.N.	Particulars	Quantity	Unit	Rate	Amount					
5 18.33	Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:5:10(1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard specifications & direction of E/I.									
	Work for additional depth									
	Brick work (1:4) in foundation									
		2	1.10	0.25	0.35	0.193				
		2	0.60	0.25	0.35	0.105				
						0.298	2.678	CuI CuM	Rs.4,724.40	Rs.12,649.58
	Plaster (1:3)									
		8	1.10		0.35	3.08	27.72	SqI SqM	Rs.128.20	Rs.3,553.70
6	Carriage 10% of item 5									Rs.6,847.08
7 18.48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, ISI : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.									
		10000	Ltrs	P/Ltr.					Rs.6.60	Rs.66,000.00
8	Providing and fixing PTMT extension nipple for water tank pipe, fittings of approved quality and colour.									
	50mm dia	2	No.	each					Rs.250.00	Rs.500.00
	75mm dia	1	No.	each					Rs.400.00	Rs.400.00
									TOTAL	Rs.5,05,053.21

Sub Est. No. 4

Model estimate for supply, installation & commissioning of single phase 3 H.P submersible motor pump set with all accessories including extension of L.T. line from nearest source up-to pumping station.

Sl. No.	Particulars	Quantity	Unit	Rate	Amount
1	2	3	4	5	6
[A.]	<p>Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I.</p> <p>(i) 50 mm dia x 3 mtrs long medium class G.I column pipe both end thread and one end socketed- 6(six)nos (ii) 1x3x2.5 mm² flat copper conductor submersible cable -40 (forty) mtrs. (iii) 50 mm dia union socket- 1(one) no. (iv) 65 mm dia x 250 mm long G.I. nipple- 1 (one) no. (v) 50 mm dia G.I Elbow—1(One) no. (vi) 50 mm dia M.S. clamps—2(Two) Pairs. (vii) 50 mmx 250 mm long G.I nipple- 1(One) no. (viii) Tube well cap for T/Well – 1(one) no. (ix) 50 mm dia x 65 mm dia reducer socket –1(one) no.</p>	1 (one) job	p/job	Rs.42,700.00	Rs.42,700.00

[B]	Supply Installation, commissioning and testing of floor mounted outdoor type L.T feeder pillar single phase starter control pannel operated on 220 V, 3 phase , 50 c/s for 3 HP Submersible pump set made of MS sheet (minimum 2 mm thick) duly spray power coated painting with following accessories made of M.S sheet (minimum 2mm thick) duly spray powder coated painting with following accessories (i) 90-220 V range single phase 7.5 KVA automatic voltage stabilizer make- Sen & Pandit/ Vertex/ISI marked If any. 1 No. (ii) Suitable single phase starter control panel for above motor of BCH /L&Tmake – 1(one) no.	1 (one) job	p/job	Rs.45,500.00	Rs.45,500.00
[C]	Supplying & fitting 2.5 mm ² copper service cable from power point from nearest source up-to pumping station..	20 mtrs	P/Mt	Rs.130.00	Rs.2,600.00
[D]	Providing all materials and labour required for doing earthing station with G.I earth pipe of 40 mm dia x 4.5 mtrs 20fts. long G.I pipe including accessories excavation of earth , providing masonry enclosure with cover plate having locking arrangement and watering pipe etc.with salt, charcoal,etc.as per IE & IS specification.	1 job	p/job	Rs.2,803.00	Rs.2,803.00
				Total Rs.	Rs.93,603.00

Sub Est. No. 5

Estimate for the work - House service connection					
SUB-ESTIMATE					
S.No.	Description	Qty	Unit	Rate	Amount
1A	Providing and fixing MDPE (PE 80 GradeCompound) pipes PN-12.5 (12.5kg/Sqcm) as per ISO 4427 and specification for waterapplication rates are inclusive of , taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete asper direction of Engineer-in-charge.complete.				
	MDPE Pipe 20mm dia nominal bore	6.00	PM	Rs.19.97	Rs.119.82
1B	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall				
18.7.1	15 mm nomonal bore	1.0	PM	Rs.138.70	Rs.138.70
2	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and amming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil				
2.8.1	6.00 0.30 0.60 1.08	1.08	CuM	Rs.230.50	Rs.248.94
3 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead	1.06	CuM	Rs.74.50	Rs.78.85
4	Providing and fixing brass ferrule with CI mouth cover incuding boring and tapping the main:				
18.20.1	15mm nominal bore	1	Each	Rs.254.10	Rs.254.10
	Providing and fixing P.P. Black service Saddle (Brass threaded)	1	Each	Rs.400.00	Rs.400.00
5	Providing and fixing brass bib cock of approved quality :				
18.15.1	15mm nominal bore	1	Each	Rs.273.00	Rs.273.00
	Total				Rs.1,513.41
	Say				Rs.1,513.00
Total Nos. of House Holds=		150 Nos.	@	Rs.1,513.00	Rs.2,26,950.00

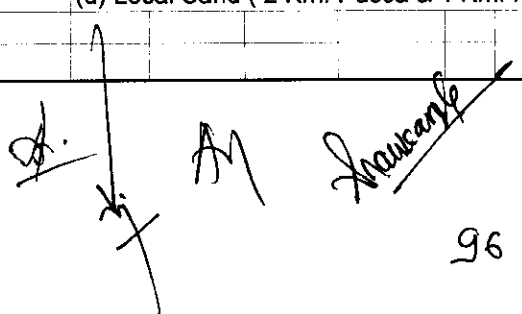
Sub Est. No. 6

8 M HIGH STEEL STRUCTURE STAGING FOR 5000/10000 LITER PVC TANK

S.N.	Particulars	Quantity	Unit	Rate	Amount
1 10.3	Structural steel work riveted or bolted in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved primer all complete for 8M high staging with ladder of ISA65x65x6 and 16mm dia MS bar as trade @ 400mm c/c and GI enclosure to house electric switch panel & treatment unit (where required) of suitably designed MS section of angle, channel, etc. as per drawing attached.	4224 Kg	P/Kg	Rs.69.20	Rs.2,92,300.80
2 2.8.1	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including rassing of sides and ramming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All Kinds of soil base of footing				
	4 1.95 1.95 1.35 = 20.534				
	Under Tie beam				
	2 2.30 0.25 0.275 = 0.316				
	2 1.30 0.25 0.275 = 0.179				
		21.029			
		21.029 M ³	P/M ³	Rs.230.50	Rs.4,847.07
3- 2.28	Supplying and filling in plinth with local sand and under floors including watering, ramming consolidating and dressing complete. base of footing				
	4 1.95 1.95 0.10 = 1.521				
	Under Tie beam				
	2 3.95 0.25 0.10 = 0.198				
	2 2.95 0.25 0.10 = 0.148				
	Floor				
	1 4.00 3.00 0.10 = 1.200				
		3.066			
		3.066 M ³	P/M ³	Rs.204.40	Rs.626.69
4- 11.72	Providing designation of 100A Brick flat Soling joints filled with local sand including cost of watering, taxes & royalty all complete as per specification & direction of E/l. base of footing				
	4 1.95 1.95 = 15.210				
	Under Tie beam				
	2 3.95 0.25 = 1.975				
	2 2.95 0.25 = 1.475				
	Floor				
	1 4.00 3.00 = 12.000				
		30.660			
		30.660 M ²	P/M ²	Rs.253.80	Rs.7,781.51
5 4.1.2	Providing and laying in position cement concrete of specified grade exluding the cost of centring and shuttering-all work upto plinth level. 1:1.5:3(1 Cement :1.5 coarse sand:3 graded stone aggregate 20 mm nominal size) base of footing				
	4 1.95 1.95 0.075 = 1.141				
	Floor				
	1 4.00 3.00 0.10 = 1.200				
		2.341			
		2.341 M ³	P/M ³	Rs.4,373.20	Rs.10,236.57

S.N.	Particulars					Quantity	Unit	Rate	Amount	
6 5.1.2	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of entering, shuttering, finishing and reinforcement- All work upto plinth level 1:1:5:3(1 cement: 1.5 coarse sand:3 graded stone aggregate 20 mm nominal size) Tie beam									
	1	3.95	0.25	0.25	=	0.247				
	1	2.95	0.25	0.25	=	0.184				
	base of footing									
	4	1.80	1.80	0.30	=	3.888				
	4	0.45	0.45	0.15	=	0.122				
	Column below GL									
	4	0.30	0.30	0.65	=	0.234				
	Column above GL									
	4	0.30	0.30	0.15	=	0.054				
						4.729	4.729 M ³	P/M ³	Rs.4,530.30	Rs.21,422.66
7- 5.9.1	Centring and shuttering including strutting, propping etc. and removal of form for.									
	2	3.95	0.25		=	1.975				
	2	2.95	0.25		=	1.475				
	16	1.80	0.30		=	8.640				
	16	0.45	0.15		=	1.080				
	16	0.30	0.65		=	3.120				
	16	0.30	0.15		=	0.720				
						17.010	17.010 M ²	P/M ²	Rs.169.00	Rs.2,874.69
8- 5.22	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete. 8 mm to 16 mm tor steel Total Reinforcement. @1.25% of Vol. Of Concrete					=	464.00 Kg.	P/Kg.	Rs.56.00	Rs.25,984.00
9 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of oundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead (50% of E/W in excavation)					10.514 M ³	P/M ³	Rs.74.50	Rs.783.31	
10 13.26	Neat cement punning									
	1	4.00	3.00		=	12.000	12.000 M ²	P/M ²	Rs.32.30	Rs.387.60
11- 10.7.1	Providing and fixing 1mm thick M.S. sheet door with frame of 40x40x6mm angle iron and 3mm M.S. gusset plates at the junctions and corners, all necessary fittings complete, including applying a priming coat of approved steel primer. Using flats 30x6 mm for diagonal braces and central cross piece.									
	Door									
	1	0.9	2.10		=	1.890				
	Window									
	1	1.2	0.90		=	1.080				
				Total	=	2.970	2.970 M ³	P/M ³	Rs.2,503.00	Rs.7,433.91

S.N.	Particulars	Quantity	Unit	Rate	Amount	
12-12.1.4	Providing corrugated G.S. sheet roofing fixed with G.I.J. or hooks, bolts and nuts 8 mm diameter with bitumen and G. I. limpet washers or with G.I. limpet washers filled with white lead and including a coat of approved steel primer and two coats of approved paint on over lapping of sheets complete (upto a pitch of 60°) excluding the cost of purlins, rafters and trusses. 0.8mm thick with zinc coating not less than 275 gm/mz					
	Roof					
	1 4.50 3.50 =				15.750	
	Wall					
	1 16.00 3.00 =				48.000	
					63.750	
	Deduct for door & window					
	1 0.9 2.10 =				1.890	
	1 1.2 0.90 =				1.080	
					2.970	
	Net Qty =	60.780	M ²	Rs.729.70	Rs.44,351.17	
13-10.19	Providing and fixing anchor bolt of 16 mm dia and 0.60 Mtr length embedded in R.C.C pedestal all complete as per direction of Engineer in charge. @4x4x0.95kg	15.15	Kg	P/kg	Rs.73.60	Rs.1,115.04
14-13.82.1	Painting with ready mixed paint of approved brand and manufacture in all shades to give an even shade: New steel work (two or more coats) Frame work					
	0.5 16.00 8.00 =				64.000	
	0.5 5.00 4.00 =				10.000	
	Roof sheet					
	2 4.50 3.50 =				31.500	
	Top sheet					
	2 5.00 4.00 =				40.000	
	GI sheet wall					
	2 16.00 3.00 =				96.000	
					241.500	
		241.50	M ²	Rs.63.60	Rs.15,359.40	
15	Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & direction of E/I.					
	(a) Bricks (7 Km. Pucca & 1 Km. Kachha lead)	990	Nos.	%0 nos.	Rs.606.10	Rs.600.04
	(b) Coarse Sand (100 Km. lead)	3.040	M ³	P/M ³	Rs.1,221.09	Rs.3,712.11
	(c) Stone Chips (150 Km. lead)	6.070	M ³	P/M ³	Rs.1,746.29	Rs.10,599.98
	(d) Local Sand (2 Km. Pucca & 1 Km. Kachha lead)	3.530	M ³	P/M ³	Rs.217.23	Rs.766.82
					TOTAL	Rs.4,51,183.37
					say	Rs.4,51,200.00



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GOVERNMENT OF BIHAR

PUBLIC HEALTH ENGINEERING DEPARTMENT

MODEL ESTIMATE

FOR

CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME

FOR A WARD HAVING 200 HOUSE HOLDS

ESTIMATED COST-- Rs. 16.018 Lac

2017-18

GOVERNMENT OF BIHAR
Public Health Engineering Department
ABSTRACT OF COST

NAME OF WORK:- CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME FOR WARD HAVING 200 HOUSE HOLDS

S.N.	Description	Total Amount
1	Construction of 150mm X 90m deep Gravel packed T/W etc. all complete and as per direction of E/I. (As per sub Estimate no.- 1)	Rs.1,65,744.00
2	Constructing masonry Chamber 100x100x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for Tube Well, and RCC top slab 1:1.5:3 mix (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:2:4(1 cement : 2 fine sand : 4 graded stone aggregate 20 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick with 5% cico finished with a floating coat of neat cement, out side plastering with cement mortar 1:4 (1 cement : 4coarse sand) 12 mm thick complete as per standard specifications & direction of E/I. (As per sub Estimate no.- 2)	Rs.13,210.00
3	Providing and Laying Distrbution network of High Density Polyethyene pipe (HDPE pipe) including 10000 liter PVC tank installed at 8M high MS staging etc all complete as per direction of E/I. (As per sub Estimate no.- 3)	Rs.5,59,592.09
4	Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I. (As per sub Estimate no.- 4)	Rs.93,603.00
5	Providing house connection for each house hold including supplying all materials, labours, tools and making ferrule connection with 20 mm dia MDPE and 15mm CPVC Pipes with all fittings etc all complete. (As per sub Estimate no.- 5)	Rs.3,02,600.00
6	Providing and erecting 8M high staging with ladder of ISA65x65x6 and 16mm dia MS bar as trade @ 400mm c/c and GI enclosure to house electric switch panel & treatment unit (where required) of suitably designed MS section of angle, channel, etc. as per drawing attached. (As per sub Estimate no.- 6)	Rs.4,51,200.00
TOTAL		Rs.15,85,949.09
Add 1% Contingency		Rs.15,859.49
G. TOTAL		Rs.16,01,808.58
Say		Rs.16,01,800.00

(Rs.Sixteen Lakh OneThousand Eight Hundred) only

note:

- i) Road cutting cost may increase or decrease as per actuals.
- ii) Strongly advised that pipeline should be laid before construction of Naali-Gali.
- iii) This is a model estimate. Hence the quantity may increase or decrease based on actual site conditions.

Variable inter alia includes

- i) Hydro geomorphological condition.
- ii) Location of source vis-à-vis population/ house holds.
- iii) Quality of works and materials shall be maintained as per standard specifications and direction of E/I.

Technical approval accorded for Rs.16,01,800.00 (Rs.Sixteen Lakh OneThousand Eight Hundred) only

(Sub Estimate - 1)

(A) Construction of 150mm X 90m deep Gravel packed T/W					
S. No.	Particulars	Quantity	Unit	Rate	Amount
1	Transportation of machine, equipments including all accessories etc.	1 No.	Each	Rs.1,010.00	Rs.1,010.00
2	Boring/drilling bore well of required dia for casing/strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer-in-charge, upto 90 metre depth below ground level. (All types of soil)				
	400mm dia bore from GL to 90.0M	90 Mtr.	P/M	Rs.529.30	Rs.47,637.00
3A	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC (UPVC) medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer-in-charge.				
	(a) 150 mm nominal size dia	59 M	P/M	Rs.615.30	Rs.36,302.70
3B	Supplying, assembling, lowering and fixing in vertical position in bore well unplasticized PVC (UPVC) medium well screen (RMS) pipes with ribs, conforming to IS: 12818, including hire & labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer-in-charge.				
	150 mm nominal size dia	30.0 M	P/M	Rs.554.30	Rs.16,629.00
4	Supplying fitting & fixing the following Fitting of approved make and specification at work site complete job.				
	(a) 150mm center guide Nos. in each T/W	9 Nos.	Each	Rs.150.00	Rs.1,350.00
	(b) 150 mm dia well plug	1 No	Each	Rs.205.10	Rs.205.10
	(b) 150 mm dia M.S. Clamp 1.6 M long (one Pair)	1 No	Each	Rs.1,031.10	Rs.1,031.10
5	Supplying 3mm to 6 mm Well washed assorted pea gravel and doing surrounding around the annular space between bore hole & 125mm pipe uniformity up to the depth 10 mtr. below G.L all work complete as per direction of E/I.	11 M ³	P/M ³	Rs.917.00	Rs.10,087.00
6	Carriage of Pea gravel from Dhalbhumigarh (taken av distance 400Km)	11 M ³	P/M ³	Rs.4,336.54	Rs.47,701.94
7	Supplying all materials laobours and equipments to seal T/W up to the depth of 12 mtr below G.L. by Sticky clay to prevent contamination from surface from all complete job as per direction of E/I.	1 Item	Each	Rs.51.01	Rs.51.01
8	Supplying all materials laobours and equipments including 150mm dia G.I. Cap /C.I. Cap over the casing of 150mm dia T/W properly all complete.	1 No.	Each	Rs.205.10	Rs.205.10
9	Carriage of necessary equipment & materials.	1 No.	Each	Rs.287.50	Rs.287.50
10	Supplying all tools equipments & labour for flushing washing and developing the T/W to give clean & clear water and all complete job as per direction of E/I.	5 H	P / H	Rs.649.40	Rs.3,247.00
				TOTAL	Rs.1,65,744.45
				Say	Rs.1,65,744.00

(Sub Estimate - 2)
Analysis of Chamber for TW

Supplying materials, labours and constructing chamber of following dimension having 250mm thick wall in C.M. (1:4) including 12mm C.P. (1:3) with punning inside, R.C.C. cover slab with C.I. Surface box, 20mm dia foot rest at 150mm interval 10mm dia lifting ring etc. all complete.

SIZE	1.00 M	x	1.00 M	x	0.75 M deep
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<u>S.O.R. No.</u>	<u>Particulars</u>	<u>No.</u>	<u>L</u>	<u>W</u>	<u>H</u>	<u>Qty.</u>	<u>Unit</u>	<u>Rate</u>	<u>Amount</u>
1	Earth work in excavation	1	1.75	1.75	1.0	3.063 M ³	P/M ³	Rs.230.50	Rs.705.91
S.O.R. No. 2.8									
2	Sand filling	1	1.75	1.75	0.075	0.230 M ³	P/M ³	Rs.204.40	Rs.46.95
S.O.R. No. 2.28									
3	Brick flat soling	1	1.75	1.75		3.063 M ²	P/M ²	Rs.253.80	Rs.777.26
S.O.R. 11.72									
4	P.C.C. (1:2:4) in foundation	1	1.75	1.75	0.10	0.306 M ³			
S.O.O. 4.1.3									
						0.306 M ³	P/M ³	Rs.3,850.50	Rs.1,179.22
5	B/Work in (1:4) C.M.	2	2.50	0.25	0.75	0.938 M ³	P/M ³	Rs.4,724.40	Rs.4,429.13
S.O.R. No. 6.1.12/1									
6	R.C.C. Cover slab(1:1.5:3)	1	1.50	1.50	0.15	0.338 M ³	P/M ³	Rs.5,139.70	Rs.1,734.65
S.O.R. No. 5.2.2 & 5.9.3									
	shuttering	2	1.50	1.50	0.15	3.15 M ²	P/M ²	Rs.291.00	Rs.916.65
7	C.P. (1:3) with 5% Cico & neat cement								
S.O.R. No.									
	Internal face	2	1.00	1.00	1.00	4.00 M ²			
13.17.1	Bed surface	1	1.00	1.00		1.00 M ²			
+13.36.1						5.00 M ²	P/M ²	Rs.166.30	Rs.831.50
8	C.P. (1:4) out side of wall	2	1.50	1.50	0.75	4.5 M ²	P/M ²	Rs.114.70	Rs.516.15
S.O.R. No. 13.11.2									
9	8mm dia T.S. Rod								
S.O.R. No. 5.22.7A									
			0.338 M ³ x	70 Kg/ M3		23.625 Kg.	P/Kg	Rs.56.00	Rs.1,323.00
10	Lifting Ring of 10mm dia Rod					4 No.	Each	Rs.30.00	Rs.120.00
11	Carriage of materials 5%								
								Total	Rs.12,580.41
									Rs.629.02
									Rs.13,209.43
								Say	Rs.13,210.00

Sub Est. No. 3

WATER SUPPLY DISTRIBUTION SYSTEM

S.N.	Particulars	Quantity	Unit	Rate	Amount
1A	Earthwork in excavation over areas (exceeding 30 cm in depth 1.5 in width as well as 10 sqm on plan) including disposal of excavated earth lead upto 50m and lift upto 1.5m, disposal earth to be levelled and neatly dressed.				
	90mm dia Pipe	70.00	0.30	1.10 =	23.10
	75mm dia Pipe	140.00	0.30	1.10 =	46.20
	63mm dia Pipe	210.00	0.30	1.10 =	69.30
	50mm dia Pipe	420.00	0.30	1.10 =	138.60
	40mm dia Pipe	560.00	0.30	1.10 =	184.80
				462.00 M ³	
	Add 5% extra for fittings =			23.10 M ³	
				485.10 M ³	P/M ³
				Rs.230.50	Rs.1,11,815.55
1B	Provision for PCC road cutting and its restoration	15.75	M ³	P/M ³	Rs.4,428.80
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	475.40	M ³	P/M ³	Rs.74.50
					Rs.35,417.15
3	Providing and laying High Density Polyethylene pipe (HDPE pipe) of 20 mm to 225 mm OD and pressure 6.0 Kg/cm ² and 10 Kg/cm ² suitable for water supply which is available in all standard, like ISI-4984/1995 and various grades like PE-80, PE-100 including required specials. Rates are inclusive of , all taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete as per direction of Engineer-in-charge.				
3A	HDPE pipe of materials grade PE100- PN10 (dia in mm)				
	75mm dia Pipe from PVC Tank to Distribution main	14.00	M	P/M	Rs.239.81
	90mm dia Pipe	70.00	M	P/M	Rs.340.84
	75mm dia Pipe	140.00	M	P/M	Rs.239.81
	63mm dia Pipe	210.00	M	P/M	Rs.168.77
3B	HDPE pipe of materials grade PE100- PN8 (dia in mm)				
	50mm dia Pipe	420.00	M	P/M	Rs.89.99
	40mm dia Pipe	560.00	M	P/M	Rs.59.78
	50mm dia Pipe from T/well to PVC Tank	12.00	M	P/M	Rs.89.99
4	Providing and fixing brass gate valve with C.I. wheel of approved quality (screwed end).				
	90mm dia Pipe	2 Nos.	Each	Rs.2,016.50	Rs.4,033.00
	75mm dia Pipe	3 Nos.	Each	Rs.1,351.60	Rs.4,054.80
	63mm dia Pipe	2 Nos.	Each	Rs.1,351.60	Rs.2,703.20
	50mm dia Pipe	3 Nos.	Each	Rs.811.40	Rs.2,434.20
	40mm dia Pipe	3 Nos.	Each	Rs.613.90	Rs.1,841.70

S.N.	Particulars	Quantity	Unit	Rate	Amount
5 18.33	Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size), necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard specifications & direction of E/I.	11	Nos. Each	Rs.5,807.50	Rs.63,882.50
	Work for additional depth				
	Brick work (1:4) in foundation				
	2 1.10 0.25 0.35 0.193				
	2 0.60 0.25 0.35 0.105				
					0.298
	Plaster (1:3)	3.273	CuM CuM	Rs.4,724.40	Rs.15,460.60
	8 1.10 0.35 3.08	33.88	SqM SqM	Rs.128.20	Rs.4,343.42
6	Carriage 10% of item 5				Rs.8,368.65
7 18.48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, ISI : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	10000	Ltrs. P/Ltr.	Rs.6.60	Rs.66,000.00
8	Providing and fixing PTMT extension nipple for water tank pipe, fittings of approved quality and colour.				
	50mm dia	2	Nos. each	Rs.250.00	Rs.500.00
	75mm dia	1	No. each	Rs.400.00	Rs.400.00
				TOTAL	Rs.5,59,592.09

Sub Est. No. 4

Model estimate for supply, installation & commissioning of single phase 3 H.P submersible motor pump set with all accessories including extension of L.T. line from nearest source up-to pumping station.

Sl. No.	Particulars	Quantity	Unit	Rate	Amount
1	2	3	4	5	6
[A.]	<p>Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/l.</p> <p>(i) 50 mm dia x 3 mtrs long medium class G.I column pipe both end thread and one end socketed- 6(six)nos (ii) 1x3x2.5 mm² flat copper conductor submersible cable -40 (forty) mtrs. (iii) 50 mm dia union socket- 1(one) no. (iv) 65 mm dia x 250 mm long G.I. nipple- 1 (one) no. (v) 50 mm dia G.I Elbow—1(One) no. (vi) 50 mm dia M.S. clamps—2(Two) Pairs. (vii) 50 mmx 250 mm long G.I nipple- 1(One) no. (viii) Tube well cap for T/Well – 1(one) no. (ix) 50 mm dia x 65 mm dia reducer socket –1(one) no.</p>	1 (one) job	p/job	Rs.42,700.00	Rs.42,700.00

[B]	Supply Installation, commissioning and testing of floor mounted outdoor type L.T feeder pillar single phase starter control panel operated on 220 V, 3 phase , 50 c/s for 3 HP Submersible pump set made of MS sheet (minimum 2 mm thick) duly spray power coated painting with following accessories made of M.S sheet (minimum 2mm thick) duly spray powder coated painting with following accessories (i) 90-220 V range single phase 7.5 KVA automatic voltage stabilizer make- Sen & Pandit/ Vertex/ISI marked If any. 1 No. (ii) Suitable single phase starter control panel for above motor of BCH /L&Tmake – 1(one) no.	1 (one) job	p/job	Rs.45,500.00	Rs.45,500.00
[C]	Supplying & fitting 2.5 mm ² copper service cable from power point from nearest source up-to pumping station..	20 mtrs	P/Mt	Rs.130.00	Rs.2,600.00
[D]	Providing all materials and labour required for doing earthing station with G.I earth pipe of 40 mm dia x 4.5 mtrs 20fts. long G.I pipe including accessories excavation of earth , providing masonry enclosure with cover plate having locking arrangement and watering pipe etc.with salt, charcoal,etc.as per IE & IS specification.	1 job	p/job	Rs.2,803.00	Rs.2,803.00
				Total Rs.	Rs.93,603.00

Sub Est. No. 5

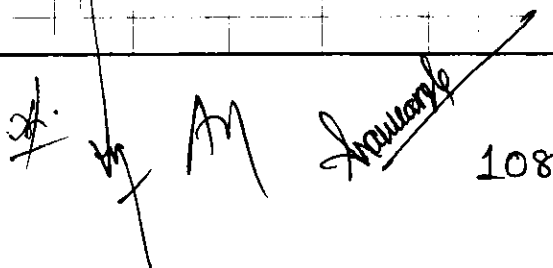
Estimate for the work - House service connection					
SUB-ESTIMATE					
S.No.	Description	Qty	Unit	Rate	Amount
1A	Providing and fixing MDPE (PE 80 GradeCompound) pipes PN-12.5 (12.5kg/Sqcm) as per ISO 4427 and specification for waterapplication rates are inclusive of , taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete asper direction of Engineer-in-charge.complete.				
	MDPE Pipe 20mm dia nominal bore	6.00	PM	Rs.19.97	Rs.119.82
1B	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall				
18.7.1	15 mm nomonal bore	1.0	PM	Rs.138.70	Rs.138.70
2	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and amming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil				
2.8.1	6.00 0.30 0.60 1.08	1.08	CuM	Rs.230.50	Rs.248.94
3 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead	1.06	CuM	Rs.74.50	Rs.78.85
4	Providing and fixing brass ferrule with CI mouth cover incuding boring and tapping the main:				
18.20.1	15mm nominal bore	1	Each	Rs.254.10	Rs.254.10
	Providing and fixing P.P. Black service Saddle (Brass threaded)	1	Each	Rs.400.00	Rs.400.00
5	Providing and fixing brass bib cock of approved quality :				
18.15.1	15mm nominal bore	1	Each	Rs.273.00	Rs.273.00
	Total				Rs.1,513.41
	Say				Rs.1,513.00

Total Nos. of House Holds= 200 Nos. @ Rs.1,513.00 Rs.3,02,600.00

Sub Est. No. 6									
8 M HIGH STEEL STRUCTURE STAGING FOR 5000/10000 LITER PVC TANK									
S.N.	Particulars				Quantity	Unit	Rate	Amount	
1 10.3	Structural steel work riveted or bolted in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved primer all complete for 8M high staging with ladder of ISA65x65x6 and 16mm dia MS bar as trade @ 400mm c/c and GI enclosure to house electric switch panel & treatment unit (where required) of suitably designed MS section of angle, channel, etc. as per drawing attached.				4224 Kg	P/Kg	Rs.69.20	Rs.2,92,300.80	
2 2.8.1	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including rassing of sides and ramming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All Kinds of soil base of footing								
	4	1.95	1.95	1.35	=			20.534	
	Under Tie beam								
	2	2.30	0.25	0.275	=			0.316	
	2	1.30	0.25	0.275	=			0.179	
								21.029	
						21.029 M ³	P/M ³	Rs.230.50	Rs.4,847.07
3- 2.28	Supplying and filling in plinth with local sand and under floors including watering, ramming, consolidating and dressing complete. base of footing								
	4	1.95	1.95	0.10	=			1.521	
	Under Tie beam								
	2	3.95	0.25	0.10	=			0.198	
	2	2.95	0.25	0.10	=			0.148	
	Floor								
	1	4.00	3.00	0.10	=			1.200	
								3.066	
						3.066 M ³	P/M ³	Rs.204.40	Rs.626.69
4- 11.72	Providing designation of 100A Brick flat Soling, joints filled with local sand including cost of watering, taxes & royalty all complete as per specification & direction of E/I. base of footing								
	4	1.95	1.95		=			15.210	
	Under Tie beam								
	2	3.95	0.25		=			1.975	
	2	2.95	0.25		=			1.475	
	Floor								
	1	4.00	3.00		=			12.000	
								30.660	
						30.660 M ²	P/M ²	Rs.253.80	Rs.7,781.51
5 4.1.2	Providing and laying in position cement concrete of specified grade exluding the cost of centring and shuttering-all work upto plinth level. 1:1.5:3(1 Cement :1.5 coarse sand:3 graded stone aggregate 20 mm nominal size) base of footing								
	4	1.95	1.95	0.075	=			1.141	
	Floor								
	1	4.00	3.00	0.10	=			1.200	
								2.341	
						2.341 M ³	P/M ³	Rs.4,373.20	Rs.10,236.57

S.N.	Particulars	Quantity	Unit	Rate	Amount	
6 5.1.2	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of entering, shuttering, finishing and reinforcement- All work upto plinth level 1:1:5:3(1 cement: 1.5 coarse sand:3 graded stone aggregate 20 mm nominal size) Tie beam					
	1 3.95 0.25 0.25 =	0.247				
	1 2.95 0.25 0.25 =	0.184				
	base of footing					
	4 1.80 1.80 0.30 =	3.888				
	4 0.45 0.45 0.15 =	0.122				
	Column below GL					
	4 0.30 0.30 0.65 =	0.234				
	Column above GL					
	4 0.30 0.30 0.15 =	0.054				
		4.729	4.729 M ³	P/M ³	Rs.4,530.30	Rs.21,422.66
7- 5.9.1	Centring and shuttering including strutting, propping etc. and removal of form for.					
	2 3.95 0.25 =	1.975				
	2 2.95 0.25 =	1.475				
	16 1.80 0.30 =	8.640				
	16 0.45 0.15 =	1.080				
	16 0.30 0.65 =	3.120				
	16 0.30 0.15 =	0.720				
		17.010	17.010 M ²	P/M ²	Rs.169.00	Rs.2,874.69
8- 5.22	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete. 8 mm to 16 mm tor steel Total Reinforcement. @1.25% of Vol. Of Concrete					
	=	464.00 Kg.	P/Kg.	Rs.56.00	Rs.25,984.00	
9 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of oundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead (50% of E/W in excavation)	10.514 M ³	P/M ³	Rs.74.50	Rs.783.31	
10 13.26	Neat cement punning					
	1 4.00 3.00 =	12.000	12.000 M ²	P/M ²	Rs.32.30	Rs.387.60
11- 10.7.1	Providing and fixing 1mm thick M.S. sheet door with frame of 40x40x6mm angle iron and 3mm M.S. gusset plates at the junctions and corners, all necessary fittings complete, including applying a priming coat of approved steel primer. Using flats 30x6 mm for diagonal braces and central cross piece. Door					
	1 0.9 2.10 =	1.890				
	Window					
	1 1.2 0.90 =	1.080				
	Total	2.970	2.970 M ³	P/M ³	Rs.2,503.00	Rs.7,433.91

S.N.	Particulars	Quantity	Unit	Rate	Amount	
12-12.1.4	Providing corrugated G.S. sheet roofing fixed with G.I.J. or hooks, bolts and nuts 8 mm diameter with bitumen and G. I. limpet washers or with G.I. limpet washers filled with white lead and including a coat of approved steel primer and two coats of approved paint on over lapping of sheets complete (upto a pitch of 60°) excluding the cost of purlins, rafters and trusses. 0.8mm thick with zinc coating not less than 275 gm/mz					
	Roof					
	1 4.50 3.50 =				15.750	
	Wall					
	1 16.00 3.00 =				48.000	
					63.750	
	Deduct for door & window					
	1 0.9 2.10 =				1.890	
	1 1.2 0.90 =				1.080	
					2.970	
	Net Qty =	60.780	M ²	Rs.729.70	Rs.44,351.17	
13-10.19	Providing and fixing anchor bolt of 16 mm dia and 0.60 Mtr length embedded in R.C.C pedestal all complete as per direction of Engineer in charge. @4x4x0.95kg	15.15	Kg	P/kg	Rs.73.60	Rs.1,115.04
14-13.82.1	Painting with ready mixed paint of approved brand and manufacture in all shades to give an even shade: New steel work (two or more coats) Frame work					
	0.5 16.00 8.00 =				64.000	
	0.5 5.00 4.00 =				10.000	
	Roof sheet					
	2 4.50 3.50 =				31.500	
	Top sheet					
	2 5.00 4.00 =				40.000	
	GI sheet wall					
	2 16.00 3.00 =				96.000	
					241.500	
		241.50	M ²	Rs.63.60	Rs.15,359.40	
15	Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & direction of E/I.					
	(a) Bricks (7 Km. Pucca & 1 Km. Kachha lead)	990	Nos.	%0 nos.	Rs.606.10	Rs.600.04
	(b) Coarse Sand (100 Km. lead)	3.040	M ³	P/M ³	Rs.1,221.09	Rs.3,712.11
	(c) Stone Chips (150 Km. lead)	6.070	M ³	P/M ³	Rs.1,746.29	Rs.10,599.98
	(d) Local Sand (2 Km. Pucca & 1 Km. Kachha lead)	3.530	M ³	P/M ³	Rs.217.23	Rs.766.82
					TOTAL	Rs.4,51,183.37
					say	Rs.4,51,200.00



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GOVERNMENT OF BIHAR

PUBLIC HEALTH ENGINEERING DEPARTMENT

MODEL ESTIMATE

FOR

CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME

FOR A WARD HAVING 200 HOUSE HOLDS

ESTIMATED COST-- Rs. 16.282Lac

2017-18

GOVERNMENT OF BIHAR
Public Health Engineering Department
ABSTRACT OF COST

NAME OF WORK:- CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME FOR WARD HAVING 200 HOUSE HOLDS

S.N.	Description	Total Amount
1	Construction of 150mm x100mmx125m deep T/W etc. all complete and as per direction of E/I. (As per sub Estimate no.- 1)	Rs.1,91,907.72
2	Constructing masonry Chamber 100x100x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for Tube Well, and RCC top slab 1:1.5:3 mix (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:2:4(1 cement : 2 fine sand : 4 graded stone aggregate 20 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick with 5% cico finished with a floating coat of neat cement, out side plastering with cement mortar 1:4 (1 cement : 4coarse sand) 12 mm thick complete as per standard specifications & direction of E/I. (As per sub Estimate no.- 2)	Rs.13,210.00
3	Providing and Laying Distrubtion network of High Density Polyethylene pipe (HDPE pipe) including 10000 liter PVC tank installed at 8M high MS staging etc all complete as per direction of E/I. (As per sub Estimate no.- 3)	Rs.5,59,592.09
4	Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I. (As per sub Estimate no.- 4)	Rs.93,603.00
5	Providing house connection for each house hold including supplying all materials, labours, tools and making ferrule connection with 20 mm dia MDPE and 15mm CPVC Pipes with all fittings etc all complete. (As per sub Estimate no.- 5)	Rs.3,02,600.00
6	Providing and erecting 8M high staging with ladder of ISA65x65x6 and 16mm dia MS bar as trade @ 400mm c/c and GI enclosure to house electric switch panel & treatment unit (where required) of suitably designed MS section of angle, channel, etc. as per drawing attached. (As per sub Estimate no.- 6)	Rs.4,51,200.00
TOTAL		Rs.16,12,112.81
Add 1% Contingency		Rs.16,121.13
G. TOTAL		Rs.16,28,233.94
Say		Rs.16,28,200.00

(Rs. Sixteen Lakh Twenty eight Thousand Two Hundred) only

note:

- i) Road cutting cost may increase or decrease as per actuals.
- ii) Strongly advised that pipeline should be laid before construction of Naali-Gali.
- iii) This is a model estimate. Hence the quantity may increase or decrease based on actual site conditions.

Variable inter alia includes

- i) Hydro geomorphological condition.
- ii) Location of source vis-à-vis population/ house holds.
- iii) Quality of works and materials shall be maintained as per standard specifications and direction of E/I.

Technical approval accorded for Rs.16,28,200.00 (Rs. Sixteen Lakh Twenty eight Thousand Two Hundred) only

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Semishma
10.4.17

Sub Estimate- 1

CONSTRUCTION OF 150MM X 100MM DIA & 125M DEEP TUBE WELL

S.No.	Description	Qty.	Unit	Rate	Amount
1	Boring/drilling bore well of required dia for casing/strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer -in-charge, upto 90 metre depth below ground level. (All types of soil)				
24.1.1.2	(a) 350mm dia bore from G.L. to 30.0M	30.0 M	P/M	Rs.413.50	Rs.12,405.00
24.1.1.1	(b) 300mm dia bore from 30.0 m to 60.0M	30.0 M	P/M	Rs.378.00	Rs.11,340.00
	(c) 300mm dia bore from 60M to 90.0M	30.0 M	P/M	Rs.378.00	Rs.11,340.00
24.2.1	(d) 300mm dia bore from 90.0M to 150.0M	35.0 M	P/M	Rs.441.10	Rs.15,438.50
2A	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC (UPVC) medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer -in-charge.				
24.3.2	(a) 150 mm nominal size dia	30.0 M	P/M	Rs.615.30	Rs.18,459.00
24.3.1	(b) 100 mm nominal size dia	60.0 M	P/M	Rs.444.20	Rs.26,652.00
2B	Supplying, assembling, lowering and fixing in vertical position in bore well unplasticized PVC (UPVC) medium well screen (RMS) pipes with ribs, conforming to IS: 12818, including hire & labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer-in-charge.				
24.4.1	100 mm nominal size dia	30.0 M	P/M	Rs.468.80	Rs.14,064.00
3	Supplying the following fittings & fixing the same in position as per approved lowering assembly and strata chart including providing all equipments and welding the same on process of lowering the assay etc. all complete as per S/D of E/I.				
24.13.2	(a) 150 mm dia well cap	1 No.	Each	Rs.205.10	Rs.205.10
24.14.2	(b) 150 mm dia M.S. Clamp 1.6 M long (one Pair)	1 No.	Each	Rs.1,031.10	Rs.1,031.10
	(c) 150 mm dia center guide	4 Nos.	Each	Rs.150.00	Rs.600.00
	(d) 100 mm dia center guide	6 Nos.	Each	Rs.100.00	Rs.600.00
	(e) 150 mm x 100 mm dia 6mm wall thickness MS reducer	1 No.	Each	Rs.500.00	Rs.500.00
24.15.1	(f) 100mm dia & 6mm thick M.S. well shoe plug	1 No.	Each	Rs.205.60	Rs.205.60
4a	Providing all materials, labours, & equipments for fixing tube well with pea gravel of Dalbhumigarh to size 4mm to 8mm approx. as suitable for strata including carriage washing, placing and packing the same in position around the tube well etc. all complete as per direction of E/I.	9.0 M ³	P/M ³	Rs.917.00	Rs.8,253.00
24.6	4b Carriage of Pea Gravel from Dhalbhumigarh (taken av distance 400km.)	9.0 M ³	P/M ³	Rs.4,336.54	Rs.39,028.82
5	Development of tube well in accordance with IS : 2800 (part I) and IS: 11189, to establish maximum rate of usable water yield without sand content (beyond permissible limit), with required capacity air compressor, running the compressor for required time till well is fully developed, measuring yield of well by "V" notch method or any other approved method, measuring static level & draw down etc. by step draw down method, collecting water sampl & getting tested in approved laboratory, disinfection of tubewell, all complete, including hire & labour charges of air compressor, tools & accessories etc., all as per requirement and direction of Engineer-in-charge.	24 Hrs.	Each	Rs.649.40	Rs.15,585.60
24.12	6 Transportation of drilling plants, developing equipments & all other required tools and M/c by and suitable mechanical means including all cost of loading, unloading, placing at work site and back after completion of work as per S/D of E/I	1 No.	Each	Rs.9,200.00	Rs.9,200.00

S.No.	Description	Qty.	Unit	Rate	Amount
7	Supplying all materials and labours for arrangement for additional water required during the drilling period for 70 Hrs & site clearance & leveling etc. And providing the soap duster etc. to staff engaged in drilling etc. all complete work as per specification & direction of E.I.	1 No.	Each	Rs.7,000.00	Rs.7,000.00
		TOTAL			Rs.1,91,907.72

(Sub Estimate - 2)
Analysis of Chamber for TW

Supplying materials, labours and constructing chamber of following dimension having 250mm thick wall in C.M. (1:4) including 12mm C.P. (1:3) with punning inside, R.C.C. cover slab with C.I. Surface box, 20mm dia foot rest at 150mm interval 10mm dia lifting ring etc. all complete.

SIZE 1.00 M x 1.00 M x 0.75 M deep

S.O.R. No.	Particulars	No.	L	W	H	Qty.	Unit	Rate	Amount
1	Earth work in excavation	1	1.75	1.75	1.0	3.063 M ³	P/M ³	Rs.230.50	Rs.705.91
S.O.R. No. 2.8									
2	Sand filling	1	1.75	1.75	0.075	0.230 M ³	P/M ³	Rs.204.40	Rs.46.95
S.O.R. No. 2.28									
3	Brick flat soling	1	1.75	1.75		3.063 M ²	P/M ²	Rs.253.80	Rs.777.26
S.O.R. 11.72									
4	P.C.C. (1:2:4) in foundation	1	1.75	1.75	0.10	0.306 M ³			
S.O.O. 4.1.3									
						0.306 M ³	P/M ³	Rs.3,850.50	Rs.1,179.22
5	B/Work in (1:4) C.M.	2	2.50	0.25	0.75	0.938 M ³	P/M ³	Rs.4,724.40	Rs.4,429.13
S.O.R. No. 6.1.12/1									
6	R.C.C. Cover slab(1:1.5:3)	1	1.50	1.50	0.15	0.338 M ³	P/M ³	Rs.5,139.70	Rs.1,734.65
S.O.R. No. 5.2.2 & 5.9.3									
	shuttering	2	1.50	1.50	0.15	3.15 M ²	P/M ²	Rs.291.00	Rs.916.65
7	C.P. (1:3) with 5% Cico & neat cement								
S.O.R. No.	Internal face	2	1.00	1.00	1.00	4.00 M ²			
13.17.1	Bed surface	1	1.00	1.00		1.00 M ²			
+13.36.1						5.00 M ²	P/M ²	Rs.166.30	Rs.831.50
8	C.P. (1:4) out side of wall	2	1.50	1.50	0.75	4.5 M ²	P/M ²	Rs.114.70	Rs.516.15
S.O.R. No. 13.11.2									
9	8mm dia T.S. Rod								
S.O.R. No. 5.22.7A									
						0.338 M ³ x 70 Kg/M ³	P/Kg	Rs.56.00	Rs.1,323.00
10	Lifting Ring of 10mm dia Rod					4 No.	Each	Rs.30.00	Rs.120.00
11	Carriage of materials 5%								
								Total	Rs.12,580.41
									Rs.629.02
									Rs.13,209.43

Say Rs.13,210.00

Sub Est. No. 3

WATER SUPPLY DISTRIBUTION SYSTEM

S.N.	Particulars	Quantity	Unit	Rate	Amount
1A	Earthwork in excavation over areas (exceeding 30 cm in depth 1.5 in width as well as 10 sqm on plan) including disposal of excavated earth lead upto 50m and lift upto 1.5m, disposal earth to be levelled and neatly dressed.				
	90mm dia Pipe	70.00	0.30	1.10 =	23.10
	75mm dia Pipe	140.00	0.30	1.10 =	46.20
	63mm dia Pipe	210.00	0.30	1.10 =	69.30
	50mm dia Pipe	420.00	0.30	1.10 =	138.60
	40mm dia Pipe	560.00	0.30	1.10 =	184.80
					462.00 M ³
	Add 5% extra for fittings =				23.10 M ³
					485.10 M ³ P/M ³
				Rs.230.50	Rs.1,11,815.55
1B	Provision for PCC road cutting and its restoration	15.75	M ³	P/M ³	Rs.4,428.80
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	475.40	M ³	P/M ³	Rs.74.50
					Rs.35,417.15
3	Providing and laying High Density Polyethylene pipe (HDPE pipe) of 20 mm to 225 mm OD and pressure 6.0 Kg/cm ² and 10 Kg/cm ² suitable for water supply which is available in all standard, like ISI-4984/1995 and various grades like PE-80, PE-100 including required specials. Rates are inclusive of , all taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete as per direction of Engineer-in-charge.				
3A	HDPE pipe of materials grade PE100- PN10 (dia in mm)				
	75mm dia Pipe from PVC Tank to Distribution main	14.00	M	P/M	Rs.239.81
					Rs.3,357.34
	90mm dia Pipe	70.00	M	P/M	Rs.340.84
					Rs.23,858.80
	75mm dia Pipe	140.00	M	P/M	Rs.239.81
					Rs.33,573.40
	63mm dia Pipe	210.00	M	P/M	Rs.168.77
					Rs.35,441.70
3B	HDPE pipe of materials grade PE100- PN8 (dia in mm)				
	50mm dia Pipe	420.00	M	P/M	Rs.89.99
					Rs.37,795.80
	40mm dia Pipe	560.00	M	P/M	Rs.59.78
					Rs.33,476.80
	50mm dia Pipe from T/well to PVC Tank	12.00	M	P/M	Rs.89.99
					Rs.1,079.88
4	Providing and fixing brass gate valve with C.I. wheel of approved quality (screwed end).				
	90mm dia Pipe	2	NosEach	Rs.2,016.50	Rs.4,033.00
	75mm dia Pipe	3	NosEach	Rs.1,351.60	Rs.4,054.80
	63mm dia Pipe	2	NosEach	Rs.1,351.60	Rs.2,703.20
	50mm dia Pipe	3	NosEach	Rs.811.40	Rs.2,434.20
	40mm dia Pipe	3	NosEach	Rs.613.90	Rs.1,841.70

S.N.	Particulars	Quantity	Unit	Rate	Amount					
5 18.33	Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size), necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard specifications & direction of E/I.	11	Nos Each	Rs. 5,807.50	Rs. 63,882.50					
	Work for additional depth									
	Brick work (1:4) in foundation									
		2	1.10	0.25	0.35	0.193				
		2	0.60	0.25	0.35	0.105				
					0.298	3.273 CuM CuM				
	Plaster (1:3)					Rs. 4,724.40	Rs. 15,460.60			
		8	1.10		0.35	3.08	33.88 SqM SqM	Rs. 128.20	Rs. 4,343.42	
6	Carriage 10% of item 5								Rs. 8,368.65	
7 18.48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, ISI : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	10000	Ltrs P/Ltr.	Rs. 6.60					Rs. 66,000.00	
8	Providing and fixing PTMT extension nipple for water tank pipe, fittings of approved quality and colour.									
	50mm dia	2	No	each	Rs. 250.00				Rs. 500.00	
	75mm dia	1	No.	each	Rs. 400.00				Rs. 400.00	
									TOTAL	Rs. 5,59,592.09

Sub Est. No. 4

Model estimate for supply, installation & commissioning of single phase 3 H.P submersible motor pump set with all accessories including extension of L.T. line from nearest source up-to pumping station.

Sl. No.	Particulars	Quantity	Unit	Rate	Amount
1	2	3	4	5	6
[A.]	<p>Supply installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I.</p> <p>(i) 50 mm dia x 3 mtrs long medium class G.I column pipe both end thread and one end socketed- 6(six)nos (ii) 1x3x2.5 mm² flat copper conductor submersible cable -40 (forty) mtrs. (iii) 50 mm dia union socket- 1(one) no. (iv) 65 mm dia x 250 mm long G.I. nipple- 1 (one) no. (v) 50 mm dia G.I Elbow—1(One) no. (vi) 50 mm dia M.S. clamps—2(Two) Pairs. (vii) 50 mmx 250 mm long G.I nipple- 1(One) no. (viii) Tube well cap for T/Well – 1(one) no. (ix) 50 mm dia x 65 mm dia reducer socket –1(one) no.</p>	1 (one) job	p/job	Rs.42,700.00	Rs.42,700.00

[B]	Supply Installation, commissioning and testing of floor mounted outdoor type L.T feeder pillar single phase starter control pannel operated on 220 V, 3 phase , 50 c/s for 3 HP Submersible pump set made of MS sheet (minimum 2 mm thick) duly spray power coated painting with following accessories made of M.S sheet (minimum 2mm thick) duly spray powder coated painting with following accessories (i) 90-220 V range single phase 7.5 KVA automatic voltage stabilizer make- Sen & Pandit/ Vertex/ISI marked If any. 1 No. (ii) Suitable single phase starter control panel for above motor of BCH /L&Tmake – 1(one) no.	1 (one) job	p/job	Rs.45,500.00	Rs.45,500.00
[C]	Supplying & fitting 2.5 mm ² copper service cable from power point from nearest source up-to pumping station..	20 mtrs	P/Mt	Rs.130.00	Rs.2,600.00
[D]	Providing all materials and labour required for doing earthing station with G.I earth pipe of 40 mm dia x 4.5 mtrs 20fts. long G.I pipe including accessories excavation of earth , providing masonry enclosure with cover plate having locking arrangement and watering pipe etc.with salt, charcoal,etc.as per IE & IS specification.	1 job	p/job	Rs.2,803.00	Rs.2,803.00
				Total Rs.	Rs.93,603.00

Sub Est. No. 5

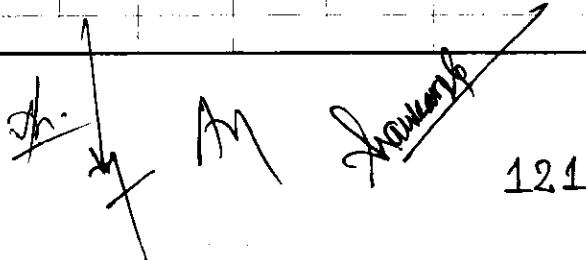
Estimate for the work - House service connection						
SUB-ESTIMATE						
S.No.	Description	Qty	Unit	Rate	Amount	
1A	Providing and fixing MDPE (PE 80 GradeCompound) pipes PN-12.5 (12.5kg/Sqcm) as per ISO 4427 and specification for waterapplication rates are inclusive of , taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete asper direction of Engineer-in-charge.complete.					
	MDPE Pipe 20mm dia nominal bore	6.00	PM	Rs.19.97	Rs.119.82	
1B	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall					
18.7.1	15 mm nomonal bore	1.0	PM	Rs.138.70	Rs.138.70	
2	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and amming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil					
2.8.1	6.00 0.30 0.60 1.08	1.08	CuM	Rs.230.50	Rs.248.94	
3 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead	1.06	CuM	Rs.74.50	Rs.78.85	
4	Providing and fixing brass ferrule with CI mouth cover incuding boring and tapping the main:					
18.20.1	15mm nominal bore	1	Each	Rs.254.10	Rs.254.10	
	Providing and fixing P.P. Black service Saddle (Brass threaded)	1	Each	Rs.400.00	Rs.400.00	
5	Providing and fixing brass bib cock of approved quality :					
18.15.1	15mm nominal bore	1	Each	Rs.273.00	Rs.273.00	
	Total				Rs.1,513.41	
	Say				Rs.1,513.00	

Total Nos. of House Holds= 200 Nos. @ Rs.1,513.00 Rs.3,02,600.00

Sub Est. No. 6								
8 M HIGH STEEL STRUCTURE STAGING FOR 5000/10000 LITER PVC TANK								
S.N.	Particulars				Quantity	Unit	Rate	Amount
1 10.3	Structural steel work riveted or bolted in built up sections, truss and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved primer all complete for 8M high staging with ladder of ISA65x65x6 and 16mm dia MS bar as trade @ 400mm c/c and GI enclosure to house electric switch panel & treatment unit (where required) of suitably designed MS section of angle, channel, etc. as per drawing attached.				4224 Kg	P/Kg	Rs.69.20	Rs.2,92,300.80
2 2.8.1	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including ressing of sides and ramming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All Kinds of soil base of footing							
	4	1.95	1.95	1.35	=	20.534		
	Under Tie beam							
	2	2.30	0.25	0.275	=	0.316		
	2	1.30	0.25	0.275	=	0.179		
						21.029		
						21.029 M ³	P/M ³	Rs.230.50 Rs.4,847.07
3- 2.28	Supplying and filling in plinth with local sand and under floors including watering, ramming consolidating and dressing complete.							
	base of footing							
	4	1.95	1.95	0.10	=	1.521		
	Under Tie beam							
	2	3.95	0.25	0.10	=	0.198		
	2	2.95	0.25	0.10	=	0.148		
	Floor							
	1	4.00	3.00	0.10	=	1.200		
						3.066		
						3.066 M ³	P/M ³	Rs.204.40 Rs.626.69
4- 11.72	Providing designation of 100A Brick flat Soling joints filled with local sand including cost of watering, taxes & royalty all complete as per specification & direction of E/I.							
	base of footing							
	4	1.95	1.95		=	15.210		
	Under Tie beam							
	2	3.95	0.25		=	1.975		
	2	2.95	0.25		=	1.475		
	Floor							
	1	4.00	3.00		=	12.000		
						30.660		
						30.660 M ²	P/M ²	Rs.253.80 Rs.7,781.51
5 4.1.2	Providing and laying in position cement concrete of specified grade exluding the cost of centring and shuttering-all work upto plinth level. 1:1.5:3(1 Cement :1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)							
	base of footing							
	4	1.95	1.95	0.075	=	1.141		
	Floor							
	1	4.00	3.00	0.10	=	1.200		
						2.341		
						2.341 M ³	P/M ³	Rs.4,373.20 Rs.10,236.57

S.N.	Particulars	Quantity	Unit	Rate	Amount
6 5.1.2	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of entring,shuttering,finishing and reinforcement-All work upto plinth level 1:1.5:3(1 cement: 1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)				
	Tie beam				
	1 3.95 0.25 0.25 =	0.247			
	1 2.95 0.25 0.25 =	0.184			
	base of footing				
	4 1.80 1.80 0.30 =	3.888			
	4 0.45 0.45 0.15 =	0.122			
	Column below GL				
	4 0.30 0.30 0.65 =	0.234			
	Column above GL				
	4 0.30 0.30 0.15 =	0.054			
		4.729			
		4.729 M ³	P/M ³	Rs.4,530.30	Rs.21,422.66
7- 5.9.1	Centring and shuttering including strutting,propping etc. and removal of form for.				
	2 3.95 0.25 =	1.975			
	2 2.95 0.25 =	1.475			
	16 1.80 0.30 =	8.640			
	16 0.45 0.15 =	1.080			
	16 0.30 0.65 =	3.120			
	16 0.30 0.15 =	0.720			
		17.010			
		17.010 M ²	P/M ²	Rs.169.00	Rs.2,874.69
8- 5.2.2	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete. 8 mm to 16 mm for steel				
	Total Reinforcement. @1.25% of Vol. Of Concrete	=	464.00 Kg.	P/Kg.	Rs.56.00
					Rs.25,984.00
9 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of oundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead (50% of E/W in excavation)	10.514	M ³	P/M ³	Rs.74.50
					Rs.783.31
10 13.26	Neat cement punning				
	1 4.00 3.00 =	12.000			
		12.000 M ²	P/M ²	Rs.32.30	Rs.387.60
11- 10.7.1	Providing and fixing 1mm thick M.S. sheet door with frame of 40x40x6mm angle iron and 3mm M.S. gusset plates at the junctions and corners, all necessary fittings complete, including applying a priming coat of approved steel primer. Using flats 30x6 mm for diagonal braces and central cross piece.				
	Door				
	1 0.9 2.10 =	1.890			
	Window				
	1 1.2 0.90 =	1.080			
	Total	=	2.970		
		2.970 M ³	P/M ³	Rs.2,503.00	Rs.7,433.91

S.N.	Particulars	Quantity	Unit	Rate	Amount	
12-12.1.4	Providing corrugated G.S. sheet roofing fixed with G.I.J. or hooks, bolts and nuts 8 mm diameter with bitumen and G. I. limpet washers or with G.I. limpet washers filled with white lead and including a coat of approved steel primer and two coats of approved paint on over lapping of sheets complete (upto a pitch of 60°) excluding the cost of purlins, rafters and trusses. 0.8mm thick with zinc coating not less than 275 gm/mz					
	Roof					
	1 4.50 3.50 =				15.750	
	Wall					
	1 16.00 3.00 =				48.000	
					63.750	
	Deduct for door & window					
	1 0.9 2.10 =				1.890	
	1 1.2 0.90 =				1.080	
					2.970	
	Net Qty =	60.780	M ²	Rs.729.70	Rs.44,351.17	
13-10.19	Providing and fixing anchor bolt of 16 mm dia and 0.60 Mtr length embedded in R.C.C pedestal all complete as per direction of Engineer in charge. @4x4x0.95kg	15.15	Kg	P/kg	Rs.73.60	Rs.1,115.04
14-13.82.1	Painting with ready mixed paint of approved brand and manufacture in all shades to give an even shade:					
	New steel work (two or more coats)					
	Frame work					
	0.5 16.00 8.00 =				64.000	
	0.5 5.00 4.00 =				10.000	
	Roof sheet					
	2 4.50 3.50 =				31.500	
	Top sheet					
	2 5.00 4.00 =				40.000	
	GI sheet wall					
	2 16.00 3.00 =				96.000	
					241.500	
		241.50	M ²	Rs.63.60	Rs.15,359.40	
15	Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & direction of E/I.					
	(a) Bricks (7 Km. Pucca & 1 Km. Kachha lead)	990	Nos.	%0 nos.	Rs.606.10	Rs.600.04
	(b) Coarse Sand (100 Km. lead)	3.040	M ³	P/M ³	Rs.1,221.09	Rs.3,712.11
	(c) Stone Chips (150 Km. lead)	6.070	M ³	P/M ³	Rs.1,746.29	Rs.10,599.98
	(d) Local Sand (2 Km. Pucca & 1 Km. Kachha lead)	3.530	M ³	P/M ³	Rs.217.23	Rs.766.82
					TOTAL	Rs.4,51,183.37
					say	Rs.4,51,200.00



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GOVERNMENT OF BIHAR

PUBLIC HEALTH ENGINEERING DEPARTMENT

MODEL ESTIMATE

FOR

CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME

FOR A WARD HAVING 200 HOUSE HOLDS

ESTIMATED COST-- Rs. 16.849 Lac

2017-18

GOVERNMENT OF BIHAR
Public Health Engineering Department
ABSTRACT OF COST

NAME OF WORK:- CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME FOR WARD HAVING 200 HOUSE HOLDS

S.N.	Description	Total Amount
1	Construction of 150mm x100mmx125m deep T/W for rocky strata etc. all complete and as per direction of E/I. (As per sub Estimate no.- 1)	Rs.2,48,003.22
2	Constructing masonry Chamber 100x100x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for Tube Well, and RCC top slab 1:1.5:3 mix (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:2:4(1 cement : 2 fine sand : 4 graded stone aggregate 20 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick with 5% cico finished with a floating coat of neat cement, out side plastering with cement mortar 1:4 (1 cement : 4coarse sand) 12 mm thick complete as per standard specifications & direction of E/I. (As per sub Estimate no.- 2)	Rs.13,210.00
3	Providing and Laying Distribution network of High Density Polyethylene pipe (HDPE pipe) including 10000 liter PVC tank installed at 8M high MS staging etc all complete as per direction of E/I. (As per sub Estimate no.- 3)	Rs.5,59,592.09
4	Supply installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I. (As per sub Estimate no.- 4)	Rs.93,603.00
5	Providing house connection for each house hold including supplying all materials, labours, tools and making ferrule connection with 20 mm dia MDPE and 15mm CPVC Pipes with all fittings etc all complete. (As per sub Estimate no.- 5)	Rs.3,02,600.00
6	Providing and erecting 8M high staging with ladder of ISA65x65x6 and 16mm dia MS bar as trade @ 400mm c/c and GI enclosure to house electric switch panel & treatment unit (where required) of suitably designed MS section of angle, channel, etc. as per drawing attached. (As per sub Estimate no.- 6)	Rs.4,51,200.00
TOTAL		Rs.16,68,208.31
Add 1% Contingency		Rs.16,682.08
G. TOTAL		Rs.16,84,890.39
Say		Rs.16,84,900.00

(Rs. Sixteen Lakh Eighty four Thousand Nine Hundred) only

note:

- i) Road cutting cost may increase or decrease as per actuals.
- ii) Strongly advised that pipeline should be laid before construction of Naali-Gali.
- iii) This is a model estimate. Hence the quantity may increase or decrease based on actual site conditions.

Variable inter alia includes

- i) Hydro geomorphological condition.
- ii) Location of source vis-à-vis population/ house holds.
- iii) Quality of works and materials shall be maintained as per standard specifications and direction of E/I.

Technical approval accorded for Rs.16,84,900.00 (Rs. Sixteen Lakh Eighty four Thousand Nine Hundred) only

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10.4.17

Sub Estimate- 1
CONSTRUCTION OF 150MM X 100MM DIA & 125M DEEP TUBE WELL
(For Rocky strata including Boulders)

S.No.	Description	Qty.	Unit	Rate	Amount
1	Boring/drilling bore well of required dia for casing/strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer -in-charge, upto 90 metre depth below ground level. (Rocky strata including Boulders)				
24.1.1.2	(a) 350mm dia bore from G.L. to 30.0M	30.0 M	P/M	Rs.859.70	Rs.25,791.00
24.1.1.1	(b) 300mm dia bore from 30.0 m to 60.0M	30.0 M	P/M	Rs.833.10	Rs.24,993.00
	(c) 300mm dia bore from 60M to 90.0M	30.0 M	P/M	Rs.833.10	Rs.24,993.00
24.2.1	(d) 300mm dia bore from 90.0M to 150.0M	35.0 M	P/M	Rs.881.20	Rs.30,842.00
2A	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC (UPVC) medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer -in-charge.				
24.3.2	(a) 150 mm nominal size dia	30.0 M	P/M	Rs.615.30	Rs.18,459.00
24.3.1	(b) 100 mm nominal size dia	60.0 M	P/M	Rs.444.20	Rs.26,652.00
2B	Supplying, assembling, lowering and fixing in vertical position in bore well unplasticized PVC (UPVC) medium well screen (RMS) pipes with ribs, conforming to IS: 12818, including hire & labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer-in-charge.				
24.4.1	100 mm nominal size dia	30.0 M	P/M	Rs.468.80	Rs.14,064.00
3	Supplying the following fittings & fixing the same in position as per approved lowering assembly and strata chart including providing all equipments and welding the same on process of lowering the assay etc. all complete as per S/D of E/I.				
24.13.2	(a) 150 mm dia well cap	1 No.	Each	Rs.205.10	Rs.205.10
24.14.2	(b) 150 mm dia M.S. Clamp 1.6 M long (one Pair)	1 No.	Each	Rs.1,031.10	Rs.1,031.10
	(c) 150 mm dia center guide	4 Nos.	Each	Rs.150.00	Rs.600.00
	(d) 100 mm dia center guide	6 Nos.	Each	Rs.100.00	Rs.600.00
	(e) 150 mm x 100 mm dia 6mm wall thickness MS reducer	1 No.	Each	Rs.500.00	Rs.500.00
24.15.1	(f) 100mm dia & 6mm thick M.S. well shoe plug	1 No.	Each	Rs.205.60	Rs.205.60
4a	Providing all materials, labours, & equipments for fixing tube well with pea gravel of Dalbhumigarh to size 4mm to 8mm approx. as suitable for strata including carriage washing, placing and packing the same in position around the tube well etc. all complete as per direction of E/I.	9.0 M ³	P/M ³	Rs.917.00	Rs.8,253.00
24.6	Carriage of Pea Gravel from Dhalbhumigarh (taken av distance 400km.)	9.0 M ³	P/M ³	Rs.4,336.54	Rs.39,028.82
5	Development of tube well in accordance with IS : 2800 (part I) and IS: 11189, to establish maximum rate of usable water yield without sand content (beyond permissible limit), with required capacity air compressor, running the compressor for required time till well is fully developed, measuring yield of well by "V" notch method or any other approved method, measuring static level & draw down etc. by step draw down method, collecting water sample & getting tested in approved laboratory, disinfection of tubewell, all complete, including hire & labour charges of air compressor, tools & accessories etc., all as per requirement and direction of Engineer-in-charge.	24 Hrs.	Each	Rs.649.40	Rs.15,585.60

S.No.	Description	Qty.	Unit	Rate	Amount
6	Transportation of drilling plants, developing equipments & all other required tools and M/c by and suitable mechanical means including all cost of loading, unloading, placing at work site and back after completion of work as per S/D of E/I	1 No.	Each	Rs.9,200.00	Rs.9,200.00
7	Supplying all materials and labours for arrangement for additional water required during the drilling period for 70 Hrs & site clearance & leveling etc. And providing the soap duster etc. to staff engaged in drilling etc. all complete work as per specification & direction of E.I.	1 No.	Each	Rs.7,000.00	Rs.7,000.00
		TOTAL			Rs.2,48,003.22

(Sub Estimate - 2)
Analysis of Chamber for TW

Supplying materials, labours and constructing chamber of following dimension having 250mm thick wall in C.M. (1:4) including 12mm C.P. (1:3) with punning inside, R.C.C. cover slab with C.I. Surface box, 20mm dia foot rest at 150mm interval 10mm dia lifting ring etc. all complete.

SIZE	1.00 M	x	1.00 M	x	0.75 M deep
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S.O.R. No.	Particulars	No.	L	W	H	Qty.	Unit	Rate	Amount
1	Earth work in excavation	1	1.75	1.75	1.0	3.063 M ³	P/M ³	Rs.230.50	Rs.705.91
S.O.R. No. 2.8									
2	Sand filling	1	1.75	1.75	0.075	0.230 M ³	P/M ³	Rs.204.40	Rs.46.95
S.O.R. No. 2.28									
3	Brick flat soling	1	1.75	1.75		3.063 M ²	P/M ²	Rs.253.80	Rs.777.26
S.O.R. 11.72									
4	P.C.C. (1:2:4) in foundation	1	1.75	1.75	0.10	0.306 M ³			
S.O.O. 4.1.3									
						0.306 M ³	P/M ³	Rs.3,850.50	Rs.1,179.22
5	B/Work in (1:4) C.M.	2	2.50	0.25	0.75	0.938 M ³	P/M ³	Rs.4,724.40	Rs.4,429.13
S.O.R. No. 6.1.12/1									
6	R.C.C. Cover slab(1:1.5:3)	1	1.50	1.50	0.15	0.338 M ³	P/M ³	Rs.5,139.70	Rs.1,734.65
S.O.R. No. 5.2.2 & 5.9.3									
	shuttering	2	1.50	1.50	0.15	3.15 M ²	P/M ²	Rs.291.00	Rs.916.65
7	C.P. (1:3) with 5% Cico & neat cement								
S.O.R. Internal face		2	1.00	1.00	1.00	4.00 M ²			
No. Bed surface		1	1.00	1.00		1.00 M ²			
13.17.1									
+13.36.1						5.00 M ²	P/M ²	Rs.166.30	Rs.831.50
8	C.P. (1:4) out side of wall	2	1.50	1.50	0.75	4.5 M ²	P/M ²	Rs.114.70	Rs.516.15
S.O.R. No. 13.11.2									
9	8mm dia T.S. Rod								
S.O.R. No. 5.22.7A									
			0.338 M ³ x		70 Kg/M ³	23.625 Kg.	P/Kg	Rs.56.00	Rs.1,323.00
10	Lifting Ring of 10mm dia Rod					4 No.	Each	Rs.30.00	Rs.120.00
11	Carriage of materials 5%								
								Total	Rs.12,580.41
									Rs.629.02
									<u>Rs.13,209.43</u>
								Say	Rs.13,210.00

Sub Est. No. 3

WATER SUPPLY DISTRIBUTION SYSTEM

S.N.	Particulars	Quantity	Unit	Rate	Amount
1A	Earthwork in excavation over areas (exceeding 30 cm in depth 1.5 in width as well as 10 sqm on plan) including disposal of excavated earth lead upto 50m and lift upto 1.5m, disposal earth to be levelled and neatly dressed.				
	90mm dia Pipe	70.00	0.30	1.10 =	23.10
	75mm dia Pipe	140.00	0.30	1.10 =	46.20
	63mm dia Pipe	210.00	0.30	1.10 =	69.30
	50mm dia Pipe	420.00	0.30	1.10 =	138.60
	40mm dia Pipe	560.00	0.30	1.10 =	184.80
					462.00 M ³
	Add 5% extra for fittings =				23.10 M ³
					485.10 M ³
		15.75	M ³	P/M ³	Rs.230.50
1B	Provision for PCC road cutting and its restoration				Rs.1,11,815.55
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.				Rs.4,428.80
		475.40	M ³	P/M ³	Rs.74.50
3	Providing and laying High Density Polyethylene pipe (HDPE pipe) of 20 mm to 225 mm OD and pressure 6.0 Kg/cm ² and 10 Kg/cm ² suitable for water supply which is available in all standard, like ISI-4984/1995 and various grades like PE-80, PE-100 including required specials. Rates are inclusive of , all taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete as per direction of Engineer-in-charge.				Rs.35,417.15
3A	HDPE pipe of materials grade PE100- PN10 (dia in mm)				
	75mm dia Pipe from PVC Tank to Distribution main	14.00	M	P/M	Rs.239.81
	90mm dia Pipe	70.00	M	P/M	Rs.340.84
	75mm dia Pipe	140.00	M	P/M	Rs.239.81
	63mm dia Pipe	210.00	M	P/M	Rs.168.77
3B	HDPE pipe of materials grade PE100- PN8 (dia in mm)				
	50mm dia Pipe	420.00	M	P/M	Rs.89.99
	40mm dia Pipe	560.00	M	P/M	Rs.59.78
	50mm dia Pipe from T/well to PVC Tank	12.00	M	P/M	Rs.89.99
4	Providing and fixing brass gate valve with C.I. wheel of approved quality (screwed end).				
	90mm dia Pipe	2 Nos.	Each	Rs.2,016.50	Rs.4,033.00
	75mm dia Pipe	3 Nos.	Each	Rs.1,351.60	Rs.4,054.80
	63mm dia Pipe	2 Nos.	Each	Rs.1,351.60	Rs.2,703.20
	50mm dia Pipe	3 Nos.	Each	Rs.811.40	Rs.2,434.20
	40mm dia Pipe	3 Nos.	Each	Rs.613.90	Rs.1,841.70

S.N.	Particulars	Quantity	Unit	Rate	Amount
5 18.33	Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size), necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard specifications & direction of E/I.	11 Nos.	Each	Rs.5,807.50	Rs.63,882.50
	Work for additional depth				
	Brick work (1:4) in foundation				
	2 1.10 0.25 0.35 0.193				
	2 0.60 0.25 0.35 0.105				
					0.298
	Plaster (1:3)	3.273	CuM CuM	Rs.4,724.40	Rs.15,460.60
	8 1.10 0.35 3.08	33.88	SqM SqM	Rs.128.20	Rs.4,343.42
6	Carriage 10% of item 5				Rs.8,368.65
7 18.48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, ISI : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	10000	Ltrs. P/Ltr.	Rs.6.60	Rs.66,000.00
8	Providing and fixing PTMT extension nipple for water tank pipe, fittings of approved quality and colour.				
	50mm dia	2	Nos. each	Rs.250.00	Rs.500.00
	75mm dia	1	No. each	Rs.400.00	Rs.400.00
				TOTAL	Rs.5,59,592.09

Sub Est. No. 4

Model estimate for supply, installation & commissioning of single phase 3 H.P submersible motor pump set with all accessories including extension of L.T. line from nearest source up-to pumping station.

Sl. No.	Particulars	Quantity	Unit	Rate	Amount
1	2	3	4	5	6
[A.]	<p>Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I.</p> <p>(i) 50 mm dia x 3 mtrs long medium class G.I column pipe both end thread and one end socketed- 6(six)nos (ii) 1x3x2.5 mm² flat copper conductor submersible cable -40 (forty) mtrs. (iii) 50 mm dia union socket- 1(one) no. (iv) 65 mm dia x 250 mm long G.I. nipple- 1 (one) no. (v) 50 mm dia G.I Elbow—1(One) no. (vi) 50 mm dia M.S. clamps—2(Two) Pairs. (vii) 50 mmx 250 mm long G.I nipple- 1(One) no. (viii) Tube well cap for T/Well – 1(one) no.</p>	1 (one) job	p/job	Rs.42,700.00	Rs.42,700.00

	(ix) 50 mm dia x 65 mm dia reducer socket –1(one) no.				
[B]	Supply Installation, commissioning and testing of floor mounted outdoor type L.T feeder pillar single phase starter control panel operated on 220 V, 3 phase , 50 c/s for 3 HP Submersible pump set made of MS sheet (minimum 2 mm thick) duly spray power coated painting with following accessories made of M.S sheet (minimum 2mm thick) duly spray powder coated painting with following accessories (i) 90-220 V range single phase 7.5 KVA automatic voltage stabilizer make- Sen & Pandit/ Vertex/ISI marked If any. 1 No. (ii) Suitable single phase starter control panel for above motor of BCH /L&Tmake – 1(one) no.	1 (one) job	p/job	Rs.45,500.00	Rs.45,500.00
[C]	Supplying & fitting 2.5 mm ² copper service cable from power point from nearest source up-to pumping station..	20 mtrs	P/Mt	Rs.130.00	Rs.2,600.00
[D]	Providing all materials and labour required for doing earthing station with G.I earth pipe of 40 mm dia x 4.5 mtrs 20fts. long G.I pipe including accessories excavation of earth , providing masonry enclosure with cover plate having locking arrangement and watering pipe etc.with salt, charcoal,etc.as per IE & IS specification.	1 job	p/job	Rs.2,803.00	Rs.2,803.00
				Total Rs.	Rs.93,603.00

Sub Est. No. 5

Estimate for the work - House service connection						
SUB-ESTIMATE						
S.No.	Description	Qty	Unit	Rate	Amount	
1A	Providing and fixing MDPE (PE 80 GradeCompound) pipes PN-12.5 (12.5kg/Sqcm) as per ISO 4427 and specification for waterapplication rates are inclusive of , taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete asper direction of Engineer-in-charge.complete.					
	MDPE Pipe 20mm dia nominal bore	6.00	PM	Rs.19.97		Rs.119.82
1B	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall					
18.7.1	15 mm nomonal bore	1.0	PM	Rs.138.70		Rs.138.70
2	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and amming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil					
2.8.1	6.00 0.30 0.60 1.08	1.08	CuM	Rs.230.50		Rs.248.94
3 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead	1.06	CuM	Rs.74.50		Rs.78.85
4	Providing and fixing brass ferrule with CI mouth cover incuding boring and tapping the main:					
18.20.1	15mm nominal bore	1	Each	Rs.254.10		Rs.254.10
	Providing and fixing P.P. Black service Saddle (Brass threaded)	1	Each	Rs.400.00		Rs.400.00
5	Providing and fixing brass bib cock of approved quality :					
18.15.1	15mm nominal bore	1	Each	Rs.273.00		Rs.273.00
	Total					Rs.1,513.41
	Say					Rs.1,513.00
Total Nos. of House Holds=		200 Nos.	@	Rs.1,513.00		Rs.3,02,600.00

Sub Est. No. 6										
8 M HIGH STEEL STRUCTURE STAGING FOR 5000/10000 LITER PVC TANK										
S.N.	Particulars				Quantity	Unit	Rate	Amount		
1 10.3	Structural steel work riveted or bolted in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved primer all complete for 8M high staging with ladder of ISA65x65x6 and 16mm dia MS bar as trade @ 400mm c/c and GI enclosure to house electric switch panel & treatment unit (where required) of suitably designed MS section of angle, channel, etc. as per drawing attached.				4224	Kg	P/Kg	Rs.69.20	Rs.2,92,300.80	
2 2.8.1	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including rassing of sides and ramming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All Kinds of soil									
	base of footing									
	4	1.95	1.95	1.35	=			20.534		
	Under Tie beam									
	2	2.30	0.25	0.275	=			0.316		
	2	1.30	0.25	0.275	=			0.179		
								21.029		
						21.029	M ³	P/M ³	Rs.230.50	Rs.4,847.07
3- 2.28	Supplying and filling in plinth with local sand and under floors including watering, ramming, consolidating and dressing complete.									
	base of footing									
	4	1.95	1.95	0.10	=			1.521		
	Under Tie beam									
	2	3.95	0.25	0.10	=			0.198		
	2	2.95	0.25	0.10	=			0.148		
	Floor									
	1	4.00	3.00	0.10	=			1.200		
								3.066		
						3.066	M ³	P/M ³	Rs.204.40	Rs.626.69
4- 11.72	Providing designation of 100A Brick flat Soling joints filled with local sand including cost of watering, taxes & royalty all complete as per specification & direction of E/I.									
	base of footing									
	4	1.95	1.95		=			15.210		
	Under Tie beam									
	2	3.95	0.25		=			1.975		
	2	2.95	0.25		=			1.475		
	Floor									
	1	4.00	3.00		=			12.000		
								30.660		
						30.660	M ²	P/M ²	Rs.253.80	Rs.7,781.51
5 4.1.2	Providing and laying in position cement concrete of specified grade exluding the cost of centring and shuttering-all work upto plinth level.									
	1:1.5:3(1 Cement :1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)									
	base of footing									
	4	1.95	1.95	0.075	=			1.141		
	Floor									
	1	4.00	3.00	0.10	=			1.200		
								2.341		
						2.341	M ³	P/M ³	Rs.4,373.20	Rs.10,236.57

S.N.	Particulars	Quantity	Unit	Rate	Amount
6 5.1.2	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of entring,shuttering,finishing and reinforcement-All work upto plinth level 1:1:5:3(1 cement: 1.5 coarse sand:3 graded stone aggregate 20 mm nominal size) Tie beam				
	1 3.95 0.25 0.25 = 0.247				
	1 2.95 0.25 0.25 = 0.184				
	base of footing				
	4 1.80 1.80 0.30 = 3.888				
	4 0.45 0.45 0.15 = 0.122				
	Column below GL				
	4 0.30 0.30 0.65 = 0.234				
	Column above GL				
	4 0.30 0.30 0.15 = 0.054				
	4.729	4.729 M ³	P/M ³	Rs.4,530.30	Rs.21,422.66
7- 5.9.1	Centring and shuttering including strutting,propping etc. and removal of form for.				
	2 3.95 0.25 = 1.975				
	2 2.95 0.25 = 1.475				
	16 1.80 0.30 = 8.640				
	16 0.45 0.15 = 1.080				
	16 0.30 0.65 = 3.120				
	16 0.30 0.15 = 0.720				
	17.010	17.010 M ²	P/M ²	Rs.169.00	Rs.2,874.69
8- 5.22	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete. 8 mm to 16 mm tor steel				
	Total Reinforcement. @1.25% of Vol. Of Concrete =	464.00 Kg.	P/Kg.	Rs.56.00	Rs.25,984.00
9 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of oundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead (50% of E/W in excavation)	10.514 M ³	P/M ³	Rs.74.50	Rs.783.31
10 13.26	Neat cement punning				
	1 4.00 3.00 = 12.000	12.000 M ²	P/M ²	Rs.32.30	Rs.387.60
11- 10.7.1	Providing and fixing 1mm thick M.S. sheet door with frame of 40x40x6mm angle iron and 3mm M.S. gusset plates at the junctions and corners, all necessary fittings complete, including applying a priming coat of approved steel primer. Using flats 30x6 mm for diagonal braces and central cross piece.				
	Door				
	1 0.9 2.10 = 1.890				
	Window				
	1 1.2 0.90 = 1.080				
	Total = 2.970	2.970 M ³	P/M ³	Rs.2,503.00	Rs.7,433.91

S.N.	Particulars	Quantity	Unit	Rate	Amount
12- 12.1.4	Providing corrugated G.S. sheet roofing fixed with G.I.J. or hooks, bolts and nuts 8 mm diameter with bitumen and G. I. limpet washers or with G.I. limpet washers filled with white lead and including a coat of approved steel primer and two coats of approved paint on over lapping of sheets complete (upto a pitch of 60°) excluding the cost of purlins, rafters and trusses. 0.8mm thick with zinc coating not less than 275 gm/mz				
	Roof				
	1 4.50 3.50 =	15.750			
	Wall				
	1 16.00 3.00 =	48.000			
		63.750			
	Deduct for door & window				
	1 0.9 2.10 =	1.890			
	1 1.2 0.90 =	1.080			
		2.970			
	Net Qty =	60.780	60.780 M ²	M ²	Rs.729.70 Rs.44,351.17
13 10.19	Providing and fixing anchor bolt of 16 mm dia and 0.60 Mtr length embedded in R.C.C pedestal all complete as per direction of Engineer in charge. @4x4x0.95kg	15.15 Kg	P/kg	Rs.73.60	Rs.1,115.04
14- 13.82.1	Painting with ready mixed paint of approved brand and manufacture in all shades to give an even shade:				
	New steel work (two or more coats)				
	Frame work				
	0.5 16.00 8.00 =	64.000			
	0.5 5.00 4.00 =	10.000			
	Roof sheet				
	2 4.50 3.50 =	31.500			
	Top sheet				
	2 5.00 4.00 =	40.000			
	GI sheet wall				
	2 16.00 3.00 =	96.000			
		241.500	241.50 M ²	M ²	Rs.63.60 Rs.15,359.40
15	Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & direction of E/I.				
	(a) Bricks (7 Km. Pucca & 1 Km. Kachha lead)	990 Nos.	%0 nos.	Rs.606.10	Rs.600.04
	(b) Coarse Sand (100 Km. lead)	3.040 M ³	P/M ³	Rs.1,221.09	Rs.3,712.11
	(c) Stone Chips (150 Km. lead)	6.070 M ³	P/M ³	Rs.1,746.29	Rs.10,599.98
	(d) Local Sand (2 Km. Pucca & 1 Km. Kachha lead)	3.530 M ³	P/M ³	Rs.217.23	Rs.766.82
				TOTAL	Rs.4,51,183.37
				say	Rs.4,51,200.00

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GOVERNMENT OF BIHAR

PUBLIC HEALTH ENGINEERING DEPARTMENT

MODEL ESTIMATE

FOR

CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME

FOR A WARD HAVING 200 HOUSE HOLDS

ESTIMATED COST-- Rs. 15.306 Lac

2017-18

GOVERNMENT OF BIHAR
Public Health Engineering Department
ABSTRACT OF COST

NAME OF WORK:- CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME FOR WARD HAVING 200 HOUSE HOLDS

S.N.	Description	Total Amount
1	Construction of 200/165 mm dia. 90 Mtr deep Drilled High Yield Tubewell By DTH RIG Machine with Blue casing U.P.V.C. Pipe etc. all complete and as per direction of E/I. (As per sub Estimate no.- 1)	Rs.95,242.91
2	Constructing masonry Chamber 100x100x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for Tube Well, and RCC top slab 1:1.5:3 mix (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:2:4(1 cement : 2 fine sand : 4 graded stone aggregate 20 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick with 5% cico finished with a floating coat of neat cement, out side plastering with cement mortar 1:4 (1 cement : 4coarse sand) 12 mm thick complete as per standard specifications & direction of E/I. (As per sub Estimate no.- 2)	Rs.13,210.00
3	Providing and Laying Distribution network of High Density Polyethyene pipe (HDPE pipe) including 10000 liter PVC tank installed at 8M high MS staging etc all complete as per direction of E/I. (As per sub Estimate no.- 3)	Rs.5,59,592.09
4	Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I. (As per sub Estimate no.- 4)	Rs.93,603.00
5	Providing house connection for each house hold including supplying all materials, labours, tools and making ferrule connection with 20 mm dia MDPE and 15mm CPVC Pipes with all fittings etc all complete. (As per sub Estimate no.- 5)	Rs.3,02,600.00
6	Providing and erecting 8M high staging with ladder of ISA65x65x6 and 16mm dia MS bar as trade @ 400mm c/c and GI enclosure to house electric switch panel & treatment unit (where required) of suitably designed MS section of angle, channel, etc. as per drawing attached. (As per sub Estimate no.- 6)	Rs.4,51,200.00
TOTAL		Rs.15,15,448.00
Add 1% Contingency		Rs.15,154.48
G. TOTAL		Rs.15,30,602.48
Say		Rs.15,30,600.00

(Rs. Fifteen Lakh Thirty Thousand Six Hundred) only

note:

- i) Road cutting cost may increase or decrease as per actuals.
- ii) Strongly advised that pipeline should be laid before construction of Naali-Gali.
- iii) This is a model estimate. Hence the quantity may increase or decrease based on actual site conditions.

Variable inter alia includes

- i) Hydro geomorphological condition.
- ii) Location of source vis-à-vis population/ house holds.
- iii) Quality of works and materials shall be maintained as per standard specifications and direction of E/I.

Technical approval accorded for Rs.15,30,600.00 (Rs. Fifteen Lakh Thirty Thousand Six Hundred) only

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Estimate no.- 1

2	MODEL ESTIMATE OF CONSTRUCTION OF 200/165 MM DIA. 90 MTR DEEP DRILLED HIGH YIELD TUBEWELL BY DTH RIG MACHINE WITH BLUE CASING U.P.V.C. PIPE					
3						
4	S. NO.	Particulars	Quantity	unit	Rate	Amount
5	1(A)	Drilling of 200mm x 165mm x 125 meter deep borewell in all kinds of soil and rock in rural area for installation of pump set with Hydaraulic DTH Rig machine, all complete including supplying all materials, tools, drilling rig, Air Compressor and equipments, as well as fuel, lubricants and cost of transportation of Rig machine and other vehicles up to the site etc all complete as per specification and direction of E/I.				
6		(i) Up to 50 mtrs depth below GL	50	P/M	Rs.729.52	Rs.36,476.00
7		(ii) Beyond 50 mtrs. Up to 90 Mtrs.	40	P/M	Rs.867.88	Rs.34,715.20
8	2	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC (UPVC) medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer -in-charge. (200mm dia)	24	P/M	Rs.921.70	Rs.22,120.80
9	3	Supplying labour, cement and calcium chloride or betonites solution and equipments for grouting to casing pipe as per specification and direction of E/I.	1	Each	Rs.51.01	Rs.51.01
10	4	Supplying all tools labors and equipments and doing washing fiushing & developing of drilled tube well to give clean and clear water (min. 2.50 Hours)all complete as per direction of E/I.	2.5	P/Hr	Rs.649.40	Rs.1,623.50
11	5	Supplying labors and equipments including 200 mm dia M.S. Cap & Fitting & Fixing over the tube well properly and taking out as per direction of E/I.	1	Each	Rs.256.40	Rs.256.40
12					TOTAL	Rs.95,242.91

(Sub Estimate - 2)

Analysis of Chamber for TW

Supplying materials, labours and constructing chamber of following dimension having 250mm thick wall in C.M. (1:4) including 12mm C.P. (1:3) with punning inside, R.C.C. cover slab with C.I. Surface box, 20mm dia foot rest at 150mm interval 10mm dia lifting ring etc. all complete.

SIZE	1.00 M	x	1.00 M	x	0.75 M deep
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<u>S.O.R. No.</u>	<u>Particulars</u>	<u>No.</u>	<u>L</u>	<u>W</u>	<u>H</u>	<u>Qty.</u>	<u>Unit</u>	<u>Rate</u>	<u>Amount</u>
1	Earth work in excavation	1	1.75	1.75	1.0	3.063 M ³	P/M ³	Rs.230.50	Rs.705.91
S.O.R. No. 2.8									
2	Sand filling	1	1.75	1.75	0.075	0.230 M ³	P/M ³	Rs.204.40	Rs.46.95
S.O.R. No. 2.28									
3	Brick flat soling	1	1.75	1.75		3.063 M ²	P/M ²	Rs.253.80	Rs.777.26
S.O.R. 11.72									
4	P.C.C. (1:2:4) in foundation	1	1.75	1.75	0.10	0.306 M ³			
S.O.O. 4.1.3									
5	B/Work in (1:4) C.M.	2	2.50	0.25	0.75	0.306 M ³	P/M ³	Rs.3,850.50	Rs.1,179.22
S.O.R. No. 6.1.12/1						0.938 M ³	P/M ³	Rs.4,724.40	Rs.4,429.13
6	R.C.C. Cover slab(1:1.5:3)	1	1.50	1.50	0.15	0.338 M ³	P/M ³	Rs.5,139.70	Rs.1,734.65
S.O.R. No. 5.2.2 & 5.9.3									
	shuttering	2	1.50	1.50	0.15	3.15 M ²	P/M ²	Rs.291.00	Rs.916.65
7	C.P. (1:3) with 5% Cico & neat cement								
S.O.R. No.	Internal face	2	1.00	1.00	1.00	4.00 M ²			
13.17.1	Bed surface	1	1.00	1.00		1.00 M ²			
+13.36.1						5.00 M ²	P/M ²	Rs.166.30	Rs.831.50
8	C.P. (1:4) out side of wall	2	1.50	1.50	0.75	4.5 M ²	P/M ²	Rs.114.70	Rs.516.15
S.O.R. No. 13.11.2									
9	8mm dia T.S. Rod								
S.O.R. No. 5.22.7A									
			0.338 M ³ x	70	Kg/ M ³	23.625 Kg.	P/Kg	Rs.56.00	Rs.1,323.00
10	Lifting Ring of 10mm dia Rod					4 No.	Each	Rs.30.00	Rs.120.00
11	Carriage of materials 5%							Total	Rs.12,580.41
									Rs.629.02
									<u>Rs.13,209.43</u>
								Say	Rs.13,210.00

Sub Est. No. 3

WATER SUPPLY DISTRIBUTION SYSTEM

S.N.	Particulars	Quantity	Unit	Rate	Amount
1A	Earthwork in excavation over areas (exceeding 30 cm in depth 1.5 in width as well as 10 sqm on plan) including disposal of excavated earth lead upto 50m and lift upto 1.5m, disposal earth to be levelled and neatly dressed.				
	90mm dia Pipe	70.00	0.30	1.10 =	23.10
	75mm dia Pipe	140.00	0.30	1.10 =	46.20
	63mm dia Pipe	210.00	0.30	1.10 =	69.30
	50mm dia Pipe	420.00	0.30	1.10 =	138.60
	40mm dia Pipe	560.00	0.30	1.10 =	184.80
				462.00 M ³	
	Add 5% extra for fittings =			23.10 M ³	
				485.10 M ³	P/M ³
				15.75 M ³	P/M ³
					Rs.230.50
					Rs.1,11,815.55
1B	Provision for PCC road cutting and its restoration				
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.				
		475.40	M ³	P/M ³	Rs.74.50
					Rs.35,417.15
3	Providing and laying High Density Polyethylene pipe (HDPE pipe) of 20 mm to 225 mm OD and pressure 6.0 Kg/cm ² and 10 Kg/cm ² suitable for water supply which is available in all standard, like ISI-4984/1995 and various grades like PE-80, PE-100 including required specials. Rates are inclusive of , all taxes and duties (Exise duty @12.50% & CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete as per direction of Engineer-in-charge.				
3A	HDPE pipe of materials grade PE100- PN10 (dia in mm)				
	75mm dia Pipe from PVC Tank to Distribution main	14.00	M	P/M	Rs.239.81
	90mm dia Pipe	70.00	M	P/M	Rs.340.84
	75mm dia Pipe	140.00	M	P/M	Rs.239.81
	63mm dia Pipe	210.00	M	P/M	Rs.168.77
3B	HDPE pipe of materials grade PE100- PN8 (dia in mm)				
	50mm dia Pipe	420.00	M	P/M	Rs.89.99
	40mm dia Pipe	560.00	M	P/M	Rs.59.78
	50mm dia Pipe from T/well to PVC Tank	12.00	M	P/M	Rs.89.99
4	Providing and fixing brass gate valve with C.I. wheel of approved quality (screwed end).				
	90mm dia Pipe	2 Nos.	Each	Rs.2,016.50	Rs.4,033.00
	75mm dia Pipe	3 Nos.	Each	Rs.1,351.60	Rs.4,054.80
	63mm dia Pipe	2 Nos.	Each	Rs.1,351.60	Rs.2,703.20
	50mm dia Pipe	3 Nos.	Each	Rs.811.40	Rs.2,434.20

S.N.	Particulars	Quantity	Unit	Rate	Amount	
	40mm dia Pipe	3 Nos.	Each	Rs.613.90	Rs.1,841.70	
5 18.33	Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve,with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:5:10(1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominalsize) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick, finished with a floating coat of neat cement, complete as per standard specifications & direction of E/I.	11 Nos.	Each	Rs.5,807.50	Rs.63,882.50	
	Work for additional depth					
	Brick work (1:4) in foundation					
		2	1.10	0.25	0.35	0.193
		2	0.60	0.25	0.35	0.105
					0.298	
		3.273	CuM	CuM	Rs.4,724.40	Rs.15,460.60
	Plaster (1:3)					
		8	1.10		0.35	3.08
		33.88	SqM	SqM	Rs.128.20	Rs.4,343.42
6	Carriage 10% of item 5				Rs.8,368.65	
7 18.48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, ISI : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	10000 Ltrs.	P/Ltr.	Rs.6.60	Rs.66,000.00	
8	Providing and fixing PTMT extension nipple for water tank pipe, fittings of approved quality and colour.					
	50mm dia	2 Nos.	each	Rs.250.00	Rs.500.00	
	75mm dia	1 No.	each	Rs.400.00	Rs.400.00	
				TOTAL	Rs.5,59,592.09	

Sub Est. No. 4

Model estimate for supply, installation & commissioning of single phase 3 H.P. submersible motor pump set with all accessories including extension of L.T. line from nearest source up-to pumping station.

Sl. No.	Particulars	Quantity	Unit	Rate	Amount
1	2	3	4	5	6
[A.]	<p>Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/l.</p> <p>(i) 50 mm dia x 3 mtrs long medium class G.I column pipe both end thread and one end socketed- 6(six)nos (ii) 1x3x2.5 mm² flat copper conductor submersible cable -40 (forty) mtrs. (iii) 50 mm dia union socket- 1(one) no. (iv) 65 mm dia x 250 mm long G.I. nipple- 1 (one) no. (v) 50 mm dia G.I Elbow—1(One) no. (vi) 50 mm dia M.S. clamps—2(Two) Pairs. (vii) 50 mmx 250 mm long G.I nipple- 1(One) no. (viii) Tube well cap for T/Well – 1(one) no.</p>	1 (one) job	p/job	Rs.42,700.00	Rs.42,700.00

	(ix) 50 mm dia x 65 mm dia reducer socket –1(one) no.				
[B]	Supply Installation, commissioning and testing of floor mounted outdoor type L.T feeder pillar single phase starter control pannel operated on 220 V, 3 phase , 50 c/s for 3 HP Submersible pump set made of MS sheet (minimum 2 mm thick) duly spray power coated painting with following accessories made of M.S sheet (minimum 2mm thick) duly spray powder coated painting with following accessories (i) 90-220 V range single phase 7.5 KVA automatic voltage stabilizer make- Sen & Pandit/ Vertex/ISI marked If any. 1 No. (ii) Suitable single phase starter control panel for above motor of BCH /L&Tmake – 1(one) no.	1 (one) job	p/job	Rs.45,500.00	Rs.45,500.00
[C]	Supplying & fitting 2.5 mm ² copper service cable from power point from nearest source up-to pumping station..	20 mtrs	P/Mt	Rs.130.00	Rs.2,600.00
[D]	Providing all materials and labour required for doing earthing station with G.I earth pipe of 40 mm dia x 4.5 mtrs 20fts. long G.I pipe including accessories excavation of earth , providing masonry enclosure with cover plate having locking arrangement and watering pipe etc.with salt, charcoal,etc.as per IE & IS specification.	1 job	p/job	Rs.2,803.00	Rs.2,803.00
				Total Rs.	Rs.93,603.00

Sub Est. No. 5

Estimate for the work - House service connection						
SUB-ESTIMATE						
S.No.	Description	Qty	Unit	Rate	Amount	
1A	Providing and fixing MDPE (PE 80 GradeCompound) pipes PN-12.5 (12.5kg/Sqcm) as per ISO 4427 and specification for waterapplication rates are inclusive of , taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete asper direction of Engineer-in-charge.complete.					
	MDPE Pipe 20mm dia nominal bore	6.00	PM	Rs.19.97	Rs.119.82	
1B	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall					
18.7.1	15 mm nomonal bore	1.0	PM	Rs.138.70	Rs.138.70	
2	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and amming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil					
2.8.1	6.00 0.30 0.60 1.08	1.08	CuM	Rs.230.50	Rs.248.94	
3 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead	1.06	CuM	Rs.74.50	Rs.78.85	
4	Providing and fixing brass ferrule with CI mouth cover incuding boring and tapping the main:					
18.20.1	15mm nominal bore	1	Each	Rs.254.10	Rs.254.10	
	Providing and fixing P.P. Black service Saddle (Brass threaded)	1	Each	Rs.400.00	Rs.400.00	
5	Providing and fixing brass bib cock of approved quality :					
18.15.1	15mm nominal bore	1	Each	Rs.273.00	Rs.273.00	
	Total				Rs.1,513.41	
	Say				Rs.1,513.00	
Total Nos. of House Holds=		200 Nos.	@	Rs.1,513.00	Rs.3,02,600.00	

Sub Est. No. 6						
8 M HIGH STEEL STRUCTURE STAGING FOR 5000/10000 LITER PVC TANK						
S.N.	Particulars	Quantity	Unit	Rate	Amount	
1 10.3	Structural steel work riveted or bolted in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved primer all complete for 8M high staging with ladder of ISA65x65x6 and 16mm dia MS bar as trade @ 400mm c/c and GI enclosure to house electric switch panel & treatment unit (where required) of suitably designed MS section of angle, channel, etc. as per drawing attached.	4224	Kg	P/Kg	Rs.69.20	Rs.2,92,300.80
2 2.8.1	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including rassing of sides and ramming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All Kinds of soil					
	base of footing					
	4 1.95 1.95 1.35 =	20.534				
	Under Tie beam					
	2 2.30 0.25 0.275 =	0.316				
	2 1.30 0.25 0.275 =	0.179				
		21.029				
		21.029	M ³	P/M ³	Rs.230.50	Rs.4,847.07
3- 2.28	Supplying and filling in plinth with local sand and under floors including watering, ramming consolidating and dressing complete.					
	base of footing					
	4 1.95 1.95 0.10 =	1.521				
	Under Tie beam					
	2 3.95 0.25 0.10 =	0.198				
	2 2.95 0.25 0.10 =	0.148				
	Floor					
	1 4.00 3.00 0.10 =	1.200				
		3.066				
		3.066	M ³	P/M ³	Rs.204.40	Rs.626.69
4- 11.72	Providing designation of 100A Brick flat Soling joints filled with local sand including cost of watering, taxes & royalty all complete as per specification & direction of E/I.					
	base of footing					
	4 1.95 1.95 =	15.210				
	Under Tie beam					
	2 3.95 0.25 =	1.975				
	2 2.95 0.25 =	1.475				
	Floor					
	1 4.00 3.00 =	12.000				
		30.660				
		30.660	M ²	P/M ²	Rs.253.80	Rs.7,781.51
5 4.1.2	Providing and laying in position cement concrete of specified grade exluding the cost of centring and shuttering-all work upto plinth level. 1:1.5:3(1 Cement :1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)					
	base of footing					
	4 1.95 1.95 0.075 =	1.141				
	Floor					
	1 4.00 3.00 0.10 =	1.200				
		2.341				
		2.341	M ³	P/M ³	Rs.4,373.20	Rs.10,236.57

S.N.	Particulars	Quantity	Unit	Rate	Amount
6 5.1.2	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of entering, shuttering, finishing and reinforcement- All work upto plinth level 1:1:5:3(1 cement: 1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)				
	Tie beam				
	1 3.95 0.25 0.25 =	0.247			
	1 2.95 0.25 0.25 =	0.184			
	base of footing				
	4 1.80 1.80 0.30 =	3.888			
	4 0.45 0.45 0.15 =	0.122			
	Column below GL				
	4 0.30 0.30 0.65 =	0.234			
	Column above GL				
	4 0.30 0.30 0.15 =	0.054			
		4.729			
		4.729 M ³	P/M ³	Rs.4,530.30	Rs.21,422.66
7- 5.9.1	Centring and shuttering including strutting, propping etc. and removal of form for.				
	2 3.95 0.25 =	1.975			
	2 2.95 0.25 =	1.475			
	16 1.80 0.30 =	8.640			
	16 0.45 0.15 =	1.080			
	16 0.30 0.65 =	3.120			
	16 0.30 0.15 =	0.720			
		17.010			
		17.010 M ²	P/M ²	Rs.169.00	Rs.2,874.69
8- 5.22	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete. 8 mm to 16 mm tor steel				
	Total Reinforcement. @1.25% of Vol. Of Concrete =	464.00 Kg.	P/Kg.	Rs.56.00	Rs.25,984.00
9 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of oundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead (50% of E/W in excavation)	10.514 M ³	P/M ³	Rs.74.50	Rs.783.31
10 13.26	Neat cement punning				
	1 4.00 3.00 =	12.000			
		12.000 M ²	P/M ²	Rs.32.30	Rs.387.60
11- 10.7.1	Providing and fixing 1mm thick M.S. sheet door with frame of 40x40x6mm angle iron and 3mm M.S. gusset plates at the junctions and corners, all necessary fittings complete, including applying a priming coat of approved steel primer. Using flats 30x6 mm for diagonal braces and central cross piece.				
	Door				
	1 0.9 2.10 =	1.890			
	Window				
	1 1.2 0.90 =	1.080			
	Total =	2.970			
		2.970 M ³	P/M ³	Rs.2,503.00	Rs.7,433.91

S.N.	Particulars	Quantity	Unit	Rate	Amount	
12- 12.1.4	Providing corrugated G.S. sheet roofing fixed with G.I.J. or hooks, bolts and nuts 8 mm diameter with bitumen and G. I. limpet washers or with G.I. limpet washers filled with white lead and including a coat of approved steel primer and two coats of approved paint on over lapping of sheets complete (upto a pitch of 60°) excluding the cost of purlins, rafters and trusses. 0.8mm thick with zinc coating not less than 275 gm/mz					
	Roof					
	1 4.50 3.50 =				15.750	
	Wall					
	1 16.00 3.00 =				48.000	
					63.750	
	Deduct for door & window					
	1 0.9 2.10 =				1.890	
	1 1.2 0.90 =				1.080	
					2.970	
	Net Qty =	60.780	M ²	Rs.729.70	Rs.44,351.17	
13 10.19	Providing and fixing anchor bolt of 16 mm dia and 0.60 Mtr length embedded in R.C.C pedestal all complete as per direction of Engineer in charge. @4x4x0.95kg	15.15	Kg	P/kg	Rs.73.60	Rs.1,115.04
14- 13.82.1	Painting with ready mixed paint of approved brand and manufacture in all shades to give an even shade:					
	New steel work (two or more coats)					
	Frame work					
	0.5 16.00 8.00 =				64.000	
	0.5 5.00 4.00 =				10.000	
	Roof sheet					
	2 4.50 3.50 =				31.500	
	Top sheet					
	2 5.00 4.00 =				40.000	
	GI sheet wall					
	2 16.00 3.00 =				96.000	
					241.500	
		241.50	M ²	Rs.63.60	Rs.15,359.40	
15	Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & direction of E/I.					
	(a) Bricks (7 Km. Pucca & 1 Km. Kachha lead)	990	Nos.	%0 nos.	Rs.606.10	Rs.600.04
	(b) Coarse Sand (100 Km. lead)	3.040	M ³	P/M ³	Rs.1,221.09	Rs.3,712.11
	(c) Stone Chips (150 Km. lead)	6.070	M ³	P/M ³	Rs.1,746.29	Rs.10,599.98
	(d) Local Sand (2 Km. Pucca & 1 Km. Kachha lead)	3.530	M ³	P/M ³	Rs.217.23	Rs.766.82
					TOTAL	Rs.4,51,183.37
					say	Rs.4,51,200.00

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GOVERNMENT OF BIHAR

PUBLIC HEALTH ENGINEERING DEPARTMENT

MODEL ESTIMATE

FOR

CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME

WITH IRON REMOVAL PLANT

FOR A WARD HAVING 100 HOUSE HOLDS

ESTIMATED COST-- Rs. 16.580 Lac

2017-18

GOVERNMENT OF BIHAR
Public Health Engineering Department

ABSTRACT OF COST

NAME OF WORK:- CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME FOR WARD HAVING 100 HOUSE HOLDS

S.N.	Description	Total Amount
1	Construction of 125mm X75mmx 90m deep T/W etc. all complete and as per direction of E/I. (As per sub Estimate no.- 1)	Rs.1,11,137.68
2	Constructing masonry Chamber 100x100x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for Tube Well, and RCC top slab 1:1.5:3 mix (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:2:4(1 cement : 2 fine sand : 4 graded stone aggregate 20 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick with 5% cico fnished with a floating coat of neat cement, out side plastering with cement mortar 1:4 (1 cement : 4coarse sand) 12 mm thick complete as per standard specifications & direction of E/I. (As per sub Estimate no.- 2)	Rs.13,210.00
3	Providing and Laying Distribution network of High Density Polyethyene pipe (HDPE pipe) including 5000 liter PVC tank installed at 8M high MS staging etc all complete as per direction of E/I. (As per sub Estimate no.- 3)	Rs.3,90,355.94
4	Supply Installation, commissioning and testing of single phase 2 H.P. submersible pump set having discharging capacity 2.5 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I. (As per sub Estimate no.- 4)	Rs.64,403.00
5	Providing house connection for each house hold including supplying all materials, labours, tools and making ferrule connection with 20 mm dia MDPE and 15mm CPVC Pipes with all fittings etc all complete. (As per sub Estimate no.- 5)	Rs.1,51,300.00
6	Design, supply, fabrication, installation of fully tested and successfully operated MS/FRP Iron Removal Plant to deliver treated water confirming to water quality standard as per IS:10500 for 8 KLPH capacity and raw water iron concentration of upto 10PPM all complete as per direction of the E/I. (As per sub Estimate no.- 6)	Rs.4,60,000.00
7	Providing and erecting 8M high staging with ladder of ISA65x65x6 and 16mm dia MS bar as trade @ 400mm c/c and GI enclosure to house electric switch panel & treatment unit (where required) of suitably designed MS section of angle, channel, etc. as per drawing attached. (As per sub Estimate no.- 7)	Rs.4,51,200.00
TOTAL		Rs.16,41,606.62
Add 1% Contingency		Rs.16,416.07
G. TOTAL		Rs.16,58,022.69
Say		Rs.16,58,000.00

(Rs. Sixteen Lakh Fifty eighty Thousand) only

note:

- Road cutting cost may increase or decrease as per actuals.
- Strongly advised that pipeline should be laid before construction of Naali-Gali.
- This is a model estimate. Hence the quantity may increase or decrease based on actual site conditions.

Variable inter alia includes

- Hydro geomorphological condition.
- Location of source vis-à-vis population/ house holds.
- Quality of works and materials shall be maintained as per standard specifications and direction of E/I.

Technical approval accorded for Rs.16,58,000.00 (Rs. Sixteen Lakh Fifty eighty Thousand) only

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Sub Est. No. 1

CONSTRUCTION OF 125MM X 75MM DIA & 90M DEEP TUBE WELL

S.No.	Description	Qty.	Unit	Rate	Amount
1	Boring/drilling bore well of required dia for casing/strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer -in-charge, upto 90 metre depth below ground level. (All types of soil)				
24.1.1.1	(a) 300mm dia bore from G.L. to 90.0M	90.0 M	P/M	Rs.378.00	Rs.34,020.00
2	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC (UPVC) medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings				
	(b) 125 mm nominal size dia	30.0 M	P/M	Rs.462.50	Rs.13,875.00
24.3.5	(b) 75 mm nominal size dia	34.0 M	P/M	Rs.328.50	Rs.11,169.00
24.4.5	(c) 75 mm dia U.P.V.C. strainer	21.0 M	P/M	Rs.420.30	Rs.8,826.30
3	Providing all materials, tools & labours and fixing the following fittings etc. all complete as per specification & direction of E/I.				
	(a) 125 mm dia P.V.C. well cap	1 No.	Each	Rs.166.60	Rs.166.60
	(b) 125 mm dia center guide	4 Nos.	Each	Rs.100.00	Rs.400.00
	(c) 75 mm dia center guide	6 Nos.	Each	Rs.75.00	Rs.450.00
	(d) 75 mm dia P.V.C. pipe shoe plug	1 No.	Each	Rs.185.00	Rs.185.00
	(e)125mm x 75 mm dia P.V.C. Reducer	1 No.	Each	Rs.475.00	Rs.475.00
	(d)125mm dia M.S.Clamp	1 No.	Each	Rs.974.60	Rs.974.60
4a	Providing all materials, labours, & equipments for fixing				
24.6	tubewell with peagravel of Dalbhumigarh to size 4mm to 8mm approx. as suitable for strata including carriage washing, placing and packing the same in position around the tubewell etc. all complete as per direction of E/I.	6.5 M ³	P/M ³	Rs.917.00	Rs.5,960.50
4b	Carriage of Pea Gravel from Dhalbhumigarh (taken av distance 400km.)	6.5 M ³	P/M ³	Rs.4,336.54	Rs.28,187.48
5	Development of tube well in accordance with IS : 2800				
24.12	(part I) and IS: 11189, to establish maximum rate of usable water yield without sand content (beyond permissible limit), with required capacity air compressor, running the compressor for required time till well is fully developed, measuring yield of well by "V" notch method or any other approved method, measuring static level & draw down etc. by step draw down method, collecting water sample & getting tested in approved laboratory, disinfection of tubewell, all complete, including hire & labour charges of air compressor, tools & accessories etc., all as per requirement and direction of Engineer-in-charge.	3 Hrs.	Each	Rs.649.40	Rs.1,948.20
6	Supplying all materials and labours for arrangement for additional water required during the drilling period for 40 Hrs & site clearance & leveling etc. And providing the soap duster etc. to staff engaged in drilling etc. all complete work as per specification & direction of E.I..	1 No.	Each	Rs.4,500.00	Rs.4,500.00
TOTAL					Rs.1,11,137.68

(Sub Estimate - 2)

Analysis of Chamber for TW

Supplying materials, labours and constructing chamber of following dimension having 250mm thick wall in C.M. (1:4) including 12mm C.P. (1:3) with punning inside, R.C.C. cover slab with C.I. Surface box, 20mm dia foot rest at 150mm interval 10mm dia lifting ring etc. all complete.

SIZE 1.00 M x 1.00 M x 0.75 M deep

S.O.R. No.	Particulars	No.	L	W	H	Qty.	Unit	Rate	Amount
1	Earth work in excavation	1	1.75	1.75	1.0	3.063 M ³	P/M ³	Rs.230.50	Rs.705.91
S.O.R. No. 2.8									
2	Sand filling	1	1.75	1.75	0.075	0.230 M ³	P/M ³	Rs.204.40	Rs.46.95
S.O.R. No. 2.28									
3	Brick flat soling	1	1.75	1.75		3.063 M ²	P/M ²	Rs.253.80	Rs.777.26
S.O.R. 11.72									
4	P.C.C. (1:2:4) in foundation	1	1.75	1.75	0.10	0.306 M ³			
S.O.O. 4.1.3									
						0.306 M ³	P/M ³	Rs.3,850.50	Rs.1,179.22
5	BWork in (1:4) C.M.	2	2.50	0.25	0.75	0.938 M ³	P/M ³	Rs.4,724.40	Rs.4,429.13
S.O.R. No. 6.1.12/1									
6	R.C.C. Cover slab(1:1.5:3)	1	1.50	1.50	0.15	0.338 M ³	P/M ³	Rs.5,139.70	Rs.1,734.65
S.O.R. No. 5.2.2 & 5.9.3									
	shuttering	2	1.50	1.50	0.15	3.15 M ²	P/M ²	Rs.291.00	Rs.916.65
7	C.P. (1:3) with 5% Cico & neat cement								
S.O.R. No.	Internal face	2	1.00	1.00	1.00	4.00 M ²			
13.17.1	Bed surface	1	1.00	1.00		1.00 M ²			
+13.36.1						5.00 M ²	P/M ²	Rs.166.30	Rs.831.50
8	C.P. (1:4) out side of wall	2	1.50	1.50	0.75	4.5 M ²	P/M ²	Rs.114.70	Rs.516.15
S.O.R. No. 13.11.2									
9	8mm dia T.S. Rod								
S.O.R. No. 5.22.7A									
		0.338 M ³ x		70	Kg/M ³	23.625 Kg.	P/Kg	Rs.56.00	Rs.1,323.00
10	Lifting Ring of 10mm dia Rod					4 No.	Each	Rs.30.00	Rs.120.00
11	Carriage of materials 5%								
								Total	Rs.12,580.41
									Rs.629.02
									<u>Rs.13,209.43</u>

Say Rs.13,210.00

Sub Est. No. 3

WATER SUPPLY DISTRIBUTION SYSTEM

S.N.	Particulars	Quantity	Unit	Rate	Amount
1A	Earthwork in excavation over areas (exceeding 30 cm in depth 1.5 in width as well as 10 sqm on plan) including disposal of excavated earth lead upto 50m and lift upto 1.5m, disposal earth to be levelled and neatly dressed.				
	75mm dia Pipe	150.00	0.30	1.10 =	49.50
	63mm dia Pipe	150.00	0.30	1.10 =	49.50
	50mm dia Pipe	300.00	0.30	1.10 =	99.00
	40mm dia Pipe	400.00	0.30	1.10 =	132.00
					330.00 M ³
	Add 5% extra for fittings =				16.50 M ³
					346.50 M ³
			P/M ³	Rs.230.50	Rs.79,868.25
1B	Provision for PCC road cutting and its restoration	11.25	M ³	P/M ³	Rs.4,428.80
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	339.57	M ³	P/M ³	Rs.74.50
					Rs.25,297.97
3	Providing and laying High Density Polyethylene pipe (HDPE pipe) of 20 mm to 225 mm OD and pressure 6.0 Kg/cm ² and 10 Kg/cm ² suitable for water supply which is available in all standard, like ISI-4984/1995 and various grades like PE-80, PE-100 including required specials. Rates are inclusive of , all taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete as per direction of Engineer-in-charge.				
3A	HDPE pipe of materials grade PE100- PN10 (dia in mm)				
	75mm dia Pipe from PVC Tank to Distribution main	10.00	M	P/M	Rs.239.81
					Rs.2,398.10
	75mm dia Pipe	150.00	M	P/M	Rs.239.81
					Rs.35,971.50
	63mm dia Pipe	150.00	M	P/M	Rs.168.77
					Rs.25,315.50
3B	HDPE pipe of materials grade PE100- PN8 (dia in mm)				
	50mm dia Pipe	300.00	M	P/M	Rs.89.99
					Rs.26,997.00
	40mm dia Pipe	400.00	M	P/M	Rs.59.78
					Rs.23,912.00
	40mm dia Pipe from T/well to PVC Tank	12.00	M	P/M	Rs.59.78
					Rs.717.36
4	Providing and fixing brass gate valve with C.I. wheel of approved quality (screwed end).				
	75mm dia Pipe	3	Nos.	Each	Rs.1,351.60
					Rs.4,054.80
	63mm dia Pipe	2	Nos.	Each	Rs.1,351.60
					Rs.2,703.20
	50mm dia Pipe	2	Nos.	Each	Rs.811.40
					Rs.1,622.80
	40mm dia Pipe	4	Nos.	Each	Rs.613.90
					Rs.2,455.60

S.N.	Particulars	Quantity	Unit	Rate	Amount	
5 18.33	Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size), necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard specifications & direction of E/I.	9	Nos. Each	Rs.5,807.50	Rs.52,267.50	
	Work for additional depth					
	Brick work (1:4) in foundation					
		2	1.10	0.25	0.35	0.193
		2	0.60	0.25	0.35	0.105
					0.298	
		2.678	CuM CuM	Rs.4,724.40	Rs.12,649.58	
	Plaster (1:3)					
		8	1.10	0.35	3.08	27.72
			SqM SqM	Rs.128.20	Rs.3,553.70	
6	Carriage 10% of item 5				Rs.6,847.08	
7 18.48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, ISI : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	5000	Ltrs. P/Ltr.	Rs.6.60	Rs.33,000.00	
8	Providing and fixing PTMT extension nipple for water tank pipe, fittings of approved quality and colour.					
	40mm dia	2	Nos. each	Rs.250.00	Rs.500.00	
	75mm dia	1	No. each	Rs.400.00	Rs.400.00	
				TOTAL	Rs.3,90,355.94	

Sub Est. No. 4

Model estimate for supply, installation & commissioning of single phase 2 H.P submersible motor pump set with all accessories including extension of L.T. line from nearest source up-to pumping

Sl. No.	Particulars	Quantity	Unit	Rate	Amount	
1	2	3	4	5	6	
[A]	<p>Supply Installation, commissioning and testing of single phase 2 H.P. submersible pump set having discharging capacity 2.5 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I.</p> <p>(i) 40 mm dia x 3 mtrs long medium class G.I column pipe both end threaded and one end socketed- 6(six)nos</p> <p>(ii) 1x3x1.5 mm² flat copper conductor submersible cable -40 (forty) mtrs.</p> <p>(iii) 40 mm dia union socket- 1(one) no.</p> <p>(iv) 50 mm dia x 250 mm long G.I. nipple- 1 (one) no.</p> <p>(v) 40 mm dia G.I Elbow—1(One) no.</p> <p>(vi) 40 mm dia M.S. clamps—2(Two) Pairs.</p> <p>(vii) 40 mmx 250 mm long G.I nipple- 1(One) no.</p> <p>(viii) Tube well cap for 125 mm dia T/Well – 1(one) no.</p> <p>(ix) 40 mm dia x 50 mm dia reducer socket –1(one) no.</p>	1	(one) job	p/job	Rs.30,500.00	Rs.30,500.00

[B]	Supply Installation, commissioning and testing of floor mounted outdoor type L.T feeder pillar single phase starter controll pannel operated on 220 V, 3 phase , 50 c/s for 2 HP Submersible pump set made of MS sheet (minimum 2 mm thick) duly spray power coated painting with following accessories made of M.S sheet (minimum 2mm thick) duly spray powder coated painting with following accessories (i) 95-272 V range single phase 5 KVA automatic voltage stabilizer make-Sen & Pandit/ Vertex/ISI marked If any. 1 No. (ii) Suitable single phase starter control panel for above motor of BCH /L&Tmake – 1(one) no.	1 (one) job	p/job	Rs.28,500.00	Rs.28,500.00
[C]	Supplying & fitting 2.5 mm ² copper service cable from power point from nearest source up-to pumping station..	20 mtrs	P/Mt	Rs.130.00	Rs.2,600.00
[D]	Providing all materials and labour required for doing earthing station with G.I earth pipe of 40 mm dia x 4.5 mtrs 20fts. long G.I pipe including accessories excavation of earth , providing masonry enclosure with cover plate having locking arrangement and watering pipe etc.with salt, charcoal,etc.as per IE & IS specification.	1 job	p/job	Rs.2,803.00	Rs.2,803.00
Total Rs.					Rs.64,403.00

Sub Est. No. 5

Estimate for the work - House service connection								
SUB-ESTIMATE								
S.No.	Description				Qty	Unit	Rate	Amount
1A	Providing and fixing MDPE (PE 80 GradeCompound) pipes PN-12.5 (12.5kg/Sqcm) as per ISO 4427 and specification for waterapplication rates are inclusive of , taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete asper direction of Engineer-in-charge.complete.							
	MDPE Pipe 20mm dia nominal bore				6.00	PM	Rs.19.97	Rs.119.82
1B	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall							
18.7.1	15 mm nomonal bore				1.0	PM	Rs.138.70	Rs.138.70
2	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and amming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil							
2.8.1	6.00	0.30	0.60	1.08	1.08	CuM	Rs.230.50	Rs.248.94
3 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead				1.06	CuM	Rs.74.50	Rs.78.85
4	Providing and fixing brass ferrule with CI mouth cover incuding boring and tapping the main:							
18.20.1	15mm nominal bore				1	Each	Rs.254.10	Rs.254.10
	Providing and fixing P.P. Black service Saddle (Brass threaded)				1	Each	Rs.400.00	Rs.400.00
5	Providing and fixing brass bib cock of approved quality :							
18.15.1	15mm nominal bore				1	Each	Rs.273.00	Rs.273.00
Total								Rs.1,513.41
Say								Rs.1,513.00

Total Nos. of House Holds= 100 Nos. @ Rs.1,513.00 Rs.1,51,300.00

SUB ESTIMATE NO - 6

IRON REMOVAL PLANT

S.N.	Particulars	Quantity	Unit	Rate (In Rs.)	Amount (In Rs.)
1	Design, supply, erection, installation, testing and commissioning of Iron removal plant based on aeration/ filtration/ activated carbon treatment units or any other suitable treatment process of ISO 9001 certified reputed make housed in MS/FRP vessel suitable for required flow rate with iron concentration upto 10 ppm in raw water to deliver treated water quality conforming to IS 10500(latest revision) with provision of waste water disposal system, if required including all necessary works and accessories etc. all complete as per directions of Engineer-in-Charge. 8.0 KLPH Capacity	1 No.	Each	Rs. 4,60,000.00	Rs. 4,60,000.00
TOTAL :-					Rs.4,60,000.00

Sub Est. No. 7									
8 M HIGH STEEL STRUCTURE STAGING FOR 5000/10000 LITER PVC TANK									
S.N.	Particulars				Quantity	Unit	Rate	Amount	
1 10.3	Structural steel work riveted or bolted in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved primer all complete for 8M high staging with ladder of ISA65x65x6 and 16mm dia MS bar as trade @ 400mm c/c and GI enclosure to house electric switch panel & treatment unit (where required) of suitably designed MS section of angle, channel, etc. as per drawing attached.				4224 Kg	P/Kg	Rs.69.20	Rs.2,92,300.80	
2 2.8.1	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including rassing of sides and ramming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All Kinds of soil								
	base of footing								
	4	1.95	1.95	1.35	=			20.534	
	Under Tie beam								
	2	2.30	0.25	0.275	=			0.316	
	2	1.30	0.25	0.275	=			0.179	
								21.029	
						21.029 M ³	P/M ³	Rs.230.50	Rs.4,847.07
3- 2.28	Supplying and filling in plinth with local sand and under floors including watering, ramming consolidating and dressing complete.								
	base of footing								
	4	1.95	1.95	0.10	=			1.521	
	Under Tie beam								
	2	3.95	0.25	0.10	=			0.198	
	2	2.95	0.25	0.10	=			0.148	
	Floor								
	1	4.00	3.00	0.10	=			1.200	
								3.066	
						3.066 M ³	P/M ³	Rs.204.40	Rs.626.69
4- 11.72	Providing designation of 100A Brick flat Soling joints filled with local sand including cost of watering, taxes & royalty all complete as per specification & direction of E/I.								
	base of footing								
	4	1.95	1.95		=			15.210	
	Under Tie beam								
	2	3.95	0.25		=			1.975	
	2	2.95	0.25		=			1.475	
	Floor								
	1	4.00	3.00		=			12.000	
								30.660	
						30.660 M ²	P/M ²	Rs.253.80	Rs.7,781.51
5 4.1.2	Providing and laying in position cement concrete of specified grade exluding the cost of centring and shuttering-all work upto plinth level. 1:1.5:3(1 Cement :1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)								
	base of footing								
	4	1.95	1.95	0.075	=			1.141	
	Floor								
	1	4.00	3.00	0.10	=			1.200	
								2.341	
						2.341 M ³	P/M ³	Rs.4,373.20	Rs.10,236.57

S.N.	Particulars	Quantity	Unit	Rate	Amount	
6 5.1.2	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of entering, shuttering, finishing and reinforcement- All work upto plinth level 1:1:5:3(1 cement: 1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)					
	Tie beam					
	1 3.95 0.25 0.25 =	0.247				
	1 2.95 0.25 0.25 =	0.184				
	base of footing					
	4 1.80 1.80 0.30 =	3.888				
	4 0.45 0.45 0.15 =	0.122				
	Column below GL					
	4 0.30 0.30 0.65 =	0.234				
	Column above GL					
	4 0.30 0.30 0.15 =	0.054				
		4.729				
		4.729 M ³	P/M ³	Rs.4,530.30	Rs.21,422.66	
7- 5.9.1	Centring and shuttering including strutting, propping etc. and removal of form for.					
	2 3.95 0.25 =	1.975				
	2 2.95 0.25 =	1.475				
	16 1.80 0.30 =	8.640				
	16 0.45 0.15 =	1.080				
	16 0.30 0.65 =	3.120				
	16 0.30 0.15 =	0.720				
		17.010				
		17.010 M ²	P/M ²	Rs.169.00	Rs.2,874.69	
8- 5.22	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete. 8 mm to 16 mm tor steel					
	Total Reinforcement.					
	@1.25% of Vol. Of Concrete =	464.00 Kg.	P/Kg.	Rs.56.00	Rs.25,984.00	
9 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead (50% of E/W in excavation)	10.514 M ³	P/M ³	Rs.74.50	Rs.783.31	
10 13.26	Neat cement punning					
	1 4.00 3.00 =	12.000				
		12.000 M ²	P/M ²	Rs.32.30	Rs.387.60	
11- 10.7.1	Providing and fixing 1mm thick M.S. sheet door with frame of 40x40x6mm angle iron and 3mm M.S. gusset plates at the junctions and corners, all necessary fittings complete, including applying a priming coat of approved steel primer. Using flats 30x6 mm for diagonal braces and central cross piece.					
	Door					
	1 0.9 2.10 =	1.890				
	Window					
	1 1.2 0.90 =	1.080				
	Total	2.970	2.970 M ³	P/M ³	Rs.2,503.00	Rs.7,433.91

S.N.	Particulars	Quantity	Unit	Rate	Amount	
12- 12.1.4	Providing corrugated G.S. sheet roofing fixed with G.I.J. or hooks, bolts and nuts 8 mm diameter with bitumen and G. I. limpet washers or with G.I. limpet washers filled with white lead and including a coat of approved steel primer and two coats of approved paint on over lapping of sheets complete (upto a pitch of 60°) excluding the cost of purlins, rafters and trusses. 0.8mm thick with zinc coating not less than 275 gm/mz					
	Roof					
	1 4.50 3.50 =				15.750	
	Wall					
	1 16.00 3.00 =				48.000	
					63.750	
	Deduct for door & window					
	1 0.9 2.10 =				1.890	
	1 1.2 0.90 =				1.080	
					2.970	
	Net Qty =	60.780	M ²	Rs.729.70	Rs.44,351.17	
13 10.19	Providing and fixing anchor bolt of 16 mm dia and 0.60 Mtr length embedded in R.C.C pedestal all complete as per direction of Engineer in charge. @4x4x0.95kg	15.15	Kg	P/kg	Rs.73.60	Rs.1,115.04
14- 13.82.1	Painting with ready mixed paint of approved brand and manufacture in all shades to give an even shade: New steel work (two or more coats)					
	Frame work					
	0.5 16.00 8.00 =				64.000	
	0.5 5.00 4.00 =				10.000	
	Roof sheet					
	2 4.50 3.50 =				31.500	
	Top sheet					
	2 5.00 4.00 =				40.000	
	GI sheet wall					
	2 16.00 3.00 =				96.000	
					241.500	
		241.50	M ²	Rs.63.60	Rs.15,359.40	
15	Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & direction of E/I.					
	(a) Bricks (7 Km. Pucca & 1 Km. Kachha lead)	990 Nos.	%0 nos.	Rs.606.10	Rs.600.04	
	(b) Coarse Sand (100 Km. lead)	3.040 M ³	P/M ³	Rs.1,221.09	Rs.3,712.11	
	(c) Stone Chips (150 Km. lead)	6.070 M ³	P/M ³	Rs.1,746.29	Rs.10,599.98	
	(d) Local Sand (2 Km. Pucca & 1 Km. Kachha lea	3.530 M ³	P/M ³	Rs.217.23	Rs.766.82	
				TOTAL	Rs.4,51,183.37	
				say	Rs.4,51,200.00	

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GOVERNMENT OF BIHAR

PUBLIC HEALTH ENGINEERING DEPARTMENT

MODEL ESTIMATE

FOR

CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME

FOR A WARD HAVING 150 HOUSE HOLDS

ESTIMATED COST-- Rs. 21.222 Lac

2017-18

GOVERNMENT OF BIHAR
Public Health Engineering Department

ABSTRACT OF COST

NAME OF WORK:- CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME FOR WARD HAVING 150 HOUSE HOLDS

S.N.	Description	Total Amount
1	Construction of 125 mm x75mmX 90m deep T/W etc. all complete and as per direction of E/I. (As per sub Estimate no.- 1)	Rs.1,11,137.68
2	Constructing masonry Chamber 100x100x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for Tube Well, and RCC top slab 1:1.5:3 mix (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:2:4(1 cement : 2 fine sand : 4 graded stone aggregate 20 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick with 5% cico finished with a floating coat of neat cement, out side plastering with cement mortar 1:4 (1 cement : 4coarse sand) 12 mm thick complete as per standard specifications & direction of E/I. (As per sub Estimate no.- 2)	Rs.13,210.00
3	Providing and Laying Distribution network of High Density Polyethyene pipe (HDPE pipe) including 10000 liter PVC tank installed at 8M high MS staging etc all complete as per direction of E/I. (As per sub Estimate no.- 3)	Rs.5,05,053.21
4	Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I. (As per sub Estimate no.- 4)	Rs.93,603.00
5	Providing house connection for each house hold including supplying all materials, labours, tools and making ferrule connection with 20 mm dia MDPE and 15mm CPVC Pipes with all fittings etc all complete. (As per sub Estimate no.- 5)	Rs.2,26,950.00
6	Design, supply, fabrication, installation of fully tested and successfully operated MS/FRP Iron Removal Plant to deliver treated water confirming to water quality standard as per IS:10500 for 12 KLPH capacity and raw water iron concentration of upto 10PPM all complete as per direction of the E/I. (As per sub Estimate no.- 6)	Rs.7,00,000.00
7	Providing and erecting 8M high staging with ladder of ISA65x65x6 and 16mm dia MS bar as trade @ 400mm c/c and GI enclosure to house electric switch panel & treatment unit (where required) of suitably designed MS section of angle, channel, etc. as per drawing attached. (As per sub Estimate no.- 7)	Rs.4,51,200.00
TOTAL		Rs.21,01,153.89
Add 1% Contingency		Rs.21,011.54
G. TOTAL		Rs.21,22,165.43
Say		Rs.21,22,200.00

(Rs. Twenty one Lakh Twenty two Thousand Two Hundred) only

note:

- Road cutting cost may increase or decrease as per actuals.
- Strongly advised that pipeline should be laid before construction of Naali-Gali.
- This is a model estimate. Hence the quantity may increase or decrease based on actual site conditions.

Variable inter alia includes

- Hydro geomorphological condition.
- Location of source vis-à-vis population/ house holds.
- Quality of works and materials shall be maintained as per standard specifications and direction of E/I.

Technical approval accorded for Rs.21,22,200.00 (Rs. Twenty one Lakh Twenty two Thousand Two Hundred) only

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Sub Est. No. 1

CONSTRUCTION OF 125MM X 75MM DIA & 90M DEEP TUBE WELL

S.No.	Description	Qty.	Unit	Rate	Amount
1	Boring/drilling bore well of required dia for casing/strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer -in-charge, upto 90 metre depth below ground level. (All types of soil)				
24.1.1.1	(a) 300mm dia bore from G.L. to 90.0M	90.0 M	P/M	Rs.378.00	Rs.34,020.00
2	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC (UPVC) medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings				
	(b) 125 mm nominal size dia	30.0 M	P/M	Rs.462.50	Rs.13,875.00
24.3.5	(b) 75 mm nominal size dia	34.0 M	P/M	Rs.328.50	Rs.11,169.00
24.4.5	(c) 75 mm dia U.P.V.C. strainer	21.0 M	P/M	Rs.420.30	Rs.8,826.30
3	Providing all materials, tools & labours and fixing the following fittings etc. all complete as per specification & direction of E/I.				
	(a) 125 mm dia P.V.C. well cap	1 No.	Each	Rs.166.60	Rs.166.60
	(b) 125 mm dia center guide	4 Nos.	Each	Rs.100.00	Rs.400.00
	(c) 75 mm dia center guide	6 Nos.	Each	Rs.75.00	Rs.450.00
	(d) 75 mm dia P.V.C. pipe shoe plug	1 No.	Each	Rs.185.00	Rs.185.00
	(e)125mm x 75 mm dia P.V.C. Reducer	1 No.	Each	Rs.475.00	Rs.475.00
	(d)125mm dia M.S.Clamp	1 No.	Each	Rs.974.60	Rs.974.60
4a	Providing all materials, labours, & equipments for fixing tubewell with peagravel of Dalbhumigarh to size 4mm to 8mm approx. as suitable for strata including carriage washing, placing and packing the same in position around the tubewell etc. all complete as per direction of E/I.				
24.6		6.5 M ³	P/M ³	Rs.917.00	Rs.5,960.50
4b	Carriage of Pea Gravel from Dalbhumigarh (taken av distance 400km.)	6.5 M ³	P/M ³	Rs.4,336.54	Rs.28,187.48
5	Development of tube well in accordance with IS : 2800 (part I) and IS: 11189, to establish maximum rate of usable water yield without sand content (beyond permissible limit), with required capacity air compressor, running the compressor for required time till well is fully developed, measuring yield of well by "V" notch method or any other approved method, measuring static level & draw down etc. by step draw down method, collecting water sampl & getting tested in approved laboratory, disinfection of tubewell, all complete,including hire & labour charges of air compressor, tools & accessories etc., all as per requirement and direction of Engineer-in-charge.				
24.12		3 Hrs.	Each	Rs.649.40	Rs.1,948.20
6	Supplying all materials and labours for arrangement for additional water required during the drilling period for 40 Hrs & site clearance & leveling etc. And providing the soap duster etc. to staff engaged in drilling etc. all complete work as per specification & direction of E.I..				
		1 No.	Each	Rs.4,500.00	Rs.4,500.00
TOTAL					Rs.1,11,137.68

(Sub Estimate - 2)

Analysis of Chamber for TW

Supplying materials, labours and constructing chamber of following dimension having 250mm thick wall in C.M. (1:4) including 12mm C.P. (1:3) with punning inside, R.C.C. cover slab with C.I. Surface box, 20mm dia foot rest at 150mm interval 10mm dia lifting ring etc. all complete.

SIZE	1.00 M	x	1.00 M	x	0.75 M deep
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S.O.R. No.	Particulars	No.	L	W	H	Qty.	Unit	Rate	Amount
1	Earth work in excavation	1	1.75	1.75	1.0	3.063 M ³	P/M ³	Rs.230.50	Rs.705.91
S.O.R. No. 2.8									
2	Sand filling	1	1.75	1.75	0.075	0.230 M ³	P/M ³	Rs.204.40	Rs.46.95
S.O.R. No. 2.28									
3	Brick flat soling	1	1.75	1.75		3.063 M ²	P/M ²	Rs.253.80	Rs.777.26
S.O.R. 11.72									
4	P.C.C. (1:2:4) in foundation	1	1.75	1.75	0.10	0.306 M ³			
S.O.O. 4.1.3									
						0.306 M ³	P/M ³	Rs.3,850.50	Rs.1,179.22
5	B/Work in (1:4) C.M.	2	2.50	0.25	0.75	0.938 M ³	P/M ³	Rs.4,724.40	Rs.4,429.13
S.O.R. No. 6.1.12/1									
6	R.C.C. Cover slab(1:1.5:3)	1	1.50	1.50	0.15	0.338 M ³	P/M ³	Rs.5,139.70	Rs.1,734.65
S.O.R. No. 5.2.2 & 5.9.3									
	shuttering	2	1.50	1.50	0.15	3.15 M ²	P/M ²	Rs.291.00	Rs.916.65
7	C.P. (1:3) with 5% Cico & neat cement								
S.O.R. Internal face		2	1.00	1.00	1.00	4.00 M ²			
No. Bed surface		1	1.00	1.00		1.00 M ²			
+13.36.1						5.00 M ²	P/M ²	Rs.166.30	Rs.831.50
8	C.P. (1:4) cut side of wall	2	1.50	1.50	0.75	4.5 M ²	P/M ²	Rs.114.70	Rs.516.15
S.O.R. No. 13.11.2									
9	8mm dia T.S. Rod								
S.O.R. No. 5.22.7A									
			0.338 M ³ x	70	Kg/M ³	23.625 Kg.	P/Kg	Rs.56.00	Rs.1,323.00
10	Lifting Ring of 10mm dia Rod					4 No.	Each	Rs.30.00	Rs.120.00
11	Carriage of materials 5%							Total	Rs.12,580.41
									Rs.629.02
									<u>Rs.13,209.43</u>

Say Rs.13,210.00

Sub Est. No. 3

WATER SUPPLY DISTRIBUTION SYSTEM

S.N.	Particulars	Quantity	Unit	Rate	Amount
1A	Earthwork in excavation over areas (exceeding 30 cm in depth 1.5 in width as well as 10 sqm on plan) including disposal of excavated earth lead upto 50m and lift upto 1.5m, disposal earth to be levelled and neatly dressed.				
	75mm dia Pipe	195.00	0.30	1.10 =	64.35
	63mm dia Pipe	195.00	0.30	1.10 =	64.35
	50mm dia Pipe	390.00	0.30	1.10 =	128.70
	40mm dia Pipe	520.00	0.30	1.10 =	171.60
				429.00	M ³
	Add 5% extra for fittings =			21.45	M ³
				450.45	M ³
					P/M ³
				Rs.230.50	
					Rs.1,03,828.73
1B	Provision for PCC road cutting and its restoration	14.63	M ³		
					P/M ³
				Rs.4,428.80	Rs.64,793.34
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	441.44	M ³		
					P/M ³
				Rs.74.50	Rs.32,887.35
3	Providing and laying High Density Polyethylene pipe (HDPE pipe) of 20 mm to 225 mm OD and pressure 6.0 Kg/cm ² and 10 Kg/cm ² suitable for water supply which is available in all standard, like ISI-4984/1995 and various grades like PE-80, PE-100 including required specials. Rates are inclusive of , all taxes and duties. (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete as per direction of Engineer-in-charge.				
3A	HDPE pipe of materials grade PE100- PN10 (dia in mm)				
	75mm dia Pipe from PVC Tank to Distribution main	14.00	M	P/M	Rs.239.81
					Rs.3,357.34
	75mm dia Pipe	195.00	M	P/M	Rs.239.81
					Rs.46,762.95
	63mm dia Pipe	195.00	M	P/M	Rs.168.77
					Rs.32,910.15
3B	HDPE pipe of materials grade PE100- PN8 (dia in mm)				
	50mm dia Pipe	390.00	M	P/M	Rs.89.99
					Rs.35,096.10
	40mm dia Pipe	520.00	M	P/M	Rs.59.78
					Rs.31,085.60
	50mm dia Pipe from T/well to PVC Tank	12.00	M	P/M	Rs.89.99
					Rs.1,079.88
4	Providing and fixing brass gate valve with C.I. wheel of approved quality (screwed end).				
	75mm dia Pipe	3	Nos.	Each	Rs.1,351.60
					Rs.4,054.80
	63mm dia Pipe	2	Nos.	Each	Rs.1,351.60
					Rs.2,703.20
	50mm dia Pipe	3	Nos.	Each	Rs.811.40
					Rs.2,434.20
	40mm dia Pipe	3	Nos.	Each	Rs.613.90
					Rs.1,841.70

S.N.	Particulars	Quantity	Unit	Rate	Amount
5 18.33	Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:5:10(1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard specifications & direction of E/I. Work for additional depth	9 Nos.	Each	Rs.5,807.50	Rs.52,267.50
	Brick work (1:4) in foundation				
	2 1.10 0.25 0.35 0.193				
	2 0.60 0.25 0.35 0.105				
					0.298
	Plaster (1:3)	2.678 CuM	CuM	Rs.4,724.40	Rs.12,649.58
	8 1.10 0.35 3.08	27.72 SqM	SqM	Rs.128.20	Rs.3,553.70
6	Carriage 10% of item 5				Rs.6,847.08
7 18.48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, ISI : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	10000 Ltrs.	P/Ltr.	Rs.6.60	Rs.66,000.00
8	Providing and fixing PTMT extension nipple for water tank pipe, fittings of approved quality and colour.				
	50mm dia	2 Nos.	each	Rs.250.00	Rs.500.00
	75mm dia	1 No.	each	Rs.400.00	Rs.400.00
				TOTAL	Rs.5,05,053.21

Sub Est. No. 4

Model estimate for supply, installation & commissioning of single phase 3 H.P submersible motor pump set with all accessories including extension of L.T. line from nearest source up-to pumping station.

Sl. No.	Particulars	Quantity	Unit	Rate	Amount
1	2	3	4	5	6
[A.]	<p>Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/l.</p> <p>(i) 50 mm dia x 3 mtrs long medium class G.I column pipe both end thread and one end socketed- 6(six)nos (ii) 1x3x2.5 mm² flat copper conductor submersible cable -40 (forty) mtrs. (iii) 50 mm dia union socket- 1(one) no. (iv) 65 mm dia x 250 mm long G.I. nipple- 1 (one) no. (v) 50 mm dia G.I Elbow—1(One) no. (vi) 50 mm dia M.S. clamps—2(Two) Pairs. (vii) 50 mmx 250 mm long G.I nipple- 1(One) no. (viii) Tube well cap for T/Well – 1(one) no.</p>	1 (one) job	p/job	Rs.42,700.00	Rs.42,700.00

	(ix) 50 mm dia x 65 mm dia reducer socket –1(one) no.				
[B]	Supply Installation, commissioning and testing of floor mounted outdoor type L.T feeder pillar single phase starter control pannel operated on 220 V, 3 phase , 50 c/s for 3 HP Submersible pump set made of MS sheet (minimum 2 mm thick) duly spray power coated painting with following accessories made of M.S sheet (minimum 2mm thick) duly spray powder coated painting with following accessories (i) 90-220 V range single phase 7.5 KVA automatic voltage stabilizer make- Sen & Pandit/ Vertex/ISI marked If any. 1 No. (ii) Suitable single phase starter control panel for above motor of BCH /L&Tmake – 1(one) no.	1 (one) job	p/job	Rs.45,500.00	Rs.45,500.00
[C]	Supplying & fitting 2.5 mm ² copper service cable from power point from nearest source up-to pumping station..	20 mtrs	P/Mt	Rs.130.00	Rs.2,600.00
[D]	Providing all materials and labour required for doing earthing station with G.I earth pipe of 40 mm dia x 4.5 mtrs 20fts. long G.I pipe including accessories excavation of earth , providing masonry enclosure with cover plate having locking arrangement and watering pipe etc.with salt, charcoal,etc.as per IE & IS specification.	1 job	p/job	Rs.2,803.00	Rs.2,803.00
				Total Rs.	Rs.93,603.00

Sub Est. No. 5

Estimate for the work - House service connection					
SUB-ESTIMATE					
S.No.	Description	Qty	Unit	Rate	Amount
1A	Providing and fixing MDPE (PE 80 GradeCompound) pipes PN-12.5 (12.5kg/Sqcm) as per ISO 4427 and specification for waterapplication rates are inclusive of , taxes and Duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete asper direction of Engineer-in-charge.complete.				
	MDPE Pipe 20mm dia nominal bore	6.00	PM	Rs.19.97	Rs.119.82
1B	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall				
18.7.1	15 mm nomonal bore	1.0	PM	Rs.138.70	Rs.138.70
2	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and amming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil				
2.8.1	6.00 0.30 0.60 1.08	1.08	CuM	Rs.230.50	Rs.248.94
3 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead	1.06	CuM	Rs.74.50	Rs.78.85
4	Providing and fixing brass ferrule with CI mouth cover incuding boring and tapping the main:				
18.20.1	15mm nominal bore	1	Each	Rs.254.10	Rs.254.10
	Providing and fixing P.P. Black service Saddle (Brass threaded)	1	Each	Rs.400.00	Rs.400.00
5	Providing and fixing brass bib cock of approved quality :				
18.15.1	5mm nominal bore	1	Each	Rs.273.00	Rs.273.00
	Total				Rs.1,513.41
	Say				Rs.1,513.00
Total Nos. of House Holds=		150 Nos.	@	Rs.1,513.00	Rs.2,26,950.00

SUB ESTIMATE NO - 6

IRON REMOVAL PLANT

S.N.	Particulars	Quantity	Unit	Rate (In Rs.)	Amount (In Rs.)
1	Design, supply, erection, installation, testing and commissioning of Iron removal plant based on aeration/ filtration/ activated carbon treatemnt units or any other suitable treatmnet process of ISO 9001 certified reputed make housed in MS/FRP vessel suitable for required flow rate with iron concentration upto 10 ppm in raw water to deliver treated water quality confirming to IS 10500(latest revision) with provision of waste water disposal system, if required including all necessary works and accessories etc. all complete as per directions of Engineer-in-Charge. 12.0 KLPH Capacity	1 No.	Each	Rs. 7,00,000.00	Rs. 7,00,000.00
TOTAL :-					Rs.7,00,000.00

Sub Est. No. 7					
8 M HIGH STEEL STRUCTURE STAGING FOR 5000/10000 LITER PVC TANK					
S.N.	Particulars	Quantity	Unit	Rate	Amount
1 10.3	Structural steel work riveted or bolted in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved primer all complete for 8M high staging with ladder of ISA65x65x6 and 16mm dia MS bar as trade @ 400mm c/c and GI enclosure to house electric switch panel & treatment unit (where required) of suitably designed MS section of angle, channel, etc. as per drawing attached.	4224 Kg	P/Kg	Rs.69.20	Rs.2,92,300.80
2 2.8.1	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including rassing of sides and ramming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All Kinds of soil				
	base of footing	4	1.95	1.95	1.35
				=	20.534
	Under Tie beam	2	2.30	0.25	0.275
		2	1.30	0.25	0.275
				=	0.316
				=	0.179
					21.029
		21.029	M ³	P/M ³	Rs.230.50
					Rs.4,847.07
3- 2.28	Supplying and filling in plinth with local sand and under floors including watering, ramming consolidating and dressing complete.				
	base of footing	4	1.95	1.95	0.10
				=	1.521
	Under Tie beam	2	3.95	0.25	0.10
		2	2.95	0.25	0.10
				=	0.198
				=	0.148
	Floor	1	4.00	3.00	0.10
				=	1.200
					3.066
		3.066	M ³	P/M ³	Rs.204.40
					Rs.626.69
4- 11.72	Providing designation of 100A Brick flat Soling joints filled with local sand including cost of watering, taxes & royalty all complete as per specification & direction of E/I.				
	base of footing	4	1.95	1.95	
				=	15.210
	Under Tie beam	2	3.95	0.25	
		2	2.95	0.25	
				=	1.975
				=	1.475
	Floor	1	4.00	3.00	
				=	12.000
					30.660
		30.660	M ²	P/M ²	Rs.253.80
					Rs.7,781.51
5 4.1.2	Providing and laying in position cement concrete of specified grade exluding the cost of centring and shuttering-all work upto plinth level. 1:1.5:3(1 Cement :1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)				
	base of footing	4	1.95	1.95	0.075
				=	1.141
	Floor	1	4.00	3.00	0.10
				=	1.200
					2.341
		2.341	M ³	P/M ³	Rs.4,373.20
					Rs.10,236.57

S.N.	Particulars	Quantity	Unit	Rate	Amount
6 5.1.2	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of entering, shuttering, finishing and reinforcement- All work upto plinth level 1:1:5.3(1 cement: 1.5 coarse sand:3 graded stone aggregate 20 mm nominal size) Tie beam				
	1 3.95 0.25 0.25 = 0.247				
	1 2.95 0.25 0.25 = 0.184				
	base of footing				
	4 1.80 1.80 0.30 = 3.888				
	4 0.45 0.45 0.15 = 0.122				
	Column below GL				
	4 0.30 0.30 0.65 = 0.234				
	Column above GL				
	4 0.30 0.30 0.15 = 0.054				
	4.729	4.729 M ³	P/M ³	Rs.4,530.30	Rs.21,422.66
7- 5.9.1	Ceasing and shuttering including strutting, propping etc. and removal of form for.				
	2 3.95 0.25 = 1.975				
	2 2.95 0.25 = 1.475				
	16 1.80 0.30 = 8.640				
	16 0.45 0.15 = 1.080				
	16 0.30 0.65 = 3.120				
	16 0.30 0.15 = 0.720				
	17.010	17.010 M ²	P/M ²	Rs.169.00	Rs.2,874.69
8- 5.22	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete. 8 mm to 16 mm tor steel Total Reinforcement. @1.25% of Vol. Of Concrete				
	= 464.00 Kg.	464.00 Kg.	P/Kg.	Rs.56.00	Rs.25,984.00
9 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth; consolidating each deposited layer by ramming and watering lead (50% of E/W in excavation)	10.514 M ³	P/M ³	Rs.74.50	Rs.783.31
10 13.26	Nest cement punning				
	1 4.00 3.00 = 12.000	12.000 M ²	P/M ²	Rs.32.30	Rs.387.60
11- 10.7.1	Providing and fixing 1mm thick M.S. sheet door with frame of 40x40x6mm angle iron and 3mm M.S. gusset plates at the junctions and corners, all necessary fittings complete, including applying a priming coat of approved steel primer. Using flats 30x6 mm for diagonal braces and central cross piece. Door Window				
	1 0.9 2.10 = 1.890				
	1 1.2 0.90 = 1.080				
	Total = 2.970	2.970 M ³	P/M ³	Rs.2,503.00	Rs.7,433.91

S.N.	Particulars	Quantity	Unit	Rate	Amount	
12-12.1.4	Providing corrugated G.S. sheet roofing fixed with G.I.J. or hooks, bolts and nuts 8 mm diameter with bitumen and G. I. limpet washers or with G.I. limpet washers filled with white lead and including a coat of approved steel primer and two coats of approved paint on over lapping of sheets complete (upto a pitch of 60°) excluding the cost of purlins, rafters and trusses. 0.8 mm thick with zinc coating not less than 275 gm/m ²					
	Roof	4.50	3.50	=	15.750	
	Wall	16.00	3.00	=	48.000	
					63.750	
	Deduct for door & window					
	1	0.9	2.10	=	1.890	
	1	1.2	0.90	=	1.080	
					2.970	
	Net Qty =	60.780				
		60.780	M ²	Rs.729.70	Rs.44,351.17	
13-10.19	Providing and fixing anchor bolt of 16 mm dia and 0.60 Mtr length embedded in R.C.C pedestal all complete as per direction of Engineer in charge. @4x4x0.95kg	15.15	Kg	P/kg	Rs.73.60	Rs.1,115.04
14-13.82.1	Painting with ready mixed paint of approved brand and manufacture in all shades to give an even shade:					
	New steel work (two or more coats)					
	Frame work					
	Col	16.00	8.00	=	64.000	
	Col	5.00	4.00	=	10.000	
	Roof sheet	4.50	3.50	=	31.500	
	Top sheet	5.00	4.00	=	40.000	
	Gl sheet wall	16.00	3.00	=	96.000	
					241.500	
		241.50	M ²	Rs.63.60	Rs.15,359.40	
15	Cartage of the following materials from quarry to work site including loading, unloading and stacking at work site as per specification & direction of E/I.					
	(a) Bricks (7 Km. Pucca & 1 Km. Kachha lead)	990	Nos.	%0 nos.	Rs.606.10	Rs.600.04
	(b) Coarse Sand (100 Km. lead)	3.040	M ³	P/M ³	Rs.1,221.09	Rs.3,712.11
	(c) Stone Chips (150 Km. lead)	6.070	M ³	P/M ³	Rs.1,746.29	Rs.10,599.98
	(d) Local Sand (2 Km. Pucca & 1 Km. Kachha lead)	3.530	M ³	P/M ³	Rs.217.23	Rs.766.82
					TOTAL	Rs.4,51,183.37
					say	Rs.4,51,200.00

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GOVERNMENT OF BIHAR

PUBLIC HEALTH ENGINEERING DEPARTMENT

MODEL ESTIMATE

FOR

CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME

FOR A WARD HAVING 200 HOUSE HOLDS

ESTIMATED COST-- Rs. 25.006 Lac

2017-18

GOVERNMENT OF BIHAR
Public Health Engineering Department
ABSTRACT OF COST

NAME OF WORK:- CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME FOR WARD HAVING 200 HOUSE HOLDS

S.N.	Description	Total Amount
1	Construction of 150mm x100mmx90m deep T/W etc. all complete and as per direction of E/I. (As per sub Estimate no.- 1)	Rs.1,55,668.69
2	Constructing masonry Chamber 100x100x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for Tube Well, and RCC top slab 1:1.5:3 mix (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size) . necessary excavation, foundation concrete 1:2:4(1 cement : 2 fine sand : 4 graded stone aggregate 20 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick with 5% cico finished with a floating coat of neat cement, out side plastering with cement mortar 1:4 (1 cement : 4coarse sand) 12 mm thick complete as per standard specifications & direction of E/I. (As per sub Estimate no.- 2)	Rs.13,210.00
3	Providing and Laying Distribution network of High Density Polyethylene pipe (HDPE pipe) including 10000 liter PVC tank installed at 8M high MS staging etc all complete as per direction of E/I. (As per sub Estimate no.- 3)	Rs.5,59,592.09
4	Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I. (As per sub Estimate no.- 4)	Rs.93,603.00
5	Providing house connection for each house hold including supplying all materials, labours, tools and making ferrule connection with 20 mm dia MDPE and 15mm CPVC Pipes with all fittings etc all complete. (As per sub Estimate no.- 5)	Rs.3,02,600.00
6	Design, supply, fabrication, installation of fully tested and successfully operated MS/FRP Iron Removal Plant to deliver treated water conforming to water quality standard as per IS:10500 for 16KLPH capacity and raw water iron concentration of upto 10PPM all complete as per direction of the E/I. (As per sub Estimate no.- 6)	Rs.9,00,000.00
7	Providing and erecting 8M high staging with ladder of ISA65x65x6 and 16mm dia MS bar as trade @ 400mm c/c and GI enclosure to house electric switch panel & treatment unit (where required) of suitably designed MS section of angle, channel, etc. as per drawing attached. (As per sub Estimate no.- 7)	Rs.4,51,200.00
TOTAL		Rs.24,75,873.78
Add 1% Contingency		Rs.24,758.74
G. TOTAL		Rs.25,00,632.51
Say		Rs.25,00,600.00

(Rs. Twenty five Lakh Six Hundred) only

note:

- i) Road cutting cost may increase or decrease as per actuals.
- ii) Strictly advised that pipeline should be laid before construction of Naali-Gali.
- iii) This is a model estimate. Hence the quantity may increase or decrease based on actual site conditions.

Variable inter alia includes

- i) Hydrogeomorphological condition.
- ii) Location of source vis-à-vis population/ house holds.
- iii) Quality of works and materials shall be maintained as per standard specifications and direction of E/I.

Technical approval accorded for Rs.25,00,600.00 (Rs. Twenty five Lakh Six Hundred) only

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10.4.17

Sub Estimate- 1

CONSTRUCTION OF 150MM X 100MM DIA & 90M DEEP TUBE WELL

S.No.	Description	Qty.	Unit	Rate	Amount
1	Boring/drilling bore well of required dia for casing/strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer -in-charge, upto 90 metre depth below ground level. (All types of soil)				
24.1.1.2	(a) 350mm dia bore from G.L. to 30.0M	30.0 M	P/M	Rs.413.50	Rs.12,405.00
24.1.1.1	(b) 300mm dia bore from 30.0 m to 60.0M	30.0 M	P/M	Rs.378.00	Rs.11,340.00
	(c) 300mm dia bore from 60M to 90.0M	30.0 M	P/M	Rs.378.00	Rs.11,340.00
2A	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC (UPVC) medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer -in-charge.				
24.3.2	(a) 150 mm nominal size dia	30.0 M	P/M	Rs.615.30	Rs.18,459.00
24.3.1	(b) 100 mm nominal size dia	25.0 M	P/M	Rs.444.20	Rs.11,105.00
2B	Supplying, assembling, lowering and fixing in vertical position in bore well unplasticized PVC (UPVC) medium well screen (RMS) pipes with ribs, conforming to IS: 12818, including hire & labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer-in-charge.				
24.4.1	100 mm nominal size dia	30.0 M	P/M	Rs.468.80	Rs.14,064.00
3	Supplying the following fittings & fixing the same in position as per approved lowering assembly and strata chart including providing all equipments and welding the same on process of lowering the assay etc. all complete as per S/D of E.I.				
24.13.2	(a) 150 mm dia well cap	1 No.	Each	Rs.205.10	Rs.205.10
24.14.2	(b) 150 mm dia M.S. Clamp 1.6 M long (one Pair)	1 No.	Each	Rs.1,031.10	Rs.1,031.10
	(c) 150 mm dia center guide	4 Nos.	Each	Rs.150.00	Rs.600.00
	(d) 100 mm dia center guide	6 Nos.	Each	Rs.100.00	Rs.600.00
	(e) 150 mm x 100 mm dia 6mm wall thickness MS reducer	1 No.	Each	Rs.500.00	Rs.500.00
24.15.1	(f) 100mm dia & 6mm thick M.S. well shoe plug	1 No.	Each	Rs.205.60	Rs.205.60
4a	Providing all materials, labours, & equipments for fixing				
24.6	tube well with pea gravel of Dalbhumigarh to size 4mm to 8mm approx. as suitable for strata including carriage washing, placing and packing the same in position around the tube well etc. all complete as per direction of E/I.	8.0 M ³	P/M ³	Rs.917.00	Rs.7,336.00
4b	Carriage of Pea Gravel from Dhalbhumigarh (taken av distance 400km.)	8.0 M ³	P/M ³	Rs.4,336.54	Rs.34,692.29

S.No.	Description	Qty.	Unit	Rate	Amount
5 24.12	Development of tube well in accordance with IS : 2800 (part I) and IS: 11189, to establish maximum rate of usable water yield without sand content (beyond permissible limit), with required capacity air compressor, running the compressor for required time till well is fully developed, measuring yield of well by "V" notch method or any other approved method, measuring static level & draw down etc. by step draw down method, collecting water sample & getting tested in approved laboratory, disinfection of tubewell, all complete, including hire & labour charges of air compressor, tools & accessories etc., all as per requirement and direction of Engineer-in-charge.	24 Hrs.	Each	Rs.649.40	Rs.15,585.60
6	Transportation of drilling plants, developing equipments & all other required tools and M/c by and suitable mechanical means including all cost of loading, unloading, placing at work site and back after completion of work as per S/D of E/I	1 No.	Each	Rs.9,200.00	Rs.9,200.00
7	Supplying all materials and labours for arrangement for additional water required during the drilling period for 70 Hrs & site clearance & leveling etc. And providing the soap duster etc. to staff engaged in drilling etc. all complete work as per specification & direction of E.I.	1 No.	Each	Rs.7,000.00	Rs.7,000.00
		TOTAL			<u>Rs.1,55,668.69</u>

(Sub Estimate - 2)

Analysis of Chamber for TW

Supplying materials, labours and constructing chamber of following dimension having 250mm thick wall in C.M. (1:4) including 12mm C.P. (1:3) with punning inside, R.C.C. cover slab with C.I. Surface box, 20mm dia foot rest at 150mm interval 10mm dia lifting ring etc. all complete.

SIZE	1.00 M	x	1.00 M	x	0.75 M deep
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S.O.R. No.	Particulars	No.	L	W	H	Qty.	Unit	Rate	Amount
1	Earth work in excavation	1	1.75	1.75	1.0	3.063 M ³	P/M ³	Rs.230.50	Rs.705.91
S.O.R. No. 2.8									
2	Sand filling	1	1.75	1.75	0.075	0.230 M ³	P/M ³	Rs.204.40	Rs.46.95
S.O.R. No. 2.28									
3	Brick flat soling	1	1.75	1.75		3.063 M ²	P/M ²	Rs.253.80	Rs.777.26
S.O.R. 11.72									
4	P.C.C. (1:2:4) in foundation	1	1.75	1.75	0.10	0.306 M ³			
S.O.O. 4.1.3									
						0.306 M ³	P/M ³	Rs.3,850.50	Rs.1,179.22
5	B/Work in (1:4) C.M.	2	2.50	0.25	0.75	0.938 M ³	P/M ³	Rs.4,724.40	Rs.4,429.13
S.O.R. No. 6.1.12/1									
6	R.C.C. Cover slab(1:1.5:3)	1	1.50	1.50	0.15	0.338 M ³	P/M ³	Rs.5,139.70	Rs.1,734.65
S.O.R. No. 5.2.2 & 5.9.3									
	shuttering	2	1.50	1.50	0.15	3.15 M ²	P/M ²	Rs.291.00	Rs.916.65
7	C.P. (1:3) with 5% Cico & neat cement								
S.O.R. internal face		2	1.00	1.00	1.00	4.00 M ²			
No. Bed surface		1	1.00	1.00		1.00 M ²			
+13.36.1						5.00 M ²	P/M ²	Rs.166.30	Rs.831.50
8	C.P. (1:4) out side of wall	2	1.50	1.50	0.75	4.5 M ²	P/M ²	Rs.114.70	Rs.516.15
S.O.R. No. 13.11.2									
9	8mm dia T.S. Rod								
S.O.R. No. 5.22.7A									
		0.338 M ³ x		70 Kg/ M3		23.625 Kg.	P/Kg	Rs.56.00	Rs.1,323.00
10	Lifting Ring of 10mm dia Rod					4 No.	Each	Rs.30.00	Rs.120.00
11	Carriage of materials 5%							Total	Rs.12,580.41
									Rs.629.02
									<u>Rs.13,209.43</u>

Say Rs.13,210.00

Sub Est. No. 3

WATER SUPPLY DISTRIBUTION SYSTEM

S.N.	Particulars	Quantity	Unit	Rate	Amount
1A	Earthwork in excavation over areas (exceeding 30 cm in depth 1.5 in width as well as 10 sqm on plan) including disposal of excavated earth lead upto 50m and lift upto 1.5m, disposal earth to be levelled and neatly dressed.				
	90mm dia Pipe	70.00	0.30	1.10 =	23.10
	75mm dia Pipe	140.00	0.30	1.10 =	46.20
	63mm dia Pipe	210.00	0.30	1.10 =	69.30
	50mm dia Pipe	420.00	0.30	1.10 =	138.60
	40mm dia Pipe	560.00	0.30	1.10 =	184.80
				462.00 M ³	
	Add 5% extra for fittings =			23.10 M ³	
				485.10 M ³	P/M ³
				Rs.230.50	Rs.1,11,815.55
1B	Provision for PCC road cutting and its restoration	15.75	M ³	P/M ³	Rs.4,428.80
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	475.40	M ³	P/M ³	Rs.74.50
					Rs.35,417.15
3	Providing and laying High Density Polyethylene pipe (HDPE pipe) of 20 mm to 225 mm OD and pressure 6.0 Kg/cm ² and 10 Kg/cm ² suitable for water supply which is available in all standard, like ISI-4984/1995 and various grades like PE-80, PE-100 including required specials. Rates are inclusive of , all taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete as per direction of Engineer-in-charge.				
3A	HDPE pipe of materials grade PE100- PN10 (dia in mm)				
	75mm dia Pipe from PVC Tank to Distribution main	14.00	M	P/M	Rs.239.81
					Rs.3,357.34
	90mm dia Pipe	70.00	M	P/M	Rs.340.84
					Rs.23,858.80
	75mm dia Pipe	140.00	M	P/M	Rs.239.81
					Rs.33,573.40
	63mm dia Pipe	210.00	M	P/M	Rs.168.77
					Rs.35,441.70
3B	HDPE pipe of materials grade PE100- PN8 (dia in mm)				
	50mm dia Pipe	420.00	M	P/M	Rs.89.99
					Rs.37,795.80
	40mm dia Pipe	560.00	M	P/M	Rs.59.78
					Rs.33,476.80
	50mm dia Pipe from T/well to PVC Tank	12.00	M	P/M	Rs.89.99
					Rs.1,079.88
4	Providing and fixing brass gate valve with C.I. wheel of approved quality (screwed end).				
	90mm dia Pipe	2 Nos.	Each	Rs.2,016.50	Rs.4,033.00
	75mm dia Pipe	3 Nos.	Each	Rs.1,351.60	Rs.4,054.80
	63mm dia Pipe	2 Nos.	Each	Rs.1,351.60	Rs.2,703.20
	50mm dia Pipe	3 Nos.	Each	Rs.811.40	Rs.2,434.20
	40mm dia Pipe	3 Nos.	Each	Rs.613.90	Rs.1,841.70

S.N.	Particulars	Quantity	Unit	Rate	Amount
5 18.33	Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size), necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard specifications & direction of E/I.	11 Nos.	Each	Rs.5,807.50	Rs.63,882.50
	Work for additional depth				
	Brick work (1:4) in foundation				
	2 1.10 0.25 0.35 0.193				
	2 0.60 0.25 0.35 0.105				
				0.298	3.273 CuM
	Plaster (1:3)		CuM	Rs.4,724.40	Rs.15,460.60
	8 1.10 0.35 3.08	33.88	SqM	SqM	Rs.128.20
6	Carriage 10% of item 5				Rs.4,343.42
7 18.48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, ISI : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	10000	Ltrs.	P/Ltr.	Rs.6.60
8	Providing and fixing PTMT extension nipple for water tank pipe, fittings of approved quality and colour.				Rs.66,000.00
	50mm dia	2 Nos.	each	Rs.250.00	Rs.500.00
	75mm dia	1 No.	each	Rs.400.00	Rs.400.00
				TOTAL	Rs.5,59,592.09

Sub Est. No. 4

Model estimate for supply, installation & commissioning of single phase 3 H.P submersible motor pump set with all accessories including extension of L.T. line from nearest source up-to pumping station.

Sl. No.	Particulars	Quantity	Unit	Rate	Amount
1	2	3	4	5	6
[A.]	<p>Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I.</p> <p>(i) 50 mm dia x 3 mtrs long medium class G.I column pipe both end thread and one end socketed- 6(six)nos</p> <p>(ii) 1x3x2.5 mm² flat copper conductor submersible cable -40 (forty) mtrs.</p> <p>(iii) 50 mm dia union socket- 1(one) no.</p> <p>(iv) 65 mm dia x 250 mm long G.I. nipple- 1 (one) no.</p> <p>(v) 50 mm dia G.I Elbow—1(One) no.</p> <p>(vi) 50 mm dia M.S. clamps—2(Two) Pairs.</p> <p>(vii) 50 mmx 250 mm long G.I nipple- 1(One) no.</p> <p>(viii) Tube well cap for T/Well – 1(one) no.</p>	1 (one) job	p/job	Rs.42,700.00	Rs.42,700.00

	(ix) 50 mm dia x 65 mm dia reducer socket –1(one) no.				
[B]	Supply Installation, commissioning and testing of floor mounted outdoor type L.T feeder pillar single phase starter control pannel operated on 220 V, 3 phase , 50 c/s for 3 HP Submersible pump set made of MS sheet (minimum 2 mm thick) duly spray power coated painting with following accessories made of M.S sheet (minimum 2mm thick) duly spray powder coated painting with following accessories (i) 90-220 V range single phase 7.5 KVA automatic voltage stabilizer make- Sen & Pandit/ Vertex/ISI marked If any. 1 No. (ii) Suitable single phase starter control panel for above motor of BCH /L&Tmake – 1(one) no.	1 (one) job	p/job	Rs.45,500.00	Rs.45,500.00
[C]	Supplying & fitting 2.5 mm ² copper service cable from power point from nearest source up-to pumping station..	20 mtrs	P/Mt	Rs.130.00	Rs.2,600.00
[D]	Providing all materials and labour required for doing earthing station with G.I earth pipe of 40 mm dia x 4.5 mtrs 20fts. long G.I pipe including accessories excavation of earth , providing masonry enclosure with cover plate having locking arrangement and watering pipe etc.with salt, charcoal,etc.as per IE & IS specification.	1 job	p/job	Rs.2,803.00	Rs.2,803.00
				Total Rs.	Rs.93,603.00

Sub Est. No. 5

Estimate for the work - House service connection						
SUB-ESTIMATE						
S.No.	Description	Qty	Unit	Rate	Amount	
1A	Providing and fixing MDPE (PE 80 GradeCompound) pipes PN-12.5 (12.5kg/Sqcm) as per ISO 4427 and specification for waterapplication rates are inclusive of , taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete asper direction of engineer-in-charge.complete.					
	MDPE Pipe 20mm dia nominal bore	6.00	PM	Rs.19.97		Rs.119.82
1B	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall					
18.7.1	15 mm nomonal bore	1.0	PM	Rs.138.70		Rs.138.70
2	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and amming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil					
2.8.1	6.00 0.30 0.60 1.08	1.08	CuM	Rs.230.50		Rs.248.94
3	Using available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead	1.06	CuM	Rs.74.50		Rs.78.85
4	Providing and fixing brass ferrule with CI mouth cover including boring and tapping the main:					
18.20.1	15mm nominal bore	1	Each	Rs.254.10		Rs.254.10
	Providing and fixing P.P. Black service Saddle (Brass threaded)	1	Each	Rs.400.00		Rs.400.00
5	Providing and fixing brass bib cock of approved quality :					
18.15.1	5mm nominal bore	1	Each	Rs.273.00		Rs.273.00
	Total					Rs.1,513.41
	Say					Rs.1,513.00

Total Nos. of House Holds=

200 Nos. @

Rs.1,513.00

Rs.3,02,600.00

SUB ESTIMATE NO - 6

IRON REMOVAL PLANT

S.N.	Particulars	Quantity	Unit	Rate (In Rs.)	Amount (In Rs.)
1	Design, supply, erection, installation, testing and commissioning of Iron removal plant based on aeration/ filtration/ activated carbon treatemnt units or any other suitable treatmnet process of ISO 9001 certified reputed make housed in MS/FRP vessel suitable for required flow rate with iron concentration upto 10 ppm in raw water to deliver treated water quality confirming to IS 10500(latest revision) with provision of waste water disposal system, if required including all necessary works and accessories etc. all complete as per directions of Engineer-in-Charge.				
	16.0KLPH Capacity	1 No.	Each	Rs. 9,00,000.00	Rs. 9,00,000.00
TOTAL :-					Rs.9,00,000.00

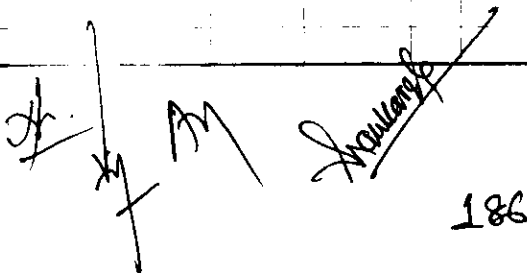
Sub Est. No. 7

8 M HIGH STEEL STRUCTURE STAGING FOR 5000/10000 LITER PVC TANK

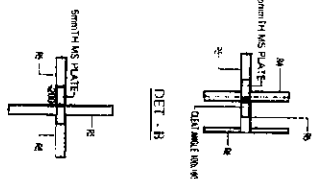
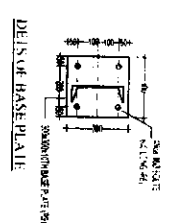
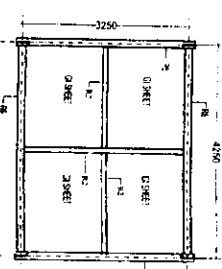
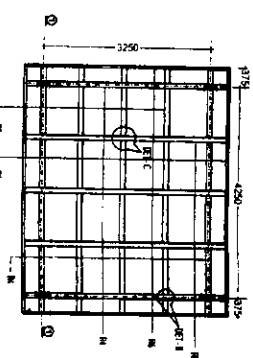
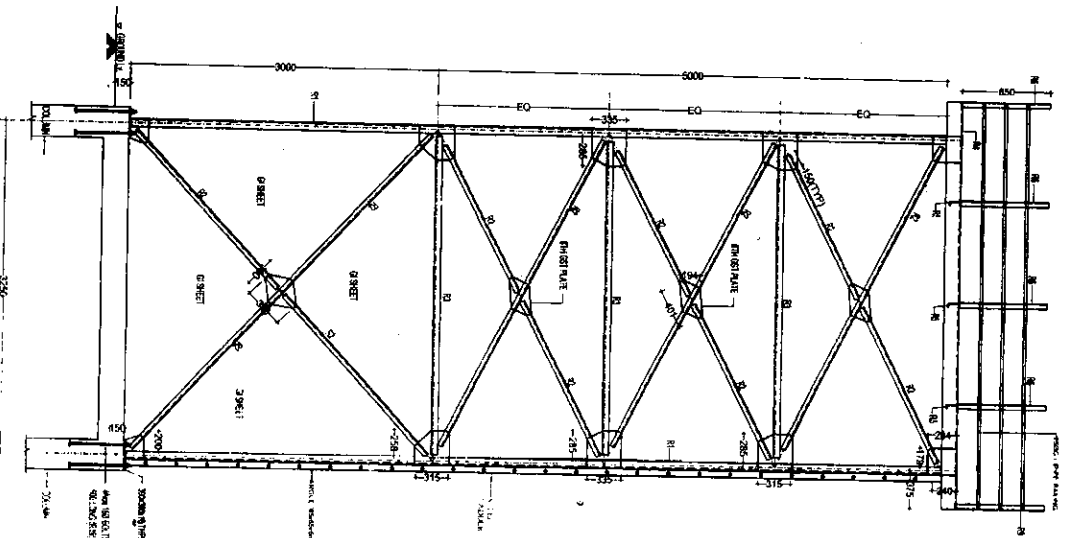
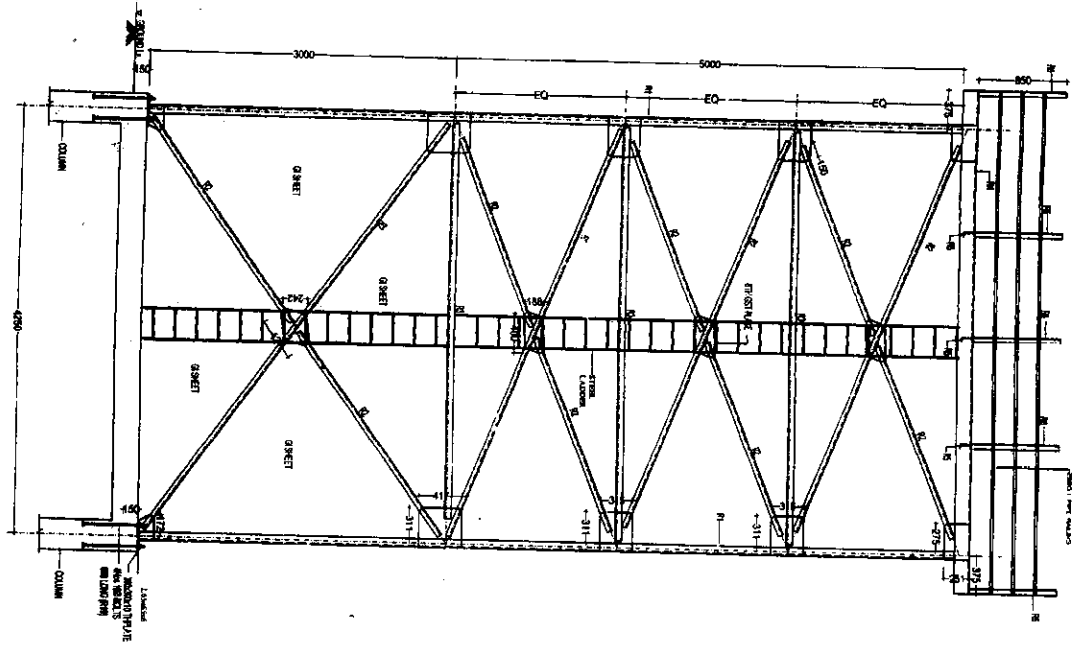
S.N.	Particulars	Quantity	Unit	Rate	Amount	
1 10.3	Structural steel work riveted or bolted in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved primer all complete for 8M high staging with ladder of ISA65x65x6 and 16mm dia MS bar as trade @ 400mm c/c and GI enclosure to house electric switch panel & treatment unit (where required) of suitably designed MS section of angle, channel, etc. as per drawing attached.	4224	Kg	P/Kg	Rs.69.20	Rs.2,92,300.80
2 2.8.1	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including rassing of sides and ramming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All Kinds of soil					
	base of footing					
	4 1.95 1.95 1.35 =	20.534				
	Under Tie beam					
	2 2.30 0.25 0.275 =	0.316				
	2 1.30 0.25 0.275 =	0.179				
		21.029	21.029 M ³	P/M ³	Rs.230.50	Rs.4,847.07
3- 2.28	Supplying and filling in plinth with local sand and under floors including watering, ramming consolidating and dressing complete.					
	base of footing					
	4 1.95 1.95 0.10 =	1.521				
	Under Tie beam					
	2 3.95 0.25 0.10 =	0.198				
	2 2.95 0.25 0.10 =	0.148				
	Floor					
	1 4.00 3.00 0.10 =	1.200				
		3.066	3.066 M ³	P/M ³	Rs.204.40	Rs.626.69
4- 11.72	Providing designation of 100A Brick flat Soling joints filled with local sand including cost of watering, taxes & royalty all complete as per specification & direction of E/I.					
	base of footing					
	4 1.95 1.95 =	15.210				
	Under Tie beam					
	2 3.95 0.25 =	1.975				
	2 2.95 0.25 =	1.475				
	Floor					
	1 4.00 3.00 =	12.000				
		30.660	30.660 M ²	P/M ²	Rs.253.80	Rs.7,781.51
5 4.1.2	Providing and laying in position cement concrete of specified grade exluding the cost of centring and shuttering-all work upto plinth level. 1:1.5:3:1 (Cement :1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)					
	base of footing					
	4 1.95 1.95 0.075 =	1.141				
	Floor					
	1 4.00 3.00 0.10 =	1.200				
		2.341	2.341 M ³	P/M ³	Rs.4,373.20	Rs.10,236.57

S.N.	Particulars	Quantity	Unit	Rate	Amount		
6 5.1.2	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of centring, shuttering, finishing and reinforcement. All work upto plinth level 1:1.5:3 (1 cement: 1.5 coarse sand: 3 graded stone aggregate 20 mm nominal size)						
	Tie beam						
	1 3.95 0.25 0.25 =	0.247					
	1 2.95 0.25 0.25 =	0.184					
	base of footing						
	1 1.80 1.80 0.30 =	3.888					
	1 0.45 0.45 0.15 =	0.122					
	Column below GL						
	4 0.30 0.30 0.65 =	0.234					
	Column above GL						
	4 0.30 0.30 0.15 =	0.054					
		4.729	4.729 M ³	P/M ³	Rs.4,530.30	Rs.21,422.66	
7- 5.9.1	Centring and shuttering including strutting, propping etc. and removal of form for.						
	2 3.95 0.25 =	1.975					
	2 2.95 0.25 =	1.475					
	10 1.80 0.30 =	8.640					
	10 0.45 0.15 =	1.080					
	10 0.30 0.65 =	3.120					
	10 0.30 0.15 =	0.720					
		17.010	17.010 M ²	P/M ²	Rs.169.00	Rs.2,874.69	
8- 5.2.2	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete. 8 mm to 16 mm for steel						
	Total Reinforcement. @ 1.25% of Vol. Of Concrete	=	464.00 Kg.	P/Kg.	Rs.56.00	Rs.25,984.00	
9 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead (50% of E/W in excavation)	10.514 M ³	P/M ³	Rs.74.50	Rs.783.31		
10 13.26	New cement punning						
	4.00 3.00 =	12.000	12.000 M ²	P/M ²	Rs.32.30	Rs.387.60	
11- 10.7.1	Providing and fixing 1mm thick M.S. sheet door with frame of 40x40x6mm angle iron and 3mm M.S. gusset plates at the junctions and corners, all necessary fittings complete, including applying a painting coat of approved steel primer. Use of flats 30x6 mm for diagonal braces and central cross piece.						
	Door						
	0.9 2.10 =	1.890					
	Window						
	1.2 0.90 =	1.080					
	Total	=	2.970	2.970 M ³	P/M ³	Rs.2,503.00	Rs.7,433.91

S.N.	Particulars	Quantity	Unit	Rate	Amount	
12- 12.1.4	Providing corrugated G.S. sheet roofing fixed with G.I. or hooks, bolts and nuts 8 mm diameter with bitumen and G. I. limpet washers on corr. G.I. limpet washers filled with white lead and including a coat of approved steel primer and two coats of approved paint on over lapping of sheets complete (upto a pitch of 60°) including the cost of purlins, rafters and trusses. Thickness thick with zinc coating not less than 275 g/m ²					
	4.50 3.50 =				15.750	
	16.00 3.00 =				48.000	
					63.750	
	Detail for door & window					
	0.9 2.10 =				1.890	
	1.2 0.90 =				1.080	
					2.970	
	Net Qty =	60.780	M ²	Rs.729.70	Rs.44,351.17	
13 10.19	Providing and fixing anchor bolt of 16 mm dia and 30 Mtr length embedded in R.C.C pedestal and complete as per direction of Engineer in drawing @ 4x4x0.95kg	15.15	Kg	P/kg	Rs.73.60	Rs.1,115.04
14- 13.82.1	Painting with ready mixed paint of approved manufacture in all shades to give an even shade: New metal work (two or more coats) Iron work Steel work Rust proof To be painted Metal wall					
	16.00 8.00 =				64.000	
	8.00 4.00 =				10.000	
	4.50 3.50 =				31.500	
	8.00 4.00 =				40.000	
	16.00 3.00 =				96.000	
		241.500	M ²	Rs.63.60	Rs.15,359.40	
15	Deliveries of the following materials from quarry to work site including loading, unloading and stacking at work site as per specification & direction of E/I.					
	Iron links (7 Km. Pucca & 1 Km. Kachha lead)	990 Nos.	%0 nos.	Rs.606.10	Rs.600.04	
	Iron bars: Sand (100 Km. lead)	3.040 M ³	P/M ³	Rs.1,221.09	Rs.3,712.11	
	Iron bars: Chips (150 Km. lead)	6.070 M ³	P/M ³	Rs.1,746.29	Rs.10,599.98	
	Iron bars: Sand (2 Km. Pucca & 1 Km. Kachha lead)	3.530 M ³	P/M ³	Rs.217.23	Rs.766.82	
				TOTAL	Rs.4,51,183.37	
				say	Rs.4,51,200.00	



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LEGEND

SYMBOL	SECTION
(Symbol)	COL-20
(Symbol)	TRUSS
(Symbol)	BR-10
(Symbol)	BR-15
(Symbol)	BR-20
(Symbol)	BR-25
(Symbol)	BR-30
(Symbol)	BR-35
(Symbol)	BR-40
(Symbol)	BR-45
(Symbol)	BR-50
(Symbol)	BR-55
(Symbol)	BR-60
(Symbol)	BR-65
(Symbol)	BR-70
(Symbol)	BR-75
(Symbol)	BR-80
(Symbol)	BR-85
(Symbol)	BR-90
(Symbol)	BR-95
(Symbol)	BR-100

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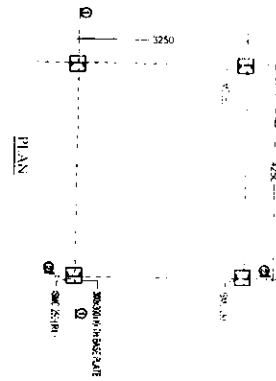
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10.11.17



NO.	REVISION	DATE	PARTICULARS	DESIGN (SIGNED)

PROJECT NO: STRUCTURAL OF STEEL TOWER FOR 10000LITRE CAPACITY PVC TANK

SCALE: 1:25

CLIENT: PUBLIC HEALTH ENGINEERING DEPARTMENT, BHIMAVAR

DATE: 25/05/17

SCON PRIVATE LTD
 Structural Engineers, Civil Engineers
 House No. 19/1, Avenue Temple
 South Mysore, Bangalore, Karnataka - 560025

