

**ALL INDIA INSTITUTE OF MEDICAL SCIENCES
(AIIMS), ANSARI NAGAR, NEW DELHI**

Tender

For

**Augmentation of Plumbing work of existing P.C. & Teaching
Block at AIIMS within AIIMS Campus, Ansari Nagar, New Delhi**

Volume - V

**BILL OF QUANTITIES
(B.O.Q.)**

April' 2014



**HSCC (INDIA) LTD.
(CONSULTANTS & ENGINEERS FOR MEGA HOSPITALS & LABORATORIES)
E-6(A), sector-1, NOIDA(U.P) 201301 (India)**

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Tender No. HSCC/BU-II/AIIMS/PL/2014

	Design & Engineering Department					
	Name of Work: Estimate of Augmentation of Plumbing and associated civil work of AIIMS-existing Basement (F Block) , New Delhi					
Sl. No.	Description of Item	Unit	Total Qty.	Rate in figures (in Rupees)	Rate in words (in Rs.)	Amount in figures(in Rs.)
1	3	4	5			
1.00	Civil work					
1.01	Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30cm in depth, 1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed.					
a)	All kinds of soil	cum	92.2			
1.02	Extra for every additional lift of 1.5 m or part there of in excavation/banking excavated or stacked materials.					
a)	All kinds of soil.	cum	46.1			
1.03	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 up to 1.5 m.	cum	50.0			
1.04	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:					
a)	1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size)	cum	51.25			

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1	3	4	5			
1.05	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level :					
a)	1:1.5:3 (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size)	cum	72.3			
1.06	Centering and shuttering including strutting, propping etc. and removal of form for:					
a)	Foundations, footings, bases of columns, etc. for mass concrete.	sq.m	5.4			
b)	Walls (any thickness) including attached pilasters, buttermesses, plinth and string courses etc.	sq.m	60.0			
c)	Suspended floors, roofs, landings, balconies and access platform.	sq.m	6.0			
d)	Shelves (Cast in situ)	sq.m	5.0			
1.07	Steel Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level					
a)	Thermo-Mechanically Treated bars	kg	2554.5			

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1	3	4	5			
1.08	Providing and fixing 1st quality ceramic glazed wall tiles conforming to IS : 15622 (thickness to be specified by the manufacturer) of approved make in all colours, shades except burgundy, bottle green, black of any size as approved by Engineer-in-Charge in skirting, risers of steps and dados over 12 mm thick bed of cement Mortar 1:3 (1 cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm including pointing in white cement mixed with pigment of matching shade complete.	sq.m	50.0			
1.09	Providing and laying rectified Glazed Ceramic floor tiles 300x300 mm or more (thickness to be specified by the manufacturer) of 1st quality conforming to IS : 15622 of approved make in all colours, shades, except White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick Cement Mortar 1:4 (1 Cement : 4 Coarse sand) including pointing the joints with white cement and matching pigments etc., complete.	sq.m	50.0			
1.10	Dismantling tile work in floors and roofs laid in cement mortar including stacking material within 50 metres lead.					
a)	For thickness of tiles 10 mm to 25 mm	sq.m	90.0			
b)	For thickness of tiles above 25 mm and up to 40 mm	sq.m	10.0			

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1	3	4	5			
1.11	Providing and laying water proofing treatment to vertical and horizontal surfaces of depressed portions of W.C., kitchen and the like consisting of :					
	i) Ist course of applying cement slurry @ 4.4 Kg/sqm mixed with water proofing compound conforming to IS 2645 in recommended proportions including rounding off junction of vertical and horizontal surface.					
	ii) IInd course of 20mm cement plaster 1:3 (1 cement : 3 coarse sand) mixed with water proofing compound in recommended proportion including rounding off junction of vertical and horizontal surface.					
	iii) IIIrd course of applying blown or residual bitumen applied hot at 1.7 Kg. per sqm of area.					
	iv) IVth course of 400 micron thick PVC sheet. (Overlaps at joints of PVC sheet should be 100 mm wide and pasted to each other with bitumen @ 1.7 Kg/sqm.)	sq.m	100.0			
1.12	Providing and laying integral cement based treatment for water proofing on the vertical surface with neat cement slurry mixed with water proofing compound with cement mortar 1:3 (1 cement : 3 coarse sand) 20mm thick with neat cement punning mixed with water proofing compound in recommended proportion complete at all levels and as directed by Engineer-in-charge :	sq.m.	10.0			

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1	3	4	5			
1.13	Taking out carefully wooden enclosure of shafts for inspection/ maintenance and re-fixing the same on completion of the inspection/ maintenance including fixing with necessary nails/ screws etc and re- painting with synthetic enamel paint etc all complete as required at site and as desired by the engineer in charge. Surface area of enclosure shall be measured for payment. The rate should include the cost of new plywood/ veneer for lining and hard wood for frame, if dilapidated during the above process and required to replace.	Sqm	35.0			
1.14	Cutting holes upto 30X30 Cm in brick walls/ RCC and making good the same with C.C. 1:2:4 (1 Cement: 2 Coarse Sand: 4 graded stone agg 40 mm NS) after housing the CI/PVC pipe	No	35.0			
1.15	Dismantling granite top counter including base of RCC/ wood and re- laying/ repairing the base and granite top. Nothing extra shall be paid for Repair/ replcement of RCC/ wood, however Granite shall be paid in the item below.	Sqm	40.0			

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1	3	4	5			
1.16	Providing and fixing 18mm thick gang saw cut mirror polished premoulded and prepolished) machine cut for kitchen platforms, vanity counters, window sills , facias and similar locations of required size of approved shade, colour and texture laid over 20mm thick base cement mortar 1:4 (1 cement : 4 coarse sand) with joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edge to give high gloss finish etc. complete at all levels.					
a)	Granite of any colour and shade					
i	Area of slab upto 0.50 sqm	Sqm	20.0			
ii	Area of slab over 0.50 sqm.	Sqm	20.0			
1.17	Taking out carefully existing gypsum board/ tile for false ceiling and re- fixing the same after inspection/ maintenance including fixing with necessary nails/ screws etc and re-painting with plastic emulsion paint etc all complete as required at site and as desired by the engineer in charge. The rate should include the cost of new gypsum board/ tile, if dilapidated during the above process and required to replace.					
a)	Gypsum Board	Sqm	50.0			
b)	Gypsum/ Mineral wool tile(As per existing specification)	Sqm	50.0			

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1	3	4	5			
1.18	Water proofing treatment by Chemical Injection system (Post construction)					
a)	HORIZONTAL SURFACE					
	i) Providing and fixing 25mm dia GI threaded grouting nozzles of adequate length at the specified locations @ 1.50 metre c/c or as shown in the drawing all over the slab. The grouting nozzles are tied with reinforcement in such a manner as not to choke its end during concrete operations. The top of these nozzles protrudes above the raft concrete.					
	ii) After minimum 7 days of concreting, cement grout of cement and polymer based water proofing compound (non shrinkage grouting compound) in proportion as specified is injected, through these nozzles at a pressure of 2.5 to 3.0 Kg/Sq.cm.					
	iii) After grouting, top of the nozzles is cut and the space is filled with cement mortar 1:2 (1 cement: 2 coarse sand) mixed with polymer based water proofing compound. Area of raft treated shall be measured for payment					

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1	3	4	5			
	(leveling course to be paid separately). Joints sealed and grouted with cement slurry mixed with water proofing compound. ii) 2nd layer of 25mm thick cement mortar 1:3 (1 cement: 3 coarse sand) mixed with water proofing compound in recommended proportions. iii) Finishing top with stone aggregate of 10mm to 12mm nominal size spreading @ 8 cudm/sqm thoroughly embedded in the 2nd layer.	Sqm	100			
b)	Retaining Wall					
	i) Preparing the external surface and cement slurry mixed with polymer based water proofing compound.					
	ii) Providing and laying 25mm thick cement mortar in 1:4 (1 cement : 4 coarse sand) mixed with polymer based water proofing compound in two layers with chicken wire mesh 26 or 24 gauge 25mm size in between the two layers.					
	iii) Placing G.I. pipes at 1.5m c/c and at location as directed or indicated as in drawing and securely fastened to the reinforcement prior to shuttering and concreting or alternately by drilling holes (25mm to 32mm dia) in the concrete upto a depth as directed or as shown in the drawing all over the wall surface @ 1.50mt. c/c and as shown in the drawing. Treatment along all construction joints by providing nozzles, as above, shall also be executed.					

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1	3	4	5			
	iv) Fixing 25mm dia G.I. threaded nozzles in these holes with cement mortar 1:4(1 cement: 4 coarse sand) mixed with water proofing compound.					
	v) Injecting cement grout of cement and polymer based water proofing compound (non shrinkage grouting compound) in proportion as per manufacturer specification or as specified in these nozzles at a pressure of 2.5 to 3.0 Kg/Sq.cm.					
	vi) After the grout the nozzles are cut and filled with cement mortar 1:2 mixed with polymer based water proofing compound in proportion as specified and finished smooth. Area of walls treated shall be measured for payment	Sqm	100			
1.19	12 mm cement plaster of mix:					
a)	1:6 (1 cement: 6 fine sand)	Sqm	50			
1.20	15 mm cement plaster on the rough side of single or half brick wall of mix:					
a)	1:6 (1 cement: 6 fine sand)	Sqm	50			
1.21	18 mm cement plaster in two coats under layer 12 mm thick cement plaster 1:5 (1 cement: 5 coarse sand) finished with a top layer 6mm thick cement plaster 1:6 (1 cement: 6 fine sand).	Sqm	50			
1.22	6 mm cement plaster of mix:					
a)	1:3 (1 cement: 3 fine sand)	Sqm	50			

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1	3	4	5			
1.23	Neat cement punning	Sqm	10			
1.24	Dismantling old plaster or skirting raking out joints and cleaning the surface for plaster including disposal of rubbish to the dumping ground within 50 metres lead.	Sqm	100.00			
1.25	Baricading the area under repair with plywood/Steel plates or any other suitable material as per requirement and as directed by Engineer-in-charge(Area of baricade shall be measured for payment.	Sqm	350.00			
1.26	Brick edging 7cm wide 11.4cm. deep to plinth protection with bricks of class designation 7.5 including grouting with cement mortar 1:4 (1 cement : 4 fine sand)	meter	650.00			
1.27	Cutting road and making good the same including supply of extra quantities of materials i.e. aggregate, moorum screening, red bajri and labour required.					
a)	bituminous portion	Cum	45.00			
b)	Water bound macadam.	Cum	75.00			
Sub Total(Civil items)						

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1	3	4	5			
2.00	SOIL, WASTE AND VENT PIPES					
2.01	Providing and fixing soil, waste and vent pipes.					
a)	100 mm dia.					
i)	Centrifugally cast (spun) iron socket & spigot (S&S) pipe as per IS: 3989	Metre	500.0			
b)	150 mm dia					
	Centrifugally cast (spun) iron socketed pipe as per IS:3989	Metre	50.0			
2.02	Providing and fixing M.S holder-bat clamps of approved design to Sand Cast iron/ cast iron (spun) pipe embedded in and including cement concrete blocks 10x10x10 cm of 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) including cost of cutting holes and making good the walls etc.					
a)	for 100 mm dia. pipe	Each	140.0			
b)	for 150 mm dia pipe	Each	10.0			
2.03	Providing and fixing bend of required degree with access door, insertion rubber washer 3 mm thick, bolts and nuts complete.					
a)	100 mm					
a i)	Sand cast iron S&S as per IS-3989	Each	70.0			
b)	150 mm dia					

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1	3	4	5			
	Sand cast iron S&S as per IS-3989	Each	10.0			
2.04	Providing and fixing plain bend of required degree.					
a)	100 mm					
a i)	Sand cast iron S&S as per IS:3989	Each	140.0			
b)	150 mm dia					
	Sand cast iron S&S as per IS-3989	Each	10.0			
2.05	Providing and fixing heel rest sanitary bend.					
a)	100 mm dia					
a.i)	sand cast iron S&S as per IS-3989	Each	70.0			
b)	150 mm dia					
	Sand cast iron S&S as per IS-3989	Each	2.0			
2.06	Providing and fixing single equal plain junction of required degree with access door, insertion rubber washer 3mm thick, bolts and nuts complete.					
a)	100x100x100mm					
a.i)	sand cast iron S&S as per IS-3989	Each	70.0			
b)	150x150x150 mm dia					
	Sand cast iron S&S as per IS-3989	Each	2.0			

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1	3	4	5			
2.07	Providing and fixing single equal plain junction of required degree					
a)	100x100x100mm					
a.i)	sand cast iron S&S as per IS-3989	Each	20.0			
b)	150x150x150mm Centrifugally cast (spun) iron S&S					
b.i)	sand cast iron S&S as per IS-3989	Each	5.0			
2.08	Providing and fixing single unequal plain junction of required degree					
a)	150x150x100 mm					
a.ii)	sand cast iron S&S as per IS-3989	Each	10.0			
2.09	Providing and fixing door piece, insertion rubber washer 3mm thick, bolts and nuts complete					
a)	100 mm					
a.ii)	sand cast iron S&S as per IS-3989	Each	50.0			
2.10	Providing and fixing terminal guard.					
a)	100 mm	Each	50.0			

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1	3	4	5			
a.ii)	sand cast iron S&S as per IS-3989					
b)	150 mm dia					
	Sand cast iron S&S as per IS-3989	Each	2.0			
2.11	Providing and fixing collar					
a)	100 mm					
a.ii)	Sand cast iron S&S as per IS-3989	Each	70.0			
b)	150 mm dia					
	Sand cast iron S&S as per IS-3989	Each	10.0			
2.12	Providing lead caulked joints to sand cast iron /centrifugally cast (spun) iron pipes and fittings of diameter:					
a)	100 mm	Each	485.0			
b)	150 mm	Each	25.0			
2.13	Providing Drip seal joint of approved make for the sand cast iron/centrifugally cast iron pipes where the workability of lead joint can be effected due to space constraints.					
a)	100 mm	Each	485.0			
b)	150 mm	Each	25.0			
2.14	Providing and fixing M.S. stays and clamps for sand cast iron / centrifugally cast (spun) iron pipes of diameter :					
a)	100 mm	Each	10.0			

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1	3	4	5			
b)	150 mm	Each	2.0			
2.15	Providing and fixing trap of self cleansing design with screwed down or hinged grating with or without vent arm complete, including cost of cutting and making good the walls and floors:					
a)	100 mm inlet and 100 mm outlet					
a i)	Sand cast iron S&S as per IS-3989	Each	35.0			
2.16	Cutting chases in brick masonry walls for following diameter sand cast iron/centrifugally cast (spun) iron pipes and making good the same with cement concrete 1:3:6 (1 cement:3 coarse sand:6 graded stone aggregate 12.5 mm nominal size) including necessary plaster and pointing in cement mortar 1:4 (1 cement: 4 coarse sand):					
a)	100 mm diameter pipe	Metre	70.0			
b)	150 mm diameter pipe	Metre	5.0			
2.17	Painting sand cast iron / centrifugally cast (spun) iron soil, waste vent pipes and fittings with two coats of synthetic enamel paint off any colour such as chocolate, grey, or buff etc. over a coat of primer (of approved quality) for new work:					
a)	100 mm diameter pipe	Metre	400.0			
c)	150 mm diameter pipe	Metre	40.0			

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1	3	4	5			
2.18	Providing and fixing floor drain points formed out of 65 mm dia GI elbow, including with 75mm dia Stainless Steel grating with frame, embedded in floor, all complete as directed.	Each	40.0			
2.19	Providing and fixing C.P. brass bottle trap for wash basin including CP waste fittings complete 32 mm dia complete in all respect of approved quality.	Each	40.0			
2.20	Providing and fixing C.P. brass bottle trap for sinks & urinal basin including CP waste fittings complete 40 mm dia complete in all respect of approved quality.	Each	40.0			
2.21	Providing and laying cement concrete 1:2:4 (1 cement:2 coarse sand:4 graded stone aggregate 20 mm nominal size) 80 mm thick all-round the SCI/centrifugally S&S pipe diameter.					
a)	100 mm dia	Metre	100.0			
b)	150 mm dia	Metre	10.0			
2.22	Providing and fixing dash fastner made of rust proof plated steel for holding the soil/waste supply pipes complete in all respect					

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a)	Dash fastner for pipe more than 25 mm dia to 150 mm dia pipe of required size but not less than size 10 mm dia and 50 mm long minimum & shall be capable of taking 6 tonnes load and also include the supporting angles 35x35x5 mm/approved steel structures support as per drawing.	Each	100.0			
2.23	Providing and fixing floor clean out plug consist of CI bend & GI socket heavy class with Brass cap & key for opening male threaded cap etc. including lead caulked to CI pipes complete in all respects as per drawing/ sample approved by Engineer - in - Charge FCO (floor clean out plug shall be flushed with floor finish					
	100 mm dia/150 mm dia	Each	10.0			
2.24	Providing and fixing clean out plug consist of GI socket/nipple heavy class with threaded pludge for opening male threaded cap etc. including lead caulked to CI pipes complete in all respects as per drawing/ sample approved by Engineer - in - Charge					
	100 mm dia/150 mm dia	Each	20.0			

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1	3	4	5			
2.25	Providing and fixing G.I EXTENSION PIECE for 100 mm dia floor trap formed out of main pipe(Type A) with multiple side inlets, suitable for various dia pipes, side connections, including all fixtures and fittings as per site conditions and as per standard details and water tight sealing of joints and area surrounding the grating and as directed.	Each	25.0			
2.26	Providing and fixing cPVC. pipes complete with cPVC fittings including painting, jointing, testing the cost of cutting the chases and making good the same for waste water disposal complete as per direction of engineer incharge.					
a)	32 mm dia nominal bore (Wash basin to floor trap/floor drain)	Metre	40.0			
b)	40 mm dia nominal bore (Sink, Urinal to floor trap)	Metre	80.0			
c)	50 mm dia nominal bore (Floor Drain to Floor Trap)	Metre	50.0			
2.27	Providing & fixing SS floor trap grating 143x143x5mm thick screwable with SS fixed frame of 150x150 mm size as per approved make & model	Metre	70.0			
2.28	Providing and laying Laboratory/hospital effluent waste pipe and fitting of high density polyethylene (HDPE), CLASS -PE 100 ,pressure rating PN-10, conforming to IS :4984, electric fusion joints/flanged joints , fittings which includes bends, ,junctions, cowls, offsets, access pieces.etc. complete including jointing.					
a)	50 mm dia	Metre	50.0			

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c)	80 mm dia	Metre	10.0			
d)	100 mm dia	Metre	10.0			
2.29	Steel work welded in built up sections/framed work including cutting,hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required.					
a)	In gratings,frames,guard bar,ladder,railings,brackets,gates and similar works .	kg	2000.0			
SUB TOTAL(SOIL, WASTE AND VENT PIPES)						

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1	3	4	5			
3.00	WATER SUPPLY					
3.01	Providing and fixing Chlorinated Polyvenyl Chloride(CPVC)pipes having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.0 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					
a)	15 mm nominal outer dia pipes (SDR-11)	Metre	10.0			
b)	20 mm nominal outer dia pipes (SDR-11)	Metre	20.0			
c)	25 mm nominal outer dia pipes (SDR-11)	Metre	50.0			
d)	32 mm nominal outer dia pipes (SDR-11)	Metre	50.0			
e)	40 mm nominal outer dia pipes (SDR-11)	Metre	50.0			
f)	50 mm nominal outer dia pipes (SDR-11)	Metre	60.0			
g)	62.5 mm nominal outer dia pipes (SDR-17)	Metre	30.0			

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1	3	4	5			
3.02	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge.					
	Concealed work including cutting chases and making good the walls etc.					
a)	15 mm nominal outer dia pipes (SDR-11)	Metre	120.0			
b)	20 mm nominal outer dia pipes (SDR-11)	Metre	50.0			
c)	25 mm nominal outer dia pipes (SDR-11)	Metre	20.0			
d)	32 mm nominal outer dia pipes (SDR-11)	Metre	10.0			
3.03	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings. This includes jointing of pipes and fittings with one step CPVC solvent cement, trenching, refilling and testing of joints complete as per direction of Engineer in Charge.					
	External Work					
b)	50 mm nominal outer dia pipes	Metre	10.0			

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1	3	4	5			
c)	62.5 mm nominal inner dia pipes	Metre	20.0			
3.04	Providing and fixing G.I. pipes complete with G.I. fittings and clamps, including cutting and making good the walls etc. Internal Work- Exposed on walls					
a)	80 mm dia nominal bore	Metre	50.0			
b)	100 mm dia nominal bore	Metre	50.0			
3.05	Making connection with existing G.I. Pipe /distribution branch with G.I. main of following sizes by providing and fixing /welding socket /nipple gate valve etc including, cutting and threading the pipe etc. complete .(gate valve etc will be paid separately)					
a)	15 to 40 mm nominal bore	Each	50.0			
a)	50 to 80 mm nominal bore	Each	25.0			
3.06	providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end)					
a)	25 mm nominal bore	Each	10.0			
b)	32 mm nominal bore	Each	8.0			
c)	40 mm nominal bore	Each	8.0			
d)	50 mm nominal bore	Each	8.0			
e)	65 mm nominal bore	Each	2.0			

Name of Work: Estimate of Augmentation of Plumbing and associated civil work of AIIMS-existing Basement (F Block) , New Delhi						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in figures (in Rupees)	Rate in words (in Rs.)	Amount in figures(in Rs.)
1	3	4	5			
f)	80 mm nominal bore	Each	2.0			
g)	100 mm nominal bore	Each	1.0			
3.07	Providing and fixing ball valve (brass) of approved quality, High or low pressure with plastic floats complete					
a)	20mm	Each	2.0			
3.08	Providing and fixing unplasticised PVC connection pipe with brass unions:					
a)	45 cm length					
a i)	15 mm nominal bore	Each	80.0			
3.09	Constructing masonry chamber 30x30x50 cm inside, in brick work in cement mortar 1:4 (1 cement: 4 coarse sand) for stop cock, with C.I. surface box 100x100x75 mm (inside) with hinged cover fixed in cement concrete slab 1:2:4 mix (1 cement: 2 coarse sand:4 graded stone aggregate 20 mm 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 design					
a)	With F.P.s bricks	Each	10.0			

Name of Work: Estimate of Augmentation of Plumbing and associated civil work of AIIMS-existing Basement (F Block) , New Delhi						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in figures (in Rupees)	Rate in words (in Rs.)	Amount in figures(in Rs.)
1	3	4	5			
3.10	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 20 mm 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 design					
a)	With F.P.s bricks	each	2.0			
3.11	Painting CPVC/G.I. pipes and fittings with synthetic enamel white paint with two coats over a ready mixed priming coat, both of approved quality for new work					
a)	15 mm nominal outer dia pipes	Metre	10.0			
b)	20 mm nominal outer dia pipes	Metre	20.0			
c)	25 mm nominal outer dia pipes	Metre	50.0			
d)	32 mm nominal outer dia pipes	Metre	50.0			
e)	40 mm nominal outer dia pipes	Metre	50.0			
f)	50 mm nominal outer dia pipes	Metre	60.0			
g)	65 mm nominal outer dia pipes	Metre	30.0			

Name of Work: Estimate of Augmentation of Plumbing and associated civil work of AIIMS-existing Basement (F Block) , New Delhi						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in figures (in Rupees)	Rate in words (in Rs.)	Amount in figures(in Rs.)
1	3	4	5			
3.12	Painting G.I. /CPVC pipes and fittings with two coats of anti-corrosive bitumastic paint of approved quality.					
b)	50 mm diameter pipe	Metre	10.0			
c)	65 mm diameter pipe	Metre	20.0			
3.13	Providing and filling sand of grading zone V or coarser grade all-round the G.I./CPVC pipes in external work					
b)	50 mm diameter pipe	Metre	10.0			
c)	65 mm diameter pipe	Metre	20.0			
3.14	Providing and fixing C.P brass bib cock of approved quality confirming to IS:8931.					
a)	15 mm nominal bore	Each	50.0			
3.15	Providing and fixing C.P. brass long nose bib cock of approved quality conforming to IS standards and weighing not less than 810 gms.					
a)	15 mm nominal bore	Each	60.0			
3.16	Providing and fixing C.P. brass angle valve for basin mixer and geyser/cisterns points of approved quality conforming to IS:8931.					
a)	15 mm nominal bore	Each	80.0			
3.17	Providing and fixing PTMT ball cock of approved quality, colour and make complete with Epoxy coated aluminium rod with L.P./H.P.H.D. plastic ball.					

Name of Work: Estimate of Augmentation of Plumbing and associated civil work of AIIMS-existing Basement (F Block) , New Delhi						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in figures (in Rupees)	Rate in words (in Rs.)	Amount in figures(in Rs.)
1	3	4	5			
a)	40 mm nominal bore, 206 mm long weighin not less than 690 gms	Each	1.0			
b)	50 mm nominal bore, 242 mm long weighin not less than 1240 gms	Each	1.0			
3.18	Cutting holes upto 30x30 cm in walls including making good the same					
a)	with common burnt clay F.P.S.(non modular) bricks	Each	50.0			
3.19	Cutting holes up to 15x15 cm in R.C.C. floors and roofs for passing drain pipe etc. and repairing the hole after insertion of drain pipe etc. with cement concrete 1:2:4 (1 cement:2 coarse sand: 4 graded stone aggregate 20 mm nominal size) including finishing complete so as to make it leak proof	Each	100.0			
3.20	Providing & fixing full way lever operated forged brass ball valve of brass body with forged brass hard chrome plated steel ball tested to a pressure not less than 10 Kg / sqcm with threaded / flanged joints complete with nuts, bolts, gaskets, washers etc.					
a)	15 mm diameter	Each	20.0			
b)	20 mm diameter	Each	25.0			
3.21	Providing and fixing mosquito proof coupling of approved Municipal design for scour and vent pipes for RCC overhead tanks complete in all respects					
a)	20 mm diameter	Each	2.0			

Name of Work: Estimate of Augmentation of Plumbing and associated civil work of AIIMS-existing Basement (F Block) , New Delhi						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in figures (in Rupees)	Rate in words (in Rs.)	Amount in figures(in Rs.)
1	3	4	5			
b)	40 mm diameter	Each	2.0			
3.22	Extra for providing and installing INFRA-RED controlled electrically operated (220V, AC mains) automatic flushing system of approved make instead of urinals with flushing cistern. The automatic flushing system shall comprising of :					
	Light sensing device fixed in recessed metallic box with tamper resistant stainless steel outercase Solenoid valve housed in a recessed metallic box with openable cover mounted at high level (at desired height from finished floor level) complete with interconnecting control wiring in recessed PVC conduit between solenoid valve and sensing unit, including cutting and making good the walls & floor complete and all necessary fittings to make it operational as directed	Each	20.0			
3.23	Providing and fixing C.P. brass lab sink pillar tap with long elbow operating lever handle of approved model and make complete in all respect (Aqua bath, Jaquar, Marc)	Each	20.0			
3.24	Cleaning of basement area, removal surface dirt , sepage/ collected water, pumping etc (to make the surface workable) all complete as required at site and as desired by the engineer in charge.	Sqm	100.0			
SUB TOTAL(Water Supply)						

Name of Work: Estimate of Augmentation of Plumbing and associated civil work of AIIMS-existing Basement (F Block) , New Delhi						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in figures (in Rupees)	Rate in words (in Rs.)	Amount in figures(in Rs.)
1	3	4	5			
4.00	SEWARAGE & DRAINAGE					
4.01	Providing laying and jointing glazed stoneware pipes grade 'A' with stiff mixture of cement mortar in the pro-portion of 1:1 (1 cement : 1 fine sand) including testing of joints etc. complete.					
a)	100 mm diameter	Metre	70.0			
4.02	Providing and laying cement concrete 1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size) all-round S.W. pipes including bed concrete as per standard design:					
a)	100 mm diameter S.W. pipe/RCC NP2	Metre	10.0			
a)	250 mm diameter S.W. pipe/RCC NP2	Metre	10.0			
4.03	Providing and laying cement concrete 1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size) up-to hanch R.C.C pipes including bed concrete as per standard design:(analysed DSR2013 ITEM)					
a)	450 mm diameter RCC NP2	Metre	250.0			
a)	600 mm diameter RCC NP2	Metre	450.0			

Name of Work: Estimate of Augmentation of Plumbing and associated civil work of AIIMS-existing Basement (F Block) , New Delhi						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in figures (in Rupees)	Rate in words (in Rs.)	Amount in figures(in Rs.)
1	3	4	5			
4.04	Providing and fixing square-mouth S.W. gully trap grade 'A' complete with C.I. grating, brick masonry chamber with water tight C.I. cover with frame of 300x300 mm size (inside) the weight of cover to be not less than 4.50 kg and frame to be not less than 2.70 kg as per standard design:..					
a)	150x100mm size P type					
a.i)	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	5.0			
4.05	Providing and laying non-pressure NP2 class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement:2 fine sand) including testing of joints etc. complete					
a)	150 mm dia R.C.C. pipe	Metre	50.0			
b)	250 mm dia R.C.C. pipe	Metre	510.00			
b)	450 mm dia R.C.C. pipe	Metre	250.0			
b)	600 mm dia R.C.C. pipe	Metre	450.0			

Name of Work: Estimate of Augmentation of Plumbing and associated civil work of AIIMS-existing Basement (F Block) , New Delhi						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in figures (in Rupees)	Rate in words (in Rs.)	Amount in figures(in Rs.)
1	3	4	5			
4.06	Constructing brick masonry manhole in cement mortar 1:4 (1 cement : 4 coarse sand), R.C.C. top slab with 1:2:4 mix (1cement : 2 coarse sand : 4graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 (1cement : 4 coarse sand : 8graded stone aggregate 40 mm nominal size), inside plastering 12mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, and making channels in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) finished with a floating coat of neat cement all complete as per standard design.					
a)	Inside size 90x80 cm and 45 cm deep including C.I. cover with frame (light duty) 455x610 mm internal dimensions total weight of cover and frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15 kg):					
a i)	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	12.0			
4.06	Extra depth for manholes					
a)	Size 90 x 80 cm					
a i)	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Metre	3.0			

Name of Work: Estimate of Augmentation of Plumbing and associated civil work of AIIMS-existing Basement (F Block) , New Delhi						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in figures (in Rupees)	Rate in words (in Rs.)	Amount in figures(in Rs.)
1	3	4	5			
4.07	Constructing brick masonry circular type manhole 0.91m internal dia at bottom and 0.56m dia at top in cement mortar 1:4 (1 cement :4 coarse sand), in side cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, foundation concrete 1:3:6 mix (1 cement: 3 coarse sand: 6 graded stone aggregate 40mm nominal size), and making necessary channel in cement concrete 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate 20mm nominal size) finished with a floating coat of neat cement all complete as per standard design:					
a)	0.91 m deep with S.F.R.C. cover and frame (heavy duty, HD-20 grade designation) 560mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182kg., fixed in cement concrete 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate 20 mm nominal size) including centering shuttering all complete. (Excavation, foot rests and 12mm thick cement plaster at the external surface shall be paid for separately) :					
a i)	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	30.0			
4.08	Extra depth for circular type manhole 0.91m dia (at bottom) with beyond 0.91m to 1.67 m					
a)	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Metre	6.0			

Name of Work: Estimate of Augmentation of Plumbing and associated civil work of AIIMS-existing Basement (F Block) , New Delhi						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in figures (in Rupees)	Rate in words (in Rs.)	Amount in figures(in Rs.)
1	3	4	5			
4.09	Constructing brick masonry circular manhole 1.22 m internal dia at bottom and 0.56 m dia at top in cement mortar 1:4 (1 cement: 4 coarse sand) inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement foundation concrete 1:3:6 mix (1 cement :3 coarse sand : 6 graded stone aggregate 40mm nominal size) and making necessary channel in cement concrete 1:2:4 (1 cement :2 coarse sand : 4 graded stone aggregate 20mm nominalsize) finished with a floating coat of neat cement complete as per standard design.					
a)	1.68 m deep with SFRC cover and frame(heavy duty HD-20 grade designation) 560 mm internal diameter conforming to IS: 12592, total weight of cover and frame to be not less than 182 kg. fixed in cement concrete 1:2:4 (1 cement :2 coarse sand : 4 graded stone aggregate 20mm nominalsize) including centering shuttering all complete. (Excavation, foot rests and 12 mm tick cement plaster at the external surface shall be paid for separately)					
a.i)	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	25.0			
4.10	Extra depth for circular type manhole 1.22 m internal dia (at bottom) with beyond 1.68 m to 2.29 m					
a)	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Metre	5.0			

Name of Work: Estimate of Augmentation of Plumbing and associated civil work of AIIMS-existing Basement (F Block) , New Delhi						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in figures (in Rupees)	Rate in words (in Rs.)	Amount in figures(in Rs.)
1	3	4	5			
4.11	Providing orange colour safety foot rest of minimum 6 mm thick plastic encapsulated as per IS: 10910 on 12 mm dia steel bar conforming to IS: 1786 having minimum cross section as 23 mm x 25 mm and over all minimum length 263 mm and width as 165 mm with minimum 112 mm space between protruded legs having 2 mm tread on top surface by ribbing or chequering besides necessary and adequate anchoring projections on tail length on 138 mm as per standard drawing and suitable to with stand the bend test and chemical resistance test as per specification mark to be visible even after fixing, including fixing in manholes with 30x20x15 cm cement concrete block 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) complete as per design.	Each		350.0		
4.12	Making connection of drain or sewer line with existing manhole including breaking into and making good the walls, floors with cement concrete 1:2:4 mix (1 cement:2 coarse sand:4 graded stone aggregate 20 mm nominal size) cement plastered on both sides with cement mortar 1:3 (1 cement:3 coarse sand) finished with a floating coat of neat cement and making necessary channels for the drain etc. complete (including obtaining approval from DJB/Municipal corporation)					
a)	For pipes 100 to 250 mm dia	Each	6.0			

Name of Work: Estimate of Augmentation of Plumbing and associated civil work of AIIMS-existing Basement (F Block) , New Delhi						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in figures (in Rupees)	Rate in words (in Rs.)	Amount in figures(in Rs.)
1	3	4	5			
4.13	Providing sand cast iron drop connection externally for 60 cm drop from branch sewer line to main sewer manhole including inspection and cleaning eye with chain and lid sand cast Iron drop pipe and bend encased all-round with cement concrete 1 :5:1 0 (1 cement:5 fine sand: 10 graded stone aggregate 40 mm nominal size) with all centering and shuttering required, cutting holes in walls and making good with brick work in cement mortar 1:4 (1 cement: 4 coarse sand) plastered with cement mortar 1:3 (1 cement: 3 coarse sand) on, inside of the manhole wall lead caulked joints between sand cast iron pipes and fittings, stiff cement mortar 1:1 (1 cement: 1 fine sand) joints between sand cast iron tee and S.W. pipe, making required channels complete as per standard design and specifications:					
a)	150 mm dia. sand cast iron drop connection	Each	10.0			
4.14	Providing and laying D.I. specials of class k-12 suitable for push-on jointing as per IS:9523					
a)	Upto 600 mm dia	quintal	12.0			
4.15	Providing push-on-joints to Centrifugally (Spun) Cast Iron pipes or Ductile Iron Pipes including testing of joints and including the cost of rubber gasket					
a)	150mm dia pipes	joint	40.0			
b)	250mm dia pipes	joint	60.0			

Name of Work: Estimate of Augmentation of Plumbing and associated civil work of AIIMS-existing Basement (F Block) , New Delhi						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in figures (in Rupees)	Rate in words (in Rs.)	Amount in figures(in Rs.)
1	3	4	5			
4.16	Providing and laying S&S Centrifugally Cast (Spun)/Ductile Iron pipes confirming to IS:8329:					
a)	250 mm dia Ductile Iron Class k-7 pipes	metre	150.0			
b)	150 mm dia Ductile Iron Class k-7 pipes	metre	100.0			
4.17	Preparation for shifting / Disconnecting /repair of existing soil & waste pipe 100/150 mm dia including labour, jointing material, scaffolding, tools and carrying the work mostly in non-working hours in such a way that the functioning of the hospital does not effect as far as possible as per requirement and as directed by Engineer-in-charge ., pipe and fittings required will be paid separately. One shaft will be consider as one job.	Job	100.0			

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Sl. No.	Description of Item	Unit	Total Qty.	Rate in figures (in Rupees)	Rate in words (in Rs.)	Amount in figures(in Rs.)
1	3	4	5			
4.18	Supply, installing, testing and commissioning vertical fully floodable type submersible sewage pump of non-corrosive material with shredder/cutter in close coupled design single stage, suitable for handling minimum 25 mm dia solids for transferring raw sewer from sump to outside the building with float switch for automatic start and stop arrangement with panel and wiring, chain and pulley, mechanical seal complete in all respect as per instruction of the Engineer in charge. (The shop drawing or the pumps along with its characteristics curves, model and technical data etc. are to be submitted for approval before purchase of pump).Star delta suitable starter complete in all respect for automatic/manual operation of pump,start and stop push button contactor with required overload protection and single phase preventor.Electrical panel complete as per instruction of the Engineer in charge					
	Material of Construction (M.O.C): Corrosion Resistant in general					
	: Casing — Cast Iron					
	: Impeller — Ductile cast iron					
	: Bearings — Anti friction, prelubricated ball bearings, packed with grease for life.					

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Sl. No.	Description of Item	Unit	Total Qty.	Rate in figures (in Rupees)	Rate in words (in Rs.)	Amount in figures(in Rs.)
1	3	4	5			
	Motor: — Dry Motor with built in over load protection Protection - IP68. Insulation Class - F					
	Duty of each pump					
i)	900 LPM against 12 M head (Sewage pump)	Each	4.0			
ii)	Electical panal cable,etc complete as per instruction of the Engineer in charge	Set	1.0			
	SUB TOTAL(SEWERAGE AND DRAINAGE)					

Name of Work: Estimate of Augmentation of Plumbing and associated civil work of AIIMS-existing Basement (F Block) , New Delhi						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in figures (in Rupees)	Rate in words (in Rs.)	Amount in figures(in Rs.)
1	3	4	5			
5.00	EARTH WORK					
5.01	Earth work in excavation by mechanical means (Hydraulic excavator)/ manual means in foundation,trenches or drains(not exceeding 1.5m in width or 10 sqm on plan) ,including dressing of sides and ramming of bottoms, lift upto 1.5m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50m					
a)	All kinds of soil	cum	200.0			
5.02	Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth up to 1.5 m including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m:					
a)	All kinds of soil					
a.ii)	Pipes, cables etc. exceeding 80 mm dia but not exceeding 300 mm dia	metre	570.0			
b.ii)	Pipes, cables etc. exceeding 300 mm dia but not exceeding 600 mm dia	metre	700.0			
5.04	Extra for excavating trenches for pipes, cables etc. in all kinds of soil for depth exceeding 1.5 m, but not exceeding 3 m (Rate is over corresponding basic item for depth upto 1.5 metre).	metre	700.0			

Name of Work: Estimate of Augmentation of Plumbing and associated civil work of AIIMS-existing Basement (F Block) , New Delhi						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in figures (in Rupees)	Rate in words (in Rs.)	Amount in figures(in Rs.)
1	3	4	5			
5.05	Extra for excavating trenches for pipes, cables etc. in all kinds of soil for depth exceeding 3.0 m, but not exceeding 4.5 m (Rate is over corresponding basic item for depth upto 1.5 metre).	metre	300.0			
5.09	Close timbering in trenches including strutting, shoring and packing cavities (wherever required) complete. (Measurements to be taken of the face area timbered).					
a)	Depth not exceeding 1.5 m	sq.m.	2100.0			
b)	Depth exceeding 1.5 m but not exceeding 3m	sq.m.	1400.0			
5.11	Extra for every additional lift of 1.5 m or part thereof in					
a)	All kinds of soil	cum	100.0			
5.03	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 up to 50 m and lift up to 1.5 m	cum	70.0			
SUB TOTAL(EARTH WORK)						
Note: 1) Agency advised to visit the site and see the existing condition of plumbing system.						
2) Brief description of work mentioned in the tender drawing.						

Name of Work: Estimate of Augmentation of Plumbing and associated civil work of AIIMS-existing Basement (F Block) , New Delhi						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in figures (in Rupees)	Rate in words (in Rs.)	Amount in figures(in Rs.)
1	3	4	5			
	3) The pipe in the existing basement are to be changed/replaced/diverted/abandoned in a systematic manner without effecting the functioning of the building as far as feasible.					
	4) To minimize the disturbance Agency has to barricade the maintenance area and may also have to be carried out the work in non-Office hour .					
	5)Based on the tender drawing the agency has to prepare the internal & external plumbing shop drawing and obtain the approval of the same before execution.					

BILL OF QUANTITIES

ABSTRACT

Name of Work: Estimate of Augmentation of Plumbing and associated civil work of
AIIMS-existing Basement (F Block) , New Delhi

S.No.	DESCRIPTION	Quoted Amount (in Rs)
A 1.00	Civil work	
B	INTERNAL PLUMBING ,	
2. 00	SOIL, WASTE AND VENT PIPES	
3. 00	WATER SUPPLY	
4. 00	SEWERAGE AND DRAINAGE	
5.00	EARTH WORK	
	TOTAL	

END OF VOLUME - V