








	Mason Gr I	0.33	nos	279.00	92.07	
	Blaster	0.33	nos	347.00	114.51	
	Blasting material including excise, sales tax, carriage from Gomia to work site, storage etc.					
	Special Gelatin	2.00	Kg	928.10	1856.20	
	Detonator	10	nos	6.52	65.19	
	Fuse coil	1	nos	15.61	15.61	
	Tools and Plants					
	Cost of hire charge of compressor, drilling equipment and other accessories				15.00	
					3587.58	
	Add Overhead charge & C.P@15%				538.14	
					4125.72	412.57
B.	Carriage of earth by 5.5 cum capacity Tipper and loading by front end loader					
	Taking output = 1 cum.km					
	Loading of earth by Front end loader (Vide item no 4.1)	1	cum	142.20	142.20	
	Cost of Haulage vide item no 4.4(c)	1	cum.km	30.60	30.60	Lead x H _{ka}
					172.80	172.80
	Rate (A+B)					585.37
	Add 1% cess					5.85
						591.23
		Say Rs		591.20	Per M ³	
7.1.48.2	Earth work in excavation of foundation trenches of toe wall, spillway, head regulators, outlets, intake wells etc as per designed section in soft rock or ordinary rock(Where blasting is not required) (vide classification of soil item C) disposal of soil beyond 150 mtr but upto 1 k.m away from toe of the dam with all lifts by Tipper and loading by Front end loader,including unloading, construction and maintenance of haul roads as per specifications and direction of E/I.					
	Assuming 10cum					
A.	Labour					
	Hammer man	2.75	nos	220.00	605.00	
	Unskilled mazdoor for all work	4.00	nos	206.00	824.00	
	Mason Gr I	0.33	nos	279.00	92.07	
					1724.47	
	Add Overhead charge & C.P@15%				258.67	
					1983.14	198.31
B.	Carriage of earth by 5.5 cum capacity Tipper and loading by front end loader					
	Taking output = 1 cum.km					
	Loading of earth by Front end loader (Vide item no 4.1)	1	cum	142.20	142.20	
	Cost of Haulage vide item no 4.4(c)	1	cum.km	30.60	30.60	Lead x H _{ka}
					172.80	172.80
	Rate (A+B)					371.11
	Add 1% cess					3.71
						374.83
		Say Rs		374.80	Per M ³	
7.1.49	Earth work in excavation of foundation trenches of toe wall, spillway, head regulators, outlets, intake wells etc as per designed section in hard rock where blasting needed and disposal of excavated rock by Tipper and loading by Front end loader,including beyond initial lead of 150 mtr but upto 1 k.m away from toe of the dam with all lifts including loading, unloading, construction and maintenance of haul roads as per specifications and direction of E/I.					
	Assuming 10cum					
A.	Labour					

	Hammer man	10.50	nos	220.00	2310.00	
	Unskilled mazdoor for all work	10.00	nos	206.00	2060.00	
	Mason Gr I	0.33	nos	279.00	92.07	
	Blaster	0.67	nos	347.00	232.49	
	Blasting material including excise, sales tax, carriage from Gomia to work site, storage etc.					
	Special Gelatin	2.75	Kg	928.10	2552.28	
	Detonator	18	nos	6.52	117.34	
	Fuse coil	3	nos	15.61	46.83	
	Tools and Plants					
	Cost of hire charge of compressor, drilling equipment and other accessories				26.50	
					7437.51	
	Add Overhead charge & C.P@15%				1115.63	
					8553.13	855.31
B.	Carriage of earth by 5.5 cum capacity Tipper and loading by front end loader					
	Taking output = 1 cum.km					
	Loading of earth by Front end loader (Vide item no 4.1)	1	cum	142.20	142.20	
	Cost of Haulage vide item no 4.4(c)	1	cum.km	30.60	30.60	Lead x H _{ka}
					172.80	172.80
	Rate (A+B)					1028.11
	Add 1% cess					10.28
						1038.39
		Say Rs		1038.40	Per M ³	
7.1.50	Earth work in dam fill in semi previous or imprevious zone by manual excavation and carriage by Tipper and loading by manual labours including , making dam in proper design section including earth to be laid in layers of not more than 225 mm thick with all lift and breaking clods to maximum 63 mm cubasas well as construcion and maintenance of haul roads, all complete as per specifications and direction of E/I. (Mode of measurment- sectional measurement of compacted earth).					
	Assuming 28.32cum					
7.1.50.1	Lead beyond 150 mtr but upto 1/2 K.M					
A.	Labour					
	Unskilled mazdoor for stripping the borrow area	0.75	nos	206.00	154.50	
	Unskilled mazdoor for throwing the stripped earth from borrrpw area	0.75	nos	206.00	154.50	
	Unskilled mazdoor for cutting earth	9.50	nos	206.00	1957.00	
	Mate	1.00	nos	225.00	225.00	
					2491.00	
	Add Overhead charge & C.P@15%				373.65	
					2864.65	101.15
B.	Carriage of earth by 5.5 cum capacity Tipper					
	Taking output = 1 cum.km					
	Loading and Unloading of Earth By manuals means					
	Vide item no 4.2.	1	cum	174.90	174.90	
	Cost of Haulage vide item no 4.4(c)	1	cum.km	15.30	15.30	Lead x H _{ka}
					190.20	190.20
	Rate (A+B)					291.35
	Add Cess @1%					2.91
						294.27
		Say	Rs	294.30	Per M ³	
7.1.50.2	Lead beyond 1/2 K.M but upto 1 K.M					
A.	Labour					
	Unskilled mazdoor for stripping the borrow area	0.75	nos	206.00	154.50	
	Unskilled mazdoor for throwing the stripped earth from borrrpw area	0.75	nos	206.00	154.50	
	Unskilled mazdoor for cutting earth	9.50	nos	206.00	1957.00	
	Mate	1.00	nos	225.00	225.00	
					2491.00	
	Add Overhead charge & C.P@15%				373.65	

					2864.65	101.15
B.	Carriage of earth by 5.5 cum capacity Tipper					
	Taking output = 1 cum.km					
	Loading and Unloading of Earth By manuals means					
	Vide item no 4.2.	1	cum	174.90	174.90	
	Cost of Haulage vide item no 4.4(c)	1	cum.km	30.60	30.60	Lead x H _{ka}
					205.50	205.50
	Rate (A+B)					306.65
	Add 1% cess					3.07
						309.72
		Say	Rs	309.70	Per M ³	
7.1.50.3	Lead beyond 1 K.M but upto 2 K.M					
A.	Labour					
	Unskilled mazdoor for stripping the borrow area	0.75	nos	206.00	154.50	
	Unskilled mazdoor for throwing the stripped earth from borrow area	0.75	nos	206.00	154.50	
	Unskilled mazdoor for cutting earth	9.50	nos	206.00	1957.00	
	Mate	1.00	nos	225.00	225.00	
					2491.00	
	Add Overhead charge & C.P@15%				373.65	
					2864.65	101.15
B.	Carriage of earth by 5.5 cum capacity Tipper					
	Taking output = 1 cum.km					
	Loading and Unloading of Earth By manuals means					
	Vide item no 4.2.	1	cum	174.90	174.90	
	Cost of Haulage vide item no 4.4(c)	1	cum.km	61.20	61.20	Lead x H _{ka}
					236.10	236.10
	Rate (A+B)					337.25
	Add 1% cess					3.37
						340.63
		Say	Rs	340.60	Per M ³	
7.1.50.4	Lead beyond 2 K.M but upto 3 K.M					
A.	Labour					
	Unskilled mazdoor for stripping the borrow area	0.75	nos	206.00	154.50	
	Unskilled mazdoor for throwing the stripped earth from borrow area	0.75	nos	206.00	154.50	
	Unskilled mazdoor for cutting earth	9.50	nos	206.00	1957.00	
	Mate	1.00	nos	225.00	225.00	
					2491.00	
	Add Overhead charge & C.P@15%				373.65	
					2864.65	101.15
B.	Carriage of earth by 5.5 cum capacity Tipper					
	Taking output = 1 cum.km					
	Loading and Unloading of Earth By manuals means					
	Vide item no 4.2.	1	cum	174.90	174.90	
	Cost of Haulage vide item no 4.4(c)	1	cum.km	91.80	91.80	Lead x H _{ka}
					266.70	266.70
	Rate (A+B)					367.85
	Add 1% cess					3.68
						371.53
		Say	Rs	371.50	Per M ³	

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Sr.No.	Item	Rate	Unit
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7.2 DRILLING WORK

Sr.No	Item	Rate	Unit
7.2.1.1	Core drilling of N x (53 mm To 75 mm) (Internal dia To External dia) size by Rotary core drilling machine upto 20 meters depth in all kinds of hard rock including finishing and maintenance of core (minimum 80 % core recovery in hard rock is essential) and sludge etc. for foundation exploration only complete as per specifications and direction of E/I.	#REF!	Per M
7.2.1.2	Core drilling of N x (Internal dia To External dia) (53 mm To 75 mm) (Internal dia To External dia) size by Rotary core drilling machine upto 20 meters depth and upto 30 meters depth in all kinds of hard rock including finishing and maintenance of core (minimum 80 % core recovery in hard rock is essential) and sludge etc. for foundation exploration only complete as per specifications and direction of E/I.	#REF!	Per M
7.2.2	Core drilling of 41mm To 75 mm (Internal dia To External dia) size by Rotary core drilling machine with T.C drill bit in all kinds of soil mixed with boulder, pebbles, shingles etc. including reaming (to facilitate smooth lowering of casing pipe) lowering of casing pipes and its extraction maintenance of core and sludge for foundation exploration only complete as per specifications and direction of E/I.	#REF!	Per M
7.2.3.1	Core drilling of B x (41 mm To 59 mm) (Internal dia To External dia) size by Rotary core drilling machine upto 20 meters depth and upto 30 meters depth in all kinds of hard rock including finishing and maintenance of core (minimum 80 % core recovery in hard rock is essential) and sludge etc. for foundation exploration only complete as per specifications and direction of E/I.	#REF!	Per M
7.2.3.2	Core drilling of B x (Internal dia To External dia) (41 mm To 59 mm) size by Rotary core drilling machine upto 20 meters depth in all kinds of hard rock including finishing and maintenance of core (minimum 80 % core recovery in hard rock is essential) and sludge etc. for foundation exploration only complete as per specifications and direction of E/I.	#REF!	Per M
7.2.4.	Drilling by Rotary core drilling machine of size 41 mm To 75 mm dia (Internal dia To External dia) with T.C drill bit for grout and test holes in all kinds of soil including moorum, hard soil mixed with pebbles, shingles and compacted soil upto 20 meter depth including reaming (to facilitate smooth lowering of casing pipe) lowering of casing pipes and its extraction finishing etc. till operation is completed as per specifications and direction of E/I.	#REF!	Per M
7.2.5	Drilling by Rotary drill machine of size 41 mm To 75 mm dia (Internal dia To External dia) with T.C drill BUT for grout and test holes in clay soft and decomposed rock upto 20 meter depth including reaming (to facilitate smooth lowering of casing pipe) lowering of casing pipes and its extraction finishing etc. till grouting, complete as per specifications and direction of E/I.	#REF!	Per M
7.2.6	Drilling B x (41 mm To 59 mm) (Internal dia To External dia) size dia test and grout holes in all kinds of hard rock including finishing etc. till grouting operation is completed as per specifications and direction of E/I.	#REF!	Per M
7.2.7	Drilling N x (53 mm To 75 mm) size dia test and grout holes in all kinds of hard rock including finishing etc. till grouting operation is completed as per specifications and direction of E/I.	#REF!	Per M

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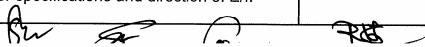
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Sr.No.	Item	Rate	Unit
7.2.8.	Drilling Jack Hammer in hard of all kinds for grout holes upto 5 meter depth (for contact grouting) all complete including washing of holes for period not exceeding 10 minutes per hole as per specifications and direction of E/I.	#REF!	Per M
7.2.9	Drilling by wagon drill machine in hard of all kinds for grout holes upto 5 meter depth (for consolidation grouting) all complete including washing of holes for period not exceeding 10 minutes per hole as per specifications and direction of E/I.	#REF!	Per M

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7.2 DRILLING WORK

Sl.No.	Description	Quantity	Unit	Rate	amount	Ref.
7.2.1.1	Core drilling of N x (53 mm to 75 mm) (Internal dia To External dia) size by Rotary core drilling machine upto 20 metres depth in all kinds of hard rock including finishing and maintenance of core (minimum 80 % core recovery in hard rock is essential) and sludge etc. for foundation exploration only complete as per specifications and direction of E/I.					Analysis same as Item 6.2.1.1
7.2.1.2	Core drilling of N x (Internal dia To External dia) (53 mm to 75 mm) (Internal dia To External dia) size by Rotary core drilling machine upto 20 metres depth and upto 30 metres depth in all kinds of hard rock including finishing and maintenance of core (minimum 80 % core recovery in hard rock is essential) and sludge etc. for foundation exploration only complete as per specifications and direction of E/I.					Analysis same as Item 6.2.1.2
7.2.2	Core drilling of 41mm To 75 mm (Internal dia To External dia) size by Rotary core drilling machine with T.C drill bit in all kinds of soil mixed with boulder, pebbles, shingles etc. including reamina (to facilitate smooth lowering of casing pipe) lowering of casing pipes and its extraction maintenance of core and sludge for foundation exploration only complete as per specifications and direction of E/I.					Analysis same as Item 6.2.2
7.2.3.1	Core drilling of B x (41 mm To 59 mm)(Internal dia To External dia) size by Rotary core drilling machine upto 20 metres depth and upto 30 metres depth in all kinds of hard rock including finishing and maintenance of core (minimum 80 % core recovery in hard rock is essential) and sludge etc. for foundation exploration only complete as per specifications and direction of E/I.					Analysis same as Item 6.2.3.1
7.2.3.2	Core drilling of B x (Internal dia to External dia) (41 mm to 59 mm) size by Rotary core drilling machine upto 20 M depth in all kinds of hard rock including finishing and maintenance of core (minimum 80 % core recovery in hard rock is essential) and sludge etc. for foundation exploration only complete as per specifications and direction of E/I.					Analysis same as Item 6.2.3.2
7.2.4.	Drilling by Rotary core drilling machine of size 41 mm To 75 mm dia (Internal dia To External dia) with T.C drill bit for grout and test holes in all kinds of soil including moorum, hard soil mixed with pabbles, shingles and compacted soil upto 20 metre depth including reaming (to facilitate smooth lowering of casing pipe) lowering of casing pipes and its extraction finishing etc. till operation is completed as per specifications and direction of E/I.					Analysis same as Item 6.2.4
7.2.5	Drilling by Rotary drill machine of size 41 mm To 75 mm dia (Internal dia To External dia) with T.C drill BUT for grout and test holes in clay soft and decomposed rock upto 20 metre depth including reaming (to facilitate smooth lowering of casing pipe) lowering of casing pipes and its extraction finishing etc. till grouting, complete as per specifications and direction of E/I.					Analysis same as Item 6.2.5
7.2.6	Drilling B x (41 mm To 59 mm) (Internal dia To External dia) size dia test and grout holes in all kinds of hard rock including finishing etc. till grouting operation is completed as per specifications and direction of E/I.					Analysis same as Item 6.2.6



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7.2.7	Drilling N x (53 mm To 75 mm) size dia test and grout holes in all kinds of hard rock including finishing etc. till grouting operation is completed as per specifications and direction of E/I.	Analysis same as Item 6.2.7	
7.2.8	Drilling Jack Hammer in hard of all kinds for grout holes upto 5 metre depth (for contact grouting) all complete including washing of holes for period not exceeding 10 minutes per hole as per specifications and direction of E/I.	Analysis same as Item 6.2.8	
7.2.9	Drilling by wagon drill machine in hard of all kinds for grout holes upto 5 metre depth (for consolidation grouting) all complete including washing of holes for period not exceeding 10 minutes per hole as per specifications and direction of E/I.	Analysis same as Item 6.2.9	



Sr.No.	Item	Rate	Unit
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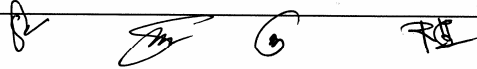
7.3. CONCRETE WORK

Sr.No	Item	Rate	Unit
7.3.1	Providing and laying mass concrete of M-100 with nominal mix of (1:3:6) in flow and non-over flow of dam section with approved quality of graded coarse aggregate and approved quality sand of requisite F.M washed and screened including vibrating,precooling etc. as well as royalty and all taxes etc.but excluding cost of form work etc. wherever provided and removed after use, all complete as per specifications and direction of E/I. (Taking Rate of approved quality of aggregate as per Design)(Rate of Coarse aggregates Gr IV Taken)		
	Patna Urban	#VALUE!	Per M ³
	Patna	#REF!	Per M ³
	Muzaffarpur	#REF!	Per M ³
	Darbhanga	#REF!	Per M ³
	Bhagalpur	#REF!	Per M ³
	Munger	#REF!	Per M ³
	Saharsa	#REF!	Per M ³
	Purnea	#REF!	Per M ³
	• Gaya	#REF!	Per M ³
	Saran	#REF!	Per M ³
7.3.2	Providing and laying mass concrete of M-150 with nominal mix of (1:2:4) in over flow and non-over flow sectopm of dry intake, structures and bridges etc with approved quality of graded coarse aggregate and approved quality sand of requisite F.M washed and screened including vibrating,precooling etc. as well as royalty and all taxes etc.but excluding cost of form work etc. wherever provided and removed after use, all complete as per specifications and direction of E/I.(Taking Rate of approved quality of aggregate as per Design)(Rate of Coarse aggregates 20 mm To 10 mm Taken)		
	Patna Urban	#REF!	Per M ³
	Patna	#REF!	Per M ³
	Muzaffarpur	#REF!	Per M ³
	Darbhanga	#REF!	Per M ³
	Bhagalpur	#REF!	Per M ³
	Munger	#REF!	Per M ³
	Saharsa	#REF!	Per M ³
	Purnea	#REF!	Per M ³
	Gaya	#REF!	Per M ³
	Saran	#REF!	Per M ³
7.3.3	Providing and laying mass concrete of M-200 with nominal mix of (1:1.5 :3) in Dam and Spillways with approved quality of graded coarse aggregate and approved quality sand of requisite F.M washed and screened including vibrating,precooling etc. as well as royalty and all taxes etc.but excluding cost of form work etc. wherever provided and removed after use, all complete as per specifications and direction of E/I. (Taking Rate of approved quality of aggregate as per Design)(Rate of Coarse aggregates 20 mm To 10 mm Taken)		
	Patna Urban	#REF!	Per M ³
	Patna	#REF!	Per M ³
	Muzaffarpur	#REF!	Per M ³
	Darbhanga	#REF!	Per M ³
	Bhagalpur	#REF!	Per M ³

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Sr.No.	Item	Rate	Unit
	Munger	#REF!	Per M ³
	Saharsa	#REF!	Per M ³
	Purnea	#REF!	Per M ³
	Gaya	#REF!	Per M ³
	Saran	#REF!	Per M ³
			Per M ³
7.3.4	Providing and laying mass concrete of M-200 with nominal mix of (1:1:2) in Dam , Spillways and Head works with approved quality of graded coarse aggregate and approved quality sand of requisite F.M washed and screened including vibrating,precooling etc. as well as royalty and all taxes etc.but excluding cost of form work etc. wherever provided and removed after use, all complete as per specifications and direction of E/I. (Taking Rate of approved quality of aggregate as per Design) (Rate of Coarse aggregates 20 mm To 10 mm Taken)		
	Patna Urban	#REF!	Per M ³
	Patna	#REF!	Per M ³
	Muzaffarpur	#REF!	Per M ³
	Darbhanga	#REF!	Per M ³
	Bhagalpur	#REF!	Per M ³
	Munger	#REF!	Per M ³
	Saharsa	#REF!	Per M ³
	Purnea	#REF!	Per M ³
	Gaya	#REF!	Per M ³
	Saran	#REF!	Per M ³
7.3.5	Providing and laying P.C.C M-100 with nominal mix of (1: 3 : 6) in various components of dam foundation with approved quality of graded coarse aggregate and approved quality sand of requisite F.M washed and screened including vibrating,precooling etc. as well as royalty and all taxes etc.but excluding cost of form work as well as of reinforcement, its cutting, bending, and placing but including necessary tools, plants and vibrating, curing, royalty and all taxes etc. all complete as per specifications and direction of E/I. (Taking Rate of approved quality of aggregate as per Design) (Rate of Coarse aggregates Gr IV Taken)		
	Patna Urban	3609.10	Per M ³
	Patna	3609.10	Per M ³
	Muzaffarpur	3609.10	Per M ³
	Darbhanga	3609.10	Per M ³
	Bhagalpur	3582.40	Per M ³
	Munger	3582.40	Per M ³
	Saharsa	3609.10	Per M ³
	Purnea	3609.10	Per M ³
	Gaya	3523.50	Per M ³
	Saran	3572.40	Per M ³
7.3.6	Providing and laying P.C.C or R.C.C M-150 with nominal mix of (1:2:4) in various components of dam foundation with approved quality of graded coarse aggregate and approved quality sand of requisite F.M washed and screened including vibrating,precooling etc. as well as royalty and all taxes etc.but excluding cost of form work as well as of reinforcement, its cutting, bending, and placing but including necessary tools, plants and vibrating, curing, royalty and all taxes etc. all complete as per specifications and direction of E/I. (Taking Rate of approved quality of aggregate as per Design) (Rate of Coarse aggregates 20 mm To 10 mm Taken)		
	Patna Urban	4477.20	Per M ³
	Patna	4477.20	Per M ³

Sr.No.	Item	Rate	Unit
	Muzaffarpur	4477.20	Per M ³
	Darbhanga	4477.20	Per M ³
	Bhagalpur	4438.80	Per M ³
	Munger	4438.80	Per M ³
	Saharsa	4477.20	Per M ³
	Purnea	4477.20	Per M ³
	Gaya	4354.20	Per M ³
	Saran	4438.80	Per M ³
7.3.7	Providing and laying P.C.C or R.C.C M-200 with nominal mix of (1:1.5:3) in various components of dam foundation with approved quality of graded coarse aggregate and approved quality sand of requisite F.M washed and screened including vibrating,precooling etc. as well as royalty and all taxes etc.but excluding cost of form work as well as of reinforcement, its cutting, bending, and placing but including necessary tools, plants and vibrating, curing, royalty and all taxes etc. all complete as per specifications and direction of E/I. (Taking Rate of approved quality of aggregate as per Design)(Rate of Coarse aggregates 20 mm To 10 mm Taken)		
	Patna Urban	5081.80	Per M ³
	Patna	5081.80	Per M ³
	Muzaffarpur	5081.80	Per M ³
	Darbhanga	5081.80	Per M ³
	Bhagalpur	5032.90	Per M ³
	Munger	5032.90	Per M ³
	Saharsa	5081.80	Per M ³
	Purnea	5081.80	Per M ³
	Gaya	4925.00	Per M ³
	Saran	5032.90	Per M ³
7.3.8	Providing and laying P.C.C or R.C.C M-250 with nominal mix of (1:1 : 2) in various components of dam foundation with approved quality of graded coarse aggregate and approved quality sand of requisite F.M washed and screened including vibrating,precooling etc. as well as royalty and all taxes etc.but excluding cost of form work as well as of reinforcement, its cutting, bending, and placing but including necessary tools, plants and vibrating, curing, royalty and all taxes etc. all complete as per specifications and direction of E/I. (Taking Rate of approved quality of aggregate as per Design)(Rate of Coarse aggregates 20 mm To 10 mm Taken)		
	Patna Urban	6488.80	Per M ³
	Patna	6488.80	Per M ³
	Muzaffarpur	6488.80	Per M ³
	Darbhanga	6488.80	Per M ³
	Bhagalpur	6416.40	Per M ³
	Munger	6416.40	Per M ³
	Saharsa	6488.80	Per M ³
	Purnea	6488.80	Per M ³
	Gaya	6257.00	Per M ³
	Saran	6416.40	Per M ³







Sr.No.	Item	Rate	Unit
7.3.9	Providing and laying P.C.CM-100 with nominal mix of (1: 3 : 6) in various components of dam superstructure with approved quality of graded coarse aggregate and approved quality sand of requisite F.M washed and screened including vibrating,precooling etc. as well as royalty and all taxes etc.but excluding cost of form work as well as of reinforcement, its cutting, bending, and placing but including necessary tools, plants and vibrating, curing, royalty and all taxes etc. all complete as per specifications and direction of E/I. (Taking Rate of approved quality of aggregate as per Design)(Rate of Coarse aggregates Gr IV Taken)		
	Patna Urban	3634.60	Per M ³
	Patna	3634.60	Per M ³
	Muzaffarpur	3634.60	Per M ³
	Darbhanga	3634.60	Per M ³
	Bhagalpur	3607.90	Per M ³
	Munger	3607.90	Per M ³
	Saharsa	3634.60	Per M ³
	Purnea	3634.60	Per M ³
	Gaya	3549.10	Per M ³
	Saran	3607.90	Per M ³
7.3.10	Providing and laying P.C.C or R.C.C M-150 with nominal mix of (1: 2 :4) in various components of dam superstructure with approved quality of graded coarse aggregate and approved quality sand of requisite F.M washed and screened including vibrating,precooling etc. as well as royalty and all taxes etc.but excluding cost of form work as well as of reinforcement, its cutting, bending, and placing but including necessary tools, plants and vibrating, curing, royalty and all taxes etc. all complete as per specifications and direction of E/I. (Taking Rate of approved quality of aggregate as per Design)(Rate of Coarse aggregates 20 mm To 10 mm Taken)		
	Patna Urban	4502.80	Per M ³
	Patna	4502.80	Per M ³
	Muzaffarpur	4502.80	Per M ³
	Darbhanga	4502.80	Per M ³
	Bhagalpur	4464.40	Per M ³
	Munger	4464.40	Per M ³
	Saharsa	4502.80	Per M ³
	Purnea	4502.80	Per M ³
	Gaya	4379.70	Per M ³
	Saran	4464.40	Per M ³
7.3.11	Providing and laying P.C.C or R.C.C M-200 with nominal mix of (1: 1.5:3) in various components of dam superstructure with approved quality of graded coarse aggregate and approved quality sand of requisite F.M washed and screened including vibrating,precooling etc. as well as royalty and all taxes etc.but excluding cost of form work as well as of reinforcement, its cutting, bending, and placing but including necessary tools, plants and vibrating, curing, royalty and all taxes etc. all complete as per specifications and direction of E/I. (Taking Rate of approved quality of aggregate as per Design)(Rate of Coarse aggregates 20 mm To 10 mm Taken)		
	Patna Urban	5107.40	Per M ³
	Patna	5107.40	Per M ³
	Muzaffarpur	5107.40	Per M ³
	Darbhanga	5107.40	Per M ³
	Bhagalpur	5058.40	Per M ³
	Munger	5058.40	Per M ³

Sr.No.	Item	Rate	Unit
	Saharsa	5107.40	Per M ³
	Purnea	5107.40	Per M ³
	Gaya	4950.50	Per M ³
	Saran	5058.40	Per M ³
7.3.12	Providing and laying P.C.C or R.C.C M-250 with nominal mix of (1: 1 : 2) in various components of dam superstructure with approved quality of graded coarse aggregate and approved quality sand of requisite F.M washed and screened including vibrating,precooling etc. as well as royalty and all taxes etc.but excluding cost of form work as well as of reinforcement, its cutting, bending, and placing but including necessary tools, plants and vibrating, curing, royalty and all taxes etc. all complete as per specifications and direction of E/I. (Taking Rate of approved quality of aggregate as per Design)(Rate of Coarse aggregates 20 mm To 10 mm Taken)		
	Patna Urban	6514.30	Per M ³
	Patna	6514.30	Per M ³
	Muzaffarpur	6514.30	Per M ³
	Darbhanga	6514.30	Per M ³
	Bhagalpur	6442.00	Per M ³
	Munger	6442.00	Per M ³
	Saharsa	6514.30	Per M ³
	Purnea	6514.30	Per M ³
	Gaya	6282.50	Per M ³
	Saran	6442.00	Per M ³
7.3.13	Grouting for Dam foundation per bags of cement all complete as per specifications and direction of E/I.		
	Patna Urban	393.20	Per Bags of cement
	Patna	393.20	Per Bags of cement
	Muzaffarpur	393.20	Per Bags of cement
	Darbhanga	393.20	Per Bags of cement
	Bhagalpur	387.10	Per Bags of cement
	Munger	387.10	Per Bags of cement
	Saharsa	393.20	Per Bags of cement
	Purnea	393.20	Per Bags of cement
	Gaya	373.70	Per Bags of cement
	Saran	387.10	Per Bags of cement
7.3.14	Providing M.S reinforcement(Plain steel) as per approved design , drawing, removal of rust, cutting, bending, binding, including supplying annealed wire, placing M.S rods in position complete job as per specifications and direction of E/I.		
	(a).Dia of bar 6 mm	46423.30	Per M.T
	(B).Dia of bar above 6 mm to 12 mm	46423.30	Per M.T
	(B).Dia of bar above 14 mm to 50 mm	46423.30	Per M.T
7.3.15	Providing M.S reinforcement (Tor steel) as per approved design , drawing, removal of rust, cutting, bending, binding, including supplying annealed wire, placing M.S rods in position complete job as per specifications and direction of E/I.		
(a)	T.M.T. Fe-415- 8 mm	#VALUE!	Per M.T
(b)	T.M.T. Fe-415- 10 mm	#VALUE!	Per M.T
(c)	T.M.T. Fe-415- 12 mm	#VALUE!	Per M.T
(d)	T.M.T. Fe-415- 16 mm	#VALUE!	Per M.T




Sr.No.	Item	Rate	Unit
(e).	T.M.T. Fe-415- 20 mm	#VALUE!	Per M.T
(f).	T.M.T. Fe-415- 25 mm	#VALUE!	Per M.T
(g).	T.M.T. Fe-415- 28 mm	#VALUE!	Per M.T
(h).	T.M.T. Fe-415- 32 mm	#VALUE!	Per M.T
(i).	T.M.T. Fe-500- 8 mm	47282.00	Per M.T
(j).	T.M.T. Fe-500- 10 mm	45989.20	Per M.T
(k).	T.M.T. Fe-500- 12 mm	45342.90	Per M.T
(l).	T.M.T. Fe-500- 16 mm	45342.90	Per M.T
(m).	T.M.T. Fe-500- 20 mm	44955.00	Per M.T
(n).	T.M.T. Fe-500- 25 mm	44955.00	Per M.T
(o).	T.M.T. Fe-500- 28 mm	44955.00	Per M.T
(p).	T.M.T. Fe-500- 32 mm	44955.00	Per M.T
(q).	T.M.T. Fe-500- 36 mm	#VALUE!	Per M.T
7.3.16	Centering and shuttering in major dam work involving mass concrete including cost of form work, their carriage from work shop to work site, erection with the help of suitable crane and stripping etc. complete job as per specifications and direction of E/I.	#VALUE!	Per M ²
7.3.17	Providing shuttering including strutting. Propping etc. and its removal after use in foundation work as per specifications and direction of E/I.	567.30	Per M ²
7.3.18	Providing shuttering including strutting. Propping etc. and its removal after use in superstructure portion of various components of dam work as per specifications and direction of E/I.	567.30	Per M ²
7.3.19	Providing centering including strutting. Propping etc. and removing after use in deck slab as per specifications and direction of E/I.	654.70	Per M ²
7.3.20	Providing and laying mass concrete of M-100 with nominal mix of (1:3:6) in flow and non-over flow of dam section with approved quality of graded coarse aggregate and approved quality sand of requisite F.M washed and screened including vibrating,precooling etc. as well as royalty and all taxes etc.but excluding cost of form work etc. wherever provided and removed after use, all complete as per specifications and direction of E/I. (With Batching Plant, Transit Mixer Lead up to 1 K.M And Concrete Pump) (Taking Rate of approved quality of aggregate as per Design)) (Rate of Coarse aggregates Gr IV Taken)		
	Patna Urban	2888.00	Per M ³
	Patna	2888.00	Per M ³
	Muzaffarpur	2888.00	Per M ³
	Darbhanga	2888.00	Per M ³
	Bhagalpur	2861.20	Per M ³
	Munger	2861.20	Per M ³
	Saharsa	2888.00	Per M ³
	Purnea	2888.00	Per M ³
	Gaya	2802.10	Per M ³
	Saran	2861.20	Per M ³
7.3.21	Providing and laying mass concrete of M-150 with nominal mix of (1:2 :4) in over flow and non-over flow sectopm of dry intake, structures and bridges etc with approved quality of graded coarse aggregate and approved quality sand of requisite F.M washed and screened including vibrating,precooling etc. as well as royalty and all taxes etc.but excluding cost of form work etc. wherever provided and removed after use, all complete as per specifications and direction of E/I. (With Batching Plant, Transit Mixer And Concrete Pump)(Taking Rate of approved quality of aggregate as per Design))(Rate of Coarse aggregates 20 mm To 10 mm Taken)		
	Patna Urban	3750.70	Per M ³
	Patna	3750.70	Per M ³

Sr.No.	Item	Rate	Unit
	Muzaffarpur	3750.70	Per M ³
	Darbhanga	3750.70	Per M ³
	Bhagalpur	3712.30	Per M ³
	Munger	3712.30	Per M ³
	Saharsa	3750.70	Per M ³
	Purnea	3750.70	Per M ³
	Gaya	3627.60	Per M ³
	Saran	3712.30	Per M ³
7.3.22	Providing and laying mass concrete of M-200 with nominal mix of (1:1.5 :3) in Dam and Spillways with approved quality of graded coarse aggregate and approved quality sand of requisite F.M washed and screened including vibrating,precooling etc. as well as royalty and all taxes etc.but excluding cost of form work etc. wherever provided and removed after use, all complete as per specifications and direction of E/I. (With Batching Plant, Transit Mixer And Concrete Pump)(Taking Rate of approved quality of aggregate as per Design)(Rate of Coarse aggregates 20 mm To 10 mm Taken)		
	Patna Urban	4357.00	Per M ³
	Patna	4357.00	Per M ³
	Muzaffarpur	4357.00	Per M ³
	Darbhanga	4357.00	Per M ³
	Bhagalpur	4308.00	Per M ³
	Munger	4308.00	Per M ³
	Saharsa	4357.00	Per M ³
	Purnea	4357.00	Per M ³
	Gaya	4200.00	Per M ³
	Saran	4308.00	Per M ³
7.3.23	Providing and laying mass concrete of M-250 with nominal mix of (1:1:2) in Dam , Spillways and Head works with approved quality of graded coarse aggregate and approved quality sand of requisite F.M washed and screened including vibrating,precooling etc. as well as royalty and all taxes etc.but excluding cost of form work etc. wherever provided and removed after use, all complete as per specifications and direction of E/I. (With Batching Plant, Transit Mixer And Concrete Pump)(Taking Rate of approved quality of aggregate as per Design)(Rate of Coarse aggregates 20mm To 10 mm Taken)		
	Patna Urban	5716.00	Per M ³
	Patna	5716.00	Per M ³
	Muzaffarpur	5716.00	Per M ³
	Darbhanga	5716.00	Per M ³
	Bhagalpur	5644.00	Per M ³
	Munger	5644.00	Per M ³
	Saharsa	5716.00	Per M ³
	Purnea	5716.00	Per M ³
	Gaya	5486.30	Per M ³
	Saran	5644.00	Per M ³


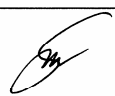







7.3. CONCRETE WORK

Sl.No.	Description	Quantity	Unit	Rate	Amount	Ref.
7.3.1	Providing and laying mass concrete of M-100 with nominal mix of (1:3:6) in flow and non-over flow of dam section with approved quality of graded coarse aggregate and approved quality sand of requisite F.M washed and screened including vibrating,precooling etc. as well as royalty and all taxes etc.but excluding cost of form work etc. wherever provided and removed after use, all complete as per specifications and direction of E/I.					
						Analysis same as Item 6.3.13
7.3.2	Providing and laying mass concrete of M-150 with nominal mix of (1:2 :4) in over flow and non-over flow sectopm of dry intake, structures and bridges etc with approved quality of graded coarse aggregate and approved quality sand of requisite F.M washed and screened including vibrating,precooling etc. as well as royalty and all taxes etc.but excluding cost of form work etc. wherever provided and removed after use, all complete as per specifications and direction of E/I.					
						Analysis same as Item 6.3.14
7.3.3	Providing and laying mass concrete of M-200 with nominal mix of (1:1.5 :3) in Dam and Spillways with approved quality of graded coarse aggregate and approved quality sand of requisite F.M washed and screened including vibrating,precooling etc. as well as royalty and all taxes etc.but excluding cost of form work etc. wherever provided and removed after use, all complete as per specifications and direction of E/I.					
						Analysis same as Item 6.3.15
7.3.4	Providing and laying mass concrete of M-200 with nominal mix of (1:1:2) in Dam , Spillways and Head works with approved quality of graded coarse aggregate and approved quality sand of requisite F.M washed and screened including vibrating,precooling etc. as well as royalty and all taxes etc.but excluding cost of form work etc. wherever provided and removed after use, all complete as per specifications and direction of E/I.					
						Analysis same as Item 6.3.16
7.3.5	Providing and laying P.C.C M-100 with nominal mix of (1: 3 : 6) in various components of dam foundation with approved quality of graded coarse aggregate and approved quality sand of requisite F.M washed and screened including vibrating,precooling etc. as well as royalty and all taxes etc.but excluding cost of form work as well as of reinforcement, its cutting, bending, and placing but including necessary tools, plants and vibrating, curing, royalty andall taxes etc. all complete as per specifications and direction of E/I.					
						Analysis same as Item 5.3.3
7.3.6	Providing and laying P.C.C or R.C.C M-150 with nominal mix of (1: 2 : 4) in various components of dam foundation with approved quality of graded coarse aggregate and approved quality sand of requisite F.M washed and screened including vibrating,precooling etc. as well as royalty and all taxes etc.but excluding cost of form work as well as of reinforcement, its cutting, bending, and placing but including necessary tools, plants and vibrating, curing, royalty andall taxes etc. all complete as per specifications and direction of E/I.					
						Analysis same as Item 5.3.4

7.3.7	Providing and laying P.C.C or R.C.C M-200 with nominal mix of (1: 1.5 : 3) in various components of dam foundation with approved quality of graded coarse aggregate and approved quality sand of requisite F.M washed and screened including vibrating,precooling etc. as well as royalty and all taxes etc.but excluding cost of form work as well as of reinforcement, its cutting, bending, and placing but including necessary tools, plants and vibrating, curing, royalty and all taxes etc. all complete as per specifications and direction of E/I.	Analysis same as Item 5.3.5			
7.3.8	Providing and laying P.C.C or R.C.C M-250 with nominal mix of (1: 1 : 2) in various components of dam foundation with approved quality of graded coarse aggregate and approved quality sand of requisite F.M washed and screened including vibrating,precooling etc. as well as royalty and all taxes etc.but excluding cost of form work as well as of reinforcement, its cutting, bending, and placing but including necessary tools, plants and vibrating, curing, royalty and all taxes etc. all complete as per specifications and direction of E/I.	Analysis same as Item 5.3.6			
7.3.9	Providing and laying P.C.C or R.C.C M-100 with nominal mix of (1: 3 : 6) in various components of dam superstructure with approved quality of graded coarse aggregate and approved quality sand of requisite F.M washed and screened including vibrating,precooling etc. as well as royalty and all taxes etc.but excluding cost of form work as well as of reinforcement, its cutting, bending, and placing but including necessary tools, plants and vibrating, curing, royalty and all taxes etc. all complete as per specifications and direction of E/I.				
	Unit:-Per Cum				
	Taking Out put=2.832 Cum				
	MATERIALS				
	Coarse aggregates Gr IV (Rate of approved quality of aggregate as per Design)	2.66	M ³	512.40	1362.98
	Sand	1.330	M ³	145.10	192.98
	Cement	0.443	M ³	8912.00	3948.02
	Labour				
	Head mason	0.5	nos	279.00	139.50
	Mason Gr II	1.25	nos	249.00	311.25
	Unskilled mazdoor	12	nos	206.00	2472.00
	Bhisti	1	nos	207.00	207.00
	HIRE CHARGES OF MACHINE				
	(i)Concrete mixer (10 H.P) for 2.832 cum consists on the basic of mixer production capacity 1.98 M ³ per hour. (vide item 3.25)	66.00			
	= Used rate per hourx2.832/1.98				94.40
	(ii) Vibrator 1no. To vibrate 2.832 cum on thebasic of vibrator capacity 1.98 cum per hour.(Vide iten no 3.22)	93.65			
	= Used rate per hourx2.832/1.98				133.94
					8862.08
	Add Overhead charge & C.P@15%				1329.31
					10191.39
	Add 1% cess				101.91
					10293.30
					3634.64
	Say Rs			3634.60	Per M ³

7.3.10	Providing and laying P.C.C or R.C.C M-150 with nominal mix of (1: 2 : 4) in various components of dam superstructure with approved quality of graded coarse aggregate and approved quality sand of requisite F.M washed and screened including vibrating,precooling etc. as well as royalty and all taxes etc.but excluding cost of form work as well as of reinforcement, its cutting, bending, and placing but including necessary tools, plants and vibrating, curing, royalty and all taxes etc. all complete as per specifications and direction of E/I.	Analysis same as Item 5.3.9	
7.3.11	Providing and laying P.C.C or R.C.C M-200 with nominal mix of (1: 1.5 : 3) in various components of dam superstructure with approved quality of graded coarse aggregate and approved quality sand of requisite F.M washed and screened including vibrating,precooling etc. as well as royalty and all taxes etc.but excluding cost of form work as well as of reinforcement, its cutting, bending, and placing but including necessary tools, plants and vibrating, curing, royalty and all taxes etc. all complete as per specifications and direction of E/I.	Analysis same as Item 5.3.13	
7.3.12	Providing and laying P.C.C or R.C.C M-250 with nominal mix of (1: 1 : 2) in various components of dam superstructure with approved quality of graded coarse aggregate and approved quality sand of requisite F.M washed and screened including vibrating,precooling etc. as well as royalty and all taxes etc.but excluding cost of form work as well as of reinforcement, its cutting, bending, and placing but including necessary tools, plants and vibrating, curing, royalty and all taxes etc. all complete as per specifications and direction of E/I.	Analysis same as Item 6.3.10	
7.3.13	Grouting for Dam foundation per bags of cement all complete as per specifications and direction of E/I.	Analysis same as Item 6.3.25	
7.3.14	Providing M.S reinforcement(Plain steel) as per approved design , drawing, removal of rust, cutting, bending, binding, including supplying annealed wire, placing M.S rods in position complete job as per specifications and direction of E/I.	Analysis same as Item 5.3.21	
7.3.15	Providing M.S reinforcement (Tor steel) as per approved design , drawing, removal of rust, cutting, bending, binding, including supplying annealed wire, placing M.S rods in position complete job as per specifications and direction of E/I.	Analysis same as Item 5.3.22	
7.3.16	Centring and shuttering in major dam work involving mass concrete including cost of form work, their carriage from work shop to work site, erection with the help of suitable crane and stripping etc. complete job as per specifications and direction of E/I.	Analysis same as Item 6.3.19	
7.3.17	Providing shuttering including structting. Proping etc. and its removal after use in foundation work as per specifications and direction of E/I.	Analysis same as Item 5.3.18	
7.3.18	Providing shuttering including structting. Proping etc. and its removal after use in superstructure portion of various components of dam work as per specifications and direction of E/I.	Analysis same as Item 5.3.19	
7.3.19	Providing centering including strutting. Proping etc. and removing after use in deck slab as per specifications and direction of E/I.	Analysis same as Item 6.3.22	
7.3.20	Providing and laying mass concrete of M-100 with nominal mix of (1:3:6) in Barrage with approved quality of raded coarse aggregate of required grades as per design and approved quality sand of requisite F.M washed and screened including vibrating,curing etc. as well as royalty and all taxes etc.but excluding the cost of form work etc. wherever provided and removed after use, all complete as per specifications and direction of E/I.	Analysis same as Item 6.3.26	

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7.3.21	Providing and laying mass concrete of M-150 with nominal mix of (1:2:4) in Barrage with approved quality of raded coarse aggregate of required grades as per design and approved quality sand of requisite F.M washed and screened including vibrating,curing etc. as well as royalty and all taxes etc.but excluding the cost of form work etc. wherever provided and removed after use, all complete as per specifications and direction of E/I.	Analysis same as Item 6.3.27	
7.3.22	Providing and laying mass concrete of M-200 with nominal mix of (1:1.5:3) in Barrage with approved quality of raded coarse aggregate of required grades as per design and approved quality sand of requisite F.M washed and screened including vibrating,curing etc. as well as royalty and all taxes etc.but excluding the cost of form work etc. wherever provided and removed after use, all complete as per specifications and direction of E/I.	Analysis same as Item 6.3.28	
7.3.23	Providing and laying mass concrete of M-250 with nominal mix of (1:1:2) in Barrage with approved quality of raded coarse aggregate of required grades as per design and approved quality sand of requisite F.M washed and screened including vibrating,curing etc. as well as royalty and all taxes etc.but excluding the cost of form work etc. wherever provided and removed after use, all complete as per specifications and direction of E/I.	Analysis same as Item 6.3.29	

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Sr.No.	Item	Rate	Unit
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7.4 MASONRY WORK

Sr.No	Item	Rate	Unit
7.4.1	Brick work in designation 100 A Brick with cement motar (1 : 3) in foundation with approved quality coarse sand of requisite F.M. washed and screened with raking out joints to 12 mm depth, curing, scaffolding and its removal wherever required including royalty and all taxes etc. complete job as per specification and direction of E / I.		
	Patna Urban	5191.60	Per M ³
	Patna	4632.20	Per M ³
	Muzaffarpur	4669.90	Per M ³
	Darbhanga	4669.90	Per M ³
	Bhagalpur	4653.00	Per M ³
	Munger	4653.00	Per M ³
	Saharsa	4746.30	Per M ³
	Purnea	4899.60	Per M ³
	Gaya	4463.50	Per M ³
	Saran	4500.70	Per M ³
7.4.2	Brick work in designation 100 A Brick with cement motar (1 : 4) in foundation with approved quality coarse sand of requisite F.M. washed and screened with raking out joints to 12 mm depth, curing, scaffolding and its removal wherever required including royalty and all taxes etc. complete job as per specification and direction of E / I.		
	Patna Urban	5013.60	Per M ³
	Patna	4454.20	Per M ³
	Muzaffarpur	4491.90	Per M ³
	Darbhanga	4491.90	Per M ³
	Bhagalpur	4478.10	Per M ³
	Munger	4478.10	Per M ³
	Saharsa	4568.30	Per M ³
	Purnea	4721.60	Per M ³
	Gaya	4295.10	Per M ³
	Saran	4325.70	Per M ³
7.4.3	Brick work in designation 100 A Brick with cement motar (1 : 5) in foundation with approved quality coarse sand of requisite F.M. washed and screened with raking out joints to 12 mm depth, curing, scaffolding and its removal wherever required including royalty and all taxes etc. complete job as per specification and direction of E / I.		
	Patna Urban	4869.20	Per M ³
	Patna	4309.80	Per M ³
	Muzaffarpur	4347.50	Per M ³
	Darbhanga	4347.50	Per M ³
	Bhagalpur	4336.00	Per M ³
	Munger	4336.00	Per M ³
	Saharsa	4423.90	Per M ³
	Purnea	4577.20	Per M ³
	Gaya	4158.50	Per M ³
	Saran	4183.70	Per M ³
7.4.4	Brick work in designation 100 A Brick with cement motar (1:3) in superstructure with approved quality coarse sand of requisite F.M. washed and screened with raking out joints to 12 mm depth, curing, scaffolding and its removal wherever required including royalty and all taxes etc. complete job as per specification and direction of E / I.		
	Patna Urban	5276.10	Per M ³

Sr.No.	Item	Rate	Unit
	Patna	4716.70	Per M ³
	Muzaffarpur	4754.40	Per M ³
	Darbhanga	4754.40	Per M ³
	Bhagalpur	4737.50	Per M ³
	Munger	4737.50	Per M ³
	Saharsa	4830.80	Per M ³
	Purnea	4984.10	Per M ³
	Gaya	4548.00	Per M ³
	Saran	4585.20	Per M ³
7.4.5	Brick work in designation 100 A Brick with cement mortar (1 : 4) in superstructure with approved quality coarse sand of requisite F.M. washed and screened with raking out joints to 12 mm depth, curing, scaffolding and its removal wherever required including royalty and all taxes etc. complete job as per specification and direction of E / I.		
	Patna Urban	5098.10	Per M ³
	Patna	4538.70	Per M ³
	Muzaffarpur	4576.40	Per M ³
	Darbhanga	4576.40	Per M ³
	Bhagalpur	4562.50	Per M ³
	Munger	4562.50	Per M ³
	Saharsa	4652.80	Per M ³
	Purnea	4806.10	Per M ³
	Gaya	4379.60	Per M ³
	Saran	4410.20	Per M ³
7.4.6	Brick work in designation 100 A Brick with cement mortar (1 : 5) in superstructure with approved quality coarse sand of requisite F.M. washed and screened with raking out joints to 12 mm depth, curing, scaffolding and its removal wherever required including royalty and all taxes etc. complete job as per specification and direction of E / I.		
	Patna Urban	4953.60	Per M ³
	Patna	4394.30	Per M ³
	Muzaffarpur	4432.00	Per M ³
	Darbhanga	4432.00	Per M ³
	Bhagalpur	4420.50	Per M ³
	Munger	4420.50	Per M ³
	Saharsa	4508.40	Per M ³
	Purnea	4661.70	Per M ³
	Gaya	4242.90	Per M ³
	Saran	4268.20	Per M ³
7.4.7	Providing rough dressed random rubble stone masonry in cement mortar (1:3) in foundation with approved quality of coarse sand of requisite F.M. washed and screened with raking out joints, curing, scaffolding and its removal wherever required including royalty and all taxes etc. all complete job as per specification and direction of E / I.		
	Patna Urban	2415.40	Per M ³
	Patna	2415.40	Per M ³
	Muzaffarpur	2415.40	Per M ³
	Darbhanga	2415.40	Per M ³
	Bhagalpur	2394.30	Per M ³
	Munger	2394.30	Per M ³
	Saharsa	2415.40	Per M ³
	Purnea	2415.40	Per M ³
	Gaya	2347.80	Per M ³
	Saran	2394.30	Per M ³

Sr.No.	Item	Rate	Unit
7.4.8	Providing rough dressed random rubble stone masonry in cement mortar (1:4) in foundation with approved quality of coarse sand of requisite F.M. washed and screened with raking out joints, curing, scaffolding and its removal wherever required including royalty and all taxes etc.complete job as per specification and direction of E/I.		
	Patna Urban	2163.70	Per M ³
	Patna	2163.70	Per M ³
	Muzaffarpur	2163.70	Per M ³
	Darbhanga	2163.70	Per M ³
	Bhagalpur	2146.80	Per M ³
	Munger	2146.80	Per M ³
	Saharsa	2163.70	Per M ³
	Purnea	2163.70	Per M ³
	Gaya	2109.60	Per M ³
	Saran	2146.80	Per M ³
7.4.9	Providing rough dressed random rubble stone masonry in cement mortar (1:5) in foundation with approved quality of coarse sand of requisite F.M. washed and screened with raking out joints, curing, scaffolding and its removal, wherever required, including royalty and all taxes etc. all complete job as per specification and direction of E / I.		
	Patna Urban	2006.40	Per M ³
	Patna	2006.40	Per M ³
	Muzaffarpur	2006.40	Per M ³
	Darbhanga	2006.40	Per M ³
	Bhagalpur	1992.20	Per M ³
	Munger	1992.20	Per M ³
	Saharsa	2006.40	Per M ³
	Purnea	2006.40	Per M ³
	Gaya	1960.80	Per M ³
	Saran	1992.20	Per M ³
7.4.10	Providing rough dressed random rubble/coursed stone masonry in cement mortar (1:3) in superstructure with approved quality of coarse sand of requisite F.M. washed and screened with raking out joints, curing, scaffolding and its removal wherever required including royalty and all taxes etc.complete job as per specification and direction of E / I.		
	Patna Urban	2521.00	Per M ³
	Patna	2521.00	Per M ³
	Muzaffarpur	2521.00	Per M ³
	Darbhanga	2521.00	Per M ³
	Bhagalpur	2499.90	Per M ³
	Munger	2499.90	Per M ³
	Saharsa	2521.00	Per M ³
	Purnea	2521.00	Per M ³
	Gaya	2453.40	Per M ³
	Saran	2499.90	Per M ³
7.4.11	Providing rough dressed random rubble/coursed stone masonry in cement mortar (1 : 4) in superstructure with approved quality of coarse sand of requisite F.M. washed and screened with raking out joints, curing, scaffolding and its removal, wherever required ,including royalty and all taxes etc.complete job as per specification and direction of E / I.		
	Patna Urban	2269.30	Per M ³
	Patna	2269.30	Per M ³
	Muzaffarpur	2269.30	Per M ³





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Sr.No.	Item	Rate	Unit
	Darbhanga	2269.30	Per M ³
	Bhagalpur	2252.40	Per M ³
	Munger	2252.40	Per M ³
	Saharsa	2269.30	Per M ³
	Purnea	2269.30	Per M ³
	Gaya	2215.20	Per M ³
	Saran	2252.40	Per M ³
7.4.12	Providing rough dressed random rubble/coursed stone masonry in cement mortar (1:5) in foundation with approved quality of coarse sand of requisite F.M. washed and screened with raking out joints, curing, scaffolding and its removal wherever required including royalty and all taxes etc.complete job as per specification and direction of E/I.		
	Patna Urban	2112.00	Per M ³
	Patna	2112.00	Per M ³
	Muzaffarpur	2112.00	Per M ³
	Darbhanga	2112.00	Per M ³
	Bhagalpur	2097.80	Per M ³
	Munger	2097.80	Per M ³
	Saharsa	2112.00	Per M ³
	Purnea	2112.00	Per M ³
	Gaya	2066.40	Per M ³
	Saran	2097.80	Per M ³

Dr

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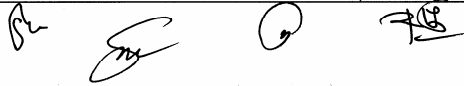
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7. 4 MASONRY WORK

Sl.No.	Description	Quantity	Unit	Rate	Amount	Ref.
7.4.1	Brick work in designation 100 A Brick with cement mortar (1 : 3) in foundation with approved quality coarse sand of requisite F.M. washed and screened with raking out joints to 12 mm depth, curring, scaffolding and its removal wherever required including royalty and all taxes etc. complete job as per specification and direction of E / I.					
		Analysis same as Item 5.4.1				
7.4.2	Brick work in designation 100 A Brick with cement mortar (1 : 4) in foundation with approved quality coarse sand of requisite F.M. washed and screened with raking out joints to 12 mm depth, curring, scaffolding and its removal wherever required including royalty and all taxes etc. complete job as per specification and direction of E / I.					
		Analysis same as Item 5.4.2				
7.4.3	Brick work in designation 100 A Brick with cement mortar (1 : 5) in foundation with approved quality coarse sand of requisite F.M. washed and screened with raking out joints to 12 mm depth, curring, scaffolding and its removal wherever required including royalty and all taxes etc. complete job as per specification and direction of E / I.					
		Analysis same as Item 5.4.3				
7.4.4	Brick work in designation 100 A Brick with cement mortar (1 : 3) in superstructure with approved quality coarse sand of requisite F.M. washed and screened with raking out joints to 12 mm depth, curring, scaffolding and its removal wherever required including royalty and all taxes etc. complete job as per specification and direction of E / I.					
		Analysis same as Item 5.4.5				
7.4.5	Brick work in designation 100 A Brick with cement mortar (1 : 4) in superstructure with approved quality coarse sand of requisite F.M. washed and screened with raking out joints to 12 mm depth, curring, scaffolding and its removal wherever required including royalty and all taxes etc. complete job as per specification and direction of E / I.					
		Analysis same as Item 5.4.6				
7.4.6	Brick work in designation 100 A Brick with cement mortar (1 : 5) in superstructure with approved quality coarse sand of requisite F.M. washed and screened with raking out joints to 12 mm depth, curring, scaffolding and its removal wherever required including royalty and all taxes etc. complete job as per specification and direction of E / I.					
		Analysis same as Item 5.4.7				
7.4.7	Providing rough dressed random rubble stone masonry in cement mortar (1:3) in foundation with approved quality of coarse sand of requisite F.M. washed and screened with raking out joints, curring, scaffolding and its removal wherever required including royalty and all taxes etc. complete job as per specification and direction of E / I.					
		Analysis same as Item 5.4.9				
7.4.8	Providing rough dressed random rubble stone masonry in cement mortar (1:4) in foundation with approved quality of coarse sand of requisite F.M. washed and screened with raking out joints, curring, scaffolding and its removal wherever required including royalty and all taxes etc. complete job as per specification and direction of E / I.					
		Analysis same as Item 5.4.10				
7.4.9	Providing rough dressed random rubble stone masonry in cement mortar (1:5) in foundation with approved quality of coarse sand of requisite F.M. washed and screened with raking out joints, curring, scaffolding and its removal wherever required including royalty and all taxes etc. complete job as per specification and direction of E / I.					
		Analysis same as Item 5.4.11				

7.4.10	Providing rough dressed random rubble/coursed stone masonry in cement mortar (1:3) in superstructure with approved quality of coarse sand of requisite F.M. washed and screened with raking out joints, curring, scaffolding and its removal wherever required including royalty and all taxes etc.complete job as per specification and direction of E / I.	Analysis same as Item 5.4.12	
7.4.11	Providing rough dressed random rubble/coursed stone masonry in cement mortar (1:4) in superstructure with approved quality of coarse sand of requisite F.M. washed and screened with raking out joints, curring, scaffolding and its removal wherever required including royalty and all taxes etc.complete job as per specification and direction of E / I.	Analysis same as Item 5.4.13	
7.4.12	Providing rough dressed random rubble/coursed stone masonry in cement mortar (1:5) in foundation with approved quality of coarse sand of requisite F.M. washed and screened with raking out joints, curring, scaffolding and its removal wherever required including royalty and all taxes etc.complete job as per specification and direction of E / I.	Analysis same as Item 5.4.14	

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Sr.No.	Item	Rate	Unit
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



7.5. PLASTER WORK

Sr.No	Item	Rate	Unit
7.5.1	Providing 12 mm thick cement plaster (1:3) with approved quality sand of requisite F.M ,washed and screened including curing, scaffolding, wherever required, and its removal, royalty and all taxes etc. complete job as per specification and direction of E / I.		
	Patna Urban	132.80	Per M ²
	Patna	132.80	Per M ²
	Muzaffarpur	132.80	Per M ²
	Darbhanga	132.80	Per M ²
	Bhagalpur	132.00	Per M ²
	Munger	132.00	Per M ²
	Saharsa	132.80	Per M ²
	Purnea	132.80	Per M ²
	Gaya	130.30	Per M ²
	Saran	132.00	Per M ²
7.5.2	Providing 12 mm thick cement plaster (1: 4) with approved quality sand of requisite F.M . Washed and screened including curing, scaffolding wherever required and its removal, royalty and all taxes etc. complete job as per specification and direction of E / I.		
	Patna Urban	122.90	Per M ²
	Patna	122.90	Per M ²
	Muzaffarpur	122.90	Per M ²
	Darbhanga	122.90	Per M ²
	Bhagalpur	122.30	Per M ²
	Munger	122.30	Per M ²
	Saharsa	122.90	Per M ²
	Purnea	602.00	Per M ²
	Gaya	120.90	Per M ²
	Saran	122.30	Per M ²
7.5.3	Providing 12 mm thick cement plaster (1: 5) with approved quality sand of requisite F.M . Washed and screened including curing, scaffolding wherever required and its removal, royalty and all taxes etc. complete job as per specification and direction of E / I.		
	Patna Urban	116.30	Per M ²
	Patna	116.30	Per M ²
	Muzaffarpur	116.30	Per M ²
	Darbhanga	116.30	Per M ²
	Bhagalpur	115.80	Per M ²
	Munger	115.80	Per M ²
	Saharsa	116.30	Per M ²
	Purnea	116.30	Per M ²
	Gaya	114.70	Per M ²
	Saran	115.80	Per M ²
7.5.4	Providing 25 mm thick cement plaster (1: 3) with approved quality sand of requisite F.M . Washed and screened including curing, scaffolding wherever required and its removal, royalty and all taxes etc. complete job as per specification and direction of E / I.		
	Patna Urban	223.00	Per M ²
	Patna	223.00	Per M ²
	Muzaffarpur	223.00	Per M ²
	Darbhanga	223.00	Per M ²

Sr.No.	Item	Rate	Unit
	Bhagalpur	221.50	Per M ²
	Munger	221.50	Per M ²
	Saharsa	223.00	Per M ²
	Purnea	223.00	Per M ²
	Gaya	218.00	Per M ²
	Saran	221.50	Per M ²
7.5.5	Providing 25 mm thick cement plaster (1: 4) with approved quality sand of requisite F.M . Washed and screened including curing, scaffolding wherever and its removal, royalty and all taxes etc. complete job as per specification and direction of E / I.		
	Patna Urban	204.50	Per M ²
	Patna	204.50	Per M ²
	Muzzafferpur	204.50	Per M ²
	Darbhanga	204.50	Per M ²
	Bhagalpur	203.30	Per M ²
	Munger	203.30	Per M ²
	Saharsa	204.50	Per M ²
	Purnea	204.50	Per M ²
	Gaya	200.50	Per M ²
	Saran	203.30	Per M ²
7.5.6	Providing 25 mm thick cement plaster (1: 5) with approved quality sand of requisite F.M . Washed and screened including curing, scaffolding wherever and its removal, royalty and all taxes etc. complete job as per specification and direction of E / I.		
	Patna Urban	189.80	Per M ²
	Patna	189.80	Per M ²
	Muzaffarpur	189.80	Per M ²
	Darbhanga	189.80	Per M ²
	Bhagalpur	188.80	Per M ²
	Munger	188.80	Per M ²
	Saharsa	189.80	Per M ²
	Purnea	189.80	Per M ²
	Gaya	186.60	Per M ²
	Saran	188.80	Per M ²
7.5.7	Providing 12 mm thick water proof cement plaster (1:3) with approved quality sand of requisite F.M . Washed and screened and stander water proofing compound including curing, scaffolding wherever required and their removal, royalty and all taxes etc. complete job as per specification and direction of E / I.		
	Patna Urban	142.80	Per M ²
	Patna	142.80	Per M ²
	Muzaffarpur	142.80	Per M ²
	Darbhanga	142.80	Per M ²
	Bhagalpur	142.00	Per M ²
	Munger	142.00	Per M ²
	Saharsa	142.80	Per M ²
	Purnea	142.80	Per M ²
	Gaya	140.30	Per M ²
	Saran	142.00	Per M ²
7.5.8	Providing 25 mm thick water proof cement plaster (1:3) with approved quality sand of requisite F.M . Washed and screened and stander water proofing compound including curing, scaffolding wherever required and their removal, royalty and all taxes etc. complete job as per specification and direction of E / I.		
	Patna Urban	243.00	Per M ²
	Patna	243.00	Per M ²

Sr.No.	Item	Rate	Unit
	Muzaffarpur	243.00	Per M ²
	Darbhanga	243.00	Per M ²
	Bhagalpur	241.40	Per M ²
	Munger	241.40	Per M ²
	Saharsa	243.00	Per M ²
	Purnea	243.00	Per M ²
	Gaya	238.00	Per M ²
	Saran	241.40	Per M ²
7.5.9	Providing 25 mm thick water proof cement plaster (1:4) with approved quality sand of requisite F.M . Washed and screened and stander water proofing compound including curing, scaffolding wherever required and their removal, royalty and all taxes etc. complete job as per specification and direction of E / I.		
	Patna Urban	224.50	Per M ²
	Patna	224.50	Per M ²
	Muzaffarpur	224.50	Per M ²
	Darbhanga	224.50	Per M ²
	Bhagalpur	223.20	Per M ²
	Munger	223.20	Per M ²
	Saharsa	224.50	Per M ²
	Purnea	224.50	Per M ²
	Gaya	220.50	Per M ²
	Saran	223.20	Per M ²
7.5.10	Providing 1.5 mm thick cement punning including curing, royalty and all taxes etc. complete job as per specification and direction of E / I.		
	Patna Urban	39.70	Per M ²
	Patna	39.70	Per M ²
	Muzaffarpur	39.70	Per M ²
	Darbhanga	39.70	Per M ²
	Bhagalpur	39.50	Per M ²
	Munger	39.50	Per M ²
	Saharsa	39.70	Per M ²
	Purnea	39.70	Per M ²
	Gaya	38.90	Per M ²
	Saran	39.50	Per M ²
7.5.11	Providing cement ruled pointing (1:3) with approved quality sand of requisite F.M . Washed and screened and stander water proofing compound including curing, scaffolding wherever required and their removal, royalty and all taxes etc. complete job as per specification and direction of E / I.		
	Patna Urban	114.50	Per M ²
	Patna	114.50	Per M ²
	Muzaffarpur	114.50	Per M ²
	Darbhanga	114.50	Per M ²
	Bhagalpur	114.30	Per M ²
	Munger	114.30	Per M ²
	Saharsa	114.50	Per M ²
	Purnea	114.50	Per M ²
	Gaya	113.70	Per M ²
	Saran	114.30	Per M ²
7.5.12	Providing cement flush pointing (1:3) with approved quality sand of requisite F.M . Washed and screened and stander water proofing compound including curing, scaffolding wherever required and their removal, royalty and all taxes etc. complete job as per specification and direction of E / I.		

Sr.No.	Item	Rate	Unit
	Patna Urban	86.10	Per M ²
	Patna	86.10	Per M ²
	Muzaffarpur	86.10	Per M ²
	Darbhanga	86.10	Per M ²
	Bhagalpur	85.80	Per M ²
	Munger	85.80	Per M ²
	Saharsa	86.10	Per M ²
	Purnea	86.10	Per M ²
	Gaya	85.30	Per M ²
	Saran	85.80	Per M ²
7.5.13	Providing cement truck pointing (1:3) on Brick work with approved quality sand of requisite F.M . Washed and screened and stander water proofing compound including curing, scaffolding wherever required and their removal, royalty and all taxes etc. complete job as per specification and direction of E / I.		
	Patna Urban	127.00	Per M ²
	Patna	127.00	Per M ²
	Muzaffarpur	127.00	Per M ²
	Darbhanga	127.00	Per M ²
	Bhagalpur	126.70	Per M ²
	Munger	126.70	Per M ²
	Saharsa	127.00	Per M ²
	Purnea	127.00	Per M ²
	Gaya	125.80	Per M ²
	Saran	126.70	Per M ²
7.5.14	Providing cement truck pointing (1:3) on stone masonry with approved quality sand of requisite F.M , washed and screened and stander water proofing compound including curing, scaffolding wherever required, and their removal, royalty and all taxes etc. complete job as per specification and direction of E / I.		
	Patna Urban	166.60	Per M ²
	Patna	166.60	Per M ²
	Muzaffarpur	166.60	Per M ²
	Darbhanga	166.60	Per M ²
	Bhagalpur	166.00	Per M ²
	Munger	166.00	Per M ²
	Saharsa	166.60	Per M ²
	Purnea	166.60	Per M ²
	Gaya	164.70	Per M ²
	Saran	166.00	Per M ²

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7.5 PLASTER WORK

Sl.No	Description	Quantity	Unit	Rate	Amount	Ref
7.5.1	Providing 12 mm thick cement plaster (1: 3) with approved quality sand of requisite F.M . Washed and screened including curing, scaffolding wherever required and its removal, royalty and all taxes etc. complete job as per specification and direction of E / I.					
		Analysis same as Item 5.5.1				
7.5.2	Providing 12 mm thick cement plaster (1: 4) with approved quality sand of requisite F.M . Washed and screened including curing, scaffolding wherever required and its removal, royalty and all taxes etc. complete job as per specification and direction of E / I.					
		Analysis same as Item 5.5.2				
7.5.3	Providing 12 mm thick cement plaster (1:5) with approved quality sand of requisite F.M . Washed and screened including curing, scaffolding wherever required and its removal, royalty and all taxes etc. complete job as per specification and direction of E / I.					
		Analysis same as Item 5.5.3				
7.5.4	Providing 25 mm thick cement plaster (1:3) with approved quality sand of requisite F.M . Washed and screened including curing, scaffolding wherever required and its removal, royalty and all taxes etc. complete job as per specification and direction of E / I.					
		Analysis same as Item 5.5.4				
7.5.5	Providing 25 mm thick cement plaster (1:4) with approved quality sand of requisite F.M . Washed and screened including curing, scaffolding wherever and its removal, royalty and all taxes etc. complete job as per specification and direction of E / I.					
		Analysis same as Item 5.5.5				
7.5.6	Providing 25 mm thick cement plaster (1:5) with approved quality sand of requisite F.M . Washed and screened including curing, scaffolding wherever and its removal, royalty and all taxes etc. complete job as per specification and direction of E / I.					
		Analysis same as Item 5.5.6				
7.5.7	Providing 12 mm thick water proof cement plaster (1:3) with approved quality sand of requisite F.M . Washed and screened and stander water proofing compound including curing, scaffolding wherever required and their removal, royalty and all taxes etc. complete job as per specification and direction of E / I.					
		Analysis same as Item 5.5.7				
7.5.8	Providing 25 mm thick water proof cement plaster (1:3) with approved quality sand of requisite F.M . Washed and screened and stander water proofing compound including curing, scaffolding wherever required and their removal, royalty and all taxes etc. complete job as per specification and direction of E / I.					
		Analysis same as Item 5.5.8				
7.5.9	Providing 25 mm thick water proof cement plaster (1:4) with approved quality sand of requisite F.M . Washed and screened and stander water proofing compound including curing, scaffolding wherever required and their removal, royalty and all taxes etc. complete job as per specification and direction of E / I.					
		Analysis same as Item 5.5.9				
7.5.10	Providing 1.5 mm thick cement punning including curing, , royalty and all taxes etc. complete job as per specification and direction of E / I.					
		Analysis same as Item 5.5.10				
7.5.11	Providing cement ruled pointing (1:3) with approved quality sand of requisite F.M . Washed and screened and stander water proofing compound including curing, scaffolding wherever required and their removal, royalty and all taxes etc. complete job as per specification and direction of E / I.					
		Analysis same as Item 5.5.11				
7.5.12	Providing cement flush pointing (1:3) with approved quality sand of requisite F.M . Washed and screened and stander water proofing compound including curing, scaffolding wherever required and their removal, royalty and all taxes etc. complete job as per specification and direction of E / I.					
		Analysis same as Item 5.5.12				

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7.5.13	Providing cement truck pointing (1:3) on Brick work with approved quality sand of requisite F.M . Washed and screened and stander water proofing compound including curing, scaffolding wherever required and their removal, royalty and all taxes etc. complete job as per specification and direction of E / I.	Analysis same as Item 5.5.13	
7.5.14	Providing cement truck pointing (1:3) on stone masonry with approved quality sand of requisite F.M . Washed and screened and stander water proofing compound including curing, scaffolding wherever required and their removal, royalty and all taxes etc. complete job as per specification and direction of E / I.	Analysis same as Item 5.5.14	

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Sr.No.	Item	Rate	Unit
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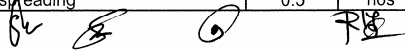
7.6 PITCHING AND PILING

Sr.No	Item	Rate	Unit
7.6.1	Supplying and laying and filter blanketing in horizontal portion of the dam as per design and drawing with watering, compaction including cost of sand, royalty, taxes etc. but excluding the cost of carriage, all complete job as per specification and direction of E / I.	656.30	Per M ³
7.6.2	Supplying and laying gravel filter (size 5 mm to 15 mm) in filter blanket in the toe drain (in horizontal portion) of the dam as per design and drawing including cost of materials, royalty and all taxes etc.but excluding the cost of carriage all complete job as per specification and direction of E / I.	1122.60	Per M ³
7.6.3	Supplying and laying good quality of stone filter (size 20 mm to 63 mm size) in rock toe, heal trench, toe drain as per design and drawing including the cost of materials, royalty and all taxes etc. but excluding the cost of carriage, all complete job as per specification and direction of E / I.	845.30	Per M ³
7.6.4	Supplying and laying boulder in rock toe heal trench of the dam as per design and drawing including the cost of materials, royalty and all taxes etc. but excluding the cost of carriage, all complete job as per specification and direction of E / I.	844.80	Per M ³
7.6.5	Supplying and laying sand filter on slope of the dam as per design and drawing, with watering and compaction including the cost of materials, royalty and all taxes etc. but excluding the cost of carriage, all complete job as per specification and direction of E/I.	783.00	Per M ³
7.6.6	Supplying and laying gravel filter (size 5 mm to 15 mm) on slope of the dam as per design and drawing including cost of materials, royalty and all taxes etc.but excluding the cost of carriage all complete job as per specification and direction of E / I.	1333.80	Per M ³
7.6.7	Supplying and laying good quality of stone filter (size 20 mm to 63 mm size) on slope of the dam as per design and drawing including the cost of materials, royalty and all taxes etc. but excluding the cost of carriage, all complete job as per specification and direction of E / I.	1056.50	Per M ³
7.6.8	Supplying and laying (properly as per design and drawing) riprap with good quality of boulder duly packed including the cost of materials, royalty and all taxes etc. but excluding the cost of carriage, all complete job as per specification and direction of E/I.	1013.80	Per M ³





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7.6 PITCHING AND PILING

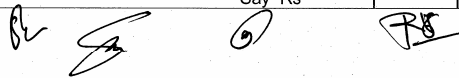
SI.No.	Description	Quantity	Unit	Rate	Amount	Ref
7.6.1	Supplying and laying and filter blanketing in horizontal portion of the dam as per design and drawing with watering, compaction including cost of sand, royalty, taxes etc. but excluding the cost of carriage, all complete job as per specification and					
	Unit:-Per Cum					
	Taking Out put=2.832 Cum					
	Materials					
	Sand	2.832	cum	145.10	410.92	
	Labour					
	Unskilled mazdoor for placing	2	nos	206.00	412.00	
	Unskilled mazdoor for spreading	1.5	nos	206.00	309.00	
	Unskilled mazdoor for watering and ramming	2	nos	206.00	412.00	
	Mate	0.25	nos	225.00	56.25	
					1600.17	
	Add Overhead charge & C.P@15%				240.03	
					1840.20	
	Add 1% cess				18.40	
					1858.60	656.29
	Say Rs			656.30	Per M ³	
7.6.2	Supplying and laying gravel filter (size 5 mm to 15 mm) in filter blanket in the toe drian (in horizontal portion) of the dam as per design and drawing including cost of materials, royalty and all taxes etc.but excluding the cost of carriage all complete job as per specification and direction of E / I.					
	Unit:-Per Cum					
	Taking Out put=2.832 Cum					
	Materials					
	Cost of gravel filter (5 mm to 15 mm)	2.832	cum	728.39	2062.80	
	Labour					
	Unskilled mazdoor for placing	2	nos	206.00	412.00	
	Unskilled mazdoor for spreading	0.5	nos	206.00	103.00	
	Unskilled mazdoor for loght compaction	0.5	nos	206.00	103.00	
	Mate	0.25	nos	225.00	56.25	
					2737.05	
	Add Overhead charge & C.P@15%				410.56	
					3147.61	
	Add 1% cess				31.48	
					3179.08	1122.56
	Say Rs			1122.60	Per M ³	
7.6.3	Supplying and laying good quality of stone filter (size 20 mm to 63 mm size) in rock toe, heal trench, toe drian as per design and drawing including the cost of materials, royalty and all taxes etc. but excluding the cost of carriage, all complete job as per specification and direction of E / I.					
	Unit:-Per Cum					
	Taking Out put=2.832 Cum					
	Materials					
	Cost of stone metal (20 mm to 63 mm)	2.832	cum	489.70	1386.83	
	Labour					
	Unskilled mazdoor for placing	2	nos	206.00	412.00	
	Unskilled mazdoor for spreading	0.5	nos	206.00	103.00	



	Unskilled mazdoor for loght compaction	0.5	nos	206.00	103.00	
	Mate	0.25	nos	225.00	56.25	
					2061.08	
	Add Overhead charge & C.P15%				309.16	
					2370.24	
	Add 1% cess				23.70	
					2393.94	845.32
	Say Rs			845.30	Per M ³	
7.6.4	Supplying and laying boulder in rock toe heal trench of the dam as per design and drawing including the cost of materials, royalty and all taxes etc. but excluding the cost of carriage, all complete job as per specification and direction of E / I.					
	Unit:-Per Cum					
	Taking Out put=2.832 Cum					
	Materials					
	Cost of boulder	2.832	cum	321.80	911.34	
	Labour					
	Mason Gr II	0.25	nos	249.00	62.25	
	Unskilled mazdoor	5	nos	206.00	1030.00	
	Mate	0.25	nos	225.00	56.25	
					2059.84	
	Add Overhead charge & C.P@15%				308.98	
					2368.81	
	Add 1% cess				23.69	
					2392.50	844.81
	Say Rs			844.80	Per M ³	
7.6.5	Supplying and laying sand filter on slope of the dam as per design and drawing, with watering and compaction including the cost of materials, royalty and all taxes etc. but excluding the cost of carriage, all complete job as per specification and direction of					
	Unit:-Per Cum					
	Taking Out put=2.832 Cum					
	Materials					
	Cost of sand	2.832	cum	145.10	410.92	
	Labour					
	Unskilled mazdoor for carrying	3	nos	206.00	618.00	
	Unskilled mazdoor for spreading	2	nos	206.00	412.00	
	Unskilled mazdoor for watering and ramming	2	nos	206.00	412.00	
	Mate	0.25	nos	225.00	56.25	
					1909.17	
	Add Overhead charge & C.P@15%				286.38	
					2195.55	
	Add 1% cess				21.96	
					2217.50	783.02
	Say Rs			783.00	Per M ³	
7.6.6	Supplying and laying gravel filter (size 5 mm to 15 mm) on slope of the dam as per design and drawing including cost of materials, royalty and all taxes etc.but excluding the cost of carriage all complete job as per specification and direction of E / I.					
	Unit:-Per Cum	Per M ³				
	Taking Out put=2.832 Cum	2.832	Cum			
	Materials					
	Cost of gravel filter (5 mm to 15 mm)	2.832	cum	728.39	2062.80	
	Labour					
	Unskilled mazdoor for carrying	3	nos	206.00	618.00	
	Unskilled mazdoor for spreading	2	nos	206.00	412.00	
	Unskilled mazdoor for loght compaction	0.5	nos	206.00	103.00	
	Mate	0.25	nos	225.00	56.25	
					3252.05	

	Add Overhead charge & C.P@15%				487.81	
					3739.86	
	Add 1% cess				37.40	
					3777.26	1333.78
	Say Rs			1333.80	Per M ³	
7.6.7	Supplying and laying good quality of stone filter (size 20 mm to 63 mm size) on slope of the dam as per design and drawing including the cost of materials, royalty and all taxes etc. but excluding the cost of carriage, all complete job as per specification and direction of E / I.					
	Unit:-Per Cum					
	Taking Out put=2.832 Cum					
	Materials					
	Cost of stone metal (20 mm to 63 mm)	2.832	cum	489.70	1386.83	
	Labour					
	Unskilled mazdoor for placing	3	nos	206.00	618.00	
	Unskilled mazdoor for spreading	2	nos	206.00	412.00	
	Unskilled mazdoor for loght compaction	0.5	nos	206.00	103.00	
	Mate	0.25	nos	225.00	56.25	
					2576.08	
	Add Overhead charge & C.P@15%				386.41	
					2962.49	
	Add 1% cess				29.62	
					2992.12	1056.54
	Say Rs			1056.50	Per M ³	
7.6.8	Supplying and laying (properly as per design and drawing) riprap with good quality of boulder duly packed including the cost of materials, royalty and all taxes etc. but excluding the cost of carriage, all complete job as per specification and direction of E / I.					
	Unit:-Per Cum					
	Taking Out put=2.832 Cum					
	Materials					
	Cost of boulder	2.832	cum	321.80	911.34	
	Labour					
	Mason Gr II	0.25	nos	249.00	62.25	
	Unskilled mazdoor	7	nos	206.00	1442.00	
	Mate	0.25	nos	225.00	56.25	
					2471.84	
	Add Overhead charge & C.P@15%				370.78	
					2842.61	
	Add 1% cess				28.43	
					2871.04	1013.79
	Say Rs			1013.80	Per M ³	



Sr.No.	Item	Rate	Unit
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7.7 TUNNEL WORK

Sr.No	Item	Rate	Unit
7.7.1	Excavation of Tunnel portion in hard rock by blasting with all lead and lift, including dressing providing temporary support (steel or timber) wherever necessary, removal of spoil to dump site by truck within 1 km. lead from portal face all complete as per specifications and direction of E/I.	#VALUE!	Per M ³
7.7.2	Providing shot crete in arch portion of tunnel including cost of wire mesh (150 mm x 150 mm) all complete as per specifications and direction of E/I.	#VALUE!	Per M ³
7.7.3	Providing arrangement by pumping and disposal of surface water from the area of under ground excavation all complete as per specifications and direction of E/I.	#VALUE!	H.P Per Ho
7.7.4	Supplying, fabricating and erection of steel portal including steel lagging in concrete in live and grade all complete as per specifications and direction of E/I.	66054.50	Per M.T
7.7.5	Grouting in tunnel per bag cement consumption all complete as per specifications and direction of E/I.		
	Patna Urban	401.10	per bag of
	Patna	401.10	per bag of
	Muzaffarpur	401.10	per bag of
	Darbhanga	401.10	per bag of
	Bhagalpur	395.00	per bag of
	Munger	395.00	per bag of
	Saharsa	401.10	per bag of
	Purnea	401.10	per bag of
	Gaya	381.60	per bag of
	Saran	395.00	per bag of
7.7.6	Excavation of vertical shaft for (Intake structure) in hard rock with all lift and disposal of the same by truck upto 1 Km lead from shaft face all complete as per specifications and direction of E/I.	#VALUE!	Per M ³
7.7.7	Drilling holes upto 38 mm dia rock including supplying and fixing 25 mm dia rock bolts slotted at one end and threaded at the other and with bearing plates, bolts, nuts etc. complete including clearing holes before fixing rods as per drawing, specifications and direction of E/I.	#VALUE!	Per M ²

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7.7 TUNNEL WORK

Sl.No	Description	Quantity	Unit	Rate	Amount	Ref.
7.7.1	Excavation of Tunnel portion in hard rock by blasting with all lead and lift, including dressing providing temporary support (steel or timber) wherever necessary, removal of spoil to dump site by truck within 1 km. lead from portal face all complete as per specifications and direction of E/I.					
	Unit:-Per Cum					
	Taking Out put=1.0 Cum					
	Assuming					
	Formate for tunnel diameter	7	metre			
	Thickness of linings	0.5	metre			
	Length of Tunnel= as per requirement		metre			
	Excavated dia of tunnel =Finished dia of tunnel+2 x thickness of lining+2x Aistance of pay lines =7.00+2x0.5+2x0.15 = 8.30 metre	8.3	metre			
	Sectional area of tunnel = $22d^2/(7 \times 4) = 22/7 \times (8.3)^2 / 4$	54.13	sqm			
	Add for over break @ 20 %	10.83	sqm			
	Cross sectional area of tunnel	64.95	sqm			
	Quantity of excavation per metre length of tunnel	64.95	cum			
	Say	65	cum			
	Assume progress per face (This includes drilling, blasting, mucking, ribbing and packing etc. 0= 3 Metre per day	3	Mtr/day			
	Hence Quantity of excavation per day	195	cum			
	No of working shift of 8 hours.					
	Each.....	3	nos			
	Quantity of excavation	65	orrow measure)			
	Cycle of operations					
	Drilling and shifting working platform	6	hours			
	Charging and blasting	1	hours			
	Defusing	1	hours			
	Mucking	4	hours			
	Rock bolting, rib eraction and concreting	12	hours			
	(A).Direct labour					
	Junior formen	1	nos/shift	315.00	315.00	
	Sr. Formen Spl. Drilling	1	nos/shift	354.00	354.00	
	Supervisor (Diploma holder)	1	nos/shift	338.00	338.00	
	Electrician Gr I	1	nos/shift	265.00	265.00	
	Blaster	2	nos/shift	347.00	694.00	
	Hole cleaner	2	nos/shift	213.00	426.00	
	Helper to Electrician	1	nos/shift	220.00	220.00	
	Unskilled mazdoor	12	nos/shift	206.00	2472.00	
	Semi skilled mazdoor	12	nos/shift	215.00	2580.00	
	Wiremen for Blasting	1	nos/shift	243.00	243.00	
					7907.00	
	Rate of labour per cum = Total wage/Quantity of excavation per day				40.55	A
	(B). Machinery charges					
	SL no Equipment Nos Working hr/ day		Total Working hr/ day	Use rate per hr vide item no	Rate	
1	Drill jumbo	1	6	6	3.1	#VALUE!
2.	Trolley	16	4	64	3.31	input #VALUE!
3.	Jack hammer (48 nos)	10	5	50	3.2	INPUT #VALUE!

4.	Scalling hammer	2	4	8	3.3	#VALUE!	#VALUE!		
5.	Drill excavators	2	1	2	3.32a	#VALUE!	#VALUE!		
6.	Grinder	2	1	2	3.33	#VALUE!	#VALUE!		
7.	Convey muckers (1 cyd)	1	5	5	3.9	#VALUE!	#VALUE!		
8.	Battery Locomotive	4	5	20	3.17b	#VALUE!	#VALUE!		
9.	D.8 Tractor Dozer	1	6	6	3.11a	5062	30372		
Total Machinery charges								#VALUE!	
Rate per cum = Total Machinery charges/Quantity of excavation per day								#VALUE!	B
(C). Material charges									
1. DRILLING AND BLASTING									
(a) It is proposed that to obtain 3 mtr progress per day face metre deep holes will be drilled .									
Gross section area of tunnel				54.11	Sqm				
Assuming average spacing of hole 0.75 m c/ c									
Area of rock Gross section per face = 54.11/0.562				96	nos				
Total depth of drilling 96 x 3.3 = 316.80 metre									
Cost of drill steel for 316.80 metre =				#VALUE!					
Quantity of rock excavated per day				195	cum				
Rate for drill steel per cum= Total cost of drill steel / Quantity of rock excavated							#VALUE!		
(b). Explosives									
(i) Gelatine required per cum				1	Kg	928.10	928.10		
(ii) Detonators @ one per hole per face				96	nos	6.52	625.82		
(iii) Fuse coils @ one per hole per face				96	nos	15.61	1498.56		
Quantity of rock excavated per day				195	cum				
Hence Rate of explosive per cum= Cost of detonators+Fuse coils /Quantity of rock excavated							15.65		
(iii). Other consumable petty stores such as blasting batteries, galvano metres and blasting wires etc. 50 % of item (i)							464.05		
Total explosive charge =i+ii+iii							1407.80		
Total Drilling and blasting charge (a+b)							#VALUE!	C	
(D). Charge for ventilator blowers.									
Use rate of ventilation blower vide item 3.14				#VALUE!					
Total blower charge/ shift= use rate/8				#VALUE!					
Rock excavated per shift=				65	cum				
Rate per cum=Total blower charge per shif / Rock excavated per shift				#VALUE!			#VALUE!	D	
(E). Shop charge									
(i).Machine shop including foundary and smithy structural shop, steel metal shop, Air and water shop and foundary @ 40 % of machinery charges (B)							#VALUE!	E	
(F).Electrical materials charges @ 10 % of item (C)							#VALUE!	F	
(G). Compressed air charge @ 20 % of item ©							#VALUE!	G	
(H). Water charge @ 4 % of item (C)							#VALUE!	H	
(I). Carriage of excavated rocks by truck upto 1 km from portal face									
Average lead=575 M				575	M				
Truck capicty 8 MT =6 cum (swell factor0.67)				6	Cum				
Net capacity 6 x 0.67 = 4.02 cum				4.02	cum				
Cycle time----				16	k.m/hr				
(a) Hauling time @ 16 KM (Average)speed per hours =575x60x2/1000x16=4.31 minutes				4.31	minutes				
(b) Loading unloding turning and spollting time=60 minutes				60	minutes				
Total hauling cycle time=64.31 minutes				64.31	minutes				
No of trip per working hour = 60 / 64.31=0.93 trips				0.93	Trips				
Material carried=0.93x4.02 =3.74M ³				3.75	Cum				
Hourly use rate of truck (vide item no 3.26)				805	hr				
Rate per cum=Use rate of truck/3.74 =192.69/3.74				215.24		Rs	215.24		

	Constuction and maintenance of haul road Add @ 5 % of Item (b)			Rs	10.76	
	Add 2 % for electric charge				4.30	
					230.31	
	Total of A+B+C+D+E+F+G+H+I+J				#VALUE!	
	Add Overhead charge & C.P@15%				#VALUE!	
					#VALUE!	
	Add 1% cess				#VALUE!	#VALUE!
					#VALUE!	#VALUE!
	Rate per cum=			#VALUE!	Per M ³	
7.7.2	Providing shot crete in arch portion of tunnel including cost of wire mesh (150 mm x 150 mm) all complete as per specifications and direction of E/I.					
	Unit:-Per Cum					
	Taking Out put=1.0 Cum					
	A.Materials					
	Cement	0.034	cum	8912.00	303.01	
	Coarse aggregate	0.033	cum	512.40	16.91	
	Sand	0.1	cum	145.10	14.51	
					334.43	A
(B)	B. Batching and mixing charge per bag					
	Use rate of Batching and mixing plant (vide item 3.13a)	2596.00				
	Batching and mixing plant capacity 26.76 cum (35 cuyd)	26.76	cum			
	(Taking job management factor as 0.69)	0.69				
	Rate of mass concrete per cum= Use rate/(26.76*0.69	66.94				
	Charge for mixing of materials per bag= Rate of mass concrete per cum/7.5				8.92	B
	(C) Transport of concrete by 3.06 cum (4 cuyd) buckets hauled by 5 T Diesel Locomotive from batching and mixing plant to pick up point	3.06	cum			
	Average lead= 1.0 Km	1.00	Km			
	Hauling Cycle time					
	Ideal production at Batching plant=57.34 cum (75 cuyd)	57.34	cum			
	Actual production with 0.69 x 57.34=39.56 cum	39.56	cum			
	i.Loading time of a Train =3.06 x2 x60/39.56 =9.28 minutes	9.28	minute			
	ii.spolting time and waiting time =	1.50	minutes			
	iii.Turning and unloading time	9.28	minutes			
	iv.Empty haul @6.00 K.M per hour =Average Leadx60/6	10.00	minutes			
	v.Loaded haul @ 6.00 K.M per hour =Average Leadx60/6	10.00	minutes			
	Total hauling cycle time=(i +ii+iii+iv+v)	40.06	minutes			
	No of trips in 50 cum in working	1.25				
	Output of one trian with 2 buckets per hr	7.65	cum			
	Use rate of Diesel Locomotive (Vide item no 3.17a)	#VALUE!				
	Use rate of concrete buckets 2.nos (Vide item no 3.30a)	21.00				
	Total use rate	#VALUE!				
	Transport rate off mass concrete per cum = Total use rate/7.65	#VALUE!				
	Charge for transport of mix to site per bag= Transport Rate of mass concrete per cum / 7.5				#VALUE!	C
	(D). Placement charges					
	Use rate of shot crete Machine (vide item no 3.8)	333.00				
	Capacity	1	cum			
	Considering no of shots by shot creting Machine per hr	6				
	Output of per hr	6	cum			

	Use rate of shot crete Machine per bag of cement consumption with 80 % efficiency = Use rate of short crete machine per hour / 0.8 x 6 x 7.5				9.25	D
	(E). Lighting, work shop charge and other miscellaneous item @ 100 % of use rate of shout crete machine per bag				9.25	E
	Rate per bag of cement constructed=A+B+C+D+E				#VALUE!	
	Add Overhead charge & C.P.@15%				#VALUE!	
					#VALUE!	
	Add 1% cess				#VALUE!	
					#VALUE!	#VALUE!
				#VALUE!	Per M ³	
7.7.3	Providing arrangement by pumping and disposal of surface water from the area of under ground excavation all complete as per specifications and					
	Unit:-	H.P. Per Hour				
	(A) Pump charge					
	Use rate of --- H.P pump per hour (vide item no3.15c)	15	H.P.		#VALUE!	A
	(B) Pipe and Accessories					
	(a). Depreciation charge					
	i. 250 mm dia pipe	3	Mtr	#VALUE!	#VALUE!	
	ii. M.S Bends	5	nos	#VALUE!	#VALUE!	
	iii. Foot valve	1	nos	#VALUE!	#VALUE!	
	iv. Sluice valve	1	nos	#VALUE!	#VALUE!	
	v. Vacaum pumping set 5 H.P (vide item no 3.15n)	1	nos	#VALUE!	#VALUE!	
	vi. Reflex valve	1	nos	#VALUE!	#VALUE!	
	Total				#VALUE!	
	Rated lift = 20000hrs					
	Depreciation charge per hr = 0.734 x total cost of material/(0.75x20000)				#VALUE!	a
	(REF Report of committee on cost control of River vally project, Voi II Jan. 81)					
	(b).Repair and maintenance charge					
	Total repair provision @ 50 % of Depreciation					
	.Repair and maintenance charge per hour=				#VALUE!	b
	(c). P.O.L. charge					
	Engergy consumed in 5 H.P vacum pumping set = 5 x 0.746= 3.73 kwh					
	Cost of 3.73 kwh @ Rs	3.73	kwh	#VALUE!	#VALUE!	c
	(d). Labour charge					
	Plumber	1	nos	265.00	265.00	
	Helper	1	nos	220.00	220.00	
	Mechnanic Gr II	0.5	nos	299.00	149.50	
	Total				634.50	
	Labour charge per hr=Total labour charge/8				79.31	d
	Total charge of Pipe and Accessories=a+b+c+d				#VALUE!	B
	(C). Making sumps for placing pipe					
	Labour					
	Semi skilled mazdoor	4	nos	206.00	824.00	
	Labour charge per hr= Labour charge/8				103.00	C
	(D). Misc. charge and making platform etc. for pumps					
	Add @ 10 % of the total charges A+B+C				#VALUE!	D
					#VALUE!	
	Rate per H.P per Hr=(A+B+C+D)/15				#VALUE!	
	Add Overhead charge & C.P.@15%				#VALUE!	
					#VALUE!	
	Add 1% cess				#VALUE!	
					#VALUE!	#VALUE!
	Rate per H.P per hour			#VALUE!	r H.P Per Hour	

7.7.4	Supplying, fabricating and erection of steel portal including steel lagging in concrete in live and grade all complete as per specifications and direction of E/I.					
	Unit:-Per M.T					
	Taking Out put=1.0 M.T					
	(REF Report of committee on cost control of River vally project, Voi II Jan. 81 page)					
	A.Materials					
	1.025 M.T. cost of structural steel at project store (2.5 % wastage and incidental to work)	1.025	M.T	35911.30	36809.08	A
	B. Fabrication					
	i. Making roller section 2.5 % of the cost of stock A. above				920.23	
	ii. Cutting 3 % Of A.above				1104.2725	
	iii. Bending of rolled section @ 6% of A above				2208.54	
	iv. Welding					
	a. Cost of electricity including 20% reject @ 8 % of A. above				2944.73	
	b. Labour and electric charge @ 10 % of A				3680.9083	
	c. Handling of material during fabrication @ 5 % of A				1840.4541	
	d. Temporary fixture @ 8 % of A				2944.73	
	Total welding charge				11410.816	
	Total of fabrication i to iv				15643.86	B
	C. Erection					
	Transport of material out of work shop operation, handling final matching and field welding etc. @ 12 % of A				4417.09	C
	Total cost A+B+C				56870.032	
	Add Overhead charge & C.P@15%				8530.50	
					65400.54	
	Add 1% cess				654.00537	
					66054.54	66054.54
	Rate per M.T			66054.50	per M.T	
7.7.5	Grouting in tunnel per bag cement consumption all complete as per specifications and direction of E/I.					
	Unit:- Bag of cement					
	Taking Out put:-	1	Bags			
	(A). Cost of 1.05 bag of cement at site including 5 % wastage and incidental charge	0.0357	Cum	8912.00	318.16	
	(B). Grouting					
	I. Hourly use rate of grouting machine	163.00				
	Taking progress of grouting 6 bags of cement per hour	6	Bags			
	Cost of Grouting= use rate/ 6				27.17	
					345.33	
	Add Overhead charge & C.P@15%				51.80	
					397.12	
	Add 1% cess				3.97	
					401.10	401.10
		Say Rs		401.10	Bag of cement	
7.7.6	Excavation of vertical shaft for (Intake structure) in hard rock with all lift and disposal of the same by truck upto 1 Km lead from shaft face all complete as per specifications and direction of E/I.					
	Unit:-Per Cum					
	Taking Out put=1.0 Cum					
	Assuming					
	Formate diameter of shaft	13	metre			
	Av.Thickness of linings (Taking 1.5 mtr at bottom land 0.5 mtr at top as thickness of lining)Including pay line of 0.15 mtr	1.15	metre			





Excavated dia of vertical shaft =Finished dia of shaft +2 x thickness of lining+2x Aistance of pay lines =13.00+2x(1+0.15) = 15.30 metre	15.3	metre			
Sectional area of shaft = $22d^2/(7 \times 4) = 22/7 \times (8.3)^2 / 4$	183.93	sqm			
Add for over break @ 10 %	18.39	sqm			
Cross sectional area of shaft	202.32	sqm			
Quantity of excavation per metre height of shaft	202.32	cum			
Say	202	cum			
Assume progress per face (This includes drilling, blasting, mucking, ribbing and packing etc. 0= 1 Metre per day	1	Mtr/day			
Hence Quantity of excavation per day	202	cum			
No of working shift of 8 hours.					
Each.....	3	nos			
Quantity of excavation	67.33	orrow measure)			
Cycle of operations					
Drilling and shifting working platform	2.5	hours			
Charging and blasting	0.5	hours			
Defusing	0.5	hours			
Mucking	3	hours			
Rock bolting, rib eraction and concreting	1.5	hours			
Total	8	hours			
(A).Direct labour					
Sr. Formen Spl. Drilling	1	nos	354.00	354.00	
Supervisor (Diploma holder)	1	nos	338.00	338.00	
Electrician Gr II	2	nos	249.00	498.00	
Blaster	3	nos	347.00	1041.00	
Hole cleaner	5	nos	213.00	1065.00	
Helper to Electrician	3	nos	220.00	660.00	
Unskilled mazdoor	24	nos	206.00	4944.00	
Semi skilled mazdoor	24	nos	215.00	5160.00	
Wiremen for Blasting	5	nos	243.00	1215.00	
Stone men	1	nos	213.00	213.00	
Total labour				15488.00	
Rate of labour per cum = Total wage/Quantity of excavation per day				230.02	A
(B). Machinery charges					
SL no Equipment Nos Working hr/ day			Total Working hr/ day	Use rate per hr vide item no	Rate
1 D.8 Tractor Dozer 1 1	1	1	1	3.11a	5062
2 Convey mucker 20 3	20	3	60	3.9	#VALUE!
3. Jack hammer (52 lb) 24 2.5	24	2.5	60	3.2	input #VALUE!
4. Scalling hammer 3 1	3	1	3	3.3	#VALUE!
5. Drill excavattors 2 1/2	2	1/2	1	3.32	#VALUE!
6. Grinder 1 1	1	1	1	3.33	#VALUE!
7. 30.T.Hoist 1 3	1	3	3	3.7b	1161.00
8. Loader 1 3	1	3	3	3.35 a	1199.00
Total Machinery charges					#VALUE!
Rate per cum = Total Machinery charges/Quantity of excavation per day					#VALUE!
(C). Material charges					
1. DRILLING AND BLASTING					
(a) It is proposed that to obtain 1 mtr progress per day 1.25mtr. deep holes will be drilled Gross section area of shaft $22 \times 4 (13+1.25)^2 / (7 \times 4)$	177	Sqm			
Assuming average spacing of hole 0.80 m c/ c					
Area of Cross section per hole =0.8x0.8	0.64	sqm			

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No of hole required=Gross section area of shaft/Area of Cross section per hole	274.00			175.04	
Total depth of drilling	342.50				
Cost of drill steel for per metre =	INPUT				
Cost of drill steel for 342.5 metre =	#VALUE!				
Quantity of rock excavated per day	202.0	cum			
Rate for drill steel per cum= Total cost of drill steel / Quantity of rock excavated	#VALUE!			#VALUE!	a
(b). Explosives					
(i) Gelatine required per cum	1	Kg	928.10	928.10	
(ii). Detonators @ one per hole per face	274	nos	6.52	1786.21	
Fuse coils @ one per hole per face	274	nos	15.61	4277.14	
Quantity of rock excavated per day	202	cum			
Hence Rate of explosive per cum= Cost of detonators+Fuse coils /Quantity of rock excavated				30.02	
(iii). Other consumable petty stores such as blasting batteries, galvanometres and blasting wires etc. 50 % of item (i)				464.05	
Total explosive charge =i+ii+iii				1422.17	b
1.Total explosive charge and blasting charge (a+b)				#VALUE!	
2.Provision of pipe lines for air and water for wet drilling rate per cum@ 4 % of 1				#VALUE!	
3. Timber for supports packing rate per cum @ 5 % of 1				#VALUE!	
4. Miscellaneous supplies such as safety hats, gunboots, rain coats, wire ropes, manila ropes, v-clampes, rubber gloves, shackles and artificial respirators rate per cum @ 4 % of 1				#VALUE!	
Total material charge 1+2.+3+4				#VALUE!	C
(D). Charge for ventilator blowers.					
Use rate of ventilation blower vide item 3.14	#VALUE!				
Total blower charge/ shift= use rate x8	#VALUE!				
Rock excavated per shift=	67.33	cum			
Rate per cum=Total blower charge per shift / Rock excavated per shift	#VALUE!			#VALUE!	D
(E). Shop charge					
(i).Machine shop including foundary and smithy structural shop, steel metal shop, Air and water shop and foundary @ 40 % of machinery charges (B)				#VALUE!	E
(F).Electrical materials charges @ 10 % of item (C)				#VALUE!	F
(G) Trolly Track charge Per M3 @ 5% of (C)				#VALUE!	G
(H). Compressed air charge @ 20 % of item C				#VALUE!	H
(I). Water charge @ 4 % of item (C)				#VALUE!	I
(J). Carriage of excavated rocks by truck upto 1 km from portal face					
Average lead=575 M	575				
Truck capacity 8 MT =6 cum (swell factor0.67)	6				
Net capacity 6 x 0.67 = 4.02 cum	4.02				
Cycle time----	16				
(a) Hauling time @ 16 KM (Average)speed per hours =575x60x2/1000x16=4.31 minutes	4.31				
(b) Loading unloding turning and spolting time=60 minutes	60				
Total hauling cycle time=64.31 minutes	64.31				
No of trip per working hour = 60 / 64.31=0.93 trips	0.93				
Material carried=0.93x4.02 =3.74M ³	3.75				
Hourly use rate of truck	805				
Total Rate per cum=Use rate of truck/3.74 =192.60 /3.74			Rs	214.64	
Constuction and maintenance of haul road Add @ 5 % of Item (b)	5	%	Rs	0.43	
Add 2 % for electric charge	2	%		4.29	
				219.36	J

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	Total of A+B+C+D+E+F+G+H+I+J+K			#VALUE!	
	Add Overhead charge & C.P@15%			#VALUE!	
				#VALUE!	
	Add 1% cess			#VALUE!	
				#VALUE!	#VALUE!
	Rate per cum=		#VALUE!	per cum	
7.7.7	Drilling holes upto 38 mm dia rock including supplying and fixing 25 mm dia rock bolts slotted at one end and threaded at the other and with bearing plates, bolts, nuts etc. complete including clearing holes before fixing rods as per drawing, specifications and direction of E/I.				
	Unit:-Per M				
	Taking Out put=1.0 M				
	A. Drilling				
	i. Cost of drilling use rate of Jack hammer	INPUT			
	average rate of drilling 35 mm dia metre hole per	2.3	mtr		
	Hence rate of drilling per metre= Use rate of Jack hammer/2.3	#VALUE!			
	ii. Cost of drill rod per mtr of drilling	1	mtr	#VALUE!	#VALUE!
	B. Supply and making the bolts				
	i. Rock bolt 25 mm dia metre	1	mtr	#VALUE!	#VALUE!
	ii. Wastage in cutting 2.5 % of B (i)	2.5	%	#VALUE!	#VALUE!
	Sub-Total			#VALUE!	#VALUE!
	Grand Total			#VALUE!	#VALUE!
	Add Overhead charge & C.P@15%			#VALUE!	#VALUE!
				#VALUE!	#VALUE!
	Add 1% cess			#VALUE!	#VALUE!
				#VALUE!	#VALUE!
	Rate per metre=		#VALUE!	per metre	#VALUE!





Sr.No.	Item	Rate	Unit
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7.8 MISCELLANEOUS

Sr.No	Item	Unit	Rate
7.8.1	Supplying, fitting and fixing in position mild steel trash rack and trash rack covering wherever needed in dam and allied works complete job as per drawing, specifications and direction of E/I.	#VALUE!	Per M.T
7.8.2	Supplying, fitting and fixing in position mild steel stop leg gates wherever needed in dam and allied works complete job as per drawing, specifications and direction of E/I.	#VALUE!	Per M.T
7.8.3	Supplying, fitting and fixing copper strip of 16 gauge of approved quality (with 99 % purity) in expansion joints complete job as per drawing, specifications and direction of E/I.	904.70	Per kg
7.8.4	Supplying, fitting and fixing rubber seal of (water stop) of approved quality for construction joints expansion joints complete job as per drawing, specifications and direction of E/I.	#VALUE!	Per Meter
7.8.5	Supplying, and fixing in position 25 mm thick Bituminous board (Shalite or equivalent) in expansion or construction joint in dam and its allied works all complete as per approved design, specifications and direction of E/I	744.80	Per M ²
7.8.6	Supplying, and fixing Bitumen filter (Bitumen, cement and sand) in construction joints in dam and its allied works all complete as per approved design, specifications and direction of E/I		
	Patna Urban	170.00	Per cm width Per cm depth Per 100 mtr length
	Patna	170.00	
	Muzaffarpur	170.00	
	Darbhanga	170.00	
	Bhagalpur	169.80	
	Munger	169.80	
	Saharsa	170.00	
	Purnea	170.00	
	Gaya	169.50	
	Saran	169.80	
7.8.7	Providing slope drain with boulder duly cement grouted in (1 : 10) over layers of sand, gravel filter as per approved design, specifications and direction of E/I		Per Meter
	Urban Patna	683.10	
	Patna	683.10	
	Muzaffarpur	683.10	
	Darbhanga	683.10	
	Bhagalpur	681.50	
	Munger	681.50	
	Saharsa	683.10	
	Purnea	683.10	
	Gaya	678.00	
	saran	681.50	
7.8.8	Construction slope drain and grass drain and berm drain with cement plaster (1 : 3) including the cost of all materials as per specifications and direction of E/I	1082.90	Per Meter
7.8.9.1	Providing and driving steel sheet piles on specified alignment and upto designed levels including painting the sheet piles with two coats of anti-corrosive bitumen paint (portion of sheet pile inside concrete shell not be painted) including cost of sheet piles and hire charges of sheet pile driving plant etc. all complete as per specifications and direction of E/I . (For the purpose of payment of sheet pile driving, measurement of sheet pile duly driven shall be taken only)	#VALUE!	Per M.T

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Sr.No.	Item	Rate	Unit
7.8.9.2	Labour rate for extracting steel sheet piles on specified alignment with hire charges of sheet pile driving plant etc. all complete as per specifications and direction of E/I . (For the purpose of payment of sheet pile extracting, measurement of sheet pile duly extracted shall be taken only)	#VALUE!	Per M.T
7.8.10	Unloading cement , light stacking materials steel materials from Railway wagon and stacking the same in Railway yard for verification within a distance of 150 mtr. From Railway track all complete job as per direction of E/I	99.70	Per M.T
7.8.11	Unloading heavy structural steel materials of all categories (Not required the use of crane) from Railway wagon and stacking the same in Railway yard for verification within a distance of 150 mtr. From Railway track all complete job as per direction of E/I	124.60	Per M.T
7.8.12	Carriage of cement, steel and other materials from departmental godown to site or vice-versa by head load and stacking the same beyond 45 M and upto 165 M including the cost of all labours all complete as per direction of E/I.	149.50	Per M.T
7.8.13	Extra for each additional lead of 45 M or a part there of beyond the initial lead of 165 M as per direction of E/I.	44.90	Per M.T
7.8.14	Labour rate for reshuffling and restacking of cement bage including restacking in Godaown, as per direction of E/I	6.00	Per bag

7.8 MISCELLANEOUS

Sl.No.	Description	Quantity	Unit	Rate	Amount	Ref.
7.8.1	Supplying, fitting and fixing in position mild steel trash rack and trash rack covering wherever needed in dam and allied works complete job as per drawing, specifications and direction of E/I.					
	Unit:-Per M.T					
	Taking Out put=1.0 M.T					
	(REF Report of committee on cost control of River vally project, Voi II Jan. 81)					
	A.Materials					
	i.Mild steel in shape of structurals such as beams, angle, flate, rods and plates(adopt average effective rate of all structurals)	1	M.T			
	Add wastage (During various operation and handling) @ 2.5 %	0.025	M.T			
	Sub-Total	1.025	M.T	Input	#VALUE!	
	ii.Acetylene	3.8	cum	input	#VALUE!	
	iii. Oxygen	16	cum	#VALUE!	#VALUE!	
	iv. M.S Electrodes	330	nos	#VALUE!	#VALUE!	
	v. Miscellaneous items like oil and paints @ 2 % of the cost of mild steel /M.T				#VALUE!	
	Sub-Total (A)				#VALUE!	A
	B.Labour					
	i.Fabrication including cutting, welding and making @ 40 % of the cost of mild steel / M.T				#VALUE!	
	ii. Straightening and black smithy charges @ 15 % of the cost of mild steel / M.T				#VALUE!	
	iii. Miscellaneous labour charges i.e handling of job to different shops @ 3 % of cost of mild steel /M.T				#VALUE!	
	Sub-Total(B)				#VALUE!	B
	C.Transportation and erection charge					
	i.Transportation and positioning of the trash rack at site of work @ 10 % of cost of mild steel /M.T				#VALUE!	
	ii. Erection of embaded parts and trash rack @ 40 % of cost of mild steel /M.T				#VALUE!	
	Sub-Total©				#VALUE!	C
	Grand Total				#VALUE!	
	Add Overhead charge & C.P@15%				#VALUE!	
	Add 1% cess				#VALUE!	
					#VALUE!	#VALUE!
				#VALUE!	Per MT	
7.8.2	Supplying, fitting and fixing in position mild steel stop leg gates wherever needed in dam and allied works complete job as per drawing, specifications and direction of E/I.					
	Unit:-Per M.T					
	Taking Out put=1.0 M.T					
	(REF Report of committee on cost control of River vally project, Voi II Jan. 81)					
	A.Materials					
	i.Mild steel in shape of structurals such as beams, angle, flate, rods and plates(adopt average effective rate of all structurals)	1	M.T			
	Add wastage (During various operation and handling) @ 2.5 %	0.025	M.T			
	Sub-Total	1.025	M.T	Input	#VALUE!	
	ii.Acetylene	3.8	cum	input	#VALUE!	
	iii. Oxygen	8.6	cum	#VALUE!	#VALUE!	
	iv. M.S Electrodes	200	nos	#VALUE!	#VALUE!	
	v. Gun metal in gate	12	Kg	#VALUE!	#VALUE!	
	vi. Rubber seal	2.5	metre	#VALUE!	#VALUE!	
	vii. Miscellaneous materials as screw bolts, paints, black leads, crucible pattern wood and hard coke paints @ 5 % of the cost of mild steel /M.T				#VALUE!	
	Sub-Total (A)				#VALUE!	A
	B.Labour					

	i. Fabrication including cutting, welding and making @ 30 % of the cost of mild steel / M.T				#VALUE!		
	ii. Maching including Eurning, drilling, threading, boring and teeth cutting @ 20 % of cost of mild steel / M.T				#VALUE!		
	iii. Casting @ 20 % of the cost of mils steel / M.T				#VALUE!		
	iv. Black smithy and forging charges @ 15 % of the cost of mils steel / M.T				#VALUE!		
	v. Miscellaneous labour charges i.e handling of job to different shops @ 5 % of cost of mild steel / M.T				#VALUE!		
	Sub-Total(B)				#VALUE!	B	
	C. Transportation and erection charge						
	i. Transportation and positioning of the trash rack at site of work @ 10 % of cost of mild steel / M.T				#VALUE!		
	ii. Erection of embaded parts and trash rack @ 15 % of cost of mild steel / M.T				#VALUE!		
	Sub-Total©				#VALUE!	C	
	Grand Total				#VALUE!		
	Add Overhead charge & C.P@15%				#VALUE!		
	Add 1% cess				#VALUE!		
					#VALUE!	#VALUE!	
					#VALUE!	Per MT	
7.8.3	Supplying, fitting and fixing copper strip of 16 gauge of approved quality (with 99 % purity) in expansion joints complete job as per drawing, specifications and direction of E/I.	Analysis same as item 5.8.1					
7.8.4	Supplying, fitting and fixing rubber seal of (water stop) of approved quality for construction joints expansion joints complete job as per drawing, specifications and direction of E/I.	Analysis same as item 5.8.2					
7.8.5	Supplying, and fixing in position 25 mm thick Bituminous board (Shalitex or equivalent) in expansion or construction joint in dam and its allied works all complete as per approved design, specifications and direction of E/I	Analysis same as item 5.8.3					
7.8.6	Supplying, and fixing Bitumen filter (Bitumen, cement and sand) in construction joints in dam and its allied works all complete as per approved design, specifications and direction of E/I	Analysis same as item 5.8.4					
7.8.7	Providing slope drian with boulder duly cement grouted in (1 : 10) over layers of sand, gravel filter as per approved design, specifications and direction of E/I						
	Unit:-Per M						
	Taking Out put=15.24 M	15.24	mtr				
	Taking 15.24 mtr length of drain						
	Materials						
	Sand for filter 1.98 cum+ for Grouting 1.42 cum	3.4	cum	145.10	493.34		
	Gravel	1.98		470.85	932.28		
	Boulder	4.39		304.97	1338.82		
	Cement	0.142		8912.00	1265.50		
					4029.95	(A)	
	Labour						
	ii. Labour for sand filter (vide item no 7.6.1)	1.98	cum	395.57	783.23	(B)	
	(Labour For 2.832 cum)						
	Unskilled mazdoor for placing	2	nos	206.00	412.00		
	Unskilled mazdoor for spreading	1.5	nos	206.00	309.00		
	Unskilled mazdoor for watering and ramming	2	nos	206.00	412.00		
	Mate	0.25	nos	225.00	56.25		
					1189.25	419.93	
	ii. Labour for Gravel filter (vide item no 7.6.2)	1.98	cum	224.31	444.13	(C)	
	(Labour For 2.832 cum)						
	Unskilled mazdoor for placing	2	nos	206.00	412.00		
	Unskilled mazdoor for spreading	0.5	nos	206.00	103.00		
	Unskilled mazdoor for loght compaction	0.5	nos	206.00	103.00		
	Mate	0.25	nos	225.00	56.25		
					674.25	238.08	
	iii. Labour for boulder laying (vide item no 7.6.4)	4.39	cum	382.15	1677.64	(D)	
	(Labour For 2.832 cum)						
	Mason Gr II	0.25	nos	249.00	62.25		

	Add 1% cess				4738.00	
					47.38	
					4785.38	99.70
		Say Rs	99.70		Per M.T	
7.8.11	Unloading heavy structural steel materials of all categories (Not required the use of crane) from Railway wagon and stacking the same in Railway yard for verification within a distance of 150 mtr. From Railway track all complete job as per direction of E/I					
	Vide T.E.C no 54E dated 12.12.89					
	Unit:-Per M.T					
	Taking Out put=48.0 M.T					
	(Assuming unloading one wagon Load 48.00 M.T)					
	Unskilled mazdoor	25.00	nos	206.00	5150.00	
					5150.00	
	Add Overhead charge & C.P@15%				772.50	
					5922.50	
	Add 1% cess				59.225	
					5981.73	124.62
		Say Rs	124.60		Per M.T	
7.8.12	Carriage of cement, steel and other materials from departmental godown to site or vice-versa by head load and stacking the same beyond 45 M and upto 165 M including the cost of all labours all complete as per direction of E/I.					
	Vide T.E.C no 104E dated 24.10.90					
	Unit:-Per M.T					
	Taking Out put=4.0 M.T					
	(Applicable only for departmental work not for general contract work)					
	Considering 4 M.T					
	Unskilled mazdoor	2.50	nos	206.00	515.00	
					515.00	
	Add Overhead charge & C.P@15%				77.25	
					592.25	
	Add 1% cess				5.9225	
					598.17	149.54
		Say Rs	149.50		Per M.T	
7.8.13	Extra for each additional lead of 45 M or a part there of beyond the initial lead of 165 M as per direction of E/I.					
	Vide T.E.C no 104E dated 24.10.90					
	Unit:-Per M.T					
	Taking Out put=4.0 M.T					
	(Applicable only for departmental work not for general contract work)					
	Considering 4 M.T					
	Unskilled mazdoor	0.75	nos	206.00	154.50	
					154.50	
	Add Overhead charge & C.P@15%				23.18	
					177.68	
	Add 1% cess				1.78	
					179.45	44.86
		Say Rs	44.90		Per M.T	
7.8.14	Labour rate for reshuffling and restacking of cement bage including restacking in Godaown as per direction of E/I					
	Vide T.E.C no 104E dated 24.10.90					
	Unit:-Per Bag					
	Taking Out put=100 Bags					
	(Applicable only for departmental work not for general contract work)					
	Consider 100 bags (5 M.T)					
	Unskilled labour for taking out cement bags, reshuffling properly in order to brock lumps and restacking the same in proper place	2.50	nos	206.00	515.00	
					515.00	
	Add Overhead charge & C.P@15%				77.25	
					592.25	
	Add 1% cess				5.9225	
					598.17	5.98

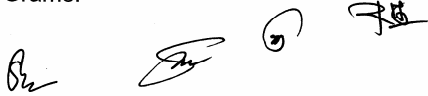
SPECIFICATION OF OLD EMPTY CEMENT BAGS

Supply of Old Empty Cement Bags (Synthetic), of 1.2 cft Capacity in good condition. On one side of the bag in almost central portion (in 12 cm. x 10 cm. Size) W.R.D. Name of Chief Engineer Zone and FLOOD FIGHTING YEAER should be written clearly in permanent red paint. The paint should not be washed away with water.

Be *SG* *G* *RG*

SPECIFICATION OF NYLON CRATES

Supply of Nylon Crate of size one cubic meter (1mx1mx1m) with 20 cms. mesh of specification 1260/3/4/29 (i.e having 24 nos. of threads) of weight 165 Grams(\pm) 5 Grams.



Specification of Non Woven Geo bag of size (1Mx0.7M)

- < **Material & Make:** Needle punched, staple fiber, high elongation, Non Woven PET Geo Textile should resist Ultraviolet, rooting & biological degradation, naturally encountered acid and alkalis.
 - < **Mass (GSM)** as per ASTM D 5261 =300 gm/m²
 - < **Wide Width Tensile Strength** (Both Direction) as per ASTM D4595 =9.00 KN/M
 - < **Elongation** (Both Direction) as per ASTM D 4595= 50%
 - < **Static Puncture Strength** as per ASTM D 6241=1400 N
 - < **AOS** as per ASTM D 4751 =100 micron.
 - < **Permittivity** as per ASTM D 4491 =1.25
 - < **UV resistance @500 hrs.** as per ASTM D 4355 (TYP)=70%
 - < **Trapezoidal Tear Strength** as per ASTM D 4533 =340 N
 - < **Volume of filled Bag** =0.07M³
 - < **Weight of filled Bag** =126 Kg.
 - < **Stitching:** Ring Spun Yarn stitches with 2500-3500 denier (PET/PP):double line chain stitch with overlap with stitches along the edges @ minimum 15 stitches /100 mm
- Non Woven Geo Bag should be made of virgin material and should not be made of recycle material.



Specification of Non Woven Mega Geo bag of size (2Mx1.5M)

< **Material & Make:** Needle punched, staple fiber, high elongation, non Woven PET Geo Textile should resist Ultraviolet, rooting & biological degradation, naturally encountered acid and alkalis.

< **Mass (GSM)** as per ASTM D 5261 (TYP) =600 gm/m²

< **Wide Strip Tensile Strength** (MD/XD) as per ASTM D4595 (TYP) =18/33 KN/M

< **Trapezoidal Tear Strength** (MD/XD) as per ASTM D 4533 (TYP) =400/800 N

< **CBR Burst Strength** as per ASTM D 6241 (TYP)=4700 N

< **CBR Burst Elongation** as per ASTM D 6241 (TYP) =70 %

< **AOS**(Apparent opening size) as per ASTM D 4751 (Max ARV) =75 micron.

< **UV resistance** @500 hrs. as per ASTM D 4355 (TYP)=80%

< **Abrasion resistance** as per BAW Rotating Drum (TYP) =75%

< Volume of filled Bag =0.75 M³

<Weight of filled Bag =1350 Kg.

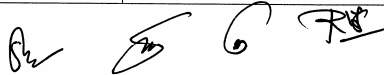
< **Stitching :** Ring Spun Yarn stitches with =5000-6000 denier (PET/PP):double line chain stitch with overlap with stitches along the edges @ minimum 15 stitches /100 mm

(Non Woven Mega geo bags should be made of virgin material i.e Not made of recycle materials)



SPECIFICATION OF P.P ROPE GABION OF SIZE(1.8Mx1.2Mx0.5M)

PROPERTIES	9 mm x 4 Strand P P Gabion \pm 1mm, 150 mm x150 mm Mesh Size
SIZE OF GABION	1.8 mx1.2mx0.5m With Lid and Slings
SIZE OF THE BODY & BORDER ROPE	9 mmx4 Strand having a weight of 42 gm/m \pm 8% As per IS 5175 :1992 (Re-affirmed -1997)
MATERIAL OF ROPE	Polypropylene (With adequate UV stabilizer)
MESH OPENING	150 mm x 150 mm.
TETHSILE STRENGTH	(a)ROPE- 1560 Kg Breaking Strength(Min) As per IS 7071(PART 4):1986 (Reaffirmed- 1999) (b) ROPE NET- 10,000 Kg/m Breaking Strength
STRUCRURE OF ROPE	Four strand shroud laid.
CONSTRUCTION OF ROPE NET	Woven joint at intersection of Ropes.



SPECIFICATION OF P.P ROPE GABION OF SIZE(1.8Mx1.8Mx0.5M)

PROPERTIES	9 mm x 4 Strand Gabion \pm 1mm, 150 mm x150 mm Mesh Size
SIZE OF GABION	1.8 mx1.8mx0.5m With Lid and Slings
SIZE OF THE BODY & BORDER ROPE	9 mmx4 Strand having a weight of 42 gm/m \pm 8% As per IS 5175 :1992 (Re-affirmed -1997)
MATERIAL OF ROPE	Polypropylene (With adequate UV stabilizer)
MESH OPENING	150 mm x 150 mm.
TETHSILE STRENGTH	(a)ROPE- 1560 Kg Breaking Strength(Min) As per IS 7071(PART 4):1986 (Reaffirmed- 1999) (b) ROPE NET- 10,000 Kg/m Breaking Strength
STRUCRURE OF ROPE	Four strand shroud laid.
CONSTRUCTION OF ROPE NET	Woven joint at intersection of Ropes.

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