

Proposed Estimate for Construction of Slab Culvert

The rates are taken from PWD(WB) schedule of rate for road & bridge works 1.12.15 & 11 th,12th,13th ,14th. Addenda & Corrigenda to the Pwd (WB) ,building works,Sanitary & Plumbing works of Midnapore west effect from 01.11.2017 .IRC SP-20

Sl. No.	Page No & It no	Description	No.	L. (m.)	B. (m.)	H. (m.)	Quantity	Rate (Rs.)	Amount (Rs.)
1	278,12.01	Earthwork in excavation for foundation of structures as per drawing and technical specification including setting out, removing, spreading or stacking of spoils within a lead of 150 m. as directed and including trimming the sides of the trenches, leveling, dressing and ramming the bottom, complete as per direction of the Engineer-in-Charge.In all sorts of soil excluding marshy soil & rocks (soft or hard) by manual means.							
		Depth up to 3 m. :							
	i	With pumping out water including shoring as required.							
		Abutment wall	2	6.916	2.950	1.800	73.45		
		Return wall	4	1.317	2.776	2.000	29.248		
		Bed	1	4.550	2.466	0.350	3.927		
		Bed of down & up stream	2	1.183	2.500	0.300	1.775		
		Cut of wall	2	2.466	0.300	1.500	2.219		
		Total					110.617 m ³	124.00	13716.00
2	279,12.02	Earthwork in filling in foundation trenches with good earth in layers not exceeding 15cm. including watering and ramming layer by layer complete with earth obtained from excavation of foundation or from fresh excavation of land arranged by Department within a lead of 150 m.	0.2		110.617		22.123 m ³	92.00	2035.00
3	322,18.07(a) (Rate analysis attached)	Providing and laying Design Mix concrete for plain / reinforced concrete work in any part of bridge (excluding bottom plugging) with coarse aggregates of appropriate nominal size and grading, fine aggregate (sand) conforming to proper grading zone, both of approved quality and cement, as necessary, including labour, cost and carriage of all materials and including preparation of design mix, approval of the same by the Engineer-in-Charge and cost for quality control, sampling, testing etc. all complete but excluding cost of labour and materials for formwork & reinforcement works.							
		Rates analysis attached							
		(M-15 Grade)							
		In foundation(Abutment Wall)	2	6.916	2.950	0.200	8.161		
		In foundation(Return Wall)	4	1.317	2.776	0.200	2.925		
		Total					11.086 m ³	5112.32	56673.00
4	322,18.07(a) (Rate analysis attached)	Providing and laying Design Mix concrete for plain / reinforced concrete work in any part of bridge (excluding bottom plugging) with coarse aggregates of appropriate nominal size and grading, fine aggregate (sand) conforming to proper grading zone, both of approved quality and cement, as necessary, including labour, cost and carriage of all materials and including preparation of design mix, approval of the same by the Engineer-in-Charge and cost for quality control, sampling, testing etc. all complete but excluding cost of labour and materials for formwork & reinforcement works.							
		Rates as per analysis attached							
		M15							
		Abutment wall	2	6.516	2.550	0.200	6.646		
			2	6.316	2.450	0.200	6.190		
			2	6.116	2.350	0.200	5.749		
			2	5.916	2.250	0.200	5.324		
			2	5.716	2.150	0.200	4.916		
			2	5.516	2.050	0.200	4.523		
			2	5.316	1.950	0.200	4.146		
		Return wall	4	2.376	1.517	0.200	2.884		
			4	2.276	1.517	0.200	2.762		
			4	2.176	1.517	0.200	2.641		
			4	2.076	1.517	0.200	2.519		
			4	1.976	1.517	0.200	2.398		
			4	1.876	1.517	0.200	2.277		
			4	1.776	1.517	0.200	2.155		
		Abutment wall(Above G.F)	2	6.134		2.2	26.991		
		Return wall(Above G.F)	4	1.734		2.83	19.629		
		Bed	1	4.550	2.466	0.150	1.683		
		Filler	8	0.250	0.150	0.900	0.270		
		Total					103.704 m ³	5112.32	530168.00

Sl. No.	Page No & It no	Description	No.	L. (m.)	B. (m.)	H. (m.)	Quantity	Rate (Rs.)	Amount (Rs.)	
5	322,18.07(b) (Rate analysis attached)	Providing and laying Design Mix concrete for plain / reinforced concrete work in any part of bridge (excluding bottom plugging) with coarse aggregates of appropriate nominal size and grading, fine aggregate (sand) conforming to proper grading zone, both of approved quality and cement, as necessary, including labour, cost and carriage of all materials and including preparation of design mix, approval of the same by the Engineer-in-Charge and cost for quality control, sampling, testing etc. all complete but excluding cost of labour and materials for formwork & reinforcement works.								
		Rates as per analysis attached								
		M20								
		Deck slab	1	5.800	3.750	0.430	9.353			
		Wheel Guard/Carb	2	5.800	0.450	0.150	0.783			
		Wheel Guard/Carb(Area=2x1/2x.45x.43)	1	5.800	0.450	0.430	1.122			
		Copping	2	4.550	0.700	0.200	1.274			
		Cut of wall	2	2.466	0.300	1.500	2.219			
		Total					14.751	m ³	5462.17	80573.00
6	(Rate analysis attached)	Supplying, fitting and placing HYSD bar reinforcement in Sub-structure including initial straightening, straightening of coils bars, removal of loose rust (if any), cutting to requisite length bending, binding with annealed wire not less than 1 mm in size and conforming to IS 280 at every intersection hooked and bent to correct shape and placed on forms etc. including cost of black annealed wire and cost of loading, unloading, carriage of all steel materials complete as per drawing and technical specifications and direction of Engineer-in-charge.								
		Tor Steel /H.Y.S.D. Bars. Rates as per P.W.D Building								
		(1.2% of Concrete Volume)					1.390	MT	56637.36	78701.00
7	322,18.05	Hire and labour charges for Shuttering with or without staging upto 4.0 m height using approved stout props with wooden planks/ply wood/steel sheet plate with required bracing for any kind of plain or reinforced concrete works in all sorts of minor structure including culvert, box culvert, cross-drain etc. The rate is inclusive of fitting, fixing and striking out after completion of work as per specification and direction.								
		(b) Where staging is not required.								
		Abutment wall(Water side)	2	6.916		0.200	2.766			
			2	6.516		0.200	2.606			
			2	6.316		0.200	2.526			
			2	6.116		0.200	2.446			
			2	5.916		0.200	2.366			
			2	5.716		0.200	2.286			
			2	5.516		0.200	2.206			
			2	5.316		0.200	2.126			
		Abutment wall(side)1:6, (5.066+4.50)/2=4.783	2	4.783		2.230	21.332			
		Abutment wall(Country side)	2	1.364		0.200	0.546			
			2	1.764		1.400	4.939			
		Abutment wall(side)1:3, (1.814+3.75)/2=2.782	2	2.782		2.319	12.903			
		Return wall (Water side)	4	4.267		0.200	3.414			
			4	4.067		0.200	3.254			
			4	3.967		0.200	3.174			
			4	3.867		0.200	3.094			
			4	3.767		0.200	3.014			
			4	3.667		0.200	2.934			
			4	3.567		0.200	2.854			
			4	3.467		0.200	2.774			
		Return wall(side)1:10, (3.367+3.00)/2=3.183	4	3.183		2.844	36.210			
		Return wall(Country side)	4	1.317		0.200	1.054			
			4	1.517		1.400	8.495			
		Return wall(side)1:3, (1.567+2.300)/2=1.933	4	1.933		2.983	23.065			
		Face of Return (with Road)	4	2.776		0.200	2.221			
			4	2.376		0.200	1.901			
			4	2.276		0.200	1.821			
			4	2.176		0.200	1.741			
			4	2.076		0.200	1.661			
			4	1.976		0.200	1.581			
			4	1.876		0.200	1.501			
			4	1.776		0.200	1.421			
		(1.626+0.400)/2=1.013	4	1.013		2.830	11.467			
		Capping	4	4.550		0.630	11.466			
		Return top	8	3.000		0.150	3.600			
		Deck slab	1	5.000	4.550		22.750			
		Wheel Guard/carb	4	5.000		0.150	3.000			
		Filler	8	0.400		0.900	2.880			
		Cut of wall	4	2.466		1.500	14.796			
			4	0.300		1.500	1.800			
		Total					237.989	m ²	214.00	50930.00

Sl. No.	Page No & It no	Description	No.	L. (m.)	B. (m.)	H. (m.)	Quantity	Rate (Rs.)	Amount (Rs.)		
8	Rate analysis attached	Boulder soling & Dumping at bed of canal	1	4.55	2.466	0.200	2.244				
			2	2.466	0.350	0.200	0.345				
			2	1.183	4.264	0.300	3.027				
			Total					5.616	m ³	753.00	4228.76
9	164,2(ii)b[PWD Building Schedule]	Plaster (to wall, floor, ceiling etc.) with sand and cement mortar including rounding off or chamfering corners as directed and raking out joints including throating, nosing and drip course, scaffolding/staging where necessary floor).[Excluding cost of chipping over concrete									
		15mm thk plaster(1:4)									
		Abutment wall	2	4.783		2.230	21.332				
		Return wall	4	3.183		2.844	36.210				
		Parapet pillar	8	0.800		0.900	5.760				
			Total					63.302	m ²	150.00	9495.00
10	327,18.34 ,11th corrigendum	Painting with approved quality Curing compound on the vertical or inclined surfaces of concrete, where water curing is not possible. Painting is to be done with a brush on new surfaces, immediately after removal of shuttering, including supply of all materials and other incidental charges complete as per direction of the Engineer-in-charge.									
		Quantity as per sl no 9					63.302	m ²	38.50	2437.00	
11	P-2,It-1 (PWD Sanitary & Plumbing Work)	Supplying, fitting and fixing G.I. pipes of TATA make with all necessary accessories, specials viz. socket, bend, tee, union, cross, elbo, nipple, long screw, reducing socket, reducing tee, short piece etc. fitted with holder bats clamps, including cutting pipes, making threads, fitting, fixing etc. complete in all respect including cost of all necessary fittings as required, jointing materials and two coats of painting with approved paint in any position above ground. (Payment will be made on the centre line measurements of total pipe line including all specials. No separate payment will be made for accessories, specials. Payment for painting will be made seperately)									
		(A)For Exposed Work									
		(e)(ii)40mm dia medium quality	2	5.800		1.075	12.470	mtr	415.00	5175.05	
TOTAL COST (A) Rs.									834132.00		
Add GST(6% CGST+6% SGST)On SI No A)B@12.0% Rs.									100096.00		
Cost of Civi works excluding labour welfare cess Total (C=A+B)Rs.									934228.00		
Labour welfare cess (on SI.no C)@1.0%D Rs.									9342.00		
Cost of Civi works including labour welfare cess amount (E=C+D) Rs.									943570.00		
Add Contingency (on SI.no C) @3.0% Rs.									28027.00		
TOTAL ESTIMATED COST Rs.									971597.00		
TOTAL ESTIMATED COST(IN WORD) Rs.NINE LAKH SEVENTY ONE THOUSAND FIVE HUNDRED NINETY SEVEN ONLY											

Rate Analysis of Steel

Format-E(P-218)

1	Rate of Item as per relevent section (P-297/It-13.02)11th corrigendum(P-13)		Rs	3308.00
2	Add: Cost of Steel = Quantity of Steel(1.05) x Basic Price of Steel (vide Item no. 2, Column –5, Table I – 1 of the Schedule of Rates). P-215,It no-2(ii) New,14th Corrigendum(P-1). N:B-(ii)b,Tor Steel rods/HYSD Bars/TMT bars(JSW/JSPL/Shyam/SRMB/SSL/BMASL/Electrosteel(Fe 415/Fe 500/Fe 500D Conform to IS:1786).Rate-Rs.43750.00		Rs	45937.50
3	Add: Cost of Carriage including necessary loading - unloading from nearest Company Outlets /Stack yard/Godown to the site of execution (excluding Overhead Charges & Contractor"s Profit) = (Cost of Carriage including loading – unloading charges) / 1.15		Rs	235.11
	Loading & Unloading 96 x @ 0.75 =72.00x1.05	P-225,It-1.03(h)	75.60	L+U=75%
	Add cost of carriage 20 KM from Medinipur Stack yard	P-227,It-5		
	0-5 KM=82x1.05	Rs	86.10	
	5-10KM (7.30x5)=36.50x1.05	Rs	38.33	
	10-20KM (6.70x10)=67.00x1.05		70.35	
	20-50KM (6.30x30)		0.00	
	50-100KM (5.60x50)		0.00	
	100-150KM (5.30x50)		0.00	
	The rate provided is exclusive of cost of steel materials. Construction wing should add cost & carriage of 1.05 MT (considering 5% wastage) of steel materials to arrive at the final consolidated item rate. (P-297,Note)			
	TOTAL = Rs		270.38	
4	Add: Overhead Charges @ 5% /15% /20% of (2+3) as the case may be (vide Sl. 3 of PREMBLE).		Rs	2308.63
5	Add: Contractor"s Profit @ 10% of (2+3+4)		Rs	4848.12
	TOTAL (RS)		Rs	56637.36

Rate Aaysis for Cocrete(Format C,1st Corrigendum)Case-II											
Gradation of Stone Metal(Graded Aggregates)			20mm			10mm					
Cost of material from Pakur(Medinipur) P-222,11th Corrigenda,P-			1700.00			1569.00					
L+U(P-224,1.03(c))		57.75	337.25			337.25			L+U+S	77.00 L=40%	
Up to 20KM									L+U	57.75 U=35%	
P-227,It-3									S	19.25 S=25%	
Upto 5km		124.00							L=Loading		
5-10km 10.90X5		54.50							U=Unloading		
10-20km 10.10X10		101.00							S=Stacking		
20-50km 9.50X05		0.00									
50-100 8.40X50											
100-150 7.90X50											
		337.25							2037.25		
			Cement Concrete								
Cost of 20 mm stone chips			0.9	cum	0.6	0.54	2037.25	1100.12			
Cost of 10 mm stone chips			0.9	cum	0.4	0.36	1906.25	686.25			
P-208,Table No-3.2											
Cost of Cement(PPC/PSC/OPC43) P-215,11th Corrigenda & Addenda,P-1			(5717/1000)x400			2286.80			400kg Cement for M20 Ggrade(For Estimation purpose)From durability consideration, the value of minimum cement content and maximum water cement ratio to be considered in the mix design shall be as per the direction of the Engineer-inCharge.(P-323,Note-2)		
Providing and laying Design Mix concrete for plain / reinforced concrete work in any part of bridge (excluding bottom plugging) with coarse aggregates of appropriate nominal size and grading, fine aggregate (sand) conforming to proper grading zone, both of approved quality and cement, as necessary, including labour, cost and carriage of all materials and including preparation of design mix, approval of the same by the Engineer-in-Charge and cost for quality control, sampling, testing etc. all complete but excluding cost of labour and materials for formwork & reinforcement works.M-20 Grade.Using concrete mixer.(P=322,Item18.07(b))11th corrigendum						1389.00					
						Total 5462.17					
Gradation of Stone Metal(Graded Aggregates)			20mm			10mm					

Cost of material from Pakur(Medinipur) P-222,11th Corrigenda,P-7			1700.00		1569.00				
L+U(P-224,1.03(c))	57.75		337.25		337.25		L+U+S	77.00	L=40%
	Up to 20KM						L+U	57.75	U=35%
P-227,It-3							S	19.25	S=25%
Upto 5km	124.00						L=Loading		
5-10km	10.90X5	54.50					U=Unloading		
10-20km	10.10X10	101.00					S=Stacking		
20-50km	9.50X00	0.00							
50-100	8.40X50								
100-150	7.90X50								
	337.25						2037.25		1906.25
			Cement Concrete						
Cost of 20 mm stone chips	0.9		cum	0.6	0.54	2037.25	1100.12		
Cost of 10 mm stone chips	0.9		cum	0.4	0.36	1906.25	686.25		
P-208,Table No-3.2									
Cost of Cement(PPC/PSC/OPC43) P-215,11th Corrigenda & Adde			(5717/1000)x350				2000.95	350kg Cement for M15	
Providing and laying Design Mix concrete for plain / reinforced concrete work in any part of bridge (excluding bottom plugging) with coarse aggregates of appropriate nominal size and grading, fine aggregate (sand) conforming to proper grading zone, both of approved quality and cement, as necessary, including labour, cost and carriage of all materials and including preparation of design mix, approval of the same by the Engineer-in-Charge and cost for quality control, sampling, testing etc. all complete but excluding cost of labour and materials for formwork & reinforcement works.M-15 Grade.Using concrete mixer.(P=322,Item18.07(a))11th corrigendum							1325.00	Ggrade(For Estimation purpose)From durability consideration, the value of minimum cement content and maximum water cement ratio to be considered in the mix design shall be as per the direction of the Engineer-inCharge.(P-323,Note-2)	
					Total		5112.32		

Rate Analysis						
Rate Analysis of Sandy Moorum						
Description of Item			Moorum			
a)	Cost of Moorum at Quarry per cum (11th Corrigenda & Addenda to PWD (WB), SOR: 2015-16 Road & BridgeWorks P-3, It-7)		117.00			
b)	Carring charge from quarry to work site = 10 km					
	0 -5 KM	Rs 124.00				
	5 - 10 KM	Rs 54.50	178.50			
	TOTAL = Rs 178.50					
c)	Loading & Unloading 62.00 x @ 0.75		46.50			
Total cost of moorum per cum			342.00	Compaction factor .67		
Compaction by Moorum (70%) & Sand (30%)						
a)	Moorum (P-3, Sl No. - 7)	0.7	1	510.45	Rs	357.31
b)	Sand (P-3, Sl no-3)	0.3	1	342.22	Rs	102.66
c)	Labour and other cost (P-242, sl no - 4.04 & 4.05)				Rs	178.00
Total					Rs	637.98
Fine Sand						
	Cost at Site	305	rs/cum	L+U+S	77.00	L = 40%
	(11th Corrigenda & Addenda to PWD (WB), SOR: 2015-16 Road & Bridge Works P-3, It-3)			L+U	57.75	U = 35%
		-19.25	rs/cum	S	19.25	S = 25%
		285.75	rs/cum			
				L=Loading		
	Compacting Factor(280,12.04,Note 2)	0.835		U=Unloading		
				S=Stacking		
		342.22	rs/cum			
	Labour Charges	173.00	rs/cum			
	280,12.04 11th corrigendum					
	Total	515.22	rs/cum			
Boulder						
	Cost at Quarry	255				
	(45mm-150)					
	P-219,It no-6,11th Corrigendum					
	L+U(P-224,It 1.03A(a))	46.50		L+U+S	62	L=40%
	P-227,It-3			L+U	46.5	U=35%
	Upto 5km	124.00				S=25%
	5-10 10.90X5	54.50		L=Loading		
	10-20 10.10X10	101.00		U=Unloading		
	20-50 9.50X00	0.00		S=Stacking		
	50-100 8.40X00					
	100-300 7.90X00					
	Labour and other cost	172.00				
	(P-242,sl no-4.04)					
	Upto 30km	753.00				