Government of Tripura
Public Works Department

Volume - I

ANALYSIS OF RATES
for
TRIPURA SCHEDULE OF RATES
for
ROAD & BRIDGE WORKS
(PART-I to III)

Year:- 2020

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CHAPTER-1
CARRIAGE OF MATERIALS

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
1.1		**Loading and unloading of Stone Boulder, stone aggregate, Brick Aggregate, Kankar, earth, Crushed slag, Stone for Masorny Work by Mechanical Means including a lead upto 30m.**					
		Placing tipper at loading point, loading with front end loader, dumping, turning for return trip, excluding time for haulage and return trip					
		Unit = cum					
		Taking output = 5.5 cum					
		Time required for					
		i) Positioning of tipper at loading point	Min	1.000			
		ii) Loading by front end loader 1 cum bucket capacity @ 25 cum per hour		13.200			
		iii) Maneuvering, reversing, dumping and turning for return		2.000			
		iv) Waiting time, unforeseen contingencies etc		4.000			
		Total	Min	**20.200**			
		a) Machinery					
		Tipper 5.5 tonnes capacity	hour	0.3367	334.00	112.46	P&M-073
		Front end-loader 1 cum bucket capacity @ 25 cum/hour	hour	0.3367	920.00	309.76	P&M-030
		b) Add GST (multiplying factor) @ 0.1405 on (a)				59.32	
		c) Contractor's profit @ 15 % on (a+b)				72.23	
		d) Add Cess @ 1.00 % on (a+b+c)				5.54	
		Cost for 5.5 cum = a+b+c+d				559.31	
		Rate per cum = (a+b+c+d)/ 5.5				101.69	
					say	***101.70***	
1.2		**Loading and unloading of Stone Boulder, stone aggregate, Brick Aggregate, Kankar, earth, Crushed slag, Stone for Masorny Work by Manual Means including a lead upto 30m.**					
		Unit = cum					
		Taking output = 5.5 cum					
		a) Labour					
		Mate	day	0.030	310.00	9.30	L-17
		Mazdoor(unskilled)	day	0.750	310.00	232.50	L-18
		b) Machinery					
		Tipper 5.5 tonne capacity	hour	0.750	334.00	250.50	P&M-073
		c) Add GST (multiplying factor)@ 0.1405 on (a+b)				69.17	
		d) Contractor's profit @ 15 % on (a+b+c)				84.22	
		e) Add Cess @ 1.00 % on (a+b+c+d)				6.46	
		Cost for 5.5 cum = a+b+c+d+e				652.15	
		Rate per cum = (a+b+c+d+e)/5.5				118.57	
					say	***118.60***	
1.3		**Loading, Unloading of Cement or steel by Manual Means and stacking**					
		Unit = tonne					
		Taking output = 10 tonnes					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		a) Labour					
		Mate	day	0.080	310.00	24.80	L-17
		Mazdoor(unskilled)	day	2.000	310.00	620.00	L-18
		b) Machinery					
		Truck	hour	2.000	375.00	750.00	P&M-080
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				195.97	
		d) Contractor's profit @ 15 % on (a+b+c)				238.62	
		e) Add Cess @ 1.00 % on (a+b+c+d)				18.29	
		Cost for10 tonnes = a+b+c+d+e				1847.68	
		Rate per tonnes = (a+b+c+d+e)/10				184.77	
					say	***184.80***	
1.4		**Haulage excluding loading and unloading** Haulage of materials by tipper/ truck excluding cost of loading, unloading and stacking. ***Unit = t.km*** ***Taking output 10 tonnes load and lead 10 km = 100 t.km*** **(i) Surfaced Road**					
		Speed with load : 20 km/ hour. (Considering hilly roads and the timing of movement in Maeghalaya & Tripura on the NH)					
		Speed while Returning empty :35 km/ hour.					
		a) Machinery.					
		Tipper 10 tonne capacity					
		Time taken for onward haulage with load	hour	0.500	334.00	167.00	P&M-073
		Time taken for empty return trip.	hour	0.290	334.00	96.86	P&M-073
		b) Add GST (multiplying factor) @ 0.1405 on (a)				37.07	
		c) Contractor's profit @ 15 % on (a+b)				45.14	
		d) Add Cess @ 1.00 % on (a+b+c)				3.46	
		cost for 100 t km = a+b+c+d				349.53	
		Rate per t.km = (a+b+c+d)/100				3.50	
					say	***3.50***	
1.4		**(ii) Unsurfaced Graveled Road**					
		Speed with load: 20 km / hour Speed for empty return trip :30 km / hour					
		a) Machinery					
		Tipper 10 tonnes capacity					
		Time taken for onward haulage with load	hour	0.670	334.00	223.78	P&M-073
		Time taken for empty return trip	hour	0.330	334.00	110.22	P&M-073
		b) Add GST (multiplying factor) @ 0.1405 on (a)				46.93	
		c) Contractor's profit @ 15 % on (a+b)				57.14	
		d) Add Cess @ 1.00 % on (a+b+c)				4.38	
		Cost for 100 t .km = a+b+c+d				442.45	
		Rate per t.Km = (a+b+c+d)/100				4.42	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
					say	***4.40***	
1.4		**(iii) Katcha Track and Track in River Bed/Nallah Bed and Choe Bed.**					
		Speed with load :10 km / hour Speed while returning empty:15 km / hour					
		a) Machinery **Tipper 10 tonnes capacity**					
		Time taken for onward haulage	hour	1.000	334.00	334.00	P&M-073
		Time taken for empty return trip	hour	0.670	334.00	223.78	P&M-073
		b) Add GST (multiplying factor) @ 0.1405 on (a)				78.37	
		c) Contractor's profit @ 15 % on (a+b)				95.42	
		d) Add Cess @ 1.00 % on (a+b+c)				7.32	
		Cost for 100 t .km = a+b+c+d				738.89	
		Rate per t.Km = (a+b+c+d)/100				7.39	
					say	***7.40***	
1.5		**Hand Broken Stone Aggregates 63 mm Nominal Size** Supply of quarried stone, hand breaking into coarse aggregate 63 mm nominal size (passing 80 mm and retained on 50 mm sieve) and stacking as directed.					
		Unit = cum ***Taking output = 1 cum***					
		a) Labour					
		Mate	day	0.060	310.00	18.60	L-17
		Mazdoor(unskilled)	day	1.500	310.00	465.00	L-18
		b) Material					
		Supply of quarried stone 150 - 200 mm size	cum	1.100	3168.75	3485.63	M-152
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				557.68	
		d) Contractor's profit @ 15 % on (a+b+c)				679.04	
		e) Add Cess @ 1.00 % on (a+b+c+d)				52.06	
		Rate per cum = a+b+c+d+e				5258.00	
					say	***5258.00***	
1.6		**Crushing of Stone Aggregates 13.2 mm nominal Size.** Supply of Stone boulders and crushing in an integrated stone crushing unit of 200 t / h capacity comprising of primary and secondary crushing units, conveyor belt and vibrating screens to obtain stone aggregates 13.2 mm nominal size.					
		Unit = cum ***Taking Output = 600 cum at crusher location.***					
		a) Labour					
		Mate	day	0.760	310.00	235.60	L-17
		Mazdoor (Skilled)	day	2.000	395.00	790.00	L-20
		Mazdoor(unskilled)	day	17.000	310.00	5270.00	L-18
		b) Material					
		Stone Boulder of size 150 mm and below	cum	800.000	3149.00	2519200.00	M-183

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		c) Machinery					
		Integrated stone crusher of 200 TPH including belt conveyor and vibrating screens	Hour	6.000	13910.00	83460.00	P&M-059
		Front end loader 1 cum bucket capacity	Hour	20.000	920.00	18400.00	P&M-030
		Tipper 5.5 cum capacity	Hour	20.000	334.00	6680.00	P&M-073
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				370082.00	
		e) Contractor's profit @ 15 % on (a+b+c+d)				450617.64	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				34547.35	
		Cost for 600 cum = a+b+c+d+e+f				3489282.59	
		Rate per cum = (a+b+c+d+e+f)*0.95/600				**5524.70**	
					say	***5524.70***	
		Note:- 1. 800 cum of stone boulders are needed to get 600 cum of stone aggregates of size 13.2 mm. 2. 95 per cent of above cost will be attributed to the production of 600 cum of stone chips of 13.2 mm size and balance 5 per cent to the production of stone dust which comes out as a by-product. 3. The integrated stone crusher includes primary and secondary crushing units.					
1.7		**Crushing of Stone Aggregates 20 mm nominal Size** Supply of Stone boulders and crushing in an integrated stone crushing unit of 200 t / h capacity comprising of primary and secondary crushing units, conveyor belt and vibrating screens to obtain stone aggregates of 20 mm nominal size. ***Unit = cum*** ***Taking Output = 670 cum at crusher location.***					
		a) Labour					
		Mate	day	0.760	310.00	235.60	L-17
		Mazdoor (Skilled)	day	2.000	395.00	790.00	L-20
		Mazdoor(Unskilled)	day	17.000	310.00	5270.00	L-18
		b) Material					
		Stone Boulder of size 150 mm and below	cum	800.000	3149.00	2519200.00	M-183
		c) Machinery					
		Integrated stone crusher of 200 TPH including belt conveyor and vibrating screens	Hour	6.000	13910.00	83460.00	P&M-059
		Front end loader 1 cum bucket capacity	Hour	20.000	920.00	18400.00	P&M-030
		Tipper 5.5 cum capacity	Hour	20.000	334.00	6680.00	P&M-073
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				370082.00	
		e) Contractor's profit @ 15 % on (a+b+c+d)				450617.64	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				34547.35	
		Cost for 670 cum = a+b+c+d+e+f				3489282.59	
		Rate per cum = (a+b+c+d+e+f)*0.90/670				**4687.10**	
					say	***4687.10***	
		Note:- 1. 800 cum of stone boulders are needed to get 600 cum of stone aggregates of size 20 mm. 2. 90 per cent of above cost will be attributed to the production of 600 cum of stone aggregates of 20mm size and balance 10 per cent will be for smaller size aggregates and stone dust which comes out as a by-product. 3. The integrated stone crusher includes primary and secondary crushing units.					
1.8		**Crushing of Stone Aggregates 40 mm nominal Size** Supply of Stone boulders and crushing in an integrated stone crushing unit of 200 t / h capacity comprising of primary and secondary crushing units, conveyor belt and vibrating screens to obtain stone aggregates of 40 mm nominal size.					
		Unit = cum ***Taking Output = 750 cum at crusher location.***					
		a) Labour					
		Mate	day	0.760	310.00	235.60	L-17
		Mazdoor (Skilled)	day	2.000	395.00	790.00	L-20
		Mazdoor(unskilled)	day	17.000	310.00	5270.00	L-18
		b) Material					
		Stone Boulder of size 150 mm and below	cum	800.000	3149.00	2519200.00	M-183
		c) Machinery					
		Integrated stone crusher of 200 TPH including belt conveyor and vibrating screens	Hour	6.000	13910.00	83460.00	P&M-059
		Front end loader 1 cum bucket capacity	Hour	20.000	920.00	18400.00	P&M-030
		Tipper 5.5 cum capacity	Hour	20.000	334.00	6680.00	P&M-073
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				370082.00	
		e) Contractor's profit @ 15 % on (a+b+c+d)				450617.64	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				34547.35	
		Cost for 750 cum = (a+b+c+d+e+f)				3489282.59	
		Rate per cum = (a+b+c+d+e+f)x0.85/750				**3954.52**	
					say	***3954.50***	
		Note:- 1. 800 cum of stone boulders are needed to get 600 cum of stone aggregates of size 40 mm. 2. 85 per cent of above cost will be attributed to the production of 750 cum of stone aggregates of 40mm size and balance 15 per cent will be for smaller size aggregates and stone dust which comes out as a by-product. 3. The integrated stone crusher includes primary and secondary crushing units.					

CHAPTER-2
SITE CLEARANCE

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
2.1	201	**Cutting of Trees, including cutting of Trunks, Branches and Removal of stumps** Cutting of trees, including cutting of trunks, branches and removal of stumps & roots, refilling, compaction of backfilling and stacking of serviceable material by manual means with all lifts and lead up to 1000 metres as per MoRT&H Technical Specification Clause 201.					
		Unit = Each					
		(i) Girth from 300 mm to 600 mm					
		a) Labour					
		Mate	day	0.020	310.00	6.20	L-17
		Mazdoor (unskilled)	day	0.600	310.00	186.00	L-18
		b) Machinery					
		Tractor with trolley	hour	0.100	237.00	23.70	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				30.33	
		d) Contractor's profit @ 15 % on (a+b+c)				36.94	
		e) Add Cess @ 1.00 % on (a+b+c+d)				2.83	
		Rate for each tree = a+b+c+d+e				286.00	
					say	***286.00***	
		(ii) Girth from 600 mm to 900 mm					
		a) Labour					
		Mate	day	0.040	310.00	12.40	L-17
		Mazdoor (unskilled)	day	0.900	310.00	279.00	L-18
		b) Machinery					
		Tractor with trolley	hour	0.300	237.00	71.10	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				50.93	
		d) Contractor's profit @ 15 % on (a+b+c)				62.01	
		e) Add Cess @ 1.00 % on (a+b+c+d)				4.75	
		Rate for each tree = a+b+c+d+e				480.20	
					say	***480.20***	
		(iii) Girth from 900 mm to 1800 mm					
		a) Labour					
		Mate	day	0.080	310.00	24.80	L-17
		Mazdoor (unskilled)	day	2.000	310.00	620.00	L-18
		b) Machinery					
		Tractor with trolley	hour	0.400	237.00	94.80	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				103.91	
		d) Contractor's profit @ 15 % on (a+b+c)				126.53	
		e) Add Cess @ 1.00 % on (a+b+c+d)				9.70	
		Rate for each tree = a+b+c+d+e				979.74	
					say	***979.70***	
		(iv) Girth above 1800 mm					
		a) Labour					
		Mate	day	0.160	310.00	49.60	L-17
		Mazdoor (unskilled)	day	4.000	310.00	1240.00	L-18

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		b) Machinery					
		Tractor with trolley	hour	0.600	237.00	142.20	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				201.17	
		d) Contractor's profit @ 15 % on (a+b+c)				244.95	
		e) Add Cess @ 1.00 % on (a+b+c+d)				18.78	
		Rate for each tree = a+b+c+d+e				1896.69	
					say	***1896.70***	
2.2	**201**	**Clearing Grass and Removal of Rubbish**					
		Clearing grass and removal of rubbish up to a distance of 30 m outside the periphery of the area as per MoRT&H Technical Specification Clause 201.					
		By Manual Means					
		Unit = Hectare					
		Taking output = 1 Hectare					
		a) Labour					
		Mate	day	2.000	310.00	620.00	L-17
		Mazdoor (unskilled)	day	50.000	310.00	15500.00	L-18
		b) Add GST (multiplying factor) @ 0.1405 on (a)				2264.86	
		c) Contractor's profit @ 15 % on (a+b)				2757.73	
		d) Add Cess @ 1.00 % on (a+b+c+d)				211.43	
		Rate per Hectare = a+b+c+d				21354.01	
					say	***21354.00***	
2.3	**201**	**Clearing and Grubbing Road Land .**					
		Clearing and grubbing road land including uprooting wild vegetation , grass, bushes, shrubs, saplings and trees of girth upto 300 mm , removal of stumps of such trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned, upto a lead of 1000 m including removal and disposal of top organic soil not exceeding 150 mm in thickness as per MoRT&H Technical Specification clause 201.					
		Unit = Hectare					
		Taking output = 1 Hectare					
		(i) By Manual Means:-					
		A. In area of light jungle					
		a) Labour					
		Mate	day	6.000	310.00	1860.00	L-17
		Mazdoor (unskilled)	day	150.000	310.00	46500.00	L-18
		b) Machinery					
		Tractor with trolley	hour	1.000	237.00	237.00	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				6827.88	
		d) Contractor's profit @ 15 % on (a+b+c)				8313.73	
		e) Add Cess @ 1.00 % on (a+b+c+d)				637.39	
		Rate per Hectare = a+b+c+d+e				64376.00	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
					say	***64376.00***	
		B. In area of thorny jungle					
		a) Labour					
		Mate	day	8.000	310.00	2480.00	L-17
		Mazdoor (unskilled)	day	200.000	310.00	62000.00	L-18
		b) Machinery					
		Tractor with trolley	hour	2.000	237.00	474.00	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				9126.04	
		d) Contractor's profit @ 15 % on (a+b+c)				11112.01	
		e) Add Cess @ 1.00 % on (a+b+c+d)				851.92	
		Rate per Hectare = a+b+c+d+e				86043.96	
					say	***86044.00***	
		(ii) By Mechanical Means					
		A. In area of light jungle					
		a) Labour					
		Mate	day	0.160	310.00	49.60	L-17
		Mazdoor (unskilled)	day	4.000	310.00	1240.00	L-18
		b) Machinery					
		Dozer D 50 with attachment or suitable machinery for removal of trees & stumps	hour	10.000	2370.00	23700.00	P&M-022
		Tractor with trolley	hour	1.000	237.00	237.00	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				3544.34	
		d) Contractor's profit @ 15 % on (a+b+c)				4315.64	
		e) Add Cess @ 1.00 % on (a+b+c+d)				330.87	
		Rate per Hectare = a+b+c+d				33417.44	
					say	***33417.40***	
		B. In area of thorny jungle					
		a) Labour					
		Mate	day	0.240	310.00	74.40	L-17
		Mazdoor (unskilled)	day	6.000	310.00	1860.00	L-18
		b) Machinery					
		Dozer D 50 with attachment or suitable machinery for removal of trees & stumps	hour	12.000	2370.00	28440.00	P&M-022
		Tractor with trolley	hour	1.500	237.00	355.50	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				4317.55	
		d) Contractor's profit @ 15 % on (a+b+c)				5257.12	
		e) Add Cess @ 1.00 % on (a+b+c+d)				403.05	
		Rate per Hectare = a+b+c+d+e				40707.61	
					say	***40707.60***	

Note:- The top soil removed during clearing and grubbing of site, if suitable for re-use shall be transported, conserved and stacked as directed by the Engineer and shall be incidental to the work.

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
2.4	**202**	**Dismantling of Structures** Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding whenever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and upto a lead of 1000 m as per MoRT&H Technical Specification Clause 202.					
		Unit = cum ***Taking output = 1.25 cum*** **(i) Dismantling lime /Cement Concrete**					
		I. By Manual Means					
		A. Lime Concrete, cement concrete grade M-10 and below					
		a) Labour					
		Mate	day	0.040	310.00	12.40	L-17
		Mazdoor (unskilled)	day	1.000	310.00	310.00	L-18
		b) Machinery					
		Tractor with trolley	hour	0.270	237.00	63.99	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				54.29	
		d) Contractor's profit @ 15 % on (a+b+c)				66.10	
		e) Add Cess @ 1.00 % on (a+b+c+d)				5.07	
		Cost for 1.25 cum = a+b+c+d+e				511.85	
		Rate per cum = (a+b+c+d+e)/ 1.25				409.48	
					say	***409.50***	
		B. Cement Concrete Grade M-15 & M-20					
		a) Labour					
		Mate	day	0.050	310.00	15.50	L-17
		Mazdoor (unskilled)	day	1.250	310.00	387.50	L-18
		b) Machinery					
		Tractor with trolley	hour	0.270	237.00	63.99	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				65.61	
		d) Contractor's profit @ 15 % on (a+b+c)				79.89	
		e) Add Cess @ 1.00 % on (a+b+c+d)				6.12	
		Cost for 1.25 cum = a+b+c+d+e				618.62	
		Rate per cum = (a+b+c+d+e)/ 1.25				494.89	
					say	***494.90***	
		C. Prestressed / Reinforced cement concrete grade M-20 & above					
		a) Labour					
		Mate	day	0.150	310.00	46.50	L-17
		Blacksmith	day	0.250	418.00	104.50	L-03
		Mazdoor (unskilled)	day	3.500	310.00	1085.00	L-18
		b) Machinery					
		Tractor with trolley	hour	0.270	237.00	63.99	P&M-076

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				182.65	
		d) Contractor's profit @ 15 % on (a+b+c)				222.40	
		e) Add Cess @ 1.00 % on (a+b+c+d)				17.05	
		Cost for 1.25 cum = a+b+c+d+e				1722.08	
		Rate per cum = (a+b+c+d+e)/ 1.25				1377.67	
					say	***1377.70***	
		II. By Mechanical Means					
		A. Cement Concrete Grade M-15 & M-20					
		a) Labour					
		Mate	day	0.020	310.00	6.20	L-17
		Mazdoor (unskilled)	day	0.500	310.00	155.00	L-18
		b) Machinery					
		Air Compressor 210 cfm with 2 leads of pneumatic breaker @ 1.5 cum per hour	hour	0.670	210.00	140.70	P&M-001
		Tractor with trolley	hour	0.670	237.00	158.79	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				64.73	
		d) Contractor's profit @ 15 % on (a+b+c)				78.81	
		e) Add Cess @ 1.00 % on (a+b+c+d)				6.04	
		Cost for 1.25 cum = a+b+c+d+e				610.27	
		Rate per cum = (a+b+c+d+e)/ 1.25				488.22	
					say	***488.20***	
		B. Prestressed / reinforced cement concrete grade M-20 & above					
		a) Labour					
		Mate	day	0.050	310.00	15.50	L-17
		Mazdoor (unskilled)	day	0.910	310.00	282.10	L-18
		Blacksmith	day	0.250	418.00	104.50	L-03
		b) Machinery					
		Air Compressor 210 cfm with 2 leads of pneumatic breaker @ 1.00 cum per hour	hour	1.000	210.00	210.00	P&M-001
		Tractor with trolley	hour	1.000	237.00	237.00	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				119.30	
		d) Contractor's profit @ 15 % on (a+b+c)				145.26	
		e) Add Cess @ 1.00 % on (a+b+c+d)				11.14	
		Cost for 1.25 cum = a+b+c+d+e				1124.79	
		Rate per cum = (a+b+c+d+e)/ 1.25				899.84	
					say	***899.80***	
		(ii). Dismantling Brick / Tile work					
		A. In lime mortar					
		a) Labour					
		Mate	day	0.020	310.00	6.20	L-17
		Mazdoor (unskilled)	day	0.500	310.00	155.00	L-18
		b) Machinery					
		Tractor with trolley	hour	0.270	237.00	63.99	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				31.64	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		d) Contractor's profit @ 15 % on (a+b+c)				38.52	
		e) Add Cess @ 1.00 % on (a+b+c+d)				2.95	
		Cost for 1.25 cum = a+b+c+d+e				298.31	
		Rate per cum = (a+b+c+d+e)/ 1.25				238.65	
					say	***238.60***	
		B. In cement mortar					
		a) Labour					
		Mate	day	0.030	310.00	9.30	L-17
		Mazdoor (unskilled)	day	0.750	310.00	232.50	L-18
		b) Machinery					
		Tractor with trolley	hour	0.270	237.00	63.99	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				42.96	
		d) Contractor's profit @ 15 % on (a+b+c)				52.31	
		e) Add Cess @ 1.00 % on (a+b+c+d)				4.01	
		Cost for 1.25 cum = a+b+c+d+e				405.08	
		Rate per cum = (a+b+c+d+e)/ 1.25				324.06	
					say	***324.10***	
		C. In mud mortar					
		a) Labour					
		Mate	day	0.016	310.00	4.96	L-17
		Mazdoor (unskilled)	day	0.400	310.00	124.00	L-18
		b) Machinery					
		Tractor with trolley	hour	0.270	237.00	63.99	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				27.11	
		d) Contractor's profit @ 15 % on (a+b+c)				33.01	
		e) Add Cess @ 1.00 % on (a+b+c+d)				2.53	
		Cost for 1.25 cum = a+b+c+d+e				255.60	
		Rate per cum = (a+b+c+d+e)/ 1.25				204.48	
					say	***204.50***	
		D. Dry brick pitching or brick soling					
		a) Labour					
		Mate	day	0.014	310.00	4.34	L-17
		Mazdoor (unskilled)	day	0.350	310.00	108.50	L-18
		b) Machinery					
		Tractor with trolley	hour	0.270	237.00	63.99	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				24.84	
		d) Contractor's profit @ 15 % on (a+b+c)				30.25	
		e) Add Cess @ 1.00 % on (a+b+c+d)				2.32	
		Cost for 1.25 cum = a+b+c+d+e				234.25	
		Rate per cum = (a+b+c+d+e)/ 1.25				187.40	
					say	***187.40***	
		(iii) Dismantling Stone Masonry					
		A. Rubble stone masonry in lime mortar					
		a) Labour					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Mate	day	0.024	310.00	7.44	L-17
		Mazdoor (unskilled)	day	0.600	310.00	186.00	L-18
		b) Machinery					
		Tractor with trolley	hour	0.270	237.00	63.99	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				36.17	
		d) Contractor's profit @ 15 % on (a+b+c)				44.04	
		e) Add Cess @ 1.00 % on (a+b+c+d)				3.38	
		Cost for 1.25 cum = a+b+c+d+e				341.02	
		Rate per cum = (a+b+c+d+e)/ 1.25				272.81	
					say	***272.80***	
		B. Rubble stone masonry in cement mortar.					
		a) Labour					
		Mate	day	0.030	310.00	9.30	L-17
		Mazdoor (unskilled)	day	0.750	310.00	232.50	L-18
		b) Machinery					
		Tractor with trolley	hour	0.270	237.00	63.99	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				42.96	
		d) Contractor's profit @ 15 % on (a+b+c)				52.31	
		e) Add Cess @ 1.00 % on (a+b+c+d)				4.01	
		Cost for 1.25 cum = a+b+c+d+e				405.08	
		Rate per cum = (a+b+c+d+e)/ 1.25				324.06	
					say	***324.10***	
		C. Rubble Stone Masonry in mud mortar.					
		a) Labour					
		Mate	day	0.020	310.00	6.20	L-17
		Mazdoor (unskilled)	day	0.500	310.00	155.00	L-18
		b) Machinery					
		Tractor with trolley	hour	0.270	237.00	63.99	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				31.64	
		d) Contractor's profit @ 15 % on (a+b+c)				38.52	
		e) Add Cess @ 1.00 % on (a+b+c+d)				2.95	
		Cost for 1.25 cum = a+b+c+d+e				298.31	
		Rate per cum = (a+b+c+d+e)/ 1.25				238.65	
					say	***238.60***	
		D. Dry rubble masonry					
		a) Labour					
		Mate	day	0.018	310.00	5.58	L-17
		Mazdoor (unskilled)	day	0.450	310.00	139.50	L-18
		b) Machinery					
		Tractor with trolley	hour	0.270	237.00	63.99	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				29.37	
		d) Contractor's profit @ 15 % on (a+b+c)				35.77	
		e) Add Cess @ 1.00 % on (a+b+c+d)				2.74	
		Cost for 1.25 cum = a+b+c+d+e				276.95	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Rate per cum = (a+b+c+d+e)/ 1.25				221.56	
					say	***221.60***	
		E. Dismantling stone pitching/ dry stone spalls.					
		a) Labour					
		Mate	day	0.016	310.00	4.96	L-17
		Mazdoor (unskilled)	day	0.400	310.00	124.00	L-18
		b) Machinery					
		Tractor with trolley	hour	0.270	237.00	63.99	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				27.11	
		d) Contractor's profit @ 15 % on (a+b+c)				33.01	
		e) Add Cess @ 1.00 % on (a+b+c+d)				2.53	
		Cost for 1.25 cum = a+b+c+d+e				255.60	
		Rate per cum = (a+b+c+d+e)/ 1.25				204.48	
					say	***204.50***	
		F. Dismantling boulders laid in wire crates including opening of crates and stacking dismantled materials.					
		a) Labour					
		Mate	day	0.020	310.00	6.20	L-17
		Mazdoor (unskilled)	day	0.500	310.00	155.00	L-18
		b) Machinery					
		Tractor with trolley	hour	0.270	237.00	63.99	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				31.64	
		d) Contractor's profit @ 15 % on (a+b+c)				38.52	
		e) Add Cess @ 1.00 % on (a+b+c+d+)				2.95	
		Cost for 1.25 cum = a+b+c+d+e				298.31	
		Rate per cum = (a+b+c+d+e)/ 1.25				238.65	
					say	***238.60***	
		(iv) Dismantling Wood Work Wrought and Fixed in Frames of Trusses upto a height of 5 m above Plinth Level					
		Unit = cum					
		Taking output = 1.25 cum					
		a) Labour					
		Mate	day	0.060	310.00	18.60	L-17
		Carpenter 1st class	day	0.500	440.00	220.00	L-06
		Mazdoor (unskilled)	day	1.000	310.00	310.00	L-18
		b) Machinery					
		Tractor with trolley	hour	0.270	237.00	63.99	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				86.07	
		d) Contractor's profit @ 15 % on (a+b+c)				104.80	
		e) Add Cess @ 1.00 % on (a+b+c+d)				8.03	
		Cost for 1.25 cum = a+b+c+d+e				811.49	
		Rate per cum = (a+b+c+d+e)/ 1.25				649.19	
					say	***649.20***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		(v) Dismantling Steel Work in all Types of Sections upto a height of 5 m above Plinth Level excluding Cutting of rivet					
		Unit = tonne					
		Taking output = 1 tonne					
		A. Including dismembering					
		a) Labour					
		Mate	day	0.100	310.00	31.00	L-17
		Blacksmith	day	1.000	418.00	418.00	L-03
		Mazdoor (unskilled)	day	2.500	310.00	775.00	L-18
		Add 2.50 % of cost of labour for gas cutting, ropes, pulleys etc.				30.60	
		b) Machinery					
		Tractor with trolley	hour	0.170	237.00	40.29	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				181.93	
		d) Contractor's profit @ 15 % on (a+b+c)				221.52	
		e) Add Cess @ 1.00 % on (a+b+c+d)				16.98	
		Rate per tonne = a+b+c+d+e				1715.33	
					say	***1715.30***	
		B. Excluding dismembering.					
		a) Labour					
		Mate	day	0.080	310.00	24.80	L-17
		Mazdoor (unskilled)	day	2.000	310.00	620.00	L-18
		Blacksmith	day	0.500	418.00	209.00	L-03
		Add 2.50 % of cost of labour for gas cutting, ropes, pulleys etc.				21.35	
		b) Machinery					
		Tractor with trolley	hour	0.170	237.00	40.29	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				128.62	
		d) Contractor's profit @ 15 % on (a+b+c)				156.61	
		e) Add Cess @ 1.00 % on (a+b+c+d)				12.01	
		Rate per tonne = a+b+c+d+e				1212.67	
					say	***1212.70***	
		C. Extra over item No(v) A and(v) B for cutting rivets.					
		Unit = each					
		Taking output = 10 rivets					
		a) Labour					
		Mate	day	0.010	310.00	3.10	L-17
		Blacksmith	day	0.130	418.00	54.34	L-03
		Mazdoor (unskilled)	day	0.130	310.00	40.30	L-18
		b) Add GST (multiplying factor) @ 0.1405 on (a)				13.73	
		c) Contractor's profit @ 15 % on (a+b)				16.72	
		d) Add Cess @ 1.00 % on (a+b+c)				1.28	
		Cost for 10 rivets = a+b+c+d				129.48	
		Rate for each rivet = (a+b+c+d)/10				12.95	
					say	***12.90***	
		(vi) Scraping of Bricks Dismantled from Brick Work including Stacking.					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Unit = nos					
		Taking output = 1000 nos					
		A. In lime/Cement mortar					
		a) Labour					
		Mate	day	0.140	310.00	43.40	L-17
		Mazdoor (unskilled)	day	3.500	310.00	1085.00	L-18
		b) Add GST (multiplying factor) @ 0.1405 on (a)				158.54	
		c) Contractor's profit @ 15 % on (a+b)				193.04	
		d) Add Cess @ 1.00 % on (a+b+c)				14.80	
		Rate per 1000 Nos = a+b+c+d				1494.78	
					say	***1494.80***	
		B. In mud mortar					
		a) Labour					
		Mate	day	0.050	310.00	15.50	L-17
		Mazdoor (unskilled)	day	1.250	310.00	387.50	L-18
		b) Add GST (multiplying factor) @ 0.1405 on (a)				56.62	
		c) Contractor's profit @ 15 % on (a+b)				68.94	
		d) Add Cess @ 1.00 % on (a+b+c)				5.29	
		Rate per 1000 Nos = a+b+c+d				533.85	
					say	***533.90***	
		(vii) Scraping of Stone from Dismantled Stone Masonry					
		Unit = cum					
		Taking output = 1 cum					
		A. In cement and lime mortar					
		a) Labour					
		Mate	day	0.060	310.00	18.60	L-17
		Mazdoor (unskilled)	day	1.400	310.00	434.00	L-18
		b) Add GST (multiplying factor) @ 0.1405 on (a)				63.59	
		c) Contractor's profit @ 15 % on (a+b)				77.43	
		d) Add Cess @ 1.00 % on (a+b+c)				5.94	
		Rate per cum = a+b+c+d				599.56	
					say	***599.60***	
		B. In Mud mortar					
		a) Labour					
		Mate	day	0.010	310.00	3.10	L-17
		Mazdoor (unskilled)	day	0.300	310.00	93.00	L-18
		b) Add GST (multiplying factor) @ 0.1405 on (a)				13.50	
		c) Contractor's profit @ 15 % on (a+b)				16.44	
		d) Add Cess @ 1.00 % on (a+b+c)				1.26	
		Rate per cum = a+b+c+d				127.30	
					say	***127.30***	
		(viii) Scarping Plaster in Lime or Cement Mortar from Brick/ Stone Masonry					
		Unit = sqm					
		Taking output = 100 sqm					
		a) Labour					
		Mate	day	0.160	310.00	49.60	L-17
		Mazdoor (unskilled)	day	4.000	310.00	1240.00	L-18

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		b) Add GST (multiplying factor) @ 0.1405 on (a)				181.19	
		c) Contractor's profit @ 15 % on (a+b)				220.62	
		d) Add Cess @ 1.00 % on (a+b+c)				16.91	
		Cost for 100 sqm = a+b+c+d				1708.32	
		Rate per sqm = (a+b+c+d)/100				17.08	
					say	***17.10***	
		(ix) Removing all type of Hume Pipes and Stacking within a lead of 1000 metres including Earthwork and Dismantling of Masonry Works.					
		Unit = metre					
		Taking output = 1 metre					
		A. Up to 600 mm dia					
		a) Labour					
		Mate	day	0.020	310.00	6.20	L-17
		Mazdoor (unskilled)	day	0.520	310.00	161.20	L-18
		b) Add GST (multiplying factor) @ 0.1405 on (a)				23.52	
		c) Contractor's profit @ 15 % on (a+b)				28.64	
		d) Add Cess @ 1.00 % on (a+b+c)				2.20	
		Rate per metre = a+b+c+d				221.75	
					say	***221.80***	
		B. Above 600 mm to 900 mm dia					
		a) Labour					
		Mate	day	0.030	310.00	9.30	L-17
		Mazdoor (unskilled)	day	0.700	310.00	217.00	L-18
		b) Add GST (multiplying factor) @ 0.1405 on (a)				31.80	
		c) Contractor's profit @ 15 % on (a+b)				38.71	
		d) Add Cess @ 1.00 % on (a+b+c)				2.97	
		Rate per metre = a+b+c+d				299.78	
					say	***299.80***	
		C. Above 900 mm					
		a) Labour					
		Mate	day	0.050	310.00	15.50	L-17
		Mazdoor (unskilled)	day	1.200	310.00	372.00	L-18
		b) Add GST (multiplying factor) @ 0.1405 on (a)				54.44	
		c) Contractor's profit @ 15 % on (a+b)				66.29	
		d) Add Cess @ 1.00 % on (a+b+c)				5.08	
		Rate per metre = a+b+c+d				513.32	
					say	***513.30***	
		Note:- 1. The excavation of earth, dismantling of stone masonry work in head walls and protection works is not included which is to be measured and paid separately.					
		2. Credit for retrieved stone from masonry work may be taken as per actual availability.					
2.5	**202**	**Dismantling of Flexible Pavements**					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Dismantling of flexible pavements and disposal of dismantled materials with all lifts and upto a lead of 100 m, stacking serviceable materials and unserviceable materials separately as per MoRT&H Technical Specification Clause 202					
		Unit = cum					
		Taking output = 1 cum					
		I. By Manual Means					
		A. Bituminous courses					
		a) Labour					
		Mate	day	0.060	310.00	18.60	L-17
		Mazdoor (unskilled)	day	1.500	310.00	465.00	L-18
		b) Machinery					
		Tractor with trolley	hour	0.380	237.00	90.06	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				80.60	
		d) Contractor's profit @ 15 % on (a+b+c)				98.14	
		e) Add Cess @ 1.00 % on (a+b+c+d)				7.52	
		Rate per cum = a+b+c+d+e				759.92	
					say	***759.90***	
		B. Granular courses					
		a) Labour					
		Mate	day	0.040	310.00	12.40	L-17
		Mazdoor (unskilled)	day	1.000	310.00	310.00	L-18
		b) Machinery					
		Tractor with trolley	hour	0.330	237.00	78.21	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				56.29	
		d) Contractor's profit @ 15 % on (a+b+c)				68.53	
		e) Add Cess @ 1.00 % on (a+b+c+d)				5.25	
		Rate per cum = a+b+c+d+e				530.68	
					say	***530.70***	
		II. By Mechanical Means					
		A. Bituminous course					
		a) Labour					
		Mate	day	0.010	310.00	3.10	L-17
		Mazdoor (unskilled)	day	0.300	310.00	93.00	L-18
		b) Machinery					
		Tractor with trolley	hour	0.380	237.00	90.06	P&M-076
		Farm tractor with ripper @ 60 cum per hour	hour	0.017	223.00	3.79	P&M-075
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				26.69	
		d) Contractor's profit @ 15 % on (a+b+c)				32.50	
		e) Add Cess @ 1.00 % on (a+b+c+d)				2.49	
		Rate per cum = a+b+c+d+e				251.63	
					say	***251.60***	
2.6	**202**	**Dismantling of Cement Concrete Pavements as per MoRT&H Technical Specification Clause 202**					

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SITE CLEARANCE

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Dismantling of cement concrete pavements by mechanical means using pneumatic tools, breaking to pieces not exceeding 0.02 cum in volume and stock piling at designated locations and disposal of dismantled materials with all lifts and upto a lead of 1000 m, stacking serviceable materials and unserviceable materials separately as per MoRT&H Technical Specification Clause 202					
		Unit = cum					
		Taking output = 1 cum					
		(A) Up to full depth of concrete					
		a) Labour					
		Mate	day	0.030	310.00	9.30	L-17
		Mazdoor (semi skilled)	day	0.500	355.00	177.50	L-19
		Mazdoor (unskilled)	day	0.500	310.00	155.00	L-18
		b) Machinery					
		Air compressor 210 cfm with two leads for pneumatic cutters/ hammers @ 1 cum per hour	hour	1.000	210.00	210.00	P&M-001
		Tractor with trolley	hour	0.400	237.00	94.80	P&M-076
		Joint Cutting Machine with 2-3 blades	hour	1.000	166.00	166.00	P&M-041
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				114.17	
		d) Contractor's profit @ 15 % on (a+b+c)				139.02	
		e) Add Cess @ 1.00 % on (a+b+c+d)				10.66	
		Rate per cum = a+b+c+d+e				1076.44	
					say	***1076.40***	
		(B) Up to partial depth of concrete					
		a) Labour					
		Mate	day	0.030	310.00	9.30	L-17
		Mazdoor (semi skilled)	day	0.500	355.00	177.50	L-19
		Mazdoor (unskilled)	day	0.500	310.00	155.00	L-18
		b) Machinery					
		Air compressor 210 cfm with two leads for pneumatic cutters/ hammers @ 1 cum per hour	hour	1.000	210.00	210.00	P&M-001
		Tractor with trolley	hour	0.400	237.00	94.80	P&M-076
		Joint Cutting Machine with 2-3 blades	hour	1.000	166.00	166.00	P&M-041
		Concrete saw cutter	hour	0.250	315.00	78.75	P&M-016
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				125.23	
		d) Contractor's profit @ 15 % on (a+b+c)				152.49	
		e) Add Cess @ 1.00 % on (a+b+c+d)				11.69	
		Rate per cum = a+b+c+d+e				1180.76	
					say	***1180.80***	
2.7	**202**	**Dismantling of Guard Rails**					
		Dismantling of Guard rails by manual means and disposal of dismantled material with all lifts and upto a lead of 1000 m, stacking serviceable materials and unserviceable materials separately as per MoRT&H Technical Specification Clause 202					
		Unit = running metre					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Taking output = 1 metre					
		a) Labour					
		Mate	day	0.006	310.00	1.86	L-17
		Mazdoor (unskilled)	day	0.150	310.00	46.50	L-18
		b) Machinery					
		Tractor with trolley	hour	0.050	237.00	11.85	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				8.46	
		d) Contractor's profit @ 15 % on (a+b+c)				10.30	
		e) Add Cess @ 1.00 % on (a+b+c+d)				0.79	
		Rate per metre = a+b+c+d+e				79.76	
					say	***79.80***	
2.8	**202**	**Dismantling of Kerb Stone**					
		Dismantling of Kerb Stones by manual means and disposal of dismantled material with all lifts and upto a lead of 1000 m as per MoRT&H Technical Specification Clause 202					
		Unit = running metre					
		Taking output = 10 metre					
		a) Labour					
		Mate	day	0.006	310.00	1.86	L-17
		Mazdoor (unskilled)	day	0.150	310.00	46.50	L-18
		b) Machinery					
		Tractor with trolley	hour	0.200	237.00	47.40	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				13.45	
		d) Contractor's profit @ 15 % on (a+b+c)				16.38	
		e) Add Cess @ 1.00 % on (a+b+c+d)				1.26	
		Cost for 10 m = a+b+c+d				126.85	
		Rate per metre = (a+b+c+d+e)/10				12.69	
					say	***12.70***	
2.9	**202**	**Dismantling of Kerb Stone Channel**					
		Dismantling of Kerb Stone channels by manual means and disposal of dismantled material with all lifts and upto a lead of 1000 m as per MoRT&H Technical Specification Clause 202					
		Unit = running metre					
		Taking output = 10 metre					
		a) Labour					
		Mate	day	0.015	310.00	4.65	L-17
		Mazdoor (unskilled)	day	0.225	310.00	69.75	L-18
		b) Machinery					
		Tractor with trolley	hour	0.300	237.00	71.10	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				20.44	
		d) Contractor's profit @ 15 % on (a+b+c)				24.89	
		e) Add Cess @ 1.00 % on (a+b+c+d)				1.91	
		Cost for 10 m = a+b+c+d+e				192.74	
		Rate per metre = (a+b+c+d+e)/10				19.27	
					say	***19.30***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
2.10	**202**	**Dismantling of Kilometre Stone** Dismantling of Kilometre Stones including cutting of earth, and disposal of dismantled material with all lifts and upto a lead of 1000 m and backfilling of pit as per MoRT&H Technical Specification Clause 202 ***Unit = Each*** ***Taking output = one KM stone***					
	A	**A. 5th KM stone** Quantity of cement concrete = 0.392 cum					
		a) Labour					
		Mate	day	0.030	310.00	9.30	L-17
		Mazdoor (unskilled)	day	0.750	310.00	232.50	L-18
		b) Machinery					
		Tractor with trolley	hour	0.150	237.00	35.55	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				38.97	
		d) Contractor's profit @ 15 % on (a+b+c)				47.45	
		e) Add Cess @ 1.00 % on (a+b+c+d)				3.64	
		Rate for one 5th KM stone = a+b+c+d+e				367.40	
					say	***367.40***	
	B	**B. Ordinary KM Stone** Quantity of cement concrete = 0.269 cum					
		a) Labour					
		Mate	day	0.020	310.00	6.20	L-17
		Mazdoor (unskilled)	day	0.500	310.00	155.00	L-18
		b) Machinery					
		Tractor with trolley	hour	0.100	237.00	23.70	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				25.98	
		d) Contractor's profit @ 15 % on (a+b+c)				31.63	
		e) Add Cess @ 1.00 % on (a+b+c+d)				2.43	
		Rate for one ordinary KM stone = a+b+c+d+e				244.94	
					say	***244.90***	
	C	**C. 200 m Stone**					
		a) Labour					
		Mate	day	0.004	310.00	1.24	L-17
		Mazdoor (unskilled)	day	0.100	310.00	31.00	L-18
		b) Machinery					
		Tractor with trolley	hour	0.020	237.00	4.74	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				5.20	
		d) Contractor's profit @ 15 % on (a+b+c)				6.33	
		e) Add Cess @ 1.00 % on (a+b+c+d)				0.49	
		Rate for one Hectometre stone = a+b+c+d+e				48.99	
					say	***49.00***	
2.11	**202**	**Dismantling of Fencing**					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Dismantling of barbed wire fencing / wire mesh fencing including posts, foundation concrete, backfilling of pit by manual means including disposal of dismantled material with all lifts and upto a lead of 1000 m and stacking the serviceable and unserviceable material separately as per MoRT&H Technical Specification Clause 202					
		Unit = running metre					
		Taking output = 30 metres					
		a) Labour					
		Mate	day	0.150	310.00	46.50	L-17
		Mazdoor (unskilled)	day	3.000	310.00	930.00	L-18
		Blacksmith	day	0.750	418.00	313.50	L-03
		b) Machinery					
		Tractor with trolley	hour	0.150	237.00	35.55	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				186.24	
		d) Contractor's profit @ 15 % on (a+b+c)				226.77	
		e) Add Cess @ 1.00 % on (a+b+c+d)				17.39	
		Cost for 30 metres = a+b+c+d+e				1755.94	
		Rate per metre = (a+b+c+d+e)/30				58.53	
					say	***58.50***	
2.12	**202**	**Dismantling of CI Water Pipe Line**					
		Dismantling of CI water pipe line upto 600 mm dia including disposal with all lifts and upto a lead of 1000 m and stacking the serviceable and unserviceable material separately under supervision of the concerned department but excluding earth excavation and dismantling of masonry works as per MoRT&H Technical Specification Clause 202					
		Unit = running metre					
		Taking output = 10 metres					
		a) Labour					
		Mate	day	0.090	310.00	27.90	L-17
		Mazdoor (unskilled)	day	2.000	310.00	620.00	L-18
		Plumber	day	0.250	395.00	98.75	L-23
		b) Machinery					
		Truck 10 tonne capacity	hour	0.250	375.00	93.75	P&M-080
		Light Crane 3 tonne capacity	hour	0.500	500.00	250.00	P&M-020
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				153.20	
		d) Contractor's profit @ 15 % on (a+b+c)				186.54	
		e) Add Cess @ 1.00 % on (a+b+c+d)				14.30	
		Cost for 10 metres = a+b+c+d+e				1444.44	
		Rate per metre = (a+b+c+d+e)/10				144.44	
					say	***144.40***	
		Note:- The rate analysis does not include any excavation in earth or dismantling of masonry works which are to be measured and paid separately.					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
2.13	**202**	**Removal of Cement Concrete Pipe of Sewer Gutter** Removal of Cement Concrete Pipe of Sewer Gutter upto 1500 mm dia under the supervision of the concerned department including disposal with all lifts and upto a lead of 1000 m and stacking the serviceable and unserviceable material separately but excluding earth excavation and dismantling of masonry works as per MoRT&H Technical Specification Clause 202. ***Unit = running metre*** ***Taking output = 10 metres*** **a) Labour**					
		Mate	day	0.100	310.00	31.00	L-17
		Mazdoor (unskilled)	day	2.500	310.00	775.00	L-18
		b) Machinery					
		Crane up to 8 tonne capacity	hour	0.300	1150.00	345.00	P&M-018
		Truck flat body 10 tonne	hour	1.000	375.00	375.00	P&M-080
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				214.40	
		d) Contractor's profit @ 15 % on (a+b+c)				261.06	
		e) Add Cess @ 1.00 % on (a+b+c+d)				20.01	
		Cost for 10 metres = a+b+c+d+e				2021.48	
		Rate per metre = (a+b+c+d+e)/10				202.15	
					say	***202.10***	
		Note:- The rate analysis does not include any excavation in earth or dismantling of masonry works which are to be measured and paid separately.					
2.14	**202**	**Removal of Telephone / Electric Poles and Lines** Removal of telephone / Electric poles including excavation and dismantling of foundation concrete and lines under the supervision of concerned department, disposal with all lifts and up to a lead of 1000 metres and stacking the serviceable and unserviceable material separately ***Unit = each*** ***Taking output = 30 Nos*** ***a) Labour***					
		Mate	day	0.480	310.00	148.80	L-17
		Mazdoor (unskilled)	day	10.000	310.00	3100.00	L-18
		Electrician/Lineman	day	2.000	395.00	790.00	L-12
		b) Machinery					
		Tractor with trolley	hour	1.500	237.00	355.50	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				617.40	
		d) Contractor's profit @ 15 % on (a+b+c)				751.75	
		e) Add Cess @ 1.00 % on (a+b+c+d)				57.63	
		Cost for 30 poles = a+b+c+d+e				5821.09	
		Rate per pole = (a+b+c+d+e)/30				194.04	
					say	***194.00***	

CHAPTER - 3
EARTH WORK, EROSION CONTROL AND DRAINAGE

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
3.1	**300**	**Excavation in Soil by Manual Means .**					
		(i) Excavation in Roadway cutting in soil by using manual means including loading in truck and carrying of cut earth to embankment site with all lifts and lead upto 1000 metre as per MoRT&H Technical Specification clauses of section 300.					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	1.800	310.00	558.00	L-17
		Mazdoor(Unskilled)	day	45.000	310.00	13950.00	L-18
		b) Machinery					
		Truck 5.5 cum capacity	hour	10.000	375.00	3750.00	P&M-080
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				2565.25	
		d) Contractor's profit @ 15 % on (a+b+c)				3123.49	
		e) Add Cess @ 1.00 % on (a+b+c+d)				239.47	
		Cost of 120 cum = a+b+c+d+e				24186.20	
		Rate per cum = (a+b+c+d+e)/120				201.55	
					say	***201.60***	
		(ii) Excavation in Roadway cutting in soil by using manual means and carrying of cut earth to embankment site with all lifts and lead upto 50 metre as per MoRT&H Technical Specification clauses of section 300.					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	1.800	310.00	558.00	L-17
		Mazdoor(Unskilled)	day	45.000	310.00	13950.00	L-18
		b) Add GST (multiplying factor) @ 0.1405 on (a)				2038.37	
		c) Contractor's profit @ 15 % on (a+b)				2481.96	
		d) Add Cess @ 1.00 % on (a+b+c)				190.28	
		Cost of 120 cum = a+b+c+d				19218.61	
		Rate per cum = (a+b+c+d)/120				160.16	
					say	***160.20***	
3.2	**300**	**Excavation in Ordinary Rock by Manual Means**					
		(i) Excavation in Roadway cutting in ordinary rock by using manual means including loading in truck and carrying of cut earth to embankment site with all lifts and lead upto 1000 metre as per MoRT&H Technical Specification clauses of section 300.					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	2.800	310.00	868.00	L-17
		Mazdoor(Unskilled)	day	70.000	310.00	21700.00	L-18
		b) Machinery					
		Truck 5.5 cum capacity	hour	10.000	375.00	3750.00	P&M-080
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				3697.68	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		d) Contractor's profit @ 15 % on (a+b+c)				4502.35	
		e) Add Cess @ 1.00 % on (a+b+c+d)				345.18	
		Cost for 120 cum = a+b+c+d+e				34863.21	
		Rate per cum = (a+b+c+d+e)/120				290.53	
					say	***290.50***	
		(ii) Excavation in Roadway cutting in ordinary rock by using manual means and carrying of cut earth to embankment site with all lifts and lead upto 50 metre as per MoRT&H Technical Specification clauses of section 300.					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	2.800	310.00	868.00	L-17
		Mazdoor(Unskilled)	day	70.000	310.00	21700.00	L-18
		b) Add GST (multiplying factor) @ 0.1405 on (a)				3170.80	
		c) Contractor's profit @ 15 % on (a+b)				3860.82	
		d) Add Cess @ 1.00 % on (a+b+c)				296.00	
		Cost for 120 cum = a+b+c+d				29895.62	
		Rate per cum = (a+b+c+d)/120				249.13	
					say	***249.10***	
3.3	**300**	**Excavation in Soil with Dozer with lead upto 100 metres** Excavation for roadway in soil by mechanical means with Dozer including cutting and pushing the earth to site of embankment upto a distance of 100 m (average lead of 50 metres), including trimming bottom and side slopes in accordance with requirements of lines, grades and cross-sections as per MoRT&H Technical Specification clauses of section 300.					
		Unit = cum					
		Taking output = 180 cum					
		a) Labour					
		Mate	day	0.080	310.00	24.80	L-17
		Mazdoor(Unskilled)	day	2.000	310.00	620.00	L-18
		b) Machinery					
		Dozer D-80 for cutting & spreading @30 cum per hour	hour	6.000	2370.00	14220.00	P&M-023
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				2088.50	
		d) Contractor's profit @ 15 % on (a+b+c)				2543.00	
		e) Add Cess @ 1.00 % on (a+b+c+d)				194.96	
		Cost for 180 cum = a+b+c+d+e				19691.26	
		Rate per cum = (a+b+c+d+e)/180				109.40	
					say	***109.40***	
3.4	**300**	**Excavation in Ordinary Rock with Dozer with lead upto 100 metres**					

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EARTH WORK, EROSION CONTROL AND DRAINAGE

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Excavation for roadway in ordinary rock by deploying a dozer, 80 HP including cutting and pushing the cut earth to site of embankment upto a distance of 100 metres (average lead 50 metres), trimming bottom and side slopes in accordance with the requirements of lines, grades and cross sections.					
		Unit = cum					
		Taking output = 108 cum					
		a) Labour					
		Mate	day	0.120	310.00	37.20	L-17
		Mazdoor(Unskilled)	day	3.000	310.00	930.00	L-18
		b) Machinery					
		Dozer D-80 for cutting & spreading @20 cum per hour	hour	6.000	2370.00	14220.00	P&M-023
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				2133.80	
		d) Contractor's profit @ 15 % on (a+b+c)				2598.15	
		e) Add Cess @ 1.00 % on (a+b+c+d)				199.19	
		Cost for 108 cum = a+b+c+d+e				20118.34	
		Rate per cum = (a+b+c+d+e)/108				186.28	
					say	***186.30***	
3.5	**300**	**Excavation in Hard Rock (requiring blasting)with disposal upto 1000 metres** Excavation for roadway in hard rock (requiring blasting) by drilling, blasting and breaking, trimming bottom and side slopes in accordance with requirements of lines, grades and cross-sections loading and disposal of cut earth with all lifts and leads upto 1000 metres as per MoRT&H Technical Specification clauses of section 300.					
		Unit = cum					
		Taking 0utput = 180 cum					
		a) Labour					
		Mate	day	0.220	310.00	68.20	L-17
		Mazdoor(Unskilled)	day	3.000	310.00	930.00	L-18
		Driller	day	2.000	395.00	790.00	L-11
		Blaster	day	0.250	440.00	110.00	L-04
		b) Machinery					
		Dozer D-80 for cutting & spreading @30 cum per hour	hour	6.000	2370.00	14220.00	P&M-023
		Air compressor, 250 cfm with 2 jack hammer	hour	6.000	210.00	1260.00	P&M-001
		Front end loader 1 cum bucket capacity capcity @30 cum per hour	hour	6.000	920.00	5520.00	P&M-030
		Tipper 5.50 cum capacity	hour	11.250	334.00	3757.50	P&M-073
		c) Materials					
		Gelatin 80 per cent	kg	63.000	126.00	7938.00	M-105
		Electric Detonators @ 1 detonator for 2 gelatin sticks of 285 gms each	each	252.000	17.00	4282.74	M-087
		Credit for excavated rock found suitable for use @ 50 per cent quantity blasted	cum	90.000	1989.00	179010.00	M-241
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				30613.04	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		e) Contractor's profit @ 15 % on (a+b+c+d)				37274.92	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				2857.74	
		Cost for 180 cum = a+b+c+d+e+f				288632.15	
		Rate per cum = (a+b+c+d+e+f)/180				1603.51	
					say	***1603.50***	
		Note:- 1. The quality and availability of rock shall be checked before affording credit. 2. In case some rock is issued to the contractor at site, the item of carriage shall be reduced/restricted to that extent. 3. Credit for useful materials received at per site conditions shall be taken into account. This has been assumed 50 percent for the pupose of analysis.					
3.6	**300**	**Excavation in Soil using Hydraulic Excavator CK 90 and Tippers with Disposal upto 1000 metres.** Excavation for roadwork in soil with hydraulic excavator of 0.9 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes in accordance with requirements of lines, grades and cross-sections and transporting to the embankment location with all lifts and lead upto 1000 m as per MoRT&H Technical Specification clauses of section 300.					
		Unit = cum					
		Taking output = 360 cum					
		a) Labour					
		Mate	day	0.080	310.00	24.80	L-17
		Mazdoor(Unskilled)	day	2.000	310.00	620.00	L-18
		b) Machinery					
		Hydraulic excavator 0.9 cum bucket capacity @ 60 cum per hour	hour	6.000	1200.00	7200.00	P&M-034
		Tipper 5.5 cumwith 10 T capacity, 4 trips per hour.	hour	16.000	334.00	5344.00	P&M-073
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				1853.03	
		d) Contractor's profit @ 15 % on (a+b+c)				2256.27	
		e) Add Cess @ 1.00 % on (a+b+c+d)				172.98	
		Cost for 360 cum = a+b+c+d+e				17471.08	
		Rate per cum = (a+b+c+d+e)/360				48.53	
					say	***48.50***	
3.7	**300**	**Excavation in Ordinary Rock using Hydraulic Excavator CK-90 and Tippers with Disposal upto 1000 metres.**					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Excavation for roadwork in ordinary rock with hydraulic excavator of 0.9 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes in accordance with requirements of lines, grades and cross-sections and transporting to the embankment location with all lifts and lead upto 1000 m as per MoRT&H Technical Specification clauses of section 300					
		Unit = cum					
		Taking output = 240 cum					
		a) Labour					
		Mate	day	0.080	310.00	24.80	L-17
		Mazdoor	day	2.000	310.00	620.00	L-18
		b) Machinery					
		Hydraulic Excavator 0.90 cum bucket capacity @ 36 cum per hour	hour	6.000	1200.00	7200.00	P&M-034
		Tipper 5.5 cumwith 10 T capacity, 4 trips per hour.	hour	11.000	334.00	3674.00	P&M-073
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				1618.39	
		d) Contractor's profit @ 15 % on (a+b+c)				1970.58	
		e) Add Cess @ 1.00 % on (a+b+c+d)				151.08	
		Cost for 240 cum = a+b+c+d+e				15258.85	
		Rate per cum = (a+b+c+d+e)/240				63.58	
					say	***63.60***	
3.8	**300**	**Excavation in Hard Rock (blasting prohibited)** Excavation for roadwork in hard rock (blasting prohibited) with hydraulic excavator of 0.9 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes in accordance with requirements of lines, grades and cross-sections and transporting to the embankment location with all lifts and lead upto 1000 m as per MoRT&H Technical Specification clauses of section 300					
		A. By Mechanical Means					
		Unit = cum					
		Taking output = 36 cum					
		a) Labour					
		Mate	day	0.400	310.00	124.00	L-17
		Mazdoor(Unskilled) for trimming slopes including mannul loading in truck	day	10.000	310.00	3100.00	L-18
		b) Machinery					
		Hydraulic excavator with rock breaker attachment @ 6 cum per hour	hour	6.000	1200.00	7200.00	P&M-034
		Tipper 5.5 cum capacity, 1 trip per hour.	hour	6.500	334.00	2171.00	P&M-073
		Credit for excavated rock found suitable for use @ 50 per cent of excavated quantity	cum	18.000	1989.00	35802.00	M-241
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				6799.78	
		d) Contractor's profit @ 15 % on (a+b+c)				8279.52	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		e) Add Cess @ 1.00 % on (a+b+c+d)				634.76	
		Cost for 36 cum = a+b+c+d+e				64111.06	
		Rate per cum = (a+b+c+d+e)/36				1780.86	
					say	***1780.90***	
		Note:- 1. The quality and availability of rock shall be checked before affording credit. 2. In case some rock is issued to the contractor at site, the item of carriage shall be restricted/reduced to that extent. 3.Being small quantity, manual loading will be economical in this case and has been provided accordingly. 4. Credit for useful materials received at per site conditions shall be taken into account. This has been assumed 50 percent for the pupose of analysis.					
		B. By Manual Means					
		Unit = cum					
		Taking output = 16 cum					
		a) Labour					
		Mate	day	1.600	310.00	496.00	L-17
		Mazdoor(Unskilled)	day	16.000	310.00	4960.00	L-18
		Chiseller	day	24.000	310.00	7440.00	L-09
		Blacksmith	day	1.000	418.00	418.00	L-03
		b) Machinery					
		Tipper 5.5 cum capacity, 1 trip per hour.	hour	2.900	334.00	968.60	P&M-073
		Credit for excavated rock found suitable for use @ 50 per cent of excavated	cum	8.000	1989.00	15912.00	M-241
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				4242.34	
		d) Contractor's profit @ 15 % on (a+b+c)				5165.54	
		e) Add Cess @ 1.00 % on (a+b+c+d)				396.02	
		Cost for 16 cum = a+b+c+d+e				39998.51	
		Rate per cum = (a+b+c+d+e)/16				2499.91	
					say	***2499.90***	
		Note:- 1. The quality and availability of rock shall be checked before affording credit. 2. In case some rock is issued to the contractor at site, the item of carriage shall be restricted/reduced to that extent. 3.Being small quantity, manual loading will be economical in this case and has been provided accordingly. 4. Credit for useful materials received at per site conditions shall be taken into account. This has been assumed 50 percent for the pupose of analysis.					
3.9	**300**	**Excavation in Hard Rock (controlled blasting) with disposal upto 1000 metres**					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Excavation for roadway in hard rock with controlled blasting by drilling, blasting and breaking, trimming bottom and side slopes in accordance with requirements of lines, grades and cross-sections, loading and disposal of cut earth with all lifts and leads upto 1000 m as per MoRT&H Technical Specification clauses of section 300					
		Unit = cum					
		Taking output = 180 cum					
		a) Labour					
		Mate	day	0.220	310.00	68.20	L-17
		Mazdoor(Unskilled)	day	3.000	310.00	930.00	L-18
		Driller	day	2.000	395.00	790.00	L-11
		Blaster	day	0.500	440.00	220.00	L-04
		b) Machinery					
		Dozer 80 HP @ 30 cum per hour	hour	6.000	2370.00	14220.00	P&M-023
		Air compressor, 250 cfm with 2 jack hammers	hour	6.000	210.00	1260.00	P&M-001
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-031
		Tipper 5.5 cumwith 10 T capacity, 4 trips per hour.	hour	8.200	334.00	2738.80	P&M-073
		c) Materials					
		Gelatin 80 per cent	kg	63.000	126.00	7938.00	M-105
		Electric Detonators @ 1 detonator for1/2 gelatin stick of 125 gms each	each	1008.00	17.00	17130.96	M-087
		Credit for excavated rock found suitable for use @ 50 per cent quantity blasted	cum	90.000	1989.00	179010.00	M-241
		Add 5 per cent of cost of a+b+c towards muffling arrangements to guard against any rock fly off during blasting				11491.30	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				33905.07	
		e) Contractor's profit @ 15 % on (a+b+c+d)				41283.35	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				3165.06	
		Cost for 180 cum = a+b+c+d+e+f				319670.74	
		Rate per cum = (a+b+c+d+e+f)/180				1775.95	
					say	***1775.90***	
		Note:- 1. The quality and availability of rock shall be checked before affording credit. 2. In case some rock is issued to the contractor at site, the item of carriage shall be reduced/ resricted to that extent. 3. Credit for useful materials received at per site conditions shall be taken into account. This has been assumed 50 percent for the pupose of analysis.					
3.10	**300**	**Excavation in Marshy Soil**					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Excavation for roadway in marshy soil with hydraulic excavator 0.9 cum bucket capacity including cutting and loading in tippers and disposal with all lifts and lead upto 1000 m trimming of bottom and side slopes in accordance with requirements of lines, grades and cross - sections as per MoRT&H Technical Specification clauses of section 300.					
		Unit = cum					
		Taking output = 300 cum					
		a) Labour					
		Mate	day	0.080	310.00	24.80	L-17
		Mazdoor	day	2.000	310.00	620.00	L-18
		b) Machinery					
		Hydraulic excavator 0.90 cum bucket capacity @ 50 cum per hour	hour	6.000	1200.00	7200.00	P&M-034
		Tipper 5.5 cumwith 10 T capacity, 4 trips per hour.	hour	13.640	334.00	4555.76	P&M-073
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				1742.28	
		d) Contractor's profit @ 15 % on (a+b+c)				2121.43	
		e) Add Cess @ 1.00 % on (a+b+c+d)				162.64	
		Cost for 300 cum = a+b+c+d+e				16426.91	
		Rate per cum = (a+b+c+d+e)/300				54.76	
					say	***54.80***	
3.11	**300**	**Removal of Unserviceable Soil with Disposal upto 1000 metres** Removal of unsuitable soil including excavation, loading and disposal upto 1000 m lead with all lifts but excluding compaction ground supporting embankment / subgrade, replacement by suitable soil, which shall be paid separately as per MoRT&H Technical Specification clauses of section 300.					
		Unit = cum					
		Taking output = 360 cum					
		a) Labour					
		Mate	day	0.080	310.00	24.80	L-17
		Mazdoor(Unskilled)	day	2.000	310.00	620.00	L-18
		b) Machinery					
		Excavator0.90 cum bucket capacity @ 60 cum per hour	hour	6.000	1200.00	7200.00	P&M-034
		Tipper 5.5 cumwith 10 T capacity, 4 trips per hour.	hour	16.360	334.00	5464.24	P&M-073
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				1869.92	
		d) Contractor's profit @ 15 % on (a+b+c)				2276.84	
		e) Add Cess @ 1.00 % on (a+b+c+d)				174.56	
		Cost for 360 cum = a+b+c+d+e				17630.36	
		Rate per cum = (a+b+c+d+e)/360				48.97	
					say	***49.00***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Note:- This item does not include replacement of unsuitable soil by suitable soil. Replacement, where required, is to be provided and paid separately.					
3.12	**300**	**Presplitting of Rock Excavation Slopes**					
		Carrying out excavation in hard rock to achieve a specified slope of the rock face by controlled use of explosives and blasting accessories in properly aligned and spaced drill holes, collection of the excavated rock by a 80 HP dozer, loading in tipper by a front end loader and disposal of the material with all lifts and leads upto 1000 m as per MoRT&H Technical Specification clauses of section 300 ***Unit = sqm*** ***Taking output = 400 sqm(120 cum considering 300mm average depth of excavation over the existing rock face)***					
		a) Labour					
		Mate	day	0.600	310.00	186.00	L-17
		Mazdoor(Unskilled)	day	15.000	310.00	4650.00	L-18
		Driller	day	3.000	395.00	1185.00	L-11
		Blaster	day	0.500	440.00	220.00	L-04
		b) Machinery					
		Dozer D-80 for cutting & spreading @30 cum per hour	hour	6.000	2370.00	14220.00	P&M-022
		Air compressor 250 cfm with 2 leads @ 20 cum per hour	hour	6.000	210.00	1260.00	P&M-001
		Front end loader 1 cum bucket capacity @ 20 cum per hour	hour	6.000	920.00	5520.00	P&M-030
		Tipper 5.5 cum capacity	hour	8.200	334.00	2738.80	P&M-073
		c) Materials					
		Gelatin 80 per cent	kg	42.000	126.00	5292.00	M-105
		Electric Detonators @ 1 detonator for 1/2 gelatin stick of 125 gms each	each	672.000	17.00	11420.64	M-087
		Add 5.00% towards muffling arrangements to guard against any rock fly off during blasting				2334.62	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				6888.30	
		e) Contractor's profit @ 15 % on (a+b+c+d)				8387.30	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				643.03	
		Cost for 400 sqm = a+b+c+d+e+f				64945.70	
		Rate per sqm = (a+b+c+d+e+f)/400				162.36	
					say	***162.40***	
		Note:- In case blasted rock is used to the contractor against payment for constructed work, the cost of carriage shall be reduced to that extent.					
3.13	**300**	**Excavation for Structures**					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom, backfilling the excavation earth to the extent required and utilising the remaining earth locally for road work as per MoRT&H Technical Specification clauses of section 300					
		(i) Ordinary soil					
		Unit = cum					
		Taking output = 10 cum					
		A. By Manual Means (upto 3 m depth)					
		a) Labour					
		Mate	day	0.320	310.00	99.20	L-17
		Mazdoor(Unskilled)	day	8.000	310.00	2480.00	L-18
		b) Add GST (multiplying factor) @ 0.1405 on (a)				362.38	
		c) Contractor's profit @ 15 % on (a+b)				441.24	
		d) Add Cess @ 1.00 % on (a+b+c)				33.83	
		Cost for 10 cum = a+b+c+d				3416.64	
		Rate per cum = (a+b+c+d)/10				341.66	
					say	***341.70***	
		Note:- Cost of dewatering may be added where required upto 10 per cent of labour cost Assessment for dewatering shall be made as per site conditions..					
		B. By Mechanical Means (upto 3 m depth)					
		Unit = cum					
		Taking output = 300 cum					
		a) Labour					
		Mate	day	0.320	310.00	99.20	L-17
		Mazdoor	day	8.000	310.00	2480.00	L-18
		b) Machinery					
		Hydraulic excavator 0.9 cum bucket capacity @ 100 cum per hour	hour	6.000	1200.00	7200.00	P&M-034
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				1373.98	
		d) Contractor's profit @ 15 % on (a+b+c)				1672.98	
		e) Add Cess @ 1.00 % on (a+b+c+d)				128.26	
		Cost for 300 cum = a+b+c+d+e				12954.42	
		Rate per cum = (a+b+c+d+e)/300				43.18	
					say	***43.20***	
		Note:- Cost of dewatering upto 5 per cent of (a+b) may be added, where required. Assessment for dewatering shall be made as per site conditions..					
		(ii) Ordinary Rock (not requiring blasting)					
		A. By Manual Means (upto 3 m depth)					
		Unit = cum					
		Taking output = 10 cum					
		a) Labour					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Mate	day	0.400	310.00	124.00	L-17
		Mazdoor	day	10.000	310.00	3100.00	L-18
		b) Add GST (multiplying factor) @ 0.1405 on (a)				452.97	
		c) Contractor's profit @ 15 % on (a+b)				551.55	
		d) Add Cess @ 1.00 % on (a+b+c)				42.29	
		Cost for 10 cum = a+b+c+d				4270.80	
		Rate per cum = (a+b+c+d)/10				427.08	
					say	***427.10***	
		Note:- Cost of dewatering upto 10 per cent of labour cost may be added, where required. Assessment for dewatering shall be made as per site conditions..					
		B. By Mechanical Means (upto 3 m depth)					
		Unit = cum					
		Taking output = 216 cum					
		a) Labour					
		Mate	day	0.240	310.00	74.40	L-17
		Mazdoor	day	6.000	310.00	1860.00	L-18
		b) Machinery					
		Hydraulic excavator 0.9 cum bucket capacity @ 100 cum per hour	hour	6.000	1200.00	7200.00	P&M-034
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				1283.38	
		d) Contractor's profit @ 15 % on (a+b+c)				1562.67	
		e) Add Cess @ 1.00 % on (a+b+c+d)				119.80	
		Cost for 216 cum = a+b+c+d+e				12100.26	
		Rate per cum = (a+b+c+d+e)/216				56.02	
					say	***56.00***	
		Note:- Cost of dewatering upto 5 per cent of (a+b), may be added, where required Assessment for dewatering shall be made as per site conditions.					
		(iii) Hard Rock (requiring blasting)					
		A. By Manual Means (up to 3 m depth)					
		Unit = cum					
		Taking output = 10 cum					
		a) Labour					
		Mate	day	0.480	310.00	148.80	L-17
		Mazdoor(unskilled)	day	12.000	310.00	3720.00	L-18
		Driller	day	0.840	395.00	331.80	L-11
		Blaster	day	0.400	440.00	176.00	L-04
		b) Machinery					
		Air Compressor 250 cfm with 2 jack hammer @ 15 cum per hour	hour	0.67	210.00	140.00	P&M-001
		c) Material					
		Gelatin 80 per cent	kg	3.500	126.00	441.00	M-105
		Electric Detonators @ 1 detonator for1/2 gelatin stick of 125 gms each	each	14.000	17.00	237.93	M-087
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				729.97	
		e) Contractor's profit @ 15 % on (a+b+c+d)				888.83	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				68.14	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Cost for 10 cum = a+b+c+d+e+f				6882.47	
		Rate per cum = (a+b+c+d+e+f)/10				688.25	
					say	***688.20***	
		Note:- Cost of dewatering @ 10 per cent of labour cost may be added, where required Assessment for dewatering shall be made as per site conditions.					
		(iv) Hard Rock (blasting prohibited)					
		Unit = cum					
		Taking output = 10 cum					
		A. By Manual Means (up to 3 m depth)					
		a) Labour					
		Mate	day	0.200	310.00	62.00	L-17
		Mazdoor(Unskilled)	day	5.000	310.00	1550.00	L-18
		b) Machinery					
		Air Compressor 250 cfm with 2 leads of pneumatic breaker @ 1 cum per hour	hour	10.000	210.00	2100.00	P&M-001
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				521.54	
		d) Contractor's profit @ 15 % on (a+b+c)				635.03	
		e) Add Cess @ 1.00 % on (a+b+c+d)				48.69	
		Cost for 10 cum = a+b+c+d+e				4917.25	
		Rate per cum = (a+b+c+d+e)/10				491.73	
					say	***491.70***	
		Note:- Cost of dewatering may be added, where required upto 10 per cent of labour & machinery cost. Assessment for dewatering shall be made as per site conditions.					
		(v) Marshy soil					
		Unit = cum					
		Taking output = 10 cum					
		A. By Manual means (upto 3 m depth)					
		a) Labour					
		Mate	day	0.400	310.00	124.00	L-17
		Mazdoor(Un skilled)	day	10.000	310.00	3100.00	L-18
		b) Machinery					
		Tractor with trolley	hour	2.670	237.00	632.79	P&M-076
		c) Material					
		Selected earth for refilling	cum	5.000	90.50	452.50	M-174
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				605.46	
		e) Contractor's profit @ 15 % on (a+b+c+d)				737.21	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				56.52	
		Cost for 10 cum = a+b+c+d+e+f				5708.48	
		Rate per cum = (a+b+c+d+e+f)/ 10				570.85	
					say	***570.80***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Note:- 1. Cost of dewatering @ 30 per cent of (a), may be added, where required Assessment for dewatering shall be made as per site conditions. 2. Shoring & strutting 20 per cent of (a), where required may be added 3. It is assumed that Marshy Soil will be available upto 3 m depth only. For deeper excavation below 3 m depth, refer respective item as per site condition					
		B. By Mechanical Means(upto 3 m depth)					
		a) Labour					
		i) Mate	day	0.080	310.00	24.80	L-17
		ii) Mazdoor(Unskilled)	day	2.000	310.00	620.00	L-18
		b) Machinery					
		Hydraulic excavator 0.9 cum bucket capacity @ 100 cum per hour @ 100 cum per hour	hour	0.170	1200.00	204.00	P&M-034
		Tipper 5.5 cum capacity	hour	0.450	334.00	150.30	P&M-073
		c) Material					
		Selected earth for refilling	cum	5.000	90.50	452.50	M-174
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				203.95	
		e) Contractor's profit @ 15 % on (a+b+c+d)				248.33	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				19.04	
		Cost for 10 cum = a+b+c+d+e+f				1922.92	
		Rate per cum = (a+b+c+d+e+f)/10				192.29	
					say	***192.30***	
		Note:- 1. Cost of dewatering @ 20 per cent of (a+b) may be added, where required 2. Shoring & strutting @ 10 per cent of (a+b), where required may be added 3. It is assumed that Marshy Soil will be available upto 3 m depth only. For deeper excavation below 3 m depth, refer analysis in item (i) to (iv) for ordinary soil					
3.14	**300**	**Scarifying Existing Granular Surface to a Depth of 50 mm by Manual Means** Scarifying Existing Granular Surface by manual means to a Depth of 50 mm and disposal of scarified material with all lifts and leads upto 1000 m as per MoRT&H Technical Specification clauses of section 300. ***Unit = sqm*** ***Taking output = 100 sqm***					
		a) Labour					
		Mate	day	0.200	310.00	62.00	L-17
		Mazdoor(Unskilled)	day	5.000	310.00	1550.00	L-18
		b) Machinery					
		Tractor with trolley	hour	1.670	237.00	395.79	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				282.09	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		d) Contractor's profit @ 15 % on (a+b+c)				343.48	
		e) Add Cess @ 1.00 % on (a+b+c+d)				26.33	
		Cost for 100 sqm = a+b+c+d+e				2659.70	
		Rate per sqm = (a+b+c+d+e)/100				26.60	
					say	***26.60***	
		Note:- In case material is to be reused at site, transportation cost catered above for disposal shall be deleted.					
3.15	**300**	**Scarifying Existing Bituminous Surface to a depth of 150 mm by Mechanical Means** Scarifying Existing bituminous Road Surface by mechanical means to a Depth of 150 mm and disposal of scarified material with all lifts and leads upto 1000 m as per MoRT&H Technical Specification clauses of section 300.					
		Unit = sqm					
		Taking output = 100 sqm					
		a) Labour					
		Mate	day	0.010	310.00	3.10	L-17
		Mazdoor(Unskilled)	day	0.250	310.00	77.50	L-18
		b) Machinery					
		Tractor with ripper attachment @ 60 cum per hour	hour	0.080	223.00	17.84	P&M-075
		Front end loader 1 cum bucket capacity @ 25 cum per hour	hour	0.200	920.00	184.00	P&M-030
		Tipper 5.5 cumwith 10 T capacity, 4 trips per hour.	hour	0.230	334.00	76.82	P&M-073
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				50.48	
		d) Contractor's profit @ 15 % on (a+b+c)				61.46	
		e) Add Cess @ 1.00 % on (a+b+c+d)				4.71	
		Cost for 100 sqm = a+b+c+d+e				475.91	
		Rate per sqm = (a+b+c+d+e)/100				4.76	
					say	***4.80***	
3.16	**300**	**Construction of Embankment with Material obtained from Borrowpits** Construction of embankment with approved material obtained from borrow pits with all lifts, transporting to site, spreading, grading to required slope and compacting to meet requirement of Tables 300.1 and 300.2 with a lead upto 1000 m as per MoRT&H Technical Specification clauses of section 300.					
		Unit = cum					
		Taking output = 100 cum					
		a) Labour					
		Mate	day	0.040	310.00	12.40	L-17
		Mazdoor(Unskilled)	day	1.000	310.00	310.00	L-18
		b) Machinery					
		Hydraulic Excavator 0.9 cum bucket capacity @ 60 cum per hour	hour	1.670	1200.00	2004.00	P&M-034
		Tipper 5.50 cum with 10 tonne capacity	hour	4.500	334.00	1503.00	P&M-073

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Dozer D-50 for spreading @ 200 cum per hour	hour	0.500	2370.00	1185.00	P&M-022
		Motor grader for grading @ 100 cum per hour	hour	1.000	2625.00	2625.00	P&M-046
		Water tanker6 KL capacity	hour	4.000	200.00	800.00	P&M-084
		Vibratory roller 8 -10 tonnes @ 100 cum per hour	hour	1.000	1395.00	1395.00	P&M-082
		c) Material					
		Water	KL	24.000	133.00	3192.00	M-196
		Compensation for earth taken from private land	cum	100.000	17.05	1705.00	M-061
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				2069.76	
		e) Contractor's profit @ 15 % on (a+b+c+d)				2520.17	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				193.21	
		Cost for 100 cum = a+b+c+d+e+f				19514.55	
		Rate per cum = (a+b+c+d+e+f)/100				195.15	
					say	***195.10***	
		Note:- Compensation for earth will vary from place to place and will have to be assessed realistically as per particular ground situation. In case earth is available from Govt. land, compensation for earth will not be required. The position is required to be clearly stated in the cost estimate.					
3.17	**300**	**Construction of Embankment with Material Deposited from Roadway Cutting**					
		Construction of Embankment with approved materials deposited at site from roadway cutting and excavation from drain and foundation of other structures graded and compacted to meet requirement of table 300.2 and as per MoRT&H Technical Specification clauses of section 300					
		Unit = cum					
		Taking output = 100 cum					
		a) Labour					
		Mate	day	0.020	310.00	6.20	L-17
		Mazdoor(Unskilled)	day	0.500	310.00	155.00	L-18
		b) Machinery					
		Dozer 80 HP for spreading @ 100 cum per hour	hour	0.500	2370.00	1185.00	P&M-022
		Motor grader for grading @ 100 cum per hour	hour	1.000	2625.00	2625.00	P&M-046
		Water tanker6 KL capacity	hour	4.000	200.00	800.00	P&M-084
		Vibratory roller 8-10 tonnes @ 100 cum per hour	hour	1.000	1395.00	1395.00	P&M-082
		c) Material					
		Water	KL	24.000	133.00	3192.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				1314.83	
		e) Contractor's profit @ 15 % on (a+b+c+d)				1600.95	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				122.74	
		Rate for 100 cum = a+b+c+d+e+f				12396.72	
		Rate per cum = (a+b+c+d+e+f)/100				123.97	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
					say	***124.00***	
		Note:- In case the earth cutting is done by dozer and pushed for filling in the embankment, the input of dozer in the cost of embankment shall be deleted as the same is already provided in the cost of excavation. However, if the earth is dumped by tippers from roadway cutting, the input of dozer for spreading is required to be provided.					
3.18	**300**	**Construction of Subgrade and Earthen Shoulders** Construction of subgrade and earthen shoulders with approved material obtained from borrow pits with all lifts and leads, transporting to site , spreading, grading to required slope and compacted to meet requirement of Table 300.2 as per MoRT&H Technical Specification clauses of section 300. ***Unit = cum*** ***Taking output = 100 cum***					
		a) Labour					
		Mate	day	0.040	310.00	12.40	L-17
		Mazdoor(Unskilled)	day	1.000	310.00	310.00	L-18
		b) Machinery					
		Hydraulic excavator 0.9 cum bucket capacity @ 100 cum per hour	hour	1.670	1200.00	2004.00	P&M-034
		Tipper 5.5 cumwith 10 T capacity, 4 trips per hour.	hour	4.500	334.00	1503.00	P&M-073
		Dozer D-50 for spreading @ 200 cum per hour	hour	0.500	2370.00	1185.00	P&M-022
		Motor grader for grading @ 200 cum per hour	hour	1.000	2625.00	2625.00	P&M-046
		Water tanker with 6 km lead	hour	4.000	200.00	800.00	P&M-046
		Vibratory roller 8-10 tonnes @ 80 cum per hour	hour	1.000	1395.00	1395.00	P&M-082
		c) Material					
		Water	KL	24.000	133.00	3192.00	M-196
		Compensation for earth taken from private land	cum	100.000	17.05	1705.00	M-061
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				2069.76	
		e) Contractor's profit @ 15 % on (a+b+c+d)				2520.17	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				193.21	
		Cost for 100 cum = a+b+c+d+e+f				19502.15	
		Rate per cum = (a+b+c+d+e+f)/100				195.02	
					say	***195.00***	
3.19	**300**	**Compacting Original Ground** **Case-I :- Compacting original ground supporting sub-grade** Loosening of the ground upto a level of 500 mm below the subgrade level, watered, graded and compacted in layers to meet requirement of Tables 300.2 for subgrade construction as per MoRT&H Technical Specification clauses of section 300. ***Unit = cum***					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Taking output = 600 cum					
		a) Labour					
		Mate	day	0.120	310.00	37.20	L-17
		Mazdoor(Unskilled)	day	3.000	310.00	930.00	L-18
		b) Machinery					
		Tractor with ripper attachment	hour	9.000	223.00	2007.00	P&M-075
		Motor grader for grading	hour	6.000	2625.00	15750.00	P&M-046
		Water tanker 6 KL capacity	hour	4.000	200.00	800.00	P&M-084
		Vibratory roller 8-10 tonne @ 100 cum/hour	hour	7.500	1395.00	10462.50	P&M-082
		c) Material					
		Water	KL	24.000	133.00	3192.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				4661.61	
		e) Contractor's profit @ 15 % on (a+b+c+d)				5676.05	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				435.16	
		Cost for 600 cum = a+b+c+d+e+f				43951.52	
		Rate per cum = (a+b+c+d+e+f)/600				73.25	
					say	***73.30***	
3.19		**Case-II :- Compacting original ground supporting embankment**					
		Loosening, Levelling and Compacting original ground supporting embankment to facilitate placement of first layer of embankment, scarified to a depth of 150 mm, mixed with water at OMC and then compacted by rolling so as to achieve minimum dry density as given in Tables 300.2 for embankment construction as per MoRT&H Technical Specification clauses of section 300.					
		Unit = cum					
		Taking output = 600 cum					
		a) Labour					
		Mate	day	0.080	310.00	24.80	L-17
		Mazdoor(Unskilled)	day	2.000	310.00	620.00	L-18
		b) Machinery					
		Tractor with ripper attachment	hour	6.000	223.00	1338.00	P&M-075
		Vibratory road roller 8-10 tonne capacity	hour	7.500	1395.00	10462.50	P&M-082
		Water tanker6 KL capacity	hour	4.000	200.00	800.00	P&M-084
		c) Material					
		Water	KL	24.000	133.00	3192.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				2309.44	
		e) Contractor's profit @ 15 % on (a+b+c+d)				2812.01	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				215.59	
		Cost for 600 cum = (a+b+c+d+e+f)				21774.34	
		Rate per sqm = (a+b+c+d+e+f)/600				36.29	
					say	***36.30***	
3.20	**300**	**Stripping and Storing Top Soil**					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Stripping, storing of top soil by road side at 15 m interval and re-application on embankment slopes, cut slopes and other areas in localities where the available embankment material is not conducive to plant growth as per MoRT&H Technical Specification clauses of section 300.					
		Unit = cum					
		Taking output = 10 cum					
		a) Labour					
		Mate	day	0.200	310.00	62.00	L-17
		Mazdoor	day	5.000	310.00	1550.00	L-18
		b) Machinery					
		Dozer D-50 @ 100 cum per hour	hour	0.100	2370.00	237.00	P&M-022
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				259.78	
		d) Contractor's profit @ 15 % on (a+b+c)				316.32	
		e) Add Cess @ 1.00 % on (a+b+c+d)				24.25	
		Cost for 10 cum = (a+b+c+d+e)				2449.35	
		Rate per cum = (a+b+c+d+e)/10				244.94	
					say	***244.90***	
3.21		**Stripping, Storing and Re-laying Top Soil from Borrow Areas in Agriculture Fields.** Stripping of top soil from borrow areas located in agriculture fields, storing at a suitable place, spreading and relaying after taking the borrow earth to maintain fertility of the agricultural field, finishing it to the required levels to the satisfaction of the farmer/land owners as per MoRT&H Technical Specification clauses of section 300					
		Unit = cum					
		Taking output = 300 cum					
		a) Labour					
		Mate	day	0.080	310.00	24.80	L-17
		Mazdoor(Unskilled)	day	2.000	310.00	620.00	L-18
		b) Machinery					
		Dozer D-50 with 100 cum per hour output (initially stacking and relaying)	hour	6.000	2370.00	14220.00	P&M-022
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				2088.50	
		d) Contractor's profit @ 15 % on (a+b+c)				2543.00	
		e) Add Cess @ 1.00 % on (a+b+c+d)				194.96	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Cost for 300 cum = (a+b+c+d+e)				19691.26	
		Rate per cum = (a+b+c+d+e)/300				65.64	
					say	***65.60***	
3.22	**300**	**Turfing with Sods** Furnishing and laying of the live sods of perennial turf forming grass on embankment slope , verges or other locations shown on the drawing or as directed by the Engineer including preparation of ground, fetching of sods and watering as per MoRT&H Technical Specification clauses of section 300.					
		Unit = sqm					
		Taking output = 100 sqm					
		a) Labour					
		Mate	day	0.120	310.00	37.20	L-17
		Mazdoor(Unskilled)	day	3.000	310.00	930.00	L-18
		b) Machinery					
		Water tanker including watering for 3 months	hour	2.000	200.00	400.00	P&M-084
		Tractor with trolley	hour	1.000	237.00	237.00	P&M-076
		c) Material					
		Farm yard manure @ 0.18 cum per 100 sqm at site of work	cum	0.180	510.00	91.80	M-094
		Water	KL	12.000	133.00	1596.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				462.53	
		e) Contractor's profit @ 15 % on (a+b+c+d)				563.18	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				43.18	
		Cost for 100 sqm = a+b+c+d+e+f				4360.88	
		Rate per 100 sqm = (a+b+c+d+e+f)/100				43.61	
					say	***43.60***	
3.23	**300**	**Seeding and Mulching** Preparation of seed bed on previously laid top soil, furnishing and placing of seeds, fertilizer, mulching material, applying bituminous emulsion at the rate of 0.23 litres per sqm and laying and fixing jute netting, including watering for 3 months all as per MoRT&H Technical Specification clauses of section 300.					
		Unit = sqm					
		Taking output = 240 sqm					
		a) Labour					
		Mate	day	0.400	310.00	124.00	L-17
		Mazdoor(Unskilled)	day	10.000	310.00	3100.00	L-18
		b) Machinery					
		Water tanker 6 KL capacity including watering for 3 months	hour	14.000	200.00	2800.00	P&M-084
		Tractor with trolley	hour	2.400	237.00	568.80	P&M-076

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		c) Material					
		Seeds	kg	3.600	312.50	1125.00	M-173
		Farm yard manure @ 0.18 cum per 100 sqm	cum	0.430	510.00	219.30	M-094
		Bitumen Emulsion(SS-1)	Tonne	0.0552	38830.00	2143.42	M-046
		Jute netting, open weave, 2.5 cm square opening	sqm	264.000	8.75	2310.00	M-120
		Water for 3 months	KL	84.000	133.00	11172.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				3310.53	
		e) Contractor's profit @ 15 % on (a+b+c+d)				4030.96	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				309.04	
		Cost for 240 sqm = a+b+c+d+e+f				31213.05	
		Rate per sqm = (a+b+c+d+e+f)/240				130.05	
					say	***130.10***	
3.24	**300**	**Surface Drains in Soil** Construction of unlined surface drains of average cross-sectional area 0.4 sqm in ordinary soil to specified lines, grades, levels and dimensions as per MoRT&H Technical Specification clauses of section 300. Excavated material to be used in embankment with a lift upto 3 m and lead of 50 m (average lead 25 m).					
		Unit = metre					
		Taking output = 10 metres					
		A. Mechanical means					
		a) Labour					
		Mate	day	0.010	310.00	3.10	L-17
		Mazdoor(Unskilled) for dressing of bed and side of drain	day	0.250	310.00	77.50	L-18
		b) Machinery					
		Hydraulic Excavator 0.90 cum bucket capacity @ 90 m per hour	hour	0.330	1200.00	396.00	P&M-034
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				66.96	
		d) Contractor's profit @ 15 % on (a+b+c)				81.53	
		e) Add Cess @ 1.00 % on (a+b+c+d)				6.25	
		Cost for 10 metres = a+b+c+d+e				631.35	
		Rate per metre = (a+b+c+d+e)/10				63.13	
					say	***63.10***	
		B. Manual Means					
		a) Labour					
		Mate	day	0.080	310.00	24.80	L-17
		Mazdoor	day	2.000	310.00	620.00	L-18
		b) Add GST (multiplying factor) @ 0.1405 on (a)				90.59	
		c) Contractor's profit @ 15 % on (a+b)				110.31	
		d) Add Cess @ 1.00 % on (a+b+c)				8.46	
		Cost for 10 metres = a+b+c+d				854.16	
		Rate per metre = (a+b+c+d)/10				85.42	
					say	***85.40***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Note:- Where lining of drain is provided, quantity shall be worked out based on approved design and drawing and priced on rate of cement concrete of approved grade or stone/brick masonry as the case may be.					
3.25	**300**	**Surface Drains in Ordinary Rock** Construction of unlined surface drain of average cross-sectional area 0.4 sqm in ordinary rock to specified lines, grades, levels and dimensions as per approved design and MoRT&H Technical Specification clauses of section 300. Excavated material to be used in embankment at site.					
		Unit = metre					
		Taking output = 10 metres					
		A. Mechanical Means					
		a) Labour					
		Mate	day	0.020	310.00	6.20	L-17
		Mazdoor(Unskilled)	day	0.500	310.00	155.00	L-18
		b) Machinery					
		Hydraulic Excavator 0.90 cum bucket capacity @ 45 M per hour	hour	0.670	1200.00	804.00	P&M-034
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				135.61	
		d) Contractor's profit @ 15 % on (a+b+c)				165.12	
		d) Add Cess @ 1.00 % on (a+b+c+d)				12.66	
		Cost for 10 metres = a+b+c+d+e				1278.59	
		Rate per metre = (a+b+c+d+e)/10				127.86	
					say	***127.90***	
		B. Manual Means					
		a) Labour					
		Mate	day	0.120	310.00	37.20	L-17
		Mazdoor	day	3.000	310.00	930.00	L-18
		b) Add GST (multiplying factor) @ 0.1405 on (a)				135.89	
		c) Contractor's profit @ 15 % on (a+b)				165.46	
		d) Add Cess @ 1.00 % on (a+b+c)				12.69	
		Cost for 10 metres = a+b+c+d				1281.24	
		Rate per metre = (a+b+c+d)/10				128.12	
					say	***128.10***	
3.26	**300**	**Surface Drains in Hard Rock** Rate per metre may be worked out based on quantity of hard rock as per design. For rate of hard rock cutting, refer relevant item in this chapter					
3.27	**300**	**Sub-Surface Drains with Perforated Pipe**					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Construction of subsurface drain with perforated pipe of 100 mm internal diameter of metal / asbestos cement/ cement concrete / PVC, closely jointed, perforations ranging from 3 mm to 6 mm depending upon size of material surrounding the pipe, with 150 mm bedding below the pipe and 300 mm cushion above the pipe, cross section of excavation 450 x 550 mm as per MoRT&H Technical Specification clauses of section 300. Excavated material to be utilised in roadway at site.					
		Unit = metre					
		Taking output = 10 metres					
		a) Labour					
		Mate	day	0.080	310.00	24.80	L-17
		Mazdoor(Unskilled)	day	2.000	310.00	620.00	L-18
		c) Material					
		AC Pipe 100 mm dia / PVC pipe (6.0 Kg/cm2) 110 mm OD	metre	10.500	197.00	2068.50	M-001
		Charge for perforation @ 10.00 %				206.85	
		Crushed stone as per table 300.3	cum	2.400	4131.90	9916.55	M-067
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				1803.56	
		e) Contractor's profit @ 15 % on (a+b+c+d)				2196.04	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				168.36	
		Cost for 10 metres = a+b+c+d+e+f				17004.66	
		Rate per metre = (a+b+c+d+e+f)/10				1700.47	
					say	***1700.50***	
		Note:- Type of pipe may be modified depending upon provision in design.					
3.28	**300**	**Aggregate Sub-Surface Drains** Construction of aggregate sub-surface drain 300 mm x 450 mm with aggregates conforming to table 300.4, as per MoRT&H Technical Specification clauses of section 300. (excavated material to be utilised in roadway.)					
		Unit = metre					
		Taking output = 10 metres					
		a) Labour					
		Mate	day	0.060	310.00	18.60	L-17
		Mazdoor(Unskilled)	day	1.500	310.00	465.00	L-18
		b) Material					
		Crushed stone as per table 300.3	cum	1.350	4131.90	5578.06	M-067
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				851.66	
		d) Contractor's profit @ 15 % on (a+b+c)				1037.00	
		e) Add Cess @ 1.00 % on (a+b+c+d)				79.50	
		Cost for 10 metres = a+b+c+d+e				8029.83	
		Rate per metre = (a+b+c+d+e)/10				802.98	
					say	***803.00***	
3.29	**300**	**Underground Drain at Edge of Pavement**					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Construction of an underground drain 1 m x 1 m (inside dimensions) lined with RCC M-20, 100 mm thick and covered with RCC slab 100 mm in thickness on urban roads as per MoRT&H Technical Specification.					
		Unit = Running metre					
		Taking output = 10 metres					
		a) Earthwork in soil by mechanical means	cum	13.200	43.20	570.24	Item No. 3.13
		b) RCC work M-20 , **Rate item no. 12.6.C**	cum	4.400	9979.50	43909.80	Item No. 12.6.c
		c) For steel of slab @ 40.00% of (b)				17563.92	
		Rate per metre = (a+b + c)				6204.40	
		Rates for these items may be taken from chapters on earth work and substructures respectively.			***say***	***6204.40***	
3.30	**300**	**Preparation and Surface Treatment of Formation.**					
		Preparation and surface treatment of formation by removing mud and slurry, watering to the extent needed to maintain the desired moisture content, trimming to the required line, grade, profile and rolling with 8-10 tonne smooth wheeled roller, complete as per MoRT&H Technical Specification clauses of section 300.					
		Unit = sqm					
		Taking output = 3500sqm					
		a) Labour					
		Mate	day	0.280	310.00	86.80	L-17
		Mazdoor(Unskilled)	day	6.000	310.00	1860.00	L-18
		Mazdoor(Skilled)	day	1.000	395.00	395.00	L-20
		b) Machinery					
		Three wheeled steel roller 80-100 KN static roller	hour	3.000	392.00	1176.00	P&M-063
		Water tanker 6 KL	hour	3.000	200.00	600.00	P&M-084
		c) Material					
		Water	KL	18.000	133.00	2394.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				914.91	
		e) Contractor's profit @ 15 % on (a+b+c+d)				1114.01	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				85.41	
		Cost for 3500 sqm = a+b+c+d+e+f				8626.12	
		Rate per sqm = (a+b+c+d+e+f)/3500				2.46	
					say	***2.50***	
3.31	**300**	**Construction of Rock fill Embankment**					
		Construction of rock fill embankment with broken hard rock fragments of size not exceeding 300 mm laid in layers not exceeding 500 mm thick including filling of surface voids with stone spalls, blinding top layer with granular material, rolled with vibratory road roller, all complete as per MoRT&H Technical Specification clauses of section 300.					
		Unit = cum					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Taking output = 100 cum					
		a) Labour					
		Mate	day	0.060	310.00	18.60	L-17
		Mazdoor(Unskilled)	day	1.500	310.00	465.00	L-18
		b) Machinery					
		Dozer 80 HP for spreading @ 200 cum per hour	hour	0.500	2370.00	1185.00	P&M-022
		Vibratory road roller 8-10 tonnes @ 100 cum per hour	hour	1.000	1395.00	1395.00	P&M-082
		Water tanker 6 KL	hour	2.000	200.00	400.00	P&M-084
		c) Material					
		Water	KL	12.000	133.00	1596.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				710.87	
		e) Contractor's profit @ 15 % on (a+b+c+d)				865.57	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				66.36	
		Cost for 100 cum = a+b+c+d+e+f				6702.41	
		Rate per cum = (a+b+c+d+e+f)/100				67.02	
					say	***67.00***	
		Note:- It is assumed that rock is available locally at site from roadway cutting. In case, portion of the rock requires breaking to acceptable size of 300 mm, breaking charges will have to be added.					
		EARTH WORK ON HILL ROAD					
3.32	**300**	**Excavation in Hill Area in Soil by Mechanical Means**					
		(A) For disposal up to 1000 metre					
		Excavation in soil in hilly area by mechanical means including cutting and trimming of side slopes and disposing of excavated earth with all lifts and lead upto 1000 metres as per MoRT&H Technical Specification clauses of section 300.					
		Unit = cum					
		Taking output = 260 cum					
		a) Labour					
		Mate	day	0.240	310.00	74.40	L-17
		Mazdoor(Unskilled)	day	6.000	310.00	1860.00	L-18
		b) Machinery					
		Dozer 80 HP	hour	6.000	2370.00	14220.00	P&M-022
		Front end loader	hour	6.000	920.00	5520.00	P&M-031
		Tipper	hour	12.000	334.00	4008.00	P&M-073
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				3608.38	
		d) Contractor's profit @ 15 % on (a+b+c)				4393.62	
		e) Add Cess @ 1.00 % on (a+b+c+d)				336.84	
		Cost for 260 cum = a+b+c+d+e				34021.24	
		Rate per cum = (a+b+c+d+e)/260				130.85	
					say	***130.90***	
		(B) For disposal in the valley side.					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Excavation in soil in hilly area by mechanical means including cutting and trimming of side slopes and disposing of excavated earth with all lifts in the barren valley side as per MoRT&H Technical Specification clauses of section 300.					
		Unit = cum					
		Taking output = 260 cum					
		a) Labour					
		Mate	day	0.240	310.00	74.40	L-17
		Mazdoor(Unskilled)	day	6.000	310.00	1860.00	L-18
		b) Machinery					
		Dozer 80 HP	hour	6.000	2370.00	14220.00	P&M-022
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				2269.69	
		d) Contractor's profit @ 15 % on (a+b+c)				2763.61	
		e) Add Cess @ 1.00 % on (a+b+c+d)				211.88	
		Cost for 260 cum = a+b+c+d+e				21399.58	
		Rate per cum = (a+b+c+d+e)/260				82.31	
					say	***82.30***	
3.33	**300**	**Excavation in Ordinary Rock (not Requiring Blasting) in Hilly Area by Mechanical Means.**					
		(A) For disposal up to 1000 metre Excavation in ordinary rock (not requiring blasting) in hilly area by mechanical means including cutting and trimming of side slopes and disposing of excavated earth with all lifts and lead upto 1000 metres as per MoRT&H Technical Specification clauses of section 300.					
		Unit = cum					
		Taking output = 170 cum					
		a) Labour					
		Mate	day	0.320	310.00	99.20	L-17
		Mazdoor(Unskilled)	day	8.000	310.00	2480.00	L-18
		b) Machinery					
		Dozer 80 HP	hour	6.000	2370.00	14220.00	P&M-022
		Front end loader	hour	7.000	920.00	6440.00	P&M-031
		Tipper	hour	7.000	334.00	2338.00	P&M-073
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				3593.60	
		d) Contractor's profit @ 15 % on (a+b+c)				4375.62	
		e) Add Cess @ 1.00 % on (a+b+c+d)				335.46	
		Cost for 170 cum = a+b+c+d+e				33881.88	
		Rate per cum = (a+b+c+d+e)/170				199.31	
					say	***199.30***	
		(B) For disposal in the valley side. Excavation in ordinary rock (not requiring blasting) in hilly area by mechanical means including cutting and trimming of side slopes and disposing of excavated earth with all lifts and lead upto 1000 metres as per MoRT&H Technical Specification clauses of section 300.					
		Unit = cum					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Taking output = 170 cum					
		a) Labour					
		Mate	day	0.320	310.00	99.20	L-17
		Mazdoor(Unskilled)	day	8.000	310.00	2480.00	L-18
		b) Machinery					
		Dozer 80 HP	hour	6.000	2370.00	14220.00	P&M-022
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				2360.29	
		d) Contractor's profit @ 15 % on (a+b+c)				2873.92	
		e) Add Cess @ 1.00 % on (a+b+c+d)				220.33	
		Cost for 170 cum = a+b+c+d+e				22253.74	
		Rate per cum = (a+b+c+d+e)/170				130.90	
					say	***130.90***	
3.34	**300**	**Excavation in Hilly Area in hard rock (requiring blasting) with disposal upto 1000 m.**					
		Excavation for roadway in Hilly Area in hard rock (requiring blasting) by drilling, blasting and breaking, trimming bottom and side slopes in accordance with requirements of lines, grades and cross-sections loading and disposal of cut earth with all lifts and leads upto 1000 m as per MoRT&H Technical Specification clauses of section 300					
		Unit = cum					
		Taking output = 170 cum					
		a) Labour					
		Mate	day	0.490	310.00	151.90	L-17
		Mazdoor(Unskilled)	day	10.000	310.00	3100.00	L-18
		Driller	day	2.000	395.00	790.00	L-11
		Blaster	day	0.250	440.00	110.00	L-04
		b) Machinery					
		Dozer D-80 for cutting & spreading @ 200 cum per hour	hour	6.000	2370.00	14220.00	P&M-023
		Air compressor 250 cfm with two jack hammer @ 20 cum per hour	hour	5.000	315.00	1575.00	P&M-002
		Front end loader	hour	7.000	920.00	6440.00	P&M-031
		Tipper 5.5cum capacity	hour	7.000	334.00	2338.00	P&M-073
		c) Materials					
		Gelatin 80 per cent	kg	35.000	126.00	4410.00	M-105
		Electric Detonators @ 1 detonator for 2 gelatin sticks of 285 gms each	each	140.000	17.00	2379.30	M-087
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				4989.75	
		e) Contractor's profit @ 15 % on (a+b+c+d)				6075.59	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				465.80	
		Cost for 170 cum = a+b+c+d+e+f				47045.33	
		Rate per cum = (a+b+c+d+e+f)/170				276.74	
					say	***276.70***	
3.35		**Work in Urban Roads**					
		The cost of earth work in urban roads inhabited area will be comparatively higher due to following reasons:					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.

a) There is mixed traffic on urban roads like slow moving hand and animal driven carts, rickshaws, cycles, two/ three wheeler apart from the usual vehicular traffic resulting into traffic jams. This causes loss of working time which may be in the range of 10 -15 per cent

b) There is considerable disruption of traffic adversely affecting the efficiency of the working parties including machines due to congestion caused by pedestrian traffic, local road side venders, parking of vehicles by the road side, encroachments by the shopkeepers and local shops who make use of the berms of the road in front of these shops and unauthorised conversion of road berms into mini local market The output of manpower and machines is substantially reduced due to factors mentioned above.

c) Cost of living in urban areas is comparatively more resulting into higher wages.

d) At times, work is executed during night time due to heavy traffic during day time. This involves extra expenditure by way of making arrangement for lighting and special transport for working parties due to odd hour

In the light of above, the authorities engaged in preparing the cost estimates may exercise their judgment and cater for the additional cost to the extent of 2 to 3 per cent, keeping in view the severity of factors mentioned above. Supporting details for the extra cost based on the actual conditions in specific cases will have to give in justification.

3.36 **Embankment Construction with Flyash/Pond ash available from coal or lignite burning Thermal Plants as waste material.**

Construction of embankment with Flyash conforming to table 1 of IRC: SP: 58 - 2001 obtained from coal or lignite burning thermal power stations as waste material, spread and compacted in layer of 200 mm thickness each at OMC, all as specified in IRC: SP: 58-2001 and as per approved plans with all lifts and carriage upto 1000 m.

Unit = cum

Taking output = 360 cum

a) Labour					
Mate	day	0.160	310.00	49.60	L-17
Mazdoor(Unskilled)	day	4.000	310.00	1240.00	L-18
b) Machinery					
Hydraulic Excavator 0.9 cum bucket capacity @ 60 cum/hour	hour	6.000	1200.00	7200.00	P&M-034
Tipper 5.50 cum with 10 T capacity	hour	18.180	334.00	6072.12	P&M-073

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Add 10 per cent for loading and unloading				607.21	
		Dozer D-80 for spreading @ 200 cum/hour	hour	1.800	2370.00	4266.00	P&M-023
		Motor Grader for grading @ 100 cum/hour	hour	3.600	2625.00	9450.00	P&M-046
		Water tanker6 KL capacity	hour	12.000	200.00	2400.00	P&M-084
		Vibratory Roller 8-10 tonne @ 100 cum/hour	hour	3.600	1395.00	5022.00	P&M-082
		c) Material					
		Water	KL	24.000	133.00	3192.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				5549.60	
		e) Contractor's profit @ 15 % on (a+b+c+d)				6757.28	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				518.06	
		Cost for 360 cum = a+b+c+d+e+f				52323.87	
		Rate per cum = (a+b+c+d+e+f)/360				145.34	
					say	***145.30***	

Note:- 1.As flyash is available free of cost as waste material from Thermal Plants, cost of material has not been added.

2.The earth cover on sides and intermediate layers of earth sandwiching the flyash have not been included in this analysis. The same are required to be provided as per approved design and priced separately as embankment construction.

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SUB-BASES, BASES (NON- BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
4.1	401	**Granular Sub-Base with Well Graded Material (Table:- 400.1)** **A. By Mix in Place Method** Construction of granular sub-base by providing well graded material spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with vibratory roller to achieve the desired density, complete as per MoRT&H Technical Specification Clause 401					
		(i) For Grading-I Material					
		Unit = cum					
		Taking output = 300 cum					
		a) Labour					
		Mate	day	0.48	310.00	148.80	L-17
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-20
		Mazdoor(unskilled)	day	10.00	310.00	3100.00	L-18
		b) Machinery					
		Motor Grader	hour	6.00	2625.00	15750.00	P&M-047
		Vibratory roller 8 -10 tonne	hour	6.00	1395.00	8370.00	P&M-083
		Tractor with Rotavator	hour	12.00	320.00	3840.00	P&M-077
		Water tanker 6 KL capacity	hour	4.50	200.00	900.00	P&M-084
		c) Material					
		Well graded Granular sub-base Material as per table 400.1					
		53 mm to 9.5 mm @ 50 %	cum	192.00	4230.00	812160.00	M-199
		9.5 mm to 2.36 mm @ 20 %	cum	76.80	4920.00	377856.00	M-200
		2.36 mm below @ 30 %	cum	115.20	2536.00	292147.20	M-198
		Water	KL	18.00	133.00	2394.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				213202.57	
		e) Contractor's profit @ 15 % on (a+b+c+d)				259598.79	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				19902.57	
		Cost for 300 cum = a+b+c+d+e+f				2010159.93	
		Rate per cum = (a+b+c+d+e+f)/300				6700.53	
					say	***6700.50***	
		(ii) For Grading-II Material					
		Unit = cum					
		Taking output = 300 cum					
		a) Labour					
		Mate	day	0.48	310.00	148.80	L-17
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-20
		Mazdoor(unskilled)	day	10.00	310.00	3100.00	L-18
		b) Machinery					
		Motor Grader	hour	6.00	2625.00	15750.00	P&M-047
		Vibratory roller 8 -10 tonne	hour	6.00	1395.00	8370.00	P&M-083
		Tractor with Rotavator	hour	12.00	320.00	3840.00	P&M-077
		Water tanker 6 KL capacity	hour	3.00	200.00	600.00	P&M-084
		c) Material					
		Well graded Granular sub-base Material as per table 400.1					
		26.5 mm to 9.5 mm @ 35 %	cum	134.40	4425.00	594720.00	M-202
		9.5 mm to 2.36 mm @ 25 %	cum	96.00	4920.00	472320.00	M-203

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		2.36 mm below @ 40 %	cum	153.60	2535.00	389376.00	M-201
		Water	KL	18.00	133.00	2394.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				209542.94	
		e) Contractor's profit @ 15 % on (a+b+c+d)				255142.76	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				19560.94	
		Cost for 300 cum = a+b+c+d+e+f				1975655.44	
		Rate per cum = (a+b+c+d+e+f)/300				6585.52	
					say	***6585.50***	
		(iii) For Grading-III Material					
		Unit = cum					
		Taking output = 300 cum					
		a) Labour					
		Mate	day	0.48	310.00	148.80	L-17
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-20
		Mazdoor(unskilled)	day	10.00	310.00	3100.00	L-18
		b) Machinery					
		Motor Grader	hour	6.00	2625.00	15750.00	P&M-047
		Vibratory roller 8 -10 tonne	hour	6.00	1395.00	8370.00	P&M-083
		Tractor with Rotavator	hour	12.00	320.00	3840.00	P&M-077
		Water tanker 6 KL capacity	hour	3.00	200.00	600.00	P&M-084
		c) Material					
		Well graded Granular sub-base Material as per table 400.1					
		9.5 mm to 4.75 mm @ 35 %	cum	134.40	4920.00	661248.00	M-206
		4.75 mm to 2.36 mm @ 12.5 %	cum	48.00	5015.00	240720.00	M-205
		2.36 mm below @ 52.5 %	cum	201.60	2535.00	511056.00	M-204
		Water	KL	18.00	133.00	2394.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				203446.36	
		e) Contractor's profit @ 15 % on (a+b+c+d)				247719.47	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				18991.83	
		Cost for 300 cum = a+b+c+d+e+f				1918174.46	
		Rate per cum = (a+b+c+d+e+f)/300				6393.91	
					say	***6393.90***	
	401	**B. Plant Mix Method**					
		Construction of granular sub-base by providing well graded material, mixing in a mechanical mix plant at OMC, carraige of mixed material to work site upto lead of 1000 m spreading in uniform layers with motor grader on prepared surface and compacting with smooth wheel roller to achieve the desired density , complete as per MoRT&H Technical Specification Clause 401					
		(i) For Grading-I Material					
		Unit = cum					
		Taking output = 225 cum (450 tonne)					
		a) Labour					
		Mate	day	0.40	310.00	124.00	L-17
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-20

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Mazdoor (unskilled)	day	8.00	310.00	2480.00	L-18
		b) Machinery					
		Wet mix plant @ 75 tonne capacity per hour	hour	6.00	3365.00	20190.00	P&M-086
		Electric generator 125 KVA	hour	6.00	445.00	2670.00	P&M-026
		Water tanker 6 KL capacity 5 km lead with one trip per hour	hour	4.50	200.00	900.00	P&M-084
		Front end loader 1 cum bucket capacity	hour	6.00	920.00	5520.00	P&M-030
		Tipper 5.50 cum capacity	hour	20.45	334.00	6830.30	P&M-073
		Motor Grader	hour	6.00	2625.00	15750.00	P&M-047
		Vibratory roller	hour	6.00	1395.00	8370.00	P&M-083
		c) Material					
		Well graded Granular sub-base Material as per table 400-1					
		53 mm to 9.5 mm @ 50 %	cum	144.00	4230.00	609120.00	M-199
		9.5 mm to 2.36 mm @ 20 %	cum	57.60	4920.00	283392.00	M-200
		2.36 mm below @ 30 %	cum	86.40	2536.00	219110.40	M-198
		Water	KL	27.00	133.00	3591.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				165626.70	
		e) Contractor's profit @ 15 % on (a+b+c+d)				201669.66	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				15461.34	
		Cost for 225 cum = a+b+c+d+e+f				1561595.40	
		Rate per cum = (a+b+c+d+e+f)/225				6940.42	
					say	***6940.40***	
		(ii) For Grading-II Material					
		Unit = cum					
		Taking output = 225 cum (450 tonne)					
		a) Labour					
		Mate	day	0.40	310.00	124.00	L-17
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-20
		Mazdoor(unskilled)	day	8.00	310.00	2480.00	L-18
		b) Machinery					
		Wet mix plant @ 75 tonne capacity per hour	hour	6.00	3365.00	20190.00	P&M-086
		Electric generator 125 KVA	hour	6.00	445.00	2670.00	P&M-026
		Water tanker 6 KL capacity 5 km lead with one trip per hour	hour	4.50	200.00	900.00	P&M-084
		Front end loader 1 cum bucket capacity	hour	6.00	920.00	5520.00	P&M-030
		Tipper 5.50 cum capacity	hour	20.45	334.00	6830.30	P&M-073
		Motor Grader	hour	6.00	2625.00	15750.00	P&M-047
		Vibratory roller	hour	6.00	1395.00	8370.00	P&M-083
		c) Material					
		Well graded Granular sub-base Material as per table 400-1					
		26.5 mm to 9.5 mm @ 35 %	cum	100.80	4425.00	446040.00	M-202
		9.5 mm to 2.36 mm @ 25 %	cum	72.00	4920.00	354240.00	M-203
		2.36 mm below @ 40 %	cum	115.20	2535.00	292032.00	M-201
		Water	KL	27.00	133.00	3591.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				162913.59	
		e) Contractor's profit @ 15 % on (a+b+c+d)				198366.13	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				15208.07	
		Cost for 225 cum = a+b+c+d+e+f				1536015.09	
		Rate per cum = (a+b+c+d+e+f)/225				6826.73	
					say	***6826.70***	
		(iii) For Grading-III Material					
		Unit = cum					
		Taking output = 225 cum (450 tonne)					
		a) Labour					
		Mate	day	0.40	310.00	124.00	L-17
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-20
		Mazdoor(unskilled)	day	8.00	310.00	2480.00	L-18
		b) Machinery					
		Wet mix plant @ 75 tonne capacity per hour	hour	6.00	3365.00	20190.00	P&M-086
		Electric generator 125 KVA	hour	6.00	445.00	2670.00	P&M-026
		Water tanker 6 KL capacity 5 km lead with one trip per hour	hour	4.50	200.00	900.00	P&M-084
		Front end loader 1 cum bucket capacity	hour	6.00	920.00	5520.00	P&M-030
		Tipper 5.50 cum capacity	hour	20.45	334.00	6830.30	P&M-073
		Motor Grader	hour	6.00	2625.00	15750.00	P&M-047
		Vibratory roller	hour	6.00	1395.00	8370.00	P&M-083
		c) Material					
		Well graded Granular sub-base Material as per table 400-1					
		9.5 mm to 4.75 mm @ 35 %	cum	100.80	4920.00	495936.00	M-206
		4.75 mm to 2.36 mm @ 12.5 %	cum	36.00	5015.00	180540.00	M-205
		2.36 mm below @ 52.5 %	cum	151.20	2535.00	383292.00	M-204
		Water	KL	27.00	133.00	3591.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				158341.15	
		e) Contractor's profit @ 15 % on (a+b+c+d)				192798.67	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				14781.23	
		Cost for 225 cum = a+b+c+d+e+f				1492904.35	
		Rate per cum = (a+b+c+d+e+f)/225				6635.13	
					say	***6635.10***	
4.2	**401**	**Granular Sub-Base with Coarse Graded Material (Table:- 400.2)** Construction of granular sub-base by providing coarse graded material spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with vibratory roller to achieve the desired density, complete as per MoRT&H Technical Specification Clause 401					
		(i) For Grading-I Material					
		Unit = cum					
		Taking output = 300 cum					
		a) Labour					
		Mate	day	0.40	310.00	124.00	L-17
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-20
		Mazdoor(unskilled)	day	8.00	310.00	2480.00	L-18

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		b) Machinery					
		Mortar Grader	hour	6.00	2625.00	15750.00	P&M-047
		Vibratory roller	hour	6.00	1395.00	8370.00	P&M-083
		Water tanker 6 KL capacity	hour	3.00	200.00	600.00	P&M-084
		c) Material					
		For coarse graded Granular sub-base Materials per table 400.2					
		53 mm to 26.5 mm @ 35 %	cum	134.40	4279.00	575097.60	M-055
		26.5 mm to 4.75 mm @ 45 %	cum	172.80	4770.00	824256.00	M-056
		2.36 mm below @ 20 %	cum	76.80	2536.00	194764.80	M-058
		Water	KL	18.00	133.00	2394.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				228260.01	
		e) Contractor's profit @ 15 % on (a+b+c+d)				277932.96	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				21308.19	
		Cost for 300 cum = a+b+c+d+e+f				2152127.56	
		Rate per cum = (a+b+c+d+e+f)/300				7173.76	
					say	***7173.80***	
		(ii) For Grading-II Material					
		Unit = cum					
		Taking output = 300 cum					
		a) Labour					
		Mate	day	0.40	310.00	124.00	L-17
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-20
		Mazdoor(unskilled)	day	8.00	310.00	2480.00	L-18
		b) Machinery					
		Mortar Grader	hour	6.00	2625.00	15750.00	P&M-047
		Vibratory roller	hour	6.00	1395.00	8370.00	P&M-083
		Water tanker 6 KL capacity	hour	3.00	200.00	600.00	P&M-084
		c) Material					
		For coarse graded Granular sub-base Materials per table 400.2					
		26.5 mm to 4.75 mm @ 75 %	cum	288.00	4770.00	1373760.00	M-056
		2.36 mm below @ 25 %	cum	96.00	2536.00	243456.00	M-058
		Water	KL	18.00	133.00	2394.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				231505.22	
		e) Contractor's profit @ 15 % on (a+b+c+d)				281884.38	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				21611.14	
		Cost for 300 cum = a+b+c+d+e+f				2182724.74	
		Rate per cum = (a+b+c+d+e+f)/300				7275.75	
					say	***7275.70***	
		(iii) For Grading-III Material					
		Unit = cum					
		Taking output = 300 cum					
		a) Labour					
		Mate	day	0.40	310.00	124.00	L-17
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-20
		Mazdoor(unskilled)	day	8.00	310.00	2480.00	L-18
		b) Machinery					
		Mortar Grader	hour	6.00	2625.00	15750.00	P&M-047
		Vibratory roller	hour	6.00	1395.00	8370.00	P&M-083
		Water tanker 6 KL capacity	hour	3.00	200.00	600.00	P&M-084

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		c) Material					
		For coarse graded Granular sub-base Materials per table 400.2					
		9.5 mm to 4.75 mm @ 66 %	cum	253.44	4818.00	1221073.92	M-057
		2.36 mm below @ 34 %	cum	130.56	2536.00	331100.16	M-058
		Water	KL	18.00	133.00	2394.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				222366.83	
		e) Contractor's profit @ 15 % on (a+b+c+d)				270757.34	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				20758.06	
		Cost for 300 cum = a+b+c+d+e+f				2096564.31	
		Rate per cum = (a+b+c+d+e+f)/300				6988.55	
					say	***6988.50***	
4.3	**402**	**Lime Stabilisation for Improving Sub-grade**					
		Laying and spreading available soil in the sub-grade on a prepared surface, pulverising, mixing the spread soil in place with rotavator with 3 per cent slaked lime having minimum content of 70 per cent of CaO by weight, grading with motor grader and compacting with the road roller at OMC to the desired density to form a layer of improved sub grade as per MoRT&H Technical Specification Clause 402.					
		Unit = cum					
		Taking output = 300 cum (525 tonne)					
		A. By Mechanical Means					
		a) Labour					
		Mate	day	0.36	310.00	111.60	L-17
		Mazdoor (skilled) for alignment and geometrics	day	1.00	395.00	395.00	L-20
		Mazdoor(unskilled) for spraying lime	day	8.00	310.00	2480.00	L-18
		b) Machinery					
		Tractor with ripper and rotavator attachments @ 60 cum per hour for ripping and 25 cum per hour for mixing	hour	12.00	223.00	2676.00	P&M-075
		Motor Grader	hour	6.00	2625.00	15750.00	P&M-047
		Vibratory roller	hour	3.90	1395.00	5440.50	P&M-083
		Water tanker 6 KL capacity	hour	12.00	200.00	2400.00	P&M-084
		c) Material					
		Lime 3%	Kg	15750.00	3.90	61425.00	M-125
		Water	KL	72.00	133.00	9576.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				14085.70	
		e) Contractor's profit @ 15 % on (a+b+c+d)				17150.97	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				1314.91	
		Cost for 300 cum= a+b+c+d+e+f				132805.68	
		Rate per cum =(a+b+c+d+e+f)/300				442.69	
					say	***442.70***	
		B. By Manual Means					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Unit = cum					
		Taking output = 150 cum (263 tonnes)					
		a) Labour					
		Mate	day	1.44	310.00	446.40	L-17
		Mazdoor (skilled) for alignment and geometrics	day	1.00	395.00	395.00	L-20
		Mazdoor(unskilled) for spraying lime	day	35.00	310.00	10850.00	L-18
		b) Machinery					
		Vibratory roller	hour	3.90	1395.00	5440.50	P&M-083
		Water tanker 6 KL capacity	hour	6.00	200.00	1200.00	P&M-084
		c) Material					
		Lime 3%	Kg	7875.00	3.90	30712.50	M-125
		Water	KL	36.00	133.00	4788.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				7563.45	
		e) Contractor's profit @ 15 % on (a+b+c+d)				9209.38	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				706.05	
		Cost for 150 cum= a+b+c+d+e+f				71311.28	
		Rate per cum =(a+b+c+d+e+f)/150				475.41	
					say	***475.40***	
4.4	**402**	**Lime Treated Soil for Sub- Base** Providing, laying and spreading soil on a prepared sub grade, pulverising, mixing the spread soil in place with rotavator with 3 per cent slaked lime with minimum content of 70 per cent of CaO by weight, grading with motor grader and compacting with the road roller at OMC to achieve at least 98 per cent of the max dry density to form a layer of sub base as per MoRT&H Technical Specification Clause 402.					
		Unit = cum					
		Taking output = 300 cum (525 tonnes)					
		a) Labour					
		Mate	day	0.48	310.00	148.80	L-17
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-20
		Mazdoor(unskilled) for spraying lime	day	10.00	310.00	3100.00	L-18
		b) Machinery					
		Excavator	hour	6.00	1200.00	7200.00	P&M-034
		Tipper i/c loading & unloading	hour	23.86	334.00	7969.24	P&M-073
		Tractor with rotavator and blade @ 25 cum per hour	hour	12.00	385.00	4620.00	P&M-074
		Motor Grader	hour	6.00	2625.00	15750.00	P&M-047
		Vibratory roller	hour	6.00	1395.00	8370.00	P&M-083
		Water tanker 6 KL capacity	hour	12.00	200.00	2400.00	P&M-084
		c) Material					
		Lime 3%	Kg	15750.00	3.90	61425.00	M-125
		Water	KL	72.00	133.00	9576.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				17049.54	
		e) Contractor's profit @ 15 % on (a+b+c+d)				20759.79	

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		f) Add Cess @ 1.00 % on (a+b+c+d+e)				1591.58	
		Cost for 300 cum = a+b+c+d+e+f				160749.95	
		Rate per cum= (a+b+c+d+e+f)/300				535.83	
					say	***535.80***	
4.5	**403**	**Cement Treated Soil Sub Base/ Base**					
		Providing, laying and spreading soil on a prepared sub grade, pulverising, adding the designed quantity of cement to the spread soil, mixing in place with rotavator, grading with the motor grader and compacting with the road roller at OMC to achieve the desired unconfined compressive strength and to form a layer of sub-base/base as per MoRT&H Technical Specification Clause 403.					
		Unit = cum					
		Taking output = 300 cum (525 tonnes)					
		For 4 %quantity of cement by weight of soil					
		a) Labour					
		Mate	day	0.48	310.00	148.80	L-17
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-20
		Mazdoor(unskilled)	day	10.00	310.00	3100.00	L-18
		b) Machinery					
		Excavator	hour	6.00	1200.00	7200.00	P&M-034
		Tipper i/c loading & unloading	hour	23.86	334.00	7969.24	P&M-073
		Tractor with Rotavator and blade @ 25 cum per hour	hour	12.00	385.00	4620.00	P&M-074
		Motor Grader	hour	6.00	2625.00	15750.00	P&M-047
		Vibratory roller	hour	6.00	1395.00	8370.00	P&M-083
		Water tanker 6 KL capacity	hour	12.00	200.00	2400.00	P&M-084
		c) Material					
		Cement 4 % of 525 tonne	tonne	21.00	5800.00	121800.00	M-052
		Water	KL	72.00	133.00	9576.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				25532.23	
		e) Contractor's profit @ 15 % on (a+b+c+d)				31088.44	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				2383.45	
		Cost for 300 cum = a+b+c+d+e+f				240728.15	
		Rate per cum= (a+b+c+d+e+f)/300				802.43	
					say	***802.40***	
4.6	**403**	**Cement Treated Crushed Rock or combination as per clause 403 and table 400.4 in Sub base/ Base**					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Providing, laying and spreading Material on a prepared sub grade, adding the designed quantity of cement to the spread Material, mixing in place with rotavator, grading with the motor grader and compacting with the road roller at OMC to achieve the desired unconfined compressive strength and to form a layer of sub-base/base as per MoRT&H Technical Specification Clause 403.					
		A. For Sub-Base course **Quantity of cement assumed as 4 % of quantity of crushed soil by weight.** ***Unit = cum*** ***Taking output = 300 cum (600 tonnes)***					
		a) Labour					
		Mate	day	0.36	310.00	111.60	L-17
		Mazdoor(skilled)	day	1.00	395.00	395.00	L-20
		Mazdoor(unskilled)	day	8.00	310.00	2480.00	L-18
		b) Machinery					
		Tractor with Rotavator and blade @ 25 cum per hour	hour	12.00	320.00	3840.00	P&M-077
		Motor Grader	hour	6.00	2625.00	15750.00	P&M-047
		Vibratory	hour	6.00	1395.00	8370.00	P&M-083
		Water tanker 6 KL capacity	hour	12.00	200.00	2400.00	P&M-084
		c) Material					
		Cement @ 4 % by weight (of 600 tonne)	tonne	24.00	5800.00	139200.00	M-052
		Grading of material for sub-base course					
		37.5 mm to 9.5 mm @ 55 %	cum	211.20	4675.00	987360.00	M-059
		9.5 mm to 4.75 mm @ 20 %	cum	76.80	4818.00	370022.40	M-057
		4.75 mm to 75 micron @ 25 %	cum	96.00	4035.00	387360.00	M-060
		Water	KL	72.00	133.00	9576.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				270724.53	
		e) Contractor's profit @ 15 % on (a+b+c+d)				329638.43	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				25272.28	
		Cost for 300 cum = a+b+c+d+e+f				2552500.24	
		Rate per cum = (a+b+c+d+e+f)/300				8508.33	
					say	***8508.30***	
		B. For Base course Quantity of cement assumed as 4 % of quantity of crushed soil by weight. ***Unit = cum*** ***Taking output = 300 cum (600 tonnes)***					
		a) Labour					
		Mate	day	0.36	310.00	111.60	L-17
		Mazdoor(skilled)	day	1.00	395.00	395.00	L-20
		Mazdoor(unskilled)	day	8.00	310.00	2480.00	L-18
		b) Machinery					
		Tractor with Rotavator and blade @ 25 cum per hour	hour	12.00	320.00	3840.00	P&M-077
		Motor Grader	hour	6.00	2625.00	15750.00	P&M-047

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		Vibratory	hour	6.00	1395.00	8370.00	P&M-083
		Water tanker 6 KL capacity	hour	12.00	200.00	2400.00	P&M-084
		c) Material					
		Cement @ 4 % by weight (of 600 tonne)	tonne	24.00	5800.00	139200.00	M-052
		Grading of material for sub-base course					
		37.5 mm to 9.5 mm @ 32.50 %	cum	124.80	4675.00	583440.00	M-059
		9.5 mm to 4.75 mm @ 5.00 %	cum	19.20	4818.00	92505.60	M-057
		4.75 mm to 75 micron @ 62.50 %	cum	240.00	4035.00	968400.00	M-060
		Water	KL	72.00	133.00	9576.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				256618.78	
		e) Contractor's profit @ 15 % on (a+b+c+d)				312463.05	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				23955.50	
		Cost for 300 cum = a+b+c+d+e+f				2419505.53	
		Rate per cum = (a+b+c+d+e+f)/300				8065.02	
					say	***8065.00***	
4.7	**404.3.1**	**Making 50 mm x 50 mm Furrows**					
		Making 50 mm x 50 mm furrows, 25mm / 50mm deep, 450 to the center line of the road and at one metre interval in the existing thin bituminous wearing coarse including sweeping and disposal of excavated material within 1000 metres lead as per MoRT&H Technical Specification Clause 404.3.1.					
		Unit = sqm					
		Taking output = 30 m x 7 m = 210 sqm					
		(i) 25mm deep furrow cutting					
		a) Labour					
		Mate	day	0.08	310.00	24.80	L-17
		Mazdoor(unskilled)	day	2.00	310.00	620.00	L-18
		b) Machinery					
		Tractor-trolley	hour	0.20	237.00	47.40	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				97.25	
		d) Contractor's profit @ 15 % on (a+b+c)				118.42	
		e) Add Cess @ 1.00 % on (a+b+c+d)				9.08	
		Cost for 210 sqm= a+b+c+d+e				916.95	
		Rate per sqm =(a+b+c+d+e)/210				4.37	
					say	***4.40***	
		(ii) 50mm deep furrow cutting					
		a) Labour					
		Mate	day	0.16	310.00	49.60	L-17
		Mazdoor	day	4.00	310.00	1240.00	L-18
		b) Machinery					
		Tractor-trolley	hour	0.40	237.00	94.80	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				194.51	
		d) Contractor's profit @ 15 % on (a+b+c)				236.84	

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		e) Add Cess @ 1.00 % on (a+b+c+d)				18.16	
		Cost for 210 sqm= a+b+c+d+e				1833.90	
		Rate per sqm =(a+b+c+d+e)/210				8.73	
					say	***8.70***	
4.8	**404.3.2**	**Inverted Choke**					
		Construction of inverted choke by providing, laying, spreading and compacting screening B type in uniform layer on a prepared surface with motor grader and compacting with power roller etc as per MoRT&H Technical Specification Clause 404.3.2.					
		Unit = cum					
		Taking output = 600 cum					
		a) Labour					
		Mate	day	0.92	310.00	285.20	L-17
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-20
		Mazdoor (unskilled)	day	21.00	310.00	6510.00	L-18
		b) Machinery					
		Motor Grader	hour	6.00	2625.00	15750.00	P&M-047
		Vibratory roller	hour	6.00	1395.00	8370.00	P&M-083
		Water tanker 6 KL capacity	hour	18.00	200.00	3600.00	P&M-084
		c) Material					
		Screening type 'B' / Grading-2	cum	720.00	2535.00	1825200.00	M-201
		Water	KL	108.00	133.00	14364.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				263419.12	
		e) Contractor's profit @ 15 % on (a+b+c+d)				320743.25	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				24590.32	
		Cost for 600 cum = a+b+c+d+e+f				2483621.89	
		Rate per cum = (a+b+c+d+e+f)/600				4139.37	
					say	***4139.40***	
4.9	**404**	**Water Bound Macadam Sub-Base / Base** Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing, rolling with three wheel 80-100 kN static roller / vibratory roller in stages to proper grade and camber, applying and brooming, stone screening and binding materials to fill up the interstices of coarse aggregate, watering and compacting to the required density as per MoRT&H Technical Specification Clause 404.					
		1) WBM Grading-I					
		(A) By Manual Means					
		Unit = cum					
		Taking output = 360 cum					
		a) Labour					

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		Mate	day	10.08	310.00	3124.80	L-17
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-20
		Mazdoor (unskilled)	day	250.00	310.00	77500.00	L-18
		b) Machinery					
		Vibratory roller	hour	6.00	1395.00	8370.00	P&M-083
		Water tanker 6 KL capacity	hour	24.00	200.00	4800.00	P&M-084
		c) Material (Refer table 400.7, 8 & 9)					
		Aggregate					
		Grading-I 90 mm to 45 mm@ 1.21cum per 10 sqm for compacted thickness of 100 mm	cum	435.60	3739.00	1628708.40	M-024
		Stone Screening					
		Type A 13.2 mm for **Grading-I** @ 0.27 cum per 10 sqm	cum	97.20	4525.00	439830.00	M-188
		Binding material					
		Binding Material @ 0.08cum per 10 sqm for Grading-I material	cum	28.80	17.05	491.04	M-038
		Water	KL	144.00	133.00	19152.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				306678.66	
		e) Contractor's profit @ 15 % on (a+b+c+d)				373416.73	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				28628.62	
		Cost for 360 cum = a+b+c+d+e+f				2891490.25	
		Rate per cum = (a+b+c+d+e+f)/360				8031.92	
					say	***8031.90***	
		(B) By Mechanical Means					
		Unit = cum					
		Taking output = 360 cum					
		a) Labour					
		Mate	day	0.68	310.00	210.80	L-17
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-20
		Mazdoor (unskilled)	day	15.00	310.00	4650.00	L-18
		b) Machinery					
		Motor Grader	hour	7.20	2625.00	18900.00	P&M-047
		Vibratory roller	hour	6.00	1395.00	8370.00	P&M-083
		Water tanker 6 KL capacity	hour	24.00	200.00	4800.00	P&M-084
		c) Material (Refer table 400.7, 8 & 9)					
		Aggregate					
		Grading-I 90 mm to 45 mm@ 1.21cum per 10 sqm for compacted thickness of 100 mm	cum	435.60	3739.00	1628708.40	M-024
		Stone Screening					
		Type A 13.2 mm for **Grading-I** @ 0.27 cum per 10 sqm	cum	97.20	4525.00	439830.00	M-188
		Binding material					
		Binding Material @ 0.08cum per 10 sqm for Grading-I material	cum	28.80	17.05	491.04	M-038
		Water	KL	144.00	133.00	19152.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				298689.26	
		e) Contractor's profit @ 15 % on (a+b+c+d)				363688.73	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				27882.80	
		Cost for 360 cum = a+b+c+d+e+f				2816163.03	
		Rate per cum = (a+b+c+d+e+f)/360				7822.68	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
					say	***7822.70***	
		2) WBM Grading-II					
		(A) By Manual Means					
		Unit = cum					
		Taking output = 360 cum					
		a) Labour					
		Mate	day	10.08	310.00	3124.80	L-17
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-20
		Mazdoor (unskilled)	day	250.00	310.00	77500.00	L-18
		b) Machinery					
		Vibratory roller	hour	6.00	1395.00	8370.00	P&M-083
		Water tanker 6 KL capacity	hour	24.00	200.00	4800.00	P&M-084
		c) Material (Refer table 400.7, 8 & 9)					
		Aggregate					
		Grading-II 63 mm to 45 mm @ 0.91 cum per 10 sqm for compacted thickness of 75 mm	cum	435.60	3986.00	1736301.60	M-025
		Stone Screening					
		Type B 11.2 mm for Grading-II @ 0.20 cum per 10 sqm	cum	96.01	4890.00	469488.90	M-189
		Binding material					
		Binding Material @ 0.06 cum per 10 sqm for **Grading-II** material	cum	28.80	17.05	51.15	M-038
		Water	KL	144.00	133.00	19152.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				325900.77	
		e) Contractor's profit @ 15 % on (a+b+c+d)				396821.88	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				30423.01	
		Cost for 360 cum = a+b+c+d+e+f				3072724.12	
		Rate per cum = (a+b+c+d+e+f)/360				8535.34	
					say	***8535.30***	
		(B) By Mechanical Means					
		Unit = cum					
		Taking output = 360 cum					
		a) Labour					
		Mate	day	0.68	310.00	210.80	L-17
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-20
		Mazdoor (unskilled)	day	15.00	310.00	4650.00	L-18
		b) Machinery					
		Motor Grader	hour	7.20	2625.00	18900.00	P&M-047
		Vibratory roller	hour	6.00	1395.00	8370.00	P&M-083
		Water tanker 6 KL capacity	hour	24.00	200.00	4800.00	P&M-084
		c) Material (Refer table 400.7, 8 & 9)					
		Aggregate					
		Grading-II 63 mm to 45 mm @ 0.91 cum per 10 sqm for compacted thickness of 75 mm	cum	435.60	3986.00	1736301.60	M-025
		Stone Screening					
		Type B 11.2 mm for Grading-II @ 0.20 cum per 10 sqm	cum	96.01	4890.00	469488.90	M-189
		Binding material					
		Binding Material @ 0.06 cum per 10 sqm for **Grading-II** material	cum	28.80	17.05	491.04	M-038
		Water	KL	144.00	133.00	19152.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				317973.18	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		e) Contractor's profit @ 15 % on (a+b+c+d)				387169.13	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				29682.97	
		Cost for 360 cum = a+b+c+d+e+f				2997979.62	
		Rate per cum = (a+b+c+d+e+f)/360				8327.72	
					say	***8327.70***	
		Note:- Type A Screening can be used in Grading 2					
		3) WBM Grading-III					
		(A) By Manual Means					
		Unit = cum					
		Taking output = 360 cum					
		a) Labour					
		Mate	day	10.08	310.00	3124.80	L-17
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-20
		Mazdoor (unskilled)	day	250.00	310.00	77500.00	L-18
		b) Machinery					
		Vibratory roller	hour	6.00	1395.00	8370.00	P&M-083
		Water tanker 6 KL capacity	hour	24.00	200.00	4800.00	P&M-084
		c) Material (Refer table 400.7, 8 & 9)					
		Aggregate					
		Grading-III 53 mm to 22.4 mm@ 0.91 cum per 10 sqm for compacted thickness of 75 mm	cum	435.60	4180.00	1820808.00	M-026
		Stone Screening					
		Type B 11.2 mm for Grading-III @ 0.18 cum per 10 sqm	cum	86.40	4890.00	422496.00	M-190
		Binding material					
		Binding Material @ 0.06 cum per 10 sqm for **Grading-II** material	cum	28.80	17.05	348.67	M-038
		Water	KL	144.00	133.00	19152.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				331213.22	
		e) Contractor's profit @ 15 % on (a+b+c+d)				403290.40	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				30918.93	
		Cost for 360 cum = a+b+c+d+e+f				3122812.03	
		Rate per cum = (a+b+c+d+e+f)/360				8674.48	
					say	***8674.50***	
		3) WBM Grading-III					
		(B) By Mechanical Means					
		Unit = cum					
		Taking output = 360 cum					
		a) Labour					
		Mate	day	0.68	310.00	210.80	L-17
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-20
		Mazdoor (unskilled)	day	15.00	310.00	4650.00	L-18
		b) Machinery					
		Motor Grader	hour	7.20	2625.00	18900.00	P&M-047
		Vibratory roller	hour	6.00	1395.00	8370.00	P&M-083
		Water tanker 6 KL capacity	hour	24.00	200.00	4800.00	P&M-084
		c) Material (Refer table 400.7, 8 & 9)					
		Aggregate					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Grading-III 53 mm to 22.4 mm@ 0.91 cum per 10 sqm for compacted thickness of 75 mm	cum	435.60	4180.00	1820808.00	M-026
		Stone Screening					
		Type B 11.2 mm for Grading-III @ 0.18 cum per 10 sqm	cum	86.40	4890.00	422496.00	M-190
		Binding material					
		Binding Material @ 0.06 cum per 10 sqm for **Grading-II** material	cum	28.80	17.05	76.73	M-038
		Water	KL	144.00	133.00	19152.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				323185.62	
		e) Contractor's profit @ 15 % on (a+b+c+d)				393515.87	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				30169.55	
		Cost for 360 cum = a+b+c+d+e+f				3047124.57	
		Rate per cum = (a+b+c+d+e+f)/360				8464.23	
					say	***8464.20***	
4.10	**405**	**Crushed Cement Concrete Sub-base / Base** Breaking and crushing of material obtained by breaking damaged cement concrete slabs to size range not exceeding 75 mm as specified in table 400.7 transporting the aggregates obtained from breaking of cement concrete slabs at a lead of 1000 m, laying and compacting the same as sub base/ base course, constructed as WBM as per clause 404 except the use of screening or binding Material as per MoRT&H Technical Specification Clause 405.					
		Unit = cum					
		Taking output =360 cum					
		a) Labour					
		Mate	day	4.16	310.00	1289.60	L-17
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-20
		Mazdoor(unskilled)	day	102.00	310.00	31620.00	L-18
		b) Machinery					
		Motor Grader	hour	6.00	2625.00	15750.00	P&M-047
		Front end loader	hour	6.00	920.00	5520.00	P&M-030
		Tipper	hour	32.73	334.00	10931.82	P&M-031
		Vibratory roller	hour	6.00	1395.00	8370.00	P&M-083
		Water tanker 6 KL capacity	hour	12.00	200.00	2400.00	P&M-084
		c) Material Material available from dismantled concrete slab after crushing/ breaking and only carriage is to be provided					
		Water	KL	72.00	133.00	9576.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				12117.76	
		e) Contractor's profit @ 15 % on (a+b+c+d)				14754.78	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				1131.20	
		Cost for 360 cum = a+b+c+d+e+f				114251.16	
		Rate per cum = (a+b+c+d+e+f)/360				317.36	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
					say	***317.40***	

Note:- 1. It is assumed that dismantling of concrete slab/pavement has been considered separately. Hence same is not added in this analysis. Only labour for crushing the dismantled slab into aggregate has been added. Carriage from stock pile to work site has been provided with a lead of 1000 m.

2. In case of breaking of slabs is done locally without involvement of transportation, the provision of tipper, front end loader and loading/unloading charges may be deleted.

3. As three wheeled smooth steel rollers are commonly in use, the same has been provided as an alternative.

4.11 506.3.8 Penetration Coat Over Top Layer of Crushed Cement Concrete Base

Spraying of bitumen over cleaned dry surface of crushed cement concrete base at the rate of 25 kg per 10 sqm by a bitumen pressure distributor, spreading of key aggregates at the rate of 0.15 cum per 10 sqm by a mechanical gritter and rolling the surface as per MoRT&H Technical Specification clause 506.3.8.

Unit = sqm
Taking output = 7500 sqm

a) Labour					
Mate	day	0.56	310.00	173.60	L-17
Mazdoor(skilled)	day	2.00	395.00	790.00	L-20
Mazdoor (unskilled)	day	12.00	310.00	3720.00	L-18
b) Machinery					
Mechanical broom hydraulic	hour	6.00	345.00	2070.00	P&M-033
Hydraulic self propelled chips spreader	hour	6.00	3629.00	21774.00	P&M-038
Front end loader	hour	6.00	920.00	5520.00	P&M-030
Tipper	hour	6.00	334.00	2004.00	P&M-073
Vibratory roller	hour	3.90	1395.00	5440.50	P&M-083
Bitumen pressure distributor	hour	4.28	202.00	864.56	P&M-012
c) Material					
Crushed stone aggregate 11.2 mm size	cum	97.50	5015.00	488962.50	M-187
Bitumen (VG-30)	tonne	18.75	40138.00	752587.50	M-041
d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				180388.89	
e) Contractor's profit @ 15 % on (a+b+c+d)				219644.33	
f) Add Cess @ 1.00 % on (a+b+c+d+e)				16839.40	
Cost for 7500 sqm = a+b+c+d+e+f				1700779.28	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Rate per sqm = (a+b+c+d+e+f)/7500				226.77	
					say	***226.80***	
4.12	**406**	**Wet Mix Macadam** Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechanical mix plant carriage of mixed Material by tipper to site, laying in uniform layers with paver finisher in sub- base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density as per MoRT&H Technical Specification Clause 406.					
		Unit = cum ***Taking output = 225 cum (495 tonnes)***					
		a) Labour					
		Mate	day	0.48	310.00	148.80	L-17
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-20
		Mazdoor (Unskilled)	day	10.00	310.00	3100.00	L-18
		b) Machinery					
		Electric generator set, 125 KVA	hour	6.00	445.00	2670.00	P&M-026
		Front end loader 1 cum capacity	hour	6.00	920.00	5520.00	P&M-030
		Wet mix plant of 75 tonne/ hour capacity	hour	6.60	3365.00	22209.00	P&M-085
		Tipper i/c loading unloading	hour	20.45	334.00	6830.30	P&M-073
		Paver finisher	hour	6.00	1050.00	6300.00	P&M-049
		Vibratory roller	hour	3.90	1395.00	5440.50	P&M-083
		Water tanker 6 KL capacity	hour	3.00	200.00	600.00	P&M-084
		c) Material					
		c) Aggregate (Table 400-11)					
		Coarse aggregate 45 mm to 22.4 mm@ 30 percent	cum	89.10	4485.00	399613.50	M-027
		Aggregates 22.4 mm to 2.36 mm @ 40 percent	cum	118.80	4435.00	526878.00	M-028
		Fine aggregates/ crushed stones 2.36 mm to 75 micron@ 30 percent	cum	89.10	2510.00	223641.00	M-041
		Water	KL	18.00	133.00	2394.00	M-070
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				169461.98	
		e) Contractor's profit @ 15 % on (a+b+c+d)				206339.56	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				15819.37	
		Cost for 225 cum = a+b+c+d+e+f				1597756.01	
		Rate per cum = (a+b+c+d+e+f)/225				7101.14	
					say	***7101.10***	
4.13	**407**	**Construction of Median and Island with Soil Taken from Roadway Cutting**					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Construction of Median and Island above road level with approved material deposited at site from roadway cutting and excavation for drain and foundation of other structures with all leads and lifts, spread, graded and compacted with plate compactor as per MoRT&H Technical Specification Clause 407.					
		Unit = cum					
		Taking output =21 cum					
		a) Labour					
		Mate	day	0.24	310.00	74.40	L-17
		Mazdoor	day	6.00	310.00	1860.00	L-18
		b) Machinery					
		Plate compactor	hour	6.00	75.00	450.00	P&M-051
		Water tanker 6 KL capacity	hour	1.00	200.00	200.00	P&M-084
		c) Material					
		Water	KL	6.00	133.00	798.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				475.23	
		e) Contractor's profit @ 15 % on (a+b+c+d)				578.64	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				44.36	
		Cost for 21 cum = a+b+c+d+e+f				4480.63	
		Rate per cum = (a+b+c+d+e+f)/21				213.36	
					say	***213.40***	
4.14	**407**	**Construction of Median and Island with Soil Taken from Borrow Areas** Construction of median and Island above road level with approved material brought from borrow pits with all lifts and lead upto 1000 m, spread, sloped and compacted as per MoRT&H Technical Specification Clause 407.					
		Unit = cum					
		Taking output = 21 cum					
		a) Labour					
		Mate	day	0.48	310.00	148.80	L-17
		Mazdoor (unskilled)	day	10.00	310.00	3100.00	L-18
		b) Machinery					
		Plate Compactor	hour	6.00	75.00	450.00	P&M-051
		Hydraulic Excavator	hour	0.50	1200.00	600.00	P&M-034
		Tipper i/c loading unloading	hour	2.55	334.00	851.70	P&M-073
		Water tanker 6 KL capacity	hour	1.00	200.00	200.00	P&M-084
		c) Material					
		Water	KL	6.00	133.00	798.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				863.86	
		e) Contractor's profit @ 15 % on (a+b+c+d)				1051.85	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				80.64	
		Cost for 21 cum = a+b+c+d+e+f				8144.86	
		Rate per cum = (a+b+c+d+e+f)/ 21				387.85	
					say	***387.90***	
4.15		**Construction of Shoulders**					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		A. Earthen Shoulders The rate as applicable for sub-grade construction may be adopted. **B. Hard Shoulders** Rate as applicable for sub-base and or base may be adopted as per approved design. **C. Paved shoulders** The rate may be adopted as applicable for different layers of pavement depending upon approved design of paved shoulders.					
4.16	**409**	**Footpaths and Separators** Construction of footpath/separator by providing a 150 mm compacted granular sub base as per clause 401 and 25 mm thick cement concrete grade M15, over laid with pre-cast concrete tiles in cement mortar 1:3 including provision of all drainage arrangements but excluding kerb channel as per MoRT&H Technical Specification Clause 409. ***Unit = sqm*** ***Taking output = 300 sqm***					
		a) Labour					
		Mate	day	1.36	310.00	421.60	L-17
		Mason (1st class)	day	4.00	440.00	1760.00	L-15
		Mazdoor(unskilled)	day	30.00	310.00	9300.00	L-18
		b) Machinery					
		Vibratory road roller @60 cum per hour	hour	0.75	1395.00	1046.25	P&M-083
		Concrete mixer 0.4/0.28 cum capacity	hour	6.00	192.00	1152.00	P&M-014
		Water tanker 6 KL capacity	hour	2.00	200.00	400.00	P&M-084
		c) Material					
		i) For Granular sub-base material					
		53 mm to 26.5 mm @ 35 %	cum	20.79	4279.00	88960.41	M-055
		26.5 mm to 4.75 mm @ 45 %	cum	26.73	4770.00	127502.10	M-056
		2.36 mm below @ 20 %	cum	11.88	2536.00	30127.68	M-058
		ii) For cement concrete grade M15, 7.5 cum					
		Aggregate 12 mm crushed @ 0.9 cum of concrete	cum	6.75	4785.00	32298.75	M-021
		Sand	cum	3.38	560.00	1892.80	M-170
		Cement	tonne	1.88	5800.00	10904.00	M-052
		iii) For cement plaster 1:3					
		Sand	cum	3.84	560.00	2150.40	M-170
		Cement	tonne	1.83	5800.00	10614.00	M-052
		iv) Pre-cast cement concrete tiles					
		Tiles size 300 x 300 mm and 25 mm thick	each	3300.00	32.50	107250.00	M-149
		v) RCC pipes					
		Pipes 200 mm dia(NP2),2.5 m long for drainage	metre	22.50	470.00	10575.00	M-164
		Collar	no	8.00	112.00	896.00	M-247
		vi) Water	KL	12.00	133.00	1596.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				61658.00	
		e) Contractor's profit @ 15 % on (a+b+c+d)				75075.75	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				5755.81	
		Cost for 300 sqm = a+b+c+d+e+f				581336.55	
		Rate per sqm = (a+b+c+d+e+f)/300				1937.79	
					say	***1937.80***	

ADDITIONAL ITEMS BY USING JHAMA BRICK AGGREGATE
(i.e. LOCALLY AVAILABLE MATERIALS)

4.17	**401**	**Granular Sub-Base with Well Graded Material(using jhama brick aggregate) (Table:- 400.1)**					
		A. By Mix in Place Method					
		Construction of granular sub-base by providing well graded material (Jhama Brick Aggregate, as per Table:- 400.1, Grading-I), spreading in uniform layers with tractor with attachments or motor grader on prepared surface, mixing by mix in place method with rotavator at OMC, applying and brooming sand to fill up the interstices of coarse aggregate, watering and compacting with smooth wheel roller to achieve the desired density, complete as per MoRT&H Technical Specification Clause 401.					
		(i) For Grading- I Material (Jhama brick aggregate)					
		Unit = cum					
		Taking output = 300 cum					
		a) Labour					
		Mate	day	0.48	310.00	148.80	L-17
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-20
		Mazdoor(unskilled)	day	10.00	310.00	3100.00	L-18
		b) Machinery					
		Motor Grader	hour	6.00	2625.00	15750.00	P&M-047
		Vibratory roller 8 -10 tonne	hour	6.00	1395.00	8370.00	P&M-083
		Tractor with Rotavator	hour	12.00	320.00	3840.00	P&M-077
		Water tanker 6 KL capacity	hour	3.00	200.00	600.00	P&M-084
		c) Material					
		Jhama Brick Aggregate					
		Well graded Granular sub-base Material as per table 400.1					
		Well Graded Material for Sub-Base - Grading I - 53 mm to 0.075 mm jhama brick aggregate @ 70 %	cum	268.8	3403.69	914910.54	M-217
		Sand (local quarry) @ 30 %	cum	115.20	460.00	52992.00	M-171
		Water	KL	18.00	133.00	2394.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				140906.80	
		e) Contractor's profit @ 15 % on (a+b+c+d)				171570.32	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				13153.72	
		Cost for 300 cum = a+b+c+d+e+f				1328526.18	
		Rate per cum = (a+b+c+d+e+f)/300				4428.42	
					say	***4428.40***	
4.18	**404**	**Water Bound Macadam Sub-Base / Base using Jhama Brick Aggregate**					
		(1) WBM Grading- 2 Providing, laying, spreading and compacting jhama brick aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing, rolling with three wheel 80-100 kN static roller / vibratory roller in stages to proper grade and camber, applying and brooming and binding materials to fill up the interstices of coarse aggregate, watering and compacting to the required density Grading-2 as per MoRT&H Technical Specification Clause 404.					
		(A) By Manual Means ***Unit = cum*** ***Taking output = 360 cum***					
		a) Labour					
		Mate	day	10.08	310.00	3124.80	L-17
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-20
		Mazdoor(unskilled)	day	250.00	310.00	77500.00	L-18
		b) Machinery					
		Vibratory roller	hour	6.00	1395.00	8370.00	P&M-083
		Water tanker 6 KL capacity	hour	24.00	200.00	4800.00	P&M-084
		c) Material (Refer table 400.7, 8 & 9) Jhama Brick Aggregate					
		Jhama Brick Aggragate Grading 2 - 63 mm to 22.4 mm	cum	532.80	3325.00	1771560.00	M-218
		Binding material					
		Binding Material @ 0.06 cum per 10 sqm for Grading- 2 material	cum	28.80	17.05	491.04	M-038
		Water	KL	144.00	133.00	19152.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				264953.19	
		e) Contractor's profit @ 15 % on (a+b+c+d)				322611.15	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				24733.52	
		Cost for 360 cum = a+b+c+d+e+f				2498085.71	
		Rate per cum = (a+b+c+d+e+f)/360				6939.13	
					say	***6939.10***	
		(B) By Mechanical Means ***Unit = cum*** ***Taking output = 360 cum***					
		a) Labour					
		Mate	day	0.68	310.00	210.80	L-17
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-20
		Mazdoor(unskilled)	day	15.00	310.00	4650.00	L-18

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		b) Machinery					
		Mortar Grader	hour	7.20	2625.00	18900.00	P&M-047
		Vibratory roller	hour	6.00	1395.00	8370.00	P&M-083
		Water tanker 6 KL capacity	hour	24.00	200.00	4800.00	P&M-084
		c) Material (Refer table 400.7, 8 & 9)					
		Jhama Brick Aggregate					
		Jhama Brick Aggragate Grading 2 - 63 mm to 22.4 mm	cum	532.80	3325.00	1771560.00	M-218
		Binding material					
		Binding Material @ 0.06cum per 10 sqm for Grading- 2 material	cum	28.80	17.05	491.04	M-038
		Water	KL	144.00	133.00	19152.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				256963.80	
		e) Contractor's profit @ 15 % on (a+b+c+d)				312883.15	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				23987.71	
		Cost for 360 cum = a+b+c+d+e+f				2422758.49	
		Rate per cum = (a+b+c+d+e+f)/360				6729.88	
					say	***6729.90***	
		(2) WBM Grading- 3 Providing, laying, spreading and compacting jhama brick aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing, rolling with three wheel 80-100 kN static roller / vibratory roller in stages to proper grade and camber, applying and brooming and binding materials to fill up the interstices of coarse aggregate, watering and compacting to the required density Grading-3 as per MoRT&H Technical Specification Clause 404.					
		(A) By Manual Means					
		Unit = cum					
		Taking output = 360 cum					
		a) Labour					
		Mate	day	10.08	310.00	3124.80	L-17
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-20
		Mazdoor(unskilled)	day	250.00	310.00	77500.00	L-18
		b) Machinery					
		Vibratory roller	hour	6.00	1395.00	8370.00	P&M-083
		Water tanker 6 KL capacity	hour	24.00	200.00	4800.00	P&M-084
		c) Material (Refer table 400.7, 8 & 9)					
		Jhama Brick Aggregate					
		Jhama Brick Aggragate Grading 3 - 53 mm to 11.2 mm	cum	523.20	3365.00	1760568.00	M-219
		Binding material					
		Binding Material @ 0.06 cum per 10 sqm for Grading- 3 material	cum	28.80	17.05	491.04	M-038
		Water	KL	144.00	133.00	19152.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				263408.82	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		e) Contractor's profit @ 15 % on (a+b+c+d)				320730.70	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				24589.35	
		Cost for 360 cum = a+b+c+d+e+f				2483524.71	
		Rate per cum = (a+b+c+d+e+f)/360				6898.68	
					say	***6898.70***	
		(B) By Mechanical Means					
		Unit = cum					
		Taking output = 360 cum					
		a) Labour					
		Mate	day	0.68	310.00	210.80	L-17
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-20
		Mazdoor(unskilled)	day	15.00	310.00	4650.00	L-18
		b) Machinery					
		Mortar Grader	hour	7.20	2625.00	18900.00	P&M-047
		Vibratory roller	hour	6.00	1395.00	8370.00	P&M-083
		Water tanker 6 KL capacity	hour	24.00	200.00	4800.00	P&M-084
		c) Material (Refer table 400.7, 8 & 9)					
		Jhama Brick Aggregate					
		Jhama Brick Aggragate Grading 3 - 53 mm to 11.2 mm	cum	523.20	3365.00	1760568.00	M-219
		Binding material					
		Binding Material @ 0.06 cum per 10 sqm for Grading- 3 material	cum	28.80	17.05	491.04	M-038
		Water	KL	144.00	133.00	19152.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				255419.42	
		e) Contractor's profit @ 15 % on (a+b+c+d)				311002.69	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				23843.54	
		Cost for 360 cum = a+b+c+d+e+f				2408197.49	
		Rate per cum = (a+b+c+d+e+f)/360				6689.44	
					say	***6689.40***	
4.19	**404**	**Water Bound Macadam Sub-Base / Base using Jhama Brick Aggregate**					
		(1) WBM Grading- 1 Providing, laying, spreading and compacting jhama brick aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing, rolling with three wheel 80-100 kN static roller / vibratory roller in stages to proper grade and camber, applying and brooming and binding materials to fill up the interstices of coarse aggregate, watering and compacting to the required density Grading-1 as per MoRT&H Technical Specification Clause 404.					
		(A) By Manual Means					
		Unit = cum					
		Taking output = 360 cum					
		a) Labour					
		Mate	day	10.08	310.00	3124.80	L-17

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-20
		Mazdoor(unskilled)	day	250.00	310.00	77500.00	L-18
		b) Machinery					
		Vibratory roller	hour	6.00	1395.00	8370.00	P&M-082
		Water tanker 6 KL capacity	hour	24.00	200.00	4800.00	P&M-084
		c) Material (Refer table 400.7, 8 & 9)					
		Jhama Brick Aggregate					
		Jhama brick aggregate for WBM Grading - 1 - 90 mm to 22.4 mm	cum	532.80	3224.00	1717747.20	M-261
		Binding material					
		Binding Material @ 0.06 cum per 10 sqm for Grading- 1 material	cum	28.80	17.05	491.04	M-038
		Water	KL	144.00	133.00	19152.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				257392.49	
		e) Contractor's profit @ 15 % on (a+b+c+d)				313405.13	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				24027.73	
		Cost for 360 cum = a+b+c+d+e+f				2426800.39	
		Rate per cum = (a+b+c+d+e+f)/360				6741.11	
					say	***6741.10***	
		(B) By Mechanical Means					
		Unit = cum					
		Taking output = 360 cum					
		a) Labour					
		Mate	day	0.68	310.00	210.80	L-17
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-20
		Mazdoor(unskilled)	day	15.00	310.00	4650.00	L-18
		b) Machinery					
		Mortar Grader	hour	7.20	2625.00	18900.00	P&M-046
		Vibratory roller	hour	6.00	1395.00	8370.00	P&M-082
		Water tanker 6 KL capacity	hour	24.00	200.00	4800.00	P&M-084
		c) Material (Refer table 400.7, 8 & 9)					
		Jhama Brick Aggregate					
		Jhama brick aggregate for WBM Grading - 1 - 90 mm to 22.4 mm	cum	532.80	3224.00	1717747.20	M-261
		Binding material					
		Binding Material @ 0.06 cum per 10 sqm for Grading- 1 material	cum	28.80	17.05	491.04	M-038
		Water	KL	144.00	133.00	19152.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				249403.10	
		e) Contractor's profit @ 15 % on (a+b+c+d)				303677.12	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				23281.91	
		Cost for 360 cum = a+b+c+d+e+f				2351473.17	
		Rate per cum = (a+b+c+d+e+f)/360				6531.87	
					say	***6531.90***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		(ADDITIONAL ITEMS USING STONE AGGREGATES)					
4.20	**410**	**Crusher Run Macadam Base** Providing crushed stone aggregate, depositing on a prepared surface by hauling vehicles, spreading and mixing with a motor grader, watering and compacting with a vibratory roller to clause 410 to form a layer of sub-base/Base ***Unit = cum*** ***Taking output = 360 cum*** **A. By Mix in Place Method**					
		a) Labour					
		Mate	day	0.480	310.00	148.80	L-17
		Mazdoor(skilled)	day	2.000	395.00	790.00	L-20
		Mazdoor(unskilled)	day	10.000	310.00	3100.00	L-18
		b) Machinery					
		Tractor attached with rotavator @ 25 cum per hour	hour	12.000	320.00	3840.00	P&M-077
		Motor grader 110 HP	hour	6.000	2625.00	15750.00	P&M-047
		Vibratory roller 8 -10 tonnes @ 60 cum per hour	hour	6.000	1395.00	8370.00	P&M-082
		Water tanker 6 KL capacity	hour	6.000	200.00	1200.00	P&M-084
		c) Material					
		Aggregate at site					
		For 53 mm maximum size					
		63 mm to 45 mm @ 33 per cent	cum	157.460	3986.00	627635.56	M-025
		22.4 mm to 2.36 mm @ 32 per cent	cum	151.060	4435.00	669951.10	M-028
		Below 2.36 mm @ 35 per cent	cum	166.680	2536.00	422700.48	M-198
		Water	KL	36.000	133.00	4788.00	M-196
		Or					
		For 45 mm maximum size					
		45 mm to 22.4 mm @ 5 per cent	cum	24.120	4485.00	108178.20	M-027
		22.4 mm to 2.36 mm @ 50 per cent	cum	237.600	4435.00	1053756.00	M-028
		Below 2.36 mm @ 45 per cent	cum	213.480	2536.00	541385.28	M-198
		Water	KL	36.000	133.00	4788.00	M-196
		A (i) For 53 mm maximum size					
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				247037.49	
		e) Contractor's profit @ 15 % on (a+b+c+d)				300796.71	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				23061.08	
		Cost for 360.0cum = a+b+c+d+e+f				2329169.22	
		Rate per cum = (a+b+c+d+e+f)/360				6469.91	
		or			***say***	***6469.90***	
		A (ii) For 45 mm maximum size					
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				244653.53	
		e) Contractor's profit @ 15 % on (a+b+c+d)				297893.97	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				22838.54	
		Cost for 360.0cum = a+b+c+d+e+f				2306692.32	
		Rate per cum = (a+b+c+d+e+f)/360				6407.48	
					say	***6407.50***	
		Note:- Any one of the aggregate grading may be adopted.					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		B. By Mixing Plant :					
		Unit = cum					
		Taking output = 225 cum (450 tonnes)					
		a) Labour					
		Mate	day	0.280	310.00	86.80	L-17
		Mazdoor(skilled)	day	1.000	395.00	395.00	L-20
		Mazdoor(unskilled)	day	6.000	310.00	1860.00	L-18
		b) Machinery					
		Wet mix plant @ 75 tonne per hour	hour	6.000	3365.00	20190.00	P&M-067
		Electric generator 125 KVA	hour	6.000	445.00	2670.00	P&M-068
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-069
		Motor grader 110 HP	hour	6.000	2625.00	15750.00	P&M-070
		Vibratory roller 8 - 10 tonne	hour	6.000	1395.00	8370.00	P&M-071
		Water tanker 6 KL capacity	hour	3.000	200.00	600.00	P&M-072
		Tipper 5.50 cum capacity	hour	20.45	334.00	6830.30	P&M-073
		c) Material					
		Aggregate at site					
		i) For 53 mm maximum size					
		63 mm to 45 mm @ 33 per cent	cum	98.400	3986.00	392222.40	M-025
		22.4 mm to 2.36 mm @ 32 per cent	cum	94.410	4435.00	418708.35	M-028
		Below 2.36 mm @ 35 per cent	cum	104.180	2536.00	264200.48	M-198
		Water	KL	36.000	133.00	4788.00	M-196
		Or					
		ii) For 45 mm maximum size					
		45 mm to 22.4 mm @ 5 per cent	cum	15.060	4485.00	67544.10	M-027
		22.4 mm to 2.36 mm@ 50 per cent	cum	148.500	4435.00	658597.50	M-028
		Below 2.36 mm @ 45 per cent	cum	133.430	2536.00	338378.48	M-198
		Cost of water	KL	18.000	133.00	2394.00	M-196
		B (i) For 53 mm maximum size					
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				160477.88	
		e) Contractor's profit @ 15 % on (a+b+c+d)				195400.38	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				14980.70	
		Cost for 225cum = a+b+c+d+e+f				1513050.29	
		Rate per cum = (a+b+c+d+e+f)/225				6724.67	
					say	***6724.70***	
		B (ii) For 45 mm maximum size					
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				158650.66	
		e) Contractor's profit @ 15 % on (a+b+c+d)				193175.53	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				14810.12	
		Cost for 225cum = a+b+c+d+e+f				1495822.49	
		Rate per cum = (a+b+c+d+e+f)/225				6648.10	
					say	***6648.10***	
4.21	**Suggestive**	**Lime, Flyash Stabilised Soil Sub-Base**					

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SUB-BASES, BASES (NON- BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Construction of Sub-base using lime - Flyash admixture with granular soil, free from organic matter/ deleterious material or clayey silts and low plasticity clays having PI between 5 and 20 and liquid limit less than 25 and commercial dry lime, slaked at site or pre-slaked with CaO content not less than 50 per cent, Flyash to conform to gradation as per clause 4.3 of IRC: 88-1984, lime + Flyash content ranging between 10 to 30 per cent, the minimum un-confined compressive strength and CBR value after 28 days curing and 4 days soaking to be 7.5kg/sq, cm and 25 per cent respectively, all as specified in IRC: 88-1984.					
		Unit = cum					
		Taking output = 480 cum (720 tonnes, density 1.50 t/cum)					
		Assumptions made					
		Total mass taken for analysis = 720 t					
		Lime + Flyash admixture @ 20 per cent = 0.2 x 720=144 t					
		Soil = 720 -144 = 576 t					
		576 /1.6 = 360 cum					
		Lime + Flyash = 144 t					
		Ratio Lime 4 : Flyash 16					
		Lime = 29 T.					
		Flyash = 115 T.					
		a) Labour					
		Mate	day	0.240	310.00	74.40	L-17
		Mazdoor(skilled)	day	6.000	395.00	2370.00	L-20
		Mazdoor(unskilled)	day	1.000	310.00	310.00	L-18
		b) Machinery					
		Hydraulic Excavator 0.90 cum bucket capacity @ 60cum/hr. for 360 cum soil	hour	6.000	1200.00	7200.00	0.00
		Tipper 10T capacity for carriage of soil 576 tonnes & 115 tonnes Flyash	hour	31.400	334.00	10487.60	P&M-073
		Tipper 10T capacity for carriage of 29 tonnes of lime from store to work site	hour	3.000	334.00	1002.00	P&M-073
		Tractor with disc harrows for pulverisation	hour	6.000	385.00	2310.00	P&M-074
		Motor Grader 110 HP @ 50 cum per hour for mixing in-place and grading	hour	9.600	2625.00	25200.00	P&M-046
		Vibratory roller 8 - 10 tonne	hour	6.000	1395.00	8370.00	P&M-082
		Water tanker 6 KL capacity	hour	12.000	200.00	2400.00	P&M-084
		c) Material					
		Lime	tonne	29.000	380.00	11020.00	M-294
		Compensation for earth taken from private source	cum	360.000	17.05	6138.00	M-061
		Fly Ash	tonne	115.000	18.75	2156.25	M-302
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				11104.87	
		e) Contractor's profit @ 15 % on (a+b+c+d)				13521.47	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				1036.65	
		Cost for 480 cum = a+b+c+d+e+f				104701.24	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Rate per cum= (a+b+c+d+e+f)/480				218.13	
					say	***218.10***	
		1.Compensation for earth will vary from place to place and will have to be assessed realistically as per particular ground situation. In case earth is available from Govt. land, compensation for earth will not be required. The position is required to be clearly stated in the cost estimate.					
		2.Lime + Flyash has been taken as 20 per cent of total mass and ratio of lime and Flyash as 1:4 for estimating purposes. Total quantities will be as per approved design.					

CHAPTER - 5
BASES AND SURFACE COURSES (BITUMINOUS)

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
5.1	502	**Prime Coat** Providing and applying primer coat with bitumen emulsion (SS-1) on prepared surface of granular base including cleaning of road surface and spraying primer at the rate of 0.6 kg/sqm using mechanical means as per MoRT&H Technical Specification Clause 502.					
		Unit = sqm					
		Taking output = 3500 sqm					
		a) Labour					
		Mate	day	0.080	310.00	24.80	L-17
		Mazdoor(unskilled)	day	2.000	310.00	620.00	L-18
		b) Machinery					
		Hydraulic broom @ 1250 sqm per hour	hour	2.800	345.00	966.00	P&M-033
		Air compressor 210 cfm	hour	2.800	210.00	588.00	P&M-001
		Bitumen emulsion pressure distributor @ 1750 sqm per hour	hour	2.000	202.00	404.00	P&M-012
		Water tanker 6 KL capacity 1 trip per hour	hour	1.000	200.00	200.00	P&M-084
		c) Material					
		Bitumen emulsion (SS-1) @ 0.60 kg per sqm	tonne	2.100	38830.00	81543.00	M-046
		Water	KL	6.000	133.00	798.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				11962.70	
		e) Contractor's profit @ 15 % on (a+b+c+d)				14565.98	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				1116.72	
		Cost for 3500 sqm = a+b+c+d+e+f				112789.20	
		Rate per sqm = (a+b+c+d+e+f)/3500				32.23	
					say	***32.20***	
		Note:- Bitumen primer has been provided @ 0.60 kg per sqm as per clause 502.8. Payment shall be made with adjustment, plus or minus, for the variation between this quantity and the actual quantity approved by the Engineer after the preliminary trials referred to in clause No. 502.4.3.					
5.2	503	**Tack Coat** Providing and applying tack coat with bitumen emulsion (RS-1) using emulsion pressure distributor at the rate of 0.20 kg per sqm on the prepared bituminous / granular surface cleaned with Hydraulic broom as per MoRT&H Technical Specification Clause 503.					
		Unit = sqm					
		Taking output = 3500 sqm					
		a) Labour					
		Mate	day	0.080	310.00	24.80	L-17
		Mazdoor(unskilled)	day	2.000	310.00	620.00	L-18
		b) Machinery					
		Hydraulic broom @ 1250 sqm per hour	hour	2.800	345.00	966.00	P&M-033
		Air compressor 210 cfm	hour	2.800	210.00	588.00	P&M-001
		Emulsion pressure distributor @ 1750 sqm per hour	hour	2.000	133.00	266.00	M-196

CHAPTER - 5
BASES AND SURFACE COURSES (BITUMINOUS)

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		c) Material					
		Bitumen emulsion(RS-1) @ 0.20 kg per sqm	tonne	0.700	37082.00	25957.40	M-045
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				3993.32	
		e) Contractor's profit @ 15 % on (a+b+c+d)				4862.33	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				372.78	
		Cost for 3500 sqm = a+b+c+d+e+f				37650.63	
		Rate per sqm = (a+b+c+d+e+f)/3500				10.76	
					say	***10.80***	
		Note:- 1. Bitumen emulsion has been provided @ 0.20 kg per sqm as per clause 503.8. Payment shall be made with adjustment, plus or minus, for the variation between this quantity and actual quantity approved by the Engineer after preliminary trials referred to in clause No. 503.4.3 2. An output of 3500 sqm has been considered in case of prime coat and tack coat which can be covered by bituminous courses on the same day.					
5.3	**504**	**Bituminous Macadam** Providing and laying bituminous macadam with 100-120 TPH hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of specified grading premixed with bituminous binder, transported to site, laid over a previously prepared surface with paver finisher to the required grade, level and alignment and rolled as per clauses 501.6 and 501.7 to achieve the desired compaction as per MoRT&H Technical Specification Clause 504.					
		A. Grading I **i. With Viscocity Graded Bitumen of VG-30.** ***Unit = cum*** ***Taking output = 205 cum (451 tonnes)***					
		a) Labour					
		Mate	day	0.840	310.00	260.40	L-17
		Mazdoor(unskilled)	day	16.000	310.00	4960.00	L-18
		Mazdoor(skilled)	day	5.000	395.00	1975.00	L-20
		b) Machinery					
		Batch mix HMP 100-120 TPH @ 75 tonne per hour actual output	hour	6.000	15400.00	92400.00	P&M-005
		Hydraulic broom @ 1250 sqm per hour	hour	2.200	345.00	759.00	P&M-033
		Air compressor 210 cfm	hour	2.200	210.00	462.00	P&M-001
		Paver finisher hydrostatic with sensor	hour	6.000	2250.00	13500.00	P&M-050
		Generator 250 KVA	hour	6.000	625.00	3750.00	P&M-025
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Tipper 5.50 cum, 10 T capacity	hour	18.640	334.00	6225.76	P&M-073
		Three wheel 80-100 KN static roller for initial break down rolling.	hour	3.900	392.00	1528.80	P&M-068
		Vibratory roller 80-100 KN for intermediate rolling.	hour	3.900	1395.00	5440.50	P&M-083

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BASES AND SURFACE COURSES (BITUMINOUS)

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Smooth wheeled tandem roller 6-8 tonnes for final and finishing rolling.	hour	3.900	1205.00	4699.50	P&M-058
		c) Material					
		i) Bitumen (VG-30) @ 3.3 per cent of mix	tonne	14.883	40138.00	597373.85	M-041
		weight of mix = 205 x 2.2 = 451 tonne					
		ii) Aggregate					
		Total weight of mix = 451 tonnes					
		Weight of bitumen = 14.883 tonnes					
		Weight of aggregate = 451 -14.883 = 436.117 tonnes					
		Taking density of aggregate = 1.5 ton/cum					
		Volume of aggregate = 290.745 cum					
		Grading I (40 mm nominal size)					
		37.5 - 25 mm 15 per cent	cum	43.612	4090.00	178373.08	M-012
		25 - 10 mm 45 per cent	cum	130.835	4485.00	586794.98	M-010
		10 - 5 mm 25 per cent	cum	72.686	4852.00	352672.47	M-006
		5 mm and below 15 per cent	cum	43.612	4965.00	216533.58	M-013
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				291288.66	
		e) Contractor's profit @ 15 % on (a+b+c+d)				354677.64	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				27191.95	
		Cost for 205 cum = a+b+c+d+e+f				2746387.17	
		Rate per cum = (a+b+c+d+e+f)/205				13397.01	
					say	***13397.00***	
		ii. With Viscocity Graded Bitumen of VG-20.					
		Unit = cum					
		Taking output = 205 cum (451 tonnes)					
		a) Labour					
		Mate	day	0.840	310.00	260.40	L-17
		Mazdoor(unskilled)	day	16.000	310.00	4960.00	L-18
		Mazdoor(skilled)	day	5.000	395.00	1975.00	L-20
		b) Machinery					
		Batch mix HMP 100-120 TPH @ 75 tonne per hour actual output	hour	6.000	15400.00	92400.00	P&M-005
		Hydraulic broom @ 1250 sqm per hour	hour	2.200	345.00	759.00	P&M-033
		Air compressor 210 cfm	hour	2.200	210.00	462.00	P&M-001
		Paver finisher hydrostatic with sensor	hour	6.000	2250.00	13500.00	P&M-050
		Generator 250 KVA	hour	6.000	625.00	3750.00	P&M-025
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Tipper 5.50 cum, 10 T capacity	hour	18.640	334.00	6225.76	P&M-073
		Three wheel 80-100 KN static roller for initial break down rolling.	hour	3.900	392.00	1528.80	P&M-068
		Vibratory roller 80-100 KN for intermediate rolling.	hour	3.900	1395.00	5440.50	P&M-083
		Smooth wheeled tandem roller 6-8 tonnes for final and finishing rolling.	hour	3.900	1205.00	4699.50	P&M-058
		c) Material					
		i) Bitumen (VG-20) @ 3.3 per cent of mix	tonne	14.883	39335.00	585422.81	M-042
		weight of mix = 205 x 2.2 = 451 tonne					
		ii) Aggregate					
		Total weight of mix = 451 tonnes					
		Weight of bitumen = 14.883 tonnes					
		Weight of aggregate = 451 -14.883 = 436.117 tonnes					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Taking density of aggregate = 1.5 ton/cum					
		Volume of aggregate = 290.745 cum					
		Grading I (40 mm nominal size)					
		37.5 - 25 mm 15 per cent	cum	43.612	4090.00	178373.08	M-012
		25 - 10 mm 45 per cent	cum	130.835	4485.00	586794.98	M-010
		10 - 5 mm 25 per cent	cum	72.686	4852.00	352672.47	M-006
		5 mm and below 15 per cent	cum	43.612	4965.00	216533.58	M-013
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				289609.54	
		e) Contractor's profit @ 15 % on (a+b+c+d)				352633.11	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				27035.21	
		Cost for 205 cum = a+b+c+d+e+f				2730555.73	
		Rate per cum = (a+b+c+d+e+f)/205				13319.78	
					say	***13319.80***	
		B. Grading II					
		i. With Viscocity Graded Bitumen of VG-30.					
		Unit = cum					
		Taking output = 205 cum (451 tonnes)					
		a) Labour					
		Mate	day	0.840	310.00	260.40	L-17
		Mazdoor(unskilled)	day	16.000	310.00	4960.00	L-18
		Mazdoor(skilled)	day	5.000	395.00	1975.00	L-20
		b) Machinery					
		Batch mix HMP 100-120 TPH @ 75 tonne per hour actual output	hour	6.000	15400.00	92400.00	P&M-005
		Hydraulic broom @ 1250 sqm per hour	hour	2.200	345.00	759.00	P&M-033
		Air compressor 210 cfm	hour	2.200	210.00	462.00	P&M-001
		Paver finisher hydrostatic with sensor	hour	6.000	2250.00	13500.00	P&M-050
		Generator 250 KVA	hour	6.000	625.00	3750.00	P&M-025
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Tipper 5.50 cum, 10 T capacity	hour	18.640	334.00	6225.76	P&M-073
		Three wheel 80-100 KN static roller for initial break down rolling.	hour	3.900	392.00	1528.80	P&M-068
		Vibratory roller 80-100 KN for intermediate rolling.	hour	3.900	1395.00	5440.50	P&M-083
		Smooth wheeled tandem roller 6-8 tonnes for final and finishing rolling.	hour	3.900	1205.00	4699.50	P&M-058
		c) Material					
		i) Bitumen (VG-30) @ 3.4 per cent of mix	tonne	15.334	40138.00	597373.85	M-041
		weight of mix = 205 x 2.2 = 451 tonne					
		ii) Aggregate					
		Total weight of mix = 451 tonnes					
		Weight of bitumen = 15.334 tonnes					
		Weight of aggregate = 451 -15.334 = 435.666tonnes					
		Taking density of aggregate = 1.5 ton/cum					
		Volume of aggregate = 290.444 cum					
		GradingII (19 mm nominal size)					
		25 - 10 mm 40 per cent	cum	116.178	4485.00	521058.33	M-010
		10 - 5 mm 40 per cent	cum	116.178	4852.00	563695.66	M-006
		5 mm and below 20 per cent	cum	58.089	4965.00	288411.89	M-013
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				296738.91	
		e) Contractor's profit @ 15 % on (a+b+c+d)				361313.94	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				26285.93	
		Cost for 205 cum = a+b+c+d+e+f				2796359.46	
		Rate per cum = (a+b+c+d+e+f)/205				13640.78	
					say	***13640.80***	
		B. Grading II					
		ii. With Viscocity Graded Bitumen of VG-20.					
		Unit = cum					
		Taking output = 205 cum (451 tonnes)					
		a) Labour					
		Mate	day	0.840	310.00	260.40	L-17
		Mazdoor(unskilled)	day	16.000	310.00	4960.00	L-18
		Mazdoor(skilled)	day	5.000	395.00	1975.00	L-20
		b) Machinery					
		Batch mix HMP 100-120 TPH @ 75 tonne per hour actual output	hour	6.000	15400.00	92400.00	P&M-005
		Hydraulic broom @ 1250 sqm per hour	hour	2.200	345.00	759.00	P&M-033
		Air compressor 210 cfm	hour	2.200	210.00	462.00	P&M-001
		Paver finisher hydrostatic with sensor	hour	6.000	2250.00	13500.00	P&M-050
		Generator 250 KVA	hour	6.000	625.00	3750.00	P&M-025
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Tipper 5.50 cum, 10 T capacity	hour	18.640	334.00	6225.76	P&M-073
		Three wheel 80-100 KN static roller for initial break down rolling.	hour	3.900	392.00	1528.80	P&M-068
		Vibratory roller 80-100 KN for intermediate rolling.	hour	3.900	1395.00	5440.50	P&M-083
		Smooth wheeled tandem roller 6-8 tonnes for final and finishing rolling.	hour	3.900	1205.00	4699.50	P&M-058
		c) Material					
		i) Bitumen (VG-20) @ 3.4 per cent of mix	tonne	15.334	39335.00	585422.81	M-042
		weight of mix = 205 x 2.2 = 451 tonne					
		ii) Aggregate					
		Total weight of mix = 451 tonnes					
		Weight of bitumen = 15.334 tonnes					
		Weight of aggregate = 451 -15.334 = 435.666tonnes					
		Taking density of aggregate = 1.5 ton/cum					
		Volume of aggregate = 290.444 cum					
		GradingII (19 mm nominal size)					
		25 - 10 mm 40 per cent	cum	116.178	4485.00	521058.33	M-010
		10 - 5 mm 40 per cent	cum	116.178	4852.00	563695.66	M-006
		5 mm and below 20 per cent	cum	58.089	4965.00	288411.89	M-013
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				295059.78	
		e) Contractor's profit @ 15 % on (a+b+c+d)				359269.41	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				27543.99	
		Cost for 205 cum = a+b+c+d+e+f				2781942.82	
		Rate per cum = (a+b+c+d+e+f)/205				13570.45	
					say	***13570.50***	

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BASES AND SURFACE COURSES (BITUMINOUS)

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.

Note:- 1. Although the rollers are required only for 3 hours as per norms of output, but the same have to be available at site for six hours as the hot mix plant and paver will take six hours for mixing and paving the output of 451 tonnes considered in this analysis. To cater for the idle period of these rollers, their usage rates have been multiplied by a factor of 0.65

2.Quantity of Bitumen has been taken for analysis purpose. The actual quantity will depend upon job mix formula.

3. Labour for traffic control, watch and ward and other miscellaneous duties at site including sundries have been included in administrative overheads of the contractor.

4. In case BM is laid over freshly laid tack coat, provision of Mechanical broom and 2 mazdoors for the same shall be deleted as the same has been included in the cost of tack coat.

5.Analysis is based on 1000 m lead mixed material. Cost of additional cartage may be added as per site requirement.

5.4	**505**	**Bituminous Penetration Macadam** Construction of penetration macadam over prepared Base by providing a layer of compacted crushed coarse aggregate using chips spreader with alternate applications of bituminous binder and key aggregates and rolling with vibratory roller to achieve the desired degree of compaction as per MoRT&H Technical Specification Clause 505.					
		A. 50 mm thick **i. With Viscocity Graded Bitumen of VG-30.** ***Unit = sqm*** ***Taking output = 4500 sqm (225 cum compacted)***					
		a) Labour					
		Mate	day	0.320	310.00	99.20	L-17
		Mazdoor(unskilled)	day	6.000	310.00	1860.00	L-18
		Mazdoor(skilled)	day	2.000	395.00	790.00	L-20
		b) Machinery					
		Hydraulic self propelled chip spreader both for aggregates and key aggregates@ 1500 sqm per hour	hour	6.000	3629.00	21774.00	P&M-038
		Bitumen pressure distributor for @ 1750 sqm per hour	hour	2.570	202.00	519.14	P&M-012
		Tipper 5.5 cum, 10 T capacity	hour	10.000	334.00	3340.00	P&M-073
		Vibratory roller 8 tonnes	hour	6.000	1395.00	8370.00	P&M-083
		Front end loader	hour	6.000	920.00	5520.00	P&M-030
		c) Material					
		Bitumen (VG-30) @ 5 kg per sqm	tonne	22.500	40138.00	903105.00	M-041
		Crushed stone coarse aggregate passing 45 mm and retained on 2.8 mm sieve @ 0.06 cum per sqm	cum	270.000	4180.00	1128600.00	M-080
		Key aggregates passing 22.4 mm and retained on 2.8 mm sieve @ 0.015 cum per sqm	cum	67.500	4440.00	299700.00	M-123

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				333501.67	
		e) Contractor's profit @ 15 % on (a+b+c+d)				406076.85	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				31132.56	
		Cost for 4500 sqm = a+b+c+d+e+f				3144388.42	
		Rate per sqm = (a+b+c+d+e+f)/4500				698.75	
					say	***698.80***	
		ii. With Viscocity Graded Bitumen of VG-20.					
		Unit = sqm					
		Taking output = 4500 sqm (225 cum compacted)					
		a) Labour					
		Mate	day	0.320	310.00	99.20	L-17
		Mazdoor(unskilled)	day	6.000	310.00	1860.00	L-18
		Mazdoor(skilled)	day	2.000	395.00	790.00	L-20
		b) Machinery					
		Hydraulic self propelled chip spreader both for aggregates and key aggregates@ 1500 sqm per hour	hour	6.000	3629.00	21774.00	P&M-038
		Bitumen pressure distributor for @ 1750 sqm per hour	hour	2.570	202.00	519.14	P&M-012
		Tipper 5.5 cum, 10 T capacity	hour	10.000	334.00	3340.00	P&M-073
		Vibratory roller 8 tonnes	hour	6.000	1395.00	8370.00	P&M-083
		Front end loader	hour	6.000	920.00	5520.00	P&M-030
		c) Material					
		Bitumen (VG-20) @ 5 kg per sqm	tonne	22.500	39335.00	885037.50	M-042
		Crushed stone coarse aggregate passing 45 mm and retained on 2.8 mm sieve @ 0.06 cum per sqm	cum	270.000	4180.00	1128600.00	M-080
		Key aggregates passing 22.4 mm and retained on 2.8 mm sieve @ 0.015 cum per sqm	cum	67.500	4440.00	299700.00	M-123
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				330963.18	
		e) Contractor's profit @ 15 % on (a+b+c+d)				402985.95	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				30895.59	
		Cost for 4500 sqm = a+b+c+d+e+f				3120454.57	
		Rate per sqm = (a+b+c+d+e+f)/4500				693.43	
					say	***693.40***	
		B. 75 mm thick					
		i. With Viscocity Graded Bitumen of VG-30.					
		Unit = sqm					
		Taking output = 4500 sqm (337.5 cum compacted).					
		a) Labour					
		Mate	day	0.400	310.00	124.00	L-17
		Mazdoor(unskilled)	day	8.000	310.00	2480.00	L-18
		Mazdoor(skilled)	day	2.000	395.00	790.00	L-20
		b) Machinery					
		Hydraulic self propelled chip spreader both for aggregates and key aggregates@ 1500 sqm per hour	hour	6.000	3629.00	21774.00	P&M-038
		Bitumen pressure distributor for@ 1750 sqm per hour	hour	2.570	202.00	519.14	P&M-012
		Tipper 5.5 cum, 10 T capacity	hour	10.000	334.00	3340.00	P&M-073

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BASES AND SURFACE COURSES (BITUMINOUS)

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Vibratory roller 8 tonnes	hour	6.000	1395.00	8370.00	P&M-083
		Front end loader	hour	6.000	920.00	5520.00	P&M-030
		c) Material					
		Bitumen (**VG-30**) @ 6.8 kg per sqm	tonne	30.600	40138.00	1228222.80	M-041
		Crushed stone coarse aggregate, loose passing 63 mm and retained on 2.8 mm sieve @ 0.09 cum per sqm	cum	405.000	4035.00	1634175.00	M-078
		Key aggregates passing 26.5 mm and retained on 2.8 mm sieve @ 0.018 cum per sqm	cum	81.000	4770.00	386370.00	M-122
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				462481.73	
		e) Contractor's profit @ 15 % on (a+b+c+d)				563125.00	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				43172.92	
		Cost for 4500 sqm = a+b+c+d+e+f				4360464.59	
		Rate per sqm = (a+b+c+d+e+f)/4500				968.99	
					say	***969.00***	
		ii. With Viscocity Graded Bitumen of VG-20.					
		Unit = sqm					
		Taking output = 4500 sqm (337.5 cum compacted).					
		a) Labour					
		Mate	day	0.400	310.00	124.00	L-17
		Mazdoor(unskilled)	day	8.000	310.00	2480.00	L-18
		Mazdoor(skilled)	day	2.000	395.00	790.00	L-20
		b) Machinery					
		Hydraulic self propelled chip spreader both for aggregates and key aggregates@ 1500 sqm per hour	hour	6.000	3629.00	21774.00	P&M-038
		Bitumen pressure distributor for@ 1750 sqm per hour	hour	2.570	202.00	519.14	P&M-012
		Tipper 5.5 cum, 10 T capacity	hour	10.000	334.00	3340.00	P&M-073
		Vibratory roller 8 tonnes	hour	6.000	1395.00	8370.00	P&M-083
		Front end loader	hour	6.000	920.00	5520.00	P&M-030
		c) Material					
		Bitumen (VG-20) @ 6.8 kg per sqm	tonne	30.600	39335.00	1203651.00	M-042
		Crushed stone coarse aggregate, loose passing 63 mm and retained on 2.8 mm sieve @ 0.09 cum per sqm	cum	405.000	4035.00	1634175.00	M-078
		Key aggregates passing 26.5 mm and retained on 2.8 mm sieve @ 0.018 cum per sqm	cum	81.000	4770.00	386370.00	M-122
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				459029.40	
		e) Contractor's profit @ 15 % on (a+b+c+d)				558921.38	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				42850.64	
		Cost for 4500 sqm = a+b+c+d+e+f				4327914.56	
		Rate per sqm = (a+b+c+d+e+f)/4500				961.76	
					say	***961.80***	
		Note:- 2 tippers and 2 rollers will be needed to match the capacity of chip spreader and front end loader.					

5.5 506 Built-up-Spray Grout

CHAPTER - 5
BASES AND SURFACE COURSES (BITUMINOUS)

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Providing, laying and rolling of built-up spray grout layer over prepared base consisting of two layer composite construction of compacted crushed coarse aggregates using motor grader for aggregates. Key stone chips spreader may be used with application of bituminous binder after each layer and with key aggregates placed on top of the second layer to serve as a base, conforming to line, grades and cross section-specified, the compacted layer thickness being 75 mm as per MoRT&H Technical Specification Clause 506					
		i. With Viscocity Graded Bitumen of VG-30.					
		Unit = sqm					
		Taking output = 3000 sqm (225 cum)					
		a) Labour					
		Mate	day	0.400	310.00	124.00	L-17
		Mazdoor(unskilled)	day	8.000	310.00	2480.00	L-18
		Mazdoor(skilled)	day	2.000	395.00	790.00	L-20
		b) Machinery					
		Hydraulic self propelled chip spreader both for aggregates and key aggregates@ 1500 sqm per hour	hour	6.000	3629.00	21774.00	P&M-038
		Bitumen pressure distributor for 3000 x 2 sqm @ 1750 sqm per hour	hour	3.430	202.00	692.86	P&M-012
		Tipper 5.5 cum, 10 T capacity	hour	10.000	334.00	3340.00	P&M-073
		Vibratory roller	hour	22.500	1395.00	31387.50	P&M-083
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		c) Material					
		i) Bitumen(VG-30)					
		@30 kg per 10 sqm , @ 15 kg per 10 sqm for each layer	tonne	9.000	40138.00	361242.00	M-041
		ii) Aggregate					
		Crushed stone coarse aggregate passing 53 mm and retained on 2.8 mm sieve @ 1.00 cum per 10 sqm for each layer	cum	300.000	4135.00	1240500.00	M-079
		Key aggregates passing 22.4 mm sieve and retained on 2.8 mm sieve @ 0.13 cum per 10 sqm	cum	39.000	4440.00	173160.00	M-123
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				258661.96	
		e) Contractor's profit @ 15 % on (a+b+c+d)				314950.85	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				24146.23	
		Cost for 3000 sqm = a+b+c+d+e+f				2438769.39	
		Rate per sqm = (a+b+c+d+e+f)/3000				812.92	
					say	***812.90***	
		ii. With Viscocity Graded Bitumen of VG-20.					
		Unit = sqm					
		Taking output = 3000 sqm (225 cum)					
		a) Labour					
		Mate	day	0.400	310.00	124.00	L-17
		Mazdoor(unskilled)	day	8.000	310.00	2480.00	L-18
		Mazdoor(skilled)	day	2.000	395.00	790.00	L-20
		b) Machinery					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Hydraulic self propelled chip spreader both for aggregates and key aggregates@ 1500 sqm per hour	hour	6.000	3629.00	21774.00	P&M-038
		Bitumen pressure distributor for 3000 x 2 sqm @ 1750 sqm per hour	hour	3.430	202.00	692.86	P&M-012
		Tipper 5.5 cum, 10 T capacity	hour	10.000	334.00	3340.00	P&M-073
		Vibratory roller	hour	22.500	1395.00	31387.50	P&M-083
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		c) Material					
		i) Bitumen (VG-20)					
		@30 kg per 10 sqm , @ 15 kg per 10 sqm for each layer	tonne	9.000	39335.00	354015.00	M-042
		ii) Aggregate					
		Crushed stone coarse aggregate passing 53 mm and retained on 2.8 mm sieve @ 1.00 cum per 10 sqm for each layer	cum	300.000	4135.00	1240500.00	M-079
		Key aggregates passing 22.4 mm sieve and retained on 2.8 mm sieve @ 0.13 cum per 10 sqm	cum	39.000	4440.00	173160.00	M-123
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				257646.56	
		e) Contractor's profit @ 15 % on (a+b+c+d)				313714.49	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				24051.44	
		Cost for 3000 sqm = a+b+c+d+e+f				2429195.85	
		Rate per sqm = (a+b+c+d+e+f)/3000				809.73	
					say	***809.70***	
		Note:- 2 tippers will be needed to match the capacity of hydraulic chip spreader and front end loader.					
5.6	**507**	**Dense Graded Bituminous Macadam**					
		Providing and laying dense graded bituminous macadam with 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.0 to 4.5 per cent by weight of total mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRT&H specification clause No. 507 complete in all respects.					
		A. Grading I					
		i. With Viscocity Graded Bitumen of VG-30.					
		Unit = cum					
		Taking output = 195 cum (450 tonnes)					
		a) Labour					
		Mate	day	0.760	310.00	235.60	L-17
		Mazdoor(unskilled)	day	14.000	310.00	4340.00	L-18
		Mazdoor(skilled)	day	5.000	395.00	1975.00	L-20
		b) Machinery					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Batch mix HMP 100 - 120 TPH @ 75 tonne per hour actual output	hour	6.000	15400.00	92400.00	P&M-005
		Paver finisher hydrostatic with sensor	hour	6.000	2250.00	13500.00	P&M-050
		Generator 250 KVA	hour	6.000	625.00	3750.00	P&M-025
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Tipper 5.5 cum, 10 T capacity	hour	17.730	334.00	5921.82	P&M-073
		Three wheel 80 - 100 KN static roller for initial break down rolling	hour	3.900	392.00	1528.80	P&M-068
		Vibratory roller 80 - 100 KN for intermediate rolling.	hour	3.900	1395.00	5440.50	P&M-083
		Smooth wheel tandem roller 6-8 tonnes for final and finish rolling.	hour	3.900	1205.00	4699.50	P&M-058
		c) Materials					
		i) Bitumen(VG-30)					
		@ 4.25 per cent of weight of mix	tonne	19.125	40138.00	767639.25	M-041
		ii) Aggregate					
		Total weight of mix = 450 tonnes					
		Weight of bitumen = 19.125 tonnes					
		Weight of aggregate = 450 -19.125 = 430.875 tonnes					
		Taking density of aggregate = 1.5 ton/cum					
		Volume of aggregate = 287.250 cum					
		40 mm (Nominal Size)/ Grading - I					
		37.5 - 25 mm 22 per cent	cum	63.195	4090.00	258467.55	M-012
		25 - 10 mm 13 per cent	cum	37.343	4485.00	167483.36	M-010
		10 -4.75 mm 19 per cent	cum	54.578	5015.00	273708.67	M-009
		4.75 mm and below 44 per cent	cum	126.390	5015.00	633845.85	M-009
		Filler @ 2 % of weight of aggregates (cement).	tonne	8.618	5800.00	49984.40	M-052
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				321806.86	
		e) Contractor's profit @ 15 % on (a+b+c+d)				391837.07	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				30040.84	
		Cost for 195 cum = a+b+c+d+e+f				3034125.07	
		Rate per cum = (a+b+c+d+e+f)/195				15559.62	
					say	***15559.60***	
		ii. With Viscocity Graded Bitumen of VG-20.					
		Unit = cum					
		Taking output = 195 cum (450 tonnes)					
		a) Labour					
		Mate	day	0.760	310.00	235.60	L-17
		Mazdoor(unskilled)	day	14.000	310.00	4340.00	L-18
		Mazdoor(skilled)	day	5.000	395.00	1975.00	L-20
		b) Machinery					
		Batch mix HMP 100 - 120 TPH @ 75 tonne per hour actual output	hour	6.000	15400.00	92400.00	P&M-005
		Paver finisher hydrostatic with sensor	hour	6.000	2250.00	13500.00	P&M-050
		Generator 250 KVA	hour	6.000	625.00	3750.00	P&M-025
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Tipper 5.5 cum, 10 T capacity	hour	17.730	334.00	5921.82	P&M-073
		Three wheel 80 - 100 KN static roller for initial break down rolling	hour	3.900	392.00	1528.80	P&M-068
		Vibratory roller 80 - 100 KN for intermediate rolling.	hour	3.900	1395.00	5440.50	P&M-083

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Smooth wheel tandem roller 6-8 tonnes for final and finish rolling.	hour	3.900	1205.00	4699.50	P&M-058
		c) Materials					
		i) Bitumen (VG-20)					
		@ 4.25 per cent of weight of mix	tonne	19.125	39335.00	752281.88	M-042
		ii) Aggregate					
		Total weight of mix = 450 tonnes					
		Weight of bitumen = 19.125 tonnes					
		Weight of aggregate = 450 -19.125 = 430.875 tonnes					
		Taking density of aggregate = 1.5 ton/cum					
		Volume of aggregate = 287.250 cum					
		40 mm (Nominal Size)/ Grading - I					
		37.5 - 25 mm 22 per cent	cum	63.195	4090.00	258467.55	M-012
		25 - 10 mm 13 per cent	cum	37.343	4485.00	167483.36	M-010
		10 -4.75 mm 19 per cent	cum	54.578	5015.00	273708.67	M-009
		4.75 mm and below 44 per cent	cum	126.390	5015.00	633845.85	M-009
		Filler @ 2 % of weight of aggregates (cement).	tonne	8.618	5800.00	49984.40	M-052
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				319649.15	
		e) Contractor's profit @ 15 % on (a+b+c+d)				389209.81	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				29839.42	
		Cost for 195 cum = a+b+c+d+e+f				3013781.30	
		Rate per cum = (a+b+c+d+e+f)/195				15455.29	
					say	***15455.30***	
		B. Grading II					
		i. With Viscocity Graded Bitumen of VG-30.					
		Unit = cum					
		Taking output = 195 cum (450 tonnes)					
		a) Labour					
		Mate	day	0.760	310.00	235.60	L-17
		Mazdoor(unskilled)	day	14.000	310.00	4340.00	L-18
		Mazdoor(skilled)	day	5.000	395.00	1975.00	L-20
		b) Machinery					
		Batch mix HMP 100 - 120 TPH @ 75 tonne per hour actual output	hour	6.000	15400.00	92400.00	P&M-005
		Paver finisher hydrostatic with sensor	hour	6.000	2250.00	13500.00	P&M-050
		Generator 250 KVA	hour	6.000	625.00	3750.00	P&M-025
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Tipper 5.5 cum, 10 T capacity	hour	17.730	334.00	5921.82	P&M-073
		Three wheel 80 - 100 KN static roller for initial break down rolling	hour	3.900	392.00	1528.80	P&M-068
		Vibratory roller 80 - 100 KN for intermediate rolling.	hour	3.900	1395.00	5440.50	P&M-083
		Smooth wheel tandem roller 6-8 tonnes for final and finish rolling.	hour	3.900	1205.00	4699.50	P&M-058
		c) Materials					
		i) Bitumen(VG-30)					
		@ 4.25 per cent of weight of mix	tonne	19.125	40138.00	767639.25	M-041
		ii) Aggregate					
		Total weight of mix = 450 tonnes					
		Weight of bitumen = 19.125 tonnes					
		Weight of aggregate = 450 -19.125 = 430.875 tonnes					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Taking density of aggregate = 1.5 ton/cum					
		Volume of aggregate = 287.250 cum					
		19 mm (Nominal Size)/ Grading - II					
		25 - 10 mm @ 30 per cent	cum	86.175	4485.00	386494.88	M-010
		10 - 5 mm @ 28 per cent	cum	80.430	4852.00	390246.36	M-006
		5 mm and below @ 40 per cent	cum	114.900	4965.00	570478.50	M-013
		Filler @ 2 per cent of weight of aggregates(cement).	tonne	8.618	5800.00	49984.40	M-052
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				323733.72	
		e) Contractor's profit @ 15 % on (a+b+c+d)				394183.25	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				30220.72	
		Cost for 195 cum = a+b+c+d+e+f				3052292.29	
		Rate per cum = (a+b+c+d+e+f)/195				15652.78	
					say	***15652.80***	
		ii. With Viscocity Graded Bitumen of VG-20.					
		Unit = cum					
		Taking output = 195 cum (450 tonnes)					
		a) Labour					
		Mate	day	0.760	310.00	235.60	L-17
		Mazdoor(unskilled)	day	14.000	310.00	4340.00	L-18
		Mazdoor(skilled)	day	5.000	395.00	1975.00	L-20
		b) Machinery					
		Batch mix HMP 100 - 120 TPH @ 75 tonne per hour actual output	hour	6.000	15400.00	92400.00	P&M-005
		Paver finisher hydrostatic with sensor	hour	6.000	2250.00	13500.00	P&M-050
		Generator 250 KVA	hour	6.000	625.00	3750.00	P&M-025
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Tipper 5.5 cum, 10 T capacity	hour	17.730	334.00	5921.82	P&M-073
		Three wheel 80 - 100 KN static roller for initial break down rolling	hour	3.900	392.00	1528.80	P&M-068
		Vibratory roller 80 - 100 KN for intermediate rolling.	hour	3.900	1395.00	5440.50	P&M-083
		Smooth wheel tandem roller 6-8 tonnes for final and finish rolling.	hour	3.900	1205.00	4699.50	P&M-058
		c) Materials					
		i) Bitumen (VG-20)					
		@ 4.25 per cent of weight of mix	tonne	19.125	39335.00	752281.88	M-042
		ii) Aggregate					
		Total weight of mix = 450 tonnes					
		Weight of bitumen = 19.125 tonnes					
		Weight of aggregate = 450 -19.125 = 430.875 tonnes					
		Taking density of aggregate = 1.5 ton/cum					
		Volume of aggregate = 287.250 cum					
		19 mm (Nominal Size)/ Grading - II					
		25 - 10 mm @ 30 per cent	cum	86.175	4485.00	386494.88	M-010
		10 - 5 mm @ 28 per cent	cum	80.430	4852.00	390246.36	M-006
		5 mm and below @ 40 per cent	cum	114.900	4965.00	570478.50	M-013
		Filler @ 2 per cent of weight of aggregates(cement).	tonne	8.618	5800.00	49984.40	M-052
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				321576.01	
		e) Contractor's profit @ 15 % on (a+b+c+d)				391555.99	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				30019.29	
		Cost for 195 cum = a+b+c+d+e+f				3031948.52	
		Rate per cum = (a+b+c+d+e+f)/195				15548.45	
					say	***15548.50***	

Note:- 1. Although the roller are required only for 3 hours as per norms of output, but the same have to be available at site for six hours as the hot mix plant and paver will take six hours for mixing and paving the output of 450 tonnes considered in this analysis. To cater for the idle period of these rollers, their usage rates have been multiplied by a factor of 0.65.

2.Quantity of Bitumen has been taken for analysis purpose. The actual quantity will depend upon job mix formula.

3. Labour for traffic control, watch and ward and other miscellaneous duties at site including sundries have been included in administrative overheads of the contractor.

4. In case DBM is laid over freshly laid tack coat, provision of mechanical broom and 2 mazdoors shall be deleted as the same has been included in the cost of tack coat.

5. The individual density for each size of aggregates to be used for construction i.e. 37.5-25 mm, 25-10 mm etc. should be found in the laboratory and accordingly the quantities should be ammended for use in field. The average density of 1.5 tonne/cum is only a reference density in this Data Book.

6. The individual percentage of aggregates should be calculated from the total weight of dry aggregates i.e. excluding the weight of bitumen. The weight of filler will also be 2 per cent by weight of dry aggregates.

7. Analysis is based on 1000 m lead mixed material. Cost of additional cartage may be added as per site requirements.

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
5.7	508	**Semi-Dense Bituminous Concrete** Providing and laying semi-dense bituminous concrete with 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.5 to 5.0 per cent by weight of total mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRT&H specification clause No. 508 complete in all respects.					
		A. Grading I					
		i. With Viscocity Graded Bitumen of VG-30.					
		Unit = cum					
		Taking output = 195 cum (450 tonnes)					
		a) Labour					
		Mate	day	0.760	310.00	235.60	L-17
		Mazdoor(unskilled)	day	14.000	310.00	4340.00	L-18
		Mazdoor(skilled)	day	5.000	395.00	1975.00	L-20
		b) Machinery					
		Batch mix HMP 100 - 120 TPH @ 75 tonne per hour actual output	hour	6.000	15400.00	92400.00	P&M-005
		Paver finisher hydrostatic with sensor	hour	6.000	2250.00	13500.00	P&M-050
		Generator 250 KVA	hour	6.000	625.00	3750.00	P&M-025
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Tipper 5.5 cum, 10 T capacity	hour	17.730	334.00	5921.82	P&M-073
		Three wheel 80 - 100 KN static roller for initial break down rolling	hour	3.900	392.00	1528.80	P&M-068
		Vibratory roller 80 - 100 KN for intermediate rolling.	hour	3.900	1395.00	5440.50	P&M-083
		Smooth wheel tandem roller 6-8 tonnes for final and finish rolling.	hour	3.900	1205.00	4699.50	P&M-058
		c) Material					
		i) Bitumen (VG-30)					
		@ 4.5 per cent of weight of mix	tonne	20.250	40138.00	812794.50	M-041
		ii) Aggregate					
		Total weight of mix = 450 tonnes					
		Weight of bitumen = 20.25 tonnes					
		Weight of aggregate = 450-20.25 = 429.75 tonnes					
		Taking density of aggregate = 1.5 ton/cum					
		Volume of aggregate = 286.50 cum					
		Grading I/ 13 mm (Nominal Size)					
		13.2 - 10 mm20 per cent	cum	57.300	4770.00	273321.00	M-005
		10 - 5 mm 38 per cent	cum	108.870	4852.00	528237.24	M-006
		5 mm and below 40 per cent	cum	114.600	4965.00	568989.00	M-013
		Filler @ 2 per cent of weight of aggregates(cement).	tonne	8.595	5800.00	49851.00	M-052
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				333336.81	
		e) Contractor's profit @ 15 % on (a+b+c+d)				405876.11	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				31117.17	
		Cost for 195 cum = a+b+c+d+e+f				3142834.05	
		Rate per cum = (a+b+c+d+e+f)/195				16117.10	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
					say	***16117.10***	
		ii. With Viscocity Graded Bitumen of VG-20.					
		Unit = cum					
		Taking output = 195 cum (450 tonnes)					
		a) Labour					
		Mate	day	0.760	310.00	235.60	L-17
		Mazdoor(unskilled)	day	14.000	310.00	4340.00	L-18
		Mazdoor(skilled)	day	5.000	395.00	1975.00	L-20
		b) Machinery					
		Batch mix HMP 100 - 120 TPH @ 75 tonne per hour actual output	hour	6.000	15400.00	92400.00	P&M-005
		Paver finisher hydrostatic with sensor	hour	6.000	2250.00	13500.00	P&M-050
		Generator 250 KVA	hour	6.000	625.00	3750.00	P&M-025
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Tipper 5.5 cum, 10 T capacity	hour	17.730	334.00	5921.82	P&M-073
		Three wheel 80 - 100 KN static roller for initial break down rolling	hour	3.900	392.00	1528.80	P&M-068
		Vibratory roller 80 - 100 KN for intermediate rolling.	hour	3.900	1395.00	5440.50	P&M-083
		Smooth wheel tandem roller 6-8 tonnes for final and finish rolling.	hour	3.900	1205.00	4699.50	P&M-058
		c) Material					
		i) Bitumen (VG-20)					
		@ 4.5 per cent of weight of mix	tonne	20.250	39335.00	796533.75	M-042
		ii) Aggregate					
		Total weight of mix = 450 tonnes					
		Weight of bitumen = 20.25 tonnes					
		Weight of aggregate = 450-20.25 = 429.75 tonnes					
		Taking density of aggregate = 1.5 ton/cum					
		Volume of aggregate = 286.50 cum					
		Grading I/ 13 mm (Nominal Size)					
		13.2 - 10 mm 20 per cent	cum	57.300	4770.00	273321.00	M-005
		10 - 5 mm 38 per cent	cum	108.870	4852.00	528237.24	M-006
		5 mm and below 40 per cent	cum	114.600	4965.00	568989.00	M-013
		Filler @ 2 per cent of weight of aggregates(cement).	tonne	8.595	5800.00	49851.00	M-052
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				331052.17	
		e) Contractor's profit @ 15 % on (a+b+c+d)				403094.31	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				30903.90	
		Cost for 195 cum = a+b+c+d+e+f				3121293.59	
		Rate per cum = (a+b+c+d+e+f)/195				16006.63	
					say	***16006.60***	
		B. Grading II					
		i. With Viscocity Graded Bitumen of VG-30.					
		Unit = cum					
		Taking output = 195 cum (450 tonnes)					
		a) Labour					
		Mate	day	0.760	310.00	235.60	L-17
		Mazdoor(unskilled)	day	14.000	310.00	4340.00	L-18
		Mazdoor(skilled)	day		395.00	1975.00	L-20
		b) Machinery					
		Batch mix HMP 100 - 120 TPH @ 75 tonne per hour actual output	hour	6.000	15400.00	92400.00	P&M-005

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Paver finisher hydrostatic with sensor	hour	6.000	2250.00	13500.00	P&M-050
		Generator 250 KVA	hour	6.000	625.00	3750.00	P&M-025
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Tipper 5.5 cum, 10 T capacity	hour	17.730	334.00	5921.82	P&M-073
		Three wheel 80 - 100 KN static roller for initial break down rolling	hour	3.900	392.00	1528.80	P&M-068
		Vibratory roller 80 - 100 KN for intermediate rolling.	hour	3.900	1395.00	5440.50	P&M-083
		Smooth wheel tandem roller 6-8 tonnes for final and finish rolling.	hour	3.900	1205.00	4699.50	P&M-058
		c) Material					
		i) Bitumen (VG-30)					
		@ 5.00 per cent of weight of mix	tonne	22.500	40138.00	812794.50	M-041
		ii) Aggregate					
		Total weight of mix = 450 tonnes					
		Weight of bitumen = 22.50 tonnes					
		Weight of aggregate = 450-22.50 = 427.50 tonnes					
		Taking density of aggregate = 1.5 ton/cum					
		Volume of aggregate = 285.00 cum					
		Grading II/ 10 mm (Nominal Size)					
		9.5 - 4.75 mm@ 57 per cent	cum	162.450	4820.00	783009.00	M-008
		4.75 and below@ 41 per cent	cum	116.850	5015.00	586002.75	M-009
		Filler @ 2 per cent of weight of aggregates(cement).	tonne	8.550	5800.00	49590.00	M-052
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				333084.40	
		e) Contractor's profit @ 15 % on (a+b+c+d)				405568.78	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				31093.61	
		Cost for 195 cum = a+b+c+d+e+f				3140454.26	
		Rate per cum = (a+b+c+d+e+f)/195				16104.89	
					say	***16104.90***	
		ii. With Viscocity Graded Bitumen of VG-20.					
		Unit = cum					
		Taking output = 195 cum (450 tonnes)					
		a) Labour					
		Mate	day	0.760	310.00	235.60	L-17
		Mazdoor(unskilled)	day	14.000	310.00	4340.00	L-18
		Mazdoor(skilled)	day	5.000	395.00	1975.00	L-20
		b) Machinery					
		Batch mix HMP 100 - 120 TPH @ 75 tonne per hour actual output	hour	6.000	15400.00	92400.00	P&M-005
		Paver finisher hydrostatic with sensor	hour	6.000	2250.00	13500.00	P&M-050
		Generator 250 KVA	hour	6.000	625.00	3750.00	P&M-025
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Tipper 5.5 cum, 10 T capacity	hour	17.730	334.00	5921.82	P&M-073
		Three wheel 80 - 100 KN static roller for initial break down rolling	hour	3.900	392.00	1528.80	P&M-068
		Vibratory roller 80 - 100 KN for intermediate rolling.	hour	3.900	1395.00	5440.50	P&M-083
		Smooth wheel tandem roller 6-8 tonnes for final and finish rolling.	hour	3.900	1205.00	4699.50	P&M-058
		c) Material					
		i) Bitumen (VG-20)					
		@ 5.00 per cent of weight of mix	tonne	22.500	39335.00	796533.75	M-042

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		ii) Aggregate					
		Total weight of mix = 450 tonnes					
		Weight of bitumen = 20.25 tonnes					
		Weight of aggregate = 450-20.25 = 429.75 tonnes					
		Taking density of aggregate = 1.5 ton/cum					
		Volume of aggregate = 286.50 cum					
		Grading II/ 10 mm (Nominal Size)					
		9.5 - 4.75 mm @ 57 per cent	cum	162.450	4820.00	783009.00	M-008
		4.75 and below @ 41 per cent	cum	116.850	5015.00	586002.75	M-009
		Filler @ 2 per cent of weight of aggregates(cement).	tonne	8.550	5800.00	49590.00	M-052
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				330799.76	
		e) Contractor's profit @ 15 % on (a+b+c+d)				402786.97	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				30880.33	
		Cost for 195 cum = a+b+c+d+e+f				3118913.79	
		Rate per cum = (a+b+c+d+e+f)/195				15994.43	
					say	***15994.40***	

Note:- 1. Although the rollers are required only for 3 hours as per norms of output, but the same have to be available at site for six hours as the hot mix plant and paver will take six hours for mixing and paving the output of 450 tonnes considered in this analysis. To cater for the idle period of these rollers, their usage rates have been multiplied by a factor of 0.65.

2.Quantity of Bitumen has been taken for analysis purpose. The actual quantity will depend upon job mix formula.

3. Labour for traffic control, watch and ward and other miscellaneous duties at site including sundries have been included in administrative overheads of the contractor.

4. In case SDBC is laid over freshly laid tack coat, provision of broom and 2 mazdoor shall be deleted as the same has been included in the cost of tack coat.

5. Analysis is based on 1000 m lead of mixed material. Cost of additional cartage may be added as per site requirements.

5.8 509 Bituminous Concrete

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Providing and laying bituminous concrete with 100-120 TPH batch type hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 5.4 to 5.6 per cent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORT&H specification clause No. 509 complete in all respects.					
		A. Grading I **i. With Viscocity Graded Bitumen of VG-30.** ***Unit = cum*** ***Taking output = 191 cum (450 tonnes)***					
		a) Labour					
		Mate	day	0.760	310.00	235.60	L-17
		Mazdoor(unskilled)	day	14.000	310.00	4340.00	L-18
		Mazdoor(skilled)	day	5.000	395.00	1975.00	L-20
		b) Machinery					
		Batch mix HMP 100 - 120 TPH @ 75 tonne per hour actual output	hour	6.000	15400.00	92400.00	P&M-005
		Paver finisher hydrostatic with sensor	hour	6.000	2250.00	13500.00	P&M-050
		Generator 250 KVA	hour	6.000	625.00	3750.00	P&M-025
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Tipper 5.5 cum, 10 T capacity	hour	17.360	334.00	5798.24	P&M-073
		Three wheel 80 - 100 KN static roller for initial break down rolling	hour	3.900	392.00	1528.80	P&M-068
		Vibratory roller 80 - 100 KN for intermediate rolling.	hour	3.900	1395.00	5440.50	P&M-083
		Smooth wheel tandem roller 6-8 tonnes for final and finish rolling.	hour	3.900	1205.00	4699.50	P&M-058
		c) Material **i) Bitumen (VG-30)**					
		@ 5.50 per cent of weight of mix	tonne	24.750	40138.00	993415.50	M-041
		ii) Aggregate Total weight of mix = 450 tonnes Weight of bitumen = 24.75 tonnes Weight of aggregate = 450 -24.75 = 425.25 tonnes ***Taking density of aggregate = 1.5 ton/cum*** Volume of aggregate = 283.50 cum					
		Grading - I/ 19 mm (Nominal Size)					
		20 - 10 mm 35 per cent	cum	99.225	4631.00	459510.98	M-011
		10 - 5 mm 23 per cent	cum	65.205	4852.00	316374.66	M-006
		5 mm and below 40 per cent	cum	113.400	4965.00	563031.00	M-013
		Filler @ 2 per cent of weight of aggregates(cement).	tonne	8.505	5800.00	49329.00	M-052
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				354179.25	
		e) Contractor's profit @ 15 % on (a+b+c+d)				431254.20	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				33062.82	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Cost for 191 cum = a+b+c+d+e+f				3339345.05	
		Rate per cum = (a+b+c+d+e+f)/191				17483.48	
					say	***17483.50***	
		ii. With Viscocity Graded Bitumen of VG-20.					
		Unit = cum					
		Taking output = 191 cum (450 tonnes)					
		a) Labour					
		Mate	day	0.760	310.00	235.60	L-17
		Mazdoor(unskilled)	day	14.000	310.00	4340.00	L-18
		Mazdoor(skilled)	day	5.000	395.00	1975.00	L-20
		b) Machinery					
		Batch mix HMP 100 - 120 TPH @ 75 tonne per hour actual output	hour	6.000	15400.00	92400.00	P&M-005
		Paver finisher hydrostatic with sensor	hour	6.000	2250.00	13500.00	P&M-050
		Generator 250 KVA	hour	6.000	625.00	3750.00	P&M-025
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Tipper 5.5 cum, 10 T capacity	hour	17.360	334.00	5798.24	P&M-073
		Three wheel 80 - 100 KN static roller for initial break down rolling	hour	3.900	392.00	1528.80	P&M-068
		Vibratory roller 80 - 100 KN for intermediate rolling.	hour	3.900	1395.00	5440.50	P&M-083
		Smooth wheel tandem roller 6-8 tonnes for final and finish rolling.	hour	3.900	1205.00	4699.50	P&M-058
		c) Material					
		i) Bitumen (VG-20)					
		@ 5.50 per cent of weight of mix	tonne	24.750	39335.00	973541.25	M-042
		ii) Aggregate					
		Total weight of mix = 450 tonnes					
		Weight of bitumen = 24.75 tonnes					
		Weight of aggregate = 450 -24.75 = 425.25 tonnes					
		Taking density of aggregate = 1.5 ton/cum					
		Volume of aggregate = 283.50 cum					
		Grading - I/ 19 mm (Nominal Size)					
		20 - 10 mm 35 per cent	cum	99.225	4631.00	459510.98	M-011
		10 - 5 mm 23 per cent	cum	65.205	4852.00	316374.66	M-006
		5 mm and below 40 per cent	cum	113.400	4965.00	563031.00	M-013
		Filler @ 2 % of weight of aggregates(cement).	tonne	8.505	5800.00	49329.00	M-052
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				351386.92	
		e) Contractor's profit @ 15 % on (a+b+c+d)				427854.22	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				32802.16	
		Cost for 191 cum = a+b+c+d+e+f				3313017.82	
		Rate per cum = (a+b+c+d+e+f)/191				17345.64	
					say	***17345.60***	
		B. Grading II					
		i. With Viscocity Graded Bitumen of VG-30.					
		Unit = cum					
		Taking output = 191 cum (450 tonnes)					
		a) Labour					
		Mate	day	0.840	310.00	235.60	L-17
		Mazdoor(unskilled)	day	16.000	310.00	4340.00	L-18
		Mazdoor(skilled)	day	5.000	395.00	1975.00	L-20

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		b) Machinery					
		Batch mix HMP 100 - 120 TPH @ 75 tonne per hour actual output	hour	6.000	15400.00	92400.00	P&M-005
		Paver finisher hydrostatic with sensor	hour	6.000	2250.00	13500.00	P&M-050
		Generator 250 KVA	hour	6.000	625.00	3750.00	P&M-025
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Tipper 5.5 cum, 10 T capacity	hour	17.360	334.00	5798.24	P&M-073
		Three wheel 80 - 100 KN static roller for initial break down rolling	hour	7.800	392.00	1528.80	P&M-068
		Vibratory roller 80 - 100 KN for intermediate rolling.	hour	3.900	1395.00	5440.50	P&M-083
		Smooth wheel tandem roller 6-8 tonnes for final and finish rolling.	hour	3.900	1205.00	4699.50	P&M-058
		c) Material					
		i) Bitumen (VG-30)					
		@ 5.00 per cent of weight of mix	tonne	22.500	40138.00	993415.50	M-041
		ii) Aggregate					
		Total weight of mix = 450 tonnes					
		Weight of bitumen = 22.50 tonnes					
		Weight of aggregate = 450 -22.50 = 427.50 tonnes					
		Taking density of aggregate = 1.5 ton/cum					
		Volume of aggregate = 285.00 cum					
		Grading - II/ 13 mm (Nominal Size)					
		13.2 - 10 mm 30 per cent	cum	85.500	4770.00	407835.00	M-005
		10 - 5 mm 25 per cent	cum	71.250	4852.00	345705.00	M-006
		5 mm and below 43 per cent	cum	122.550	4965.00	608460.75	M-013
		Filler @ 2 per cent of weight of aggregates(cement).	tonne	8.505	5800.00	49329.00	M-052
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				357422.57	
		e) Contractor's profit @ 15 % on (a+b+c+d)				435203.32	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				33365.59	
		Cost for 191 cum = a+b+c+d+e+f				3369924.37	
		Rate per cum = (a+b+c+d+e+f)/191				17643.58	
					say	***17643.60***	
		ii. With Viscocity Graded Bitumen of VG-20.					
		Unit = cum					
		Taking output = 191 cum (450 tonnes)					
		a) Labour					
		Mate	day	0.840	310.00	235.60	L-17
		Mazdoor(unskilled)	day	16.000	310.00	4340.00	L-18
		Mazdoor(skilled)	day	5.000	395.00	1975.00	L-20
		b) Machinery					
		Batch mix HMP 100 - 120 TPH @ 75 tonne per hour actual output	hour	6.000	15400.00	92400.00	P&M-005
		Paver finisher hydrostatic with sensor	hour	6.000	2250.00	13500.00	P&M-050
		Generator 250 KVA	hour	6.000	625.00	3750.00	P&M-025
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Tipper 5.5 cum, 10 T capacity	hour	17.360	334.00	5798.24	P&M-073
		Three wheel 80 - 100 KN static roller for initial break down rolling	hour	7.800	392.00	1528.80	P&M-068
		Vibratory roller 80 - 100 KN for intermediate rolling.	hour	3.900	1395.00	5440.50	P&M-083
		Smooth wheel tandem roller 6-8 tonnes for final and finish rolling.	hour	3.900	1205.00	4699.50	P&M-058

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		c) Material					
		i) Bitumen (VG-20)					
		@ 5.50 per cent of weight of mix	tonne	22.500	157.00	973541.25	M-042
		ii) Aggregate					
		Total weight of mix = 450 tonnes					
		Weight of bitumen = 22.50 tonnes					
		Weight of aggregate = 450 -22.50 = 427.50 tonnes					
		Taking density of aggregate = 1.5 ton/cum					
		Volume of aggregate = 285.00 cum					
		Grading - II/ 13 mm (Nominal Size)					
		13.2 - 10 mm 30 per cent	cum	85.500	4770.00	407835.00	M-005
		10 - 5 mm 25 per cent	cum	71.250	4852.00	345705.00	M-006
		5 mm and below43 per cent	cum	122.550	4965.00	608460.75	M-013
		Filler @ 2 per cent of weight of aggregates(cement).	tonne	8.505	5800.00	49329.00	M-052
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				354630.24	
		e) Contractor's profit @ 15 % on (a+b+c+d)				431803.33	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				33104.92	
		Cost for 191 cum = a+b+c+d+e+f				3343597.13	
		Rate per cum = (a+b+c+d+e+f)/191				17505.74	
					say	***17505.70***	

Note:- 1. Although the rollers are required only for 3 hours as per norms of output, but the same have to be available at site for six hours as the hot mix plant and paver will take six hours for mixing and paving the output of 450 tonnes considered in this analysis. To cater for the idle period of these rollers, their usage rates have been multiplied by a factor of 0.65

2.Quantity of Bitumen has been taken for analysis purpose. The actual quantity will depend upon job mix formula.

3. Labour for traffic control, watch and ward and other miscellaneous duties at site including sundries have been included in administrative overheads of the contractor.

4. If BC is laid over freshly laid tack coat, provision of mechanical broom and 2 mazdoors shall be deleted as the same has been included in the cost of tack coat.

5. Analysis is based on 1000 m lead of mixed material. Cost of additional cartage may be added as per site requirements.

6. The individual density for each size of aggregates to be used for construction i.e. 37.5-25 mm, 25-10 mm etc. should be found in the laboratory and accordingly the quantities should be ammended for use in field. The average density of 1.5 tonne/cum is only a reference density in this anlysis.

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		7. The individual percentage of aggregates should be calculated from the total weight of dry aggregates i.e.. excluding the weight of bitumen. The weight of filler will also be 2 per cent by weight of dry aggregates.					
5.9	**510**	**Surface Dressing** Providing and laying surface dressing as wearing course in single coat using crushed stone aggregates of specified size on a layer of bituminous binder laid on prepared surface and rolling with 8-10 tonne smooth wheeled steel roller as per MoRT&H Technical Specification Clause 510. ***Unit = sqm*** ***Taking output = 9000 sqm*** **Case -I:-19 mm nominal chipping size**					
		(I) Bitumen of VG-30					
		a) Labour					
		Mate	day	0.440	310.00	136.40	L-17
		Mazdoor(unskilled)	day	9.000	310.00	2790.00	L-18
		Mazdoor(skilled)	day	2.000	395.00	790.00	L-20
		b) Machinery					
		Hydraulic broom @ 1250 sqm per hour	hour	7.200	345.00	2484.00	P&M-033
		Air compressor 210 cfm	hour	7.200	210.00	1512.00	P&M-001
		Hydraulic self propelled chip spreader @ 1500 sqm per hour	hour	6.000	3629.00	21774.00	P&M-038
		Tipper 5.50 cum / 10 tonne capacity for carriage of stone chips from stockpile on road side to chip spreader	hour	6.000	334.00	2004.00	P&M-073
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Bitumen pressure distributor	hour	6.000	202.00	1212.00	P&M-012
		Three wheel 80-100 KN static roller	hour	6.000	392.00	2352.00	P&M-071
		c) Material					
		i) Bitumen (VG-30)					
		@ 1.20 kg per sqm	tonne	10.800	40138.00	433490.40	M-041
		ii) Aggregate					
		Crushed stone chipping,19 mm nominal size @ 0.015 cum per sqm	cum	135.000	4528.00	611280.00	M-073
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				152490.94	
		e) Contractor's profit @ 15 % on (a+b+c+d)				185675.36	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				14235.11	
		Cost for 9000 sqm = a+b+c+d+e+f				1437746.22	
		Rate per sqm = (a+b+c+d+e+f)/9000				159.75	
					say	***159.70***	
		(II) Bitumen of VG-20					
		a) Labour					
		Mate	day	0.440	310.00	136.40	L-17
		Mazdoor(unskilled)	day	9.000	310.00	2790.00	L-18
		Mazdoor(skilled)	day	2.000	395.00	790.00	L-20
		b) Machinery					
		Hydraulic broom @ 1250 sqm per hour	hour	7.200	345.00	2484.00	P&M-033
		Air compressor 210 cfm	hour	7.200	210.00	1512.00	P&M-001
		Hydraulic self propelled chip spreader @ 1500 sqm per hour	hour	6.000	3629.00	21774.00	P&M-038

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Tipper 5.50 cum / 10 tonne capacity for carriage of stone chips from stockpile on road side to chip spreader	hour	6.000	334.00	2004.00	P&M-073
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Bitumen pressure distributor	hour	6.000	202.00	1212.00	P&M-012
		Three wheel 80-100 KN static roller	hour	6.000	392.00	2352.00	P&M-071
		c) Material					
		i) Bitumen (VG-20)					
		@ 1.20 kg per sqm	tonne	10.800	39335.00	424818.00	M-042
		ii) Aggregate					
		Crushed stone chipping,19 mm nominal size @ 0.015 cum per sqm	cum	135.000	4528.00	611280.00	M-073
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				151272.47	
		e) Contractor's profit @ 15 % on (a+b+c+d)				184191.73	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				14121.37	
		Cost for 9000 sqm = a+b+c+d+e+f				1426257.97	
		Rate per sqm = (a+b+c+d+e+f)/9000				158.47	
					say	***158.50***	
		Case -II:-13 mm nominal chipping size					
		(I) Bitumen of VG-30					
		a) Labour					
		Mate	day	0.440	310.00	136.40	L-17
		Mazdoor(unskilled)	day	9.000	310.00	2790.00	L-18
		Mazdoor(skilled)	day	2.000	395.00	790.00	L-20
		b) Machinery					
		Hydraulic broom @ 1250 sqm per hour	hour	7.200	345.00	2484.00	P&M-033
		Air compressor 210 cfm	hour	7.200	210.00	1512.00	P&M-001
		Hydraulic self propelled chip spreader @ 1500 sqm per hour	hour	6.000	3629.00	21774.00	P&M-038
		Tipper 5.50 cum / 10 tonne capacity for carriage of stone chips from stockpile on road side to chip spreader	hour	6.000	334.00	2004.00	P&M-073
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Bitumen pressure distributor	hour	6.000	202.00	1212.00	P&M-012
		Three wheel 80-100 KN static roller	hour	6.000	392.00	2352.00	P&M-071
		c) Material					
		i) Bitumen (VG-30)					
		@ 1.00 kg per sqm	tonne	9.000	40138.00	361242.00	M-041
		ii) Aggregate					
		Crushed stone chipping,13 mm nominal size @ 0.01 cum per sqm	cum	90.000	4825.00	434250.00	M-074
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				117467.33	
		e) Contractor's profit @ 15 % on (a+b+c+d)				143030.06	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				10965.64	
		Cost for 9000 sqm = a+b+c+d+e+f				1107529.43	
		Rate per sqm = (a+b+c+d+e+f)/9000				123.06	
					say	***123.10***	
		(II) Bitumen of VG-20					
		a) Labour					
		Mate	day	0.440	310.00	136.40	L-17
		Mazdoor(unskilled)	day	9.000	310.00	2790.00	L-18
		Mazdoor(skilled)	day	2.000	395.00	790.00	L-20

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		b) Machinery					
		Hydraulic broom @ 1250 sqm per hour	hour	7.200	345.00	2484.00	P&M-033
		Air compressor 210 cfm	hour	7.200	210.00	1512.00	P&M-001
		Hydraulic self propelled chip spreader @ 1500 sqm per hour	hour	6.000	3629.00	21774.00	P&M-038
		Tipper 5.50 cum / 10 tonne capacity for carriage of stone chips from stockpile on road side to chip spreader	hour	6.000	334.00	2004.00	P&M-073
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Bitumen pressure distributor	hour	6.000	202.00	1212.00	P&M-012
		Three wheel 80-100 KN static roller	hour	6.000	392.00	2352.00	P&M-071
		c) Material					
		i) Bitumen (VG-20)					
		@ 1.00 kg per sqm	tonne	9.000	39335.00	354015.00	M-042
		ii) Aggregate					
		Crushed stone chipping,13 mm nominal size @ 0.01 cum per sqm	cum	90.000	4825.00	434250.00	M-074
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				116451.94	
		e) Contractor's profit @ 15 % on (a+b+c+d)				141793.70	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				10870.85	
		Cost for 9000 sqm = a+b+c+d+e+f				1097955.89	
		Rate per sqm = (a+b+c+d+e+f)/9000				122.00	
					say	***122.00***	

Note:- 1.Where the proposed aggregate fails to pass the stripping test, an approved adhesion agent may be added to the binder as per clause 510.2.4. with the approval of the Engineer and the cost of adhesion agent shall be born by the contractor and not be paid separately. Alternatively, chips may be pre-coated as per clause 510.2.5 without any extra payment to contractors.

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		2.Input for the second coat, where required, will be the same as per the Ist coat mentioned above					
5.10	**511**	**Open - Graded Premix Surfacing** Providing, laying and rolling of open - graded premix surfacing of 20 mm thickness composed of 13.2 mm to 5.6 mm aggregates either using viscocity grade bitumen or cut-back or emulsion to required line, grade and level to serve as wearing course on a previously prepared base, including mixing in a suitable plant, laying and rolling with a smooth wheeled roller 8-10 tonne capacity, finished to required level and grades.as per MoRT&H Technical Specification Clause 511.					
		Case - I: Mechanical method using viscocity grade Bitumen and HMP of appropriate capacity not less than 75 tonnes/hour . **i) Bitumen of VG-30** ***Unit = sqm*** ***Taking output = 10250 sqm (205 cum)***					
		a) Labour					
		Mate	day	0.840	310.00	260.40	L-17
		Mazdoor(unskilled)	day	16.000	310.00	4960.00	L-18
		Mazdoor(skilled)	day	5.000	395.00	1975.00	L-20
		b) Machinery					
		Batch type HMP 100 - 120 TPH @75 tonne per hour actual output	hour	6.000	15400.00	92400.00	P&M-005
		Electric Generator Set 250 KVA	hour	6.000	625.00	3750.00	P&M-025
		Tipper 5.50 cum/ 10 tonne capacity	hour	18.640	334.00	6225.76	P&M-073
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Paver finisher hydrostatic with sensor	hour	6.000	2250.00	13500.00	P&M-050
		Smooth wheeled/tandom roller 8-10 tonnes weight	hour	6.000	392.00	2352.00	P&M-069
		c) Material					
		i) Bitumen (VG-30)					
		@ 1.46 kg per sqm	tonne	14.970	40138.00	600865.86	M-041
		ii) Aggregate					
		Crushed stone chipping,13.2 mm to 5.6 mm @ 0.027 cum per sqm	cum	276.750	4890.00	1353307.50	M-186
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				292958.87	
		e) Contractor's profit @ 15 % on (a+b+c+d)				356711.31	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				27347.87	
		Cost for 10250 sqm = a+b+c+d+e+f				2762134.57	
		Rate per sqm = (a+b+c+d+e+f)/10250				269.48	
					say	***<u>269.50</u>***	
		ii) Bitumen of VG-20 ***Unit = sqm*** ***Taking output = 10250 sqm (205 cum)***					
		a) Labour					
		Mate	day	0.840	310.00	260.40	L-17
		Mazdoor(unskilled)	day	16.000	310.00	4960.00	L-18
		Mazdoor(skilled)	day	5.000	395.00	1975.00	L-20

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		b) Machinery					
		Batch type HMP 100 - 120 TPH @75 tonne per hour actual output	hour	6.000	15400.00	92400.00	P&M-005
		Electric Generator Set 250 KVA	hour	6.000	625.00	3750.00	P&M-025
		Tipper 5.50 cum/ 10 tonne capacity	hour	18.640	334.00	6225.76	P&M-073
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Paver finisher hydrostatic with sensor	hour	6.000	2250.00	13500.00	P&M-050
		Smooth wheeled/tandom roller 8-10 tonnes weight	hour	6.000	392.00	2352.00	P&M-069
		c) Material					
		i) Bitumen (VG-20)					
		@ 1.46 kg per sqm	tonne	14.970	39335.00	588844.95	M-042
		ii) Aggregate					
		Crushed stone chipping,13.2 mm to 5.6 mm @ 0.027 cum per sqm	cum	276.750	4890.00	1353307.50	M-186
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				291269.93	
		e) Contractor's profit @ 15 % on (a+b+c+d)				354654.83	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				27190.20	
		Cost for 10250 sqm = a+b+c+d+e+f				2746210.58	
		Rate per sqm = (a+b+c+d+e+f)/10250				267.92	
					say	***267.90***	

Note:- 1. If a premix sand seal coat of 'B' type is proposed, the same is required to be provided over the open graded premix carpet immediately on the same day. As the same HMP and other machines will be used for laying of premix sand seal coat, out of 6 effective working hours, 4.00 hours may be utilised for laying of premix carpet and balance 2.00 hours for the seal coat. The rate for the premix sand seal coat under clause 513 (case II) has been worked out accordingly by utilising the HMP for 2.00 hours for the purpose of seal coat. In case type 'A' seal coat is proposed, HMP can be worked for six hours for the premix carpet as type 'A' seal coat does not require the use of HMP for which necessary deduction may be made.

2. Analysis is based on 1000 m lead mixed material. Cost of additional cartage may be added as per site requirements.

5.10		**Case - II: Open-Graded Premix Surfacing using cationic Bitumen Emulsion**					
		Unit = sqm					
		Taking output = 900 sqm (18 cum)					
		a) Labour					
		Mate	day	0.800	310.00	248.00	L-17
		Mazdoor(unskilled)	day	18.000	310.00	5580.00	L-18
		Mazdoor(skilled)	day	2.000	395.00	790.00	L-20
		b) Machinery					
		Concrete mixer 0.4/0.28 cum capacity	hour	6.000	192.00	1152.00	P&M-014
		Smooth wheeled steel roller 8-10 tonnes weight	hour	6.000	392.00	2352.00	P&M-069

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		c) Material					
		Cationic **Bitumen** Emulsion**(RS-1)** @ 2.15 kg sqm	tonne	1.940	37082.00	71939.08	M-045
		Crushed stone aggregates 13.2 mm to 5.6 mm @ 0.027 cum per sqm	cum	24.300	4526.17	109985.97	M-185
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				26982.61	
		e) Contractor's profit @ 15 % on (a+b+c+d)				32854.45	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				2518.84	
		Cost for 900 sqm = a+b+c+d+e+f				254402.95	
		Rate per sqm = (a+b+c+d+e+f)/900				282.67	
					say	***282.70***	
5.11	**512**	**Close Graded Premix Surfacing/Mixed Seal Surfacing** Providing, laying and rolling of close-graded premix surfacing material of 20 mm thickness composed of 11.2 mm to 0.09 mm (Type-A) or 13.2 mm to 0.09 mm (Type-B) aggregates using viscocity grade bitumen to the required line, grade and level to serve as wearing course on a previously prepared base, including mixing in a suitable plant, laying and rolling with a Smooth wheeled roller 8-10 tonne capacity, and finishing to required level and grade as per MoRT&H Technical Specification Clause 512. **Case I:**-Mechanical means using HMP of appropriate capacity not less than 75 tonnes/hour. **A. Type - A** **i) Bitumen of VG-30** ***Unit = sqm*** ***Taking output = 10250 sqm (205 cum)***						
		a) Labour					
		Mate	day	0.840	310.00	260.40	L-17
		Mazdoor(unskilled)	day	16.000	310.00	4960.00	L-18
		Mazdoor(skilled)	day	5.000	395.00	1975.00	L-20
		b) Machinery					
		Batch type HMP 100 - 120 TPH @75 tonne per hour actual output	hour	6.000	15400.00	92400.00	P&M-005
		Electric Generator Set 250 KVA	hour	6.000	625.00	3750.00	P&M-025
		Tipper 5.50 cum/ 10 tonne capacity	hour	18.640	334.00	6225.76	P&M-073
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Paver finisher hydrostatic with sensor	hour	6.000	2250.00	13500.00	P&M-050
		Smooth wheeled/tandom roller 8-10 tonnes weight	hour	6.000	392.00	2352.00	P&M-069
		c) Material					
		i) Bitumen (VG-30)					
		@ 2.20 kg per sqm	tonne	22.550	40138.00	905111.90	M-041
		ii) Aggregate					
		Crushed Stone chipping, 11.2 mm to 0.09 @ 0.027 cum per sqm	cum	276.750	5015.00	1387901.25	M-187
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				340565.86	
		e) Contractor's profit @ 15 % on (a+b+c+d)				414678.33	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				31792.00	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Cost for 10250 sqm = a+b+c+d+e+f				3210992.50	
		Rate per sqm = (a+b+c+d+e+f)/10250				313.27	
					say	***313.30***	
		ii) Bitumen of VG-20					
		Unit = sqm					
		Taking output = 10250 sqm (205 cum)					
		a) Labour					
		Mate	day	0.840	310.00	260.40	L-17
		Mazdoor(unskilled)	day	16.000	310.00	4960.00	L-18
		Mazdoor(skilled)	day	5.000	395.00	1975.00	L-20
		b) Machinery					
		Batch type HMP 100 - 120 TPH @75 tonne per hour actual output	hour	6.000	15400.00	92400.00	P&M-005
		Electric Generator Set 250 KVA	hour	6.000	625.00	3750.00	P&M-025
		Tipper 5.50 cum/ 10 tonne capacity	hour	18.640	334.00	6225.76	P&M-073
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Paver finisher hydrostatic with sensor	hour	6.000	2250.00	13500.00	P&M-050
		Smooth wheeled/tandom roller 8-10 tonnes weight	hour	6.000	392.00	2352.00	P&M-069
		c) Material					
		i) Bitumen (VG-20)					
		@ 2.20 kg per sqm	tonne	22.550	39335.00	887004.25	M-042
		ii) Aggregate					
		Crushed Stone chipping, 11.2 mm to 0.09 @ 0.027 cum per sqm	cum	276.750	5015.00	1387901.25	M-187
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				338021.74	
		e) Contractor's profit @ 15 % on (a+b+c+d)				411580.56	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				31554.51	
		Cost for 10250 sqm = a+b+c+d+e+f				3187005.47	
		Rate per sqm = (a+b+c+d+e+f)/10250				310.93	
					say	***310.90***	
		B. Type - B					
		i) Bitumen of VG-30					
		Unit = sqm					
		Taking output = 10250 sqm (205 cum)					
		a) Labour					
		Mate	day	0.840	310.00	260.40	L-17
		Mazdoor(unskilled)	day	16.000	310.00	4960.00	L-18
		Mazdoor(skilled)	day	5.000	395.00	1975.00	L-20
		b) Machinery					
		Batch type HMP 100 - 120 TPH @75 tonne per hour actual output	hour	6.000	15400.00	92400.00	P&M-005
		Electric Generator Set 250 KVA	hour	6.000	625.00	3750.00	P&M-025
		Tipper 5.50 cum/ 10 tonne capacity	hour	18.640	334.00	6225.76	P&M-073
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Paver finisher hydrostatic with sensor	hour	6.000	2250.00	13500.00	P&M-050
		Smooth wheeled/tandom roller 8-10 tonnes weight	hour	6.000	392.00	2352.00	P&M-069
		c) Material					
		i) Bitumen (VG-30)					
		@ 1.90 kg per sqm	tonne	19.475	40138.00	781687.55	M-041
		ii) Aggregate					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Crushed Stone chipping, 13.2 mm to 0.09 @ 0.027 cum per sqm	cum	276.750	4890.00	1353307.50	M-186
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				318364.32	
		e) Contractor's profit @ 15 % on (a+b+c+d)				387645.38	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				29719.48	
		Cost for 10250 sqm = a+b+c+d+e+f				3001667.39	
		Rate per sqm = (a+b+c+d+e+f)/10250				292.85	
					say	***292.80***	
		ii) Bitumen of VG-20					
		Unit = sqm					
		Taking output = 10250 sqm (205 cum)					
		a) Labour					
		Mate	day	0.840	310.00	260.40	L-17
		Mazdoor(unskilled)	day	16.000	310.00	4960.00	L-18
		Mazdoor(skilled)	day	5.000	395.00	1975.00	L-20
		b) Machinery					
		Batch type HMP 100 - 120 TPH @75 tonne per hour actual output	hour	6.000	15400.00	92400.00	P&M-005
		Electric Generator Set 250 KVA	hour	6.000	625.00	3750.00	P&M-025
		Tipper 5.50 cum/ 10 tonne capacity	hour	18.640	334.00	6225.76	P&M-073
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Paver finisher hydrostatic with sensor	hour	6.000	2250.00	13500.00	P&M-050
		Smooth wheeled/tandom roller 8-10 tonnes weight	hour	6.000	392.00	2352.00	P&M-069
		c) Material					
		i) Bitumen (VG-20)					
		@ 1.90 kg per sqm	tonne	19.475	39335.00	766049.13	M-042
		ii) Aggregate					
		Crushed Stone chipping, 13.2 mm to 0.09 @ 0.027 cum per sqm	cum	276.750	4890.00	1353307.50	M-186
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				316167.12	
		e) Contractor's profit @ 15 % on (a+b+c+d)				384970.04	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				29514.37	
		Cost for 10250 sqm = a+b+c+d+e+f				2980951.31	
		Rate per sqm = (a+b+c+d+e+f)/10250				290.82	
					say	***290.80***	
5.12	**513**	**Seal Coat**					
		Case - I : Type A					
		Providing and laying seal coat sealing the voids in a bituminous surface laid to the specified levels, grade and cross fall using Type A seal coats as per MoRT&H Technical Specification Clause 513.					
		i) Bitumen of VG-30					
		Unit = sqm					
		Taking output = 10250 sqm (92.25 cum)					
		a) Labour					
		Mate	day	0.240	310.00	74.40	L-17
		Mazdoor(unskilled)	day	6.000	310.00	1860.00	L-18
		b) Machinery					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Hydraulic self propelled chip spreader	hour	6.000	3629.00	21774.00	P&M-038
		Tipper 5.5 cum/ 10 T capacity	hour	6.000	334.00	2004.00	P&M-073
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Bitumen pressure distributor	hour	6.000	202.00	1212.00	P&M-012
		Smooth wheeled/ tandem roller 8 -10 tonne weight	hour	6.000	392.00	2352.00	P&M-070
		c) Material					
		i) Bitumen (VG-30)					
		@ 0.98 kg per sqm	tonne	10.045	40138.00	403186.21	M-041
		ii) Aggregate					
		Crushed stone chipping, 6.7 mm size (100 per cent passing 11.2 mm sieve and retained on 2.36 mm sieve) applied @ 0.009 cum per sqm	cum	92.250	4430.00	408667.50	M-075
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				118954.34	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		e) Contractor's profit @ 15 % on (a+b+c+d)				144840.67	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				11104.45	
		Cost for 10250 sqm = a+b+c+d+e+f				1121549.57	
		Rate per sqm = (a+b+c+d+e+f)/10250				109.42	
					say	***109.40***	
		ii) Bitumen of VG-20					
		Unit = sqm					
		Taking output = 10250 sqm (92.25 cum)					
		a) Labour					
		Mate	day	0.240	310.00	74.40	L-17
		Mazdoor(unskilled)	day	6.000	310.00	1860.00	L-18
		b) Machinery					
		Hydraulic self propelled chip spreader	hour	6.000	3629.00	21774.00	P&M-038
		Tipper 5.5 cum/ 10 T capacity	hour	6.000	334.00	2004.00	P&M-073
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Bitumen pressure distributor	hour	6.000	202.00	1212.00	P&M-012
		Smooth wheeled/ tandem roller 8 -10 tonne weight	hour	6.000	392.00	2352.00	P&M-070
		c) Material					
		i) Bitumen (VG-20)					
		@ 0.98 kg per sqm	tonne	10.045	39335.00	395120.08	M-042
		ii) Aggregate					
		Crushed stone chipping, 6.7 mm size (100 per cent passing 11.2 mm sieve and retained on 2.36 mm sieve) applied @ 0.009 cum per sqm	cum	92.250	4430.00	408667.50	M-075
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				117821.05	
		e) Contractor's profit @ 15 % on (a+b+c+d)				143460.75	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				10998.66	
		Cost for 10250 sqm = a+b+c+d+e+f				1110864.43	
		Rate per sqm = (a+b+c+d+e+f)/10250				108.38	
					say	***108.40***	
		Case - II : Type B					
		Providing and laying of premix seal coat Type - B with HMP of appropriate capacity not less than 75 tonnes/ hours using crushed stone chipping 6.7 mm size and Viscocity grade bitumen of suitable grade as per MoRT&H Technical Specification Clause 513.					
		i) Bitumen of VG-30					
		Unit = sqm					
		Taking output = 7858 sqm (47.16 cum)					
		a) Labour					
		Mate	day	0.160	310.00	49.60	L-17
		Mazdoor(unskilled)	day	4.000	310.00	1240.00	L-18
		b) Machinery					
		Batch type HMP 100 - 120 TPH @75 tonne per hour actual output	hour	2.000	15400.00	30800.00	P&M-005
		Electric Generator Set 250 KVA	hour	2.000	625.00	1250.00	P&M-025
		Tipper 5.50 cum/ 10 tonne capacity	hour	4.290	334.00	1432.86	P&M-073

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Front end loader 1 cum bucket capacity	hour	2.000	920.00	1840.00	P&M-030
		Paver finisher hydrostatic with sensor	hour	2.000	2250.00	4500.00	P&M-050
		Smooth wheeled/tandom roller 8-10 tonnes weight	hour	2.000	392.00	784.00	P&M-070

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		c) Material					
		i) Bitumen (VG-30)					
		@ 0.68 kg per sqm	tonne	5.343	40138.00	214457.33	M-041
		ii) Aggregate					
		Crushed stone chipping, 6.7 mm size (100 per cent passing 11.2 mm sieve and retained on 2.36 mm sieve) applied @ 0.006 cum per sqm	cum	47.148	4430.00	208865.64	M-075
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				65363.33	
		e) Contractor's profit @ 15 % on (a+b+c+d)				79587.41	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				6101.70	
		Cost for 7858 sqm = a+b+c+d+e+f				616271.88	
		Rate per sqm = (a+b+c+d+e+f)/7858				78.43	
					say	***78.40***	
		ii) Bitumen of VG-20					
		Unit = sqm					
		Taking output = 7858 sqm (47.16 cum)					
		a) Labour					
		Mate	day	0.160	310.00	49.60	L-17
		Mazdoor(unskilled)	day	4.000	310.00	1240.00	L-18
		b) Machinery					
		Batch type HMP 100 - 120 TPH @75 tonne per hour actual output	hour	2.000	15400.00	30800.00	P&M-005
		Electric Generator Set 250 KVA	hour	2.000	625.00	1250.00	P&M-025
		Tipper 5.50 cum/ 10 tonne capacity	hour	4.290	334.00	1432.86	P&M-073
		Front end loader 1 cum bucket capacity	hour	2.000	920.00	1840.00	P&M-030
		Paver finisher hydrostatic with sensor	hour	2.000	2250.00	4500.00	P&M-050
		Smooth wheeled/tandom roller 8-10 tonnes weight	hour	2.000	392.00	784.00	P&M-070
		c) Material					
		i) Bitumen (VG-20)					
		@ 0.68 kg per sqm	tonne	5.343	39335.00	210166.91	M-042
		ii) Aggregate					
		Crushed stone chipping, 6.7 mm size (100 per cent passing 11.2 mm sieve and retained on 2.36 mm sieve) applied @ 0.006 cum per sqm	cum	47.148	4430.00	208865.64	M-075
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				64760.53	
		e) Contractor's profit @ 15 % on (a+b+c+d)				78853.43	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				6045.43	
		Cost for 7858 sqm = a+b+c+d+e+f				610588.39	
		Rate per sqm = (a+b+c+d+e+f)/7858				77.70	
					say	***77.70***	

Note:- Since seal coat is required to be provided over the premix carpet on the same day, out of the 6 working hours of the HMP, 4.00 hours are proposed to be utilised for the premix carpet and the balance 2.00 hours for the seal coat. Hence 2.00 hours have been considered for this case. This may be linked to rate analysis worked out under clause 511.

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
5.13	**515**	**Mastic Asphalt** Providing and laying mastic asphalt wearing course with paving grade bitumen meeting the requirements given in table 500.29, prepared by using mastic cooker and laid to required level and slope after cleaning the surface, including providing antiskid surface with bitumen precoated finegrained hard stone chipping 13.2 mm nominal size at the rate of 0.005 cum per sqm and at an approximate spacing of 10 cm center to center in both directions, pressed into surface when the temperature of the surfaces is not less than 100° C, protruding 1 mm to 4 mm over mastic surface, all complete as per MoRT&H Technical Specification Clause 515.					
		i. 25 mm thick ***Unit = sqm*** ***Taking output = 35.00 sqm (0.875 cum) assuming a density of 2.3 tonnes/cum.= 2.0125 tonnes***					
		a) Labour					
		Mate	day	0.440	310.00	136.40	L-17
		Mazdoor(unskilled)	day	10.000	310.00	3100.00	L-18
		Mazdoor(skilled)	day	1.000	395.00	395.00	L-20
		b) Machinery					
		Hydraulic broom @ 1250 sqm per hour	hour	0.060	345.00	20.70	P&M-033
		Air compressor 210 cfm	hour	0.060	210.00	12.60	P&M-001
		Mastic cooker	hour	6.000	125.00	750.00	P&M-043
		Bitumen boiler 1500 litres capacity	hour	6.000	198.00	1188.00	P&M-011
		Tractor for towing and positioning of mastic cooker and bitumen boiler	hour	1.000	237.00	237.00	P&M-076
		c) Material Base mastic (without coarse aggregates) = 60 % Coarse aggregate (13.2 mm to 6.3 mm) = 40 %					
		i) Bitumen (VG-30)					
		@ 12% by weight of mix 2.0125 x 12.00/100 = 0.242	tonne	0.242	40138.00	9713.40	M-041
		ii) Coarse Aggregate					
		iv) Crushed stone chippping 6.7 mm size 100% pasing 11.2mm and retained on 2.36 mm @ 40 per cent by weight of mix = 2.0125 x 40/100 = 0.805 MT = 0.805/1.456 = 0.553	cum	0.553	4430.00	2449.79	M-075
		iii) Fine Aggregate					
		Crushed stone dust or grit passing 2.36mm and retained on 75 micron @ 30 per cent by weight of mix = 2.0125 x 30/100 = 0.604 tonnes = 0.604/1.625 = 0.372	cum	0.372	2510.00	933.72	M-070
		iv) Filler					
		Lime stone dust filler with calcium content not less than 80 per cent by weight @ 18 per cent by weight of mix = 2.0125 x 18/100 = 0.361	tonne	0.362	6395.00	2314.99	M-126
		v) Stone chips for skid resistance					
		Stone chips of 13.2 mm nominal @0.005cum per 10 sqm = 35 x 0.005/10 = 0.018	cum	0.018	4825.00	86.85	M-184
		vi) Bitumen (VG-30) for precoating					

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BASES AND SURFACE COURSES (BITUMINOUS)

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		@ 2 per cent by weight = 0.018 x 1.456 x 2.0125/100 = 0.0005 MT = 0.5kg	tonne	0.0005	40138.00	20.07	M-041
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				3000.87	
		e) Contractor's profit @ 15 % on (a+b+c+d)				3653.91	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				280.13	
		Cost for 35.00 sqm = a+b+c+d+e+f				28293.43	
		Rate per sqm = (a+b+c+d+e+f)/35				808.38	
					say	***808.40***	
		ii. 40 mm thick					
		Unit = sqm					
		Taking output = 24.00 sqm (0.960 cum) assuming a density of 2.3 tonnes/cum.= 2.208 tonnes					
		a) Labour					
		Mate	day	0.440	310.00	136.40	L-17
		Mazdoor(unskilled)	day	10.000	310.00	3100.00	L-18
		Mazdoor(skilled)	day	1.000	395.00	395.00	L-20
		b) Machinery					
		Hydraulic broom @ 1250 sqm per hour	hour	0.060	345.00	20.70	P&M-033
		Air compressor 210 cfm	hour	0.060	210.00	12.60	P&M-001
		Mastic cooker	hour	6.000	125.00	750.00	P&M-043
		Bitumen boiler 1500 litres capacity	hour	6.000	198.00	1188.00	P&M-011
		Tractor for towing and positioning of mastic cooker and bitumen boiler	hour	1.100	237.00	260.70	P&M-076
		c) Material					
		Base mastic (without coarse aggregates) = 60 %					
		Coarse aggregate (13.2 mm to 6.3 mm) = 40 %					
		i) Bitumen (VG-30)					
		@ 12% by weight of mix 2.208 x 12.00/100 = 0.265	tonne	0.2650	40138.00	10636.57	M-041
		ii) Coarse Aggregate					
		iv) Crushed stone chippping 6.7 mm size 100% pasing 11.2mm and retained on 2.36 mm @ 40 per cent by weight of mix = 2.208 x 40/100 = 0.883 MT = 0.883/1.456 = 0.606	cum	0.606	4430.00	2684.58	M-075
		iii) Fine Aggregate					
		Crushed stone dust or grit passing 2.36mm and retained on 75 micron @ 30 per cent by weight of mix = 2.208 x 30/100 = 0.662 tonnes = 0.662/1.625 = 0.407	cum	0.407	2510.00	1021.57	M-070
		iv) Filler					
		Lime stone dust filler with calcium content not less than 80 per cent by weight @ 18 per cent by weight of mix = 2.208 x 18/100 = 0.397	tonne	0.397	6395.00	2538.82	M-126
		v) Stone chips for skid resistance					
		Stone chips of 13.2 mm nominal @0.005cum per 10 sqm = 24 x 0.005/10 = 0.012	cum	0.012	4825.00	57.90	M-184
		vi) Bitumen (VG-30) for precoating					
		@ 2 per cent by weight = 0.019 x 1.456 x 2.208/100 = 0.0005 MT = 0.6 kg	tonne	0.0006	40138.00	24.08	M-041
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				3207.18	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		e) Contractor's profit @ 15 % on (a+b+c+d)				3905.11	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				299.39	
		Cost for 24.00 sqm = a+b+c+d+e+f				30238.61	
		Rate per sqm = (a+b+c+d+e+f)/24				1259.94	
					say	***1259.90***	
		iii. 50 mm thick					
		Unit = sqm					
		Taking output = 20.00 sqm (1.000 cum) assuming a density of 2.3 tonnes/cum.= 2.300 tonnes					
		a) Labour					
		Mate	day	0.440	310.00	136.40	L-17
		Mazdoor(unskilled)	day	10.000	310.00	3100.00	L-18
		Mazdoor(skilled)	day	1.000	395.00	395.00	L-20
		b) Machinery					
		Hydraulic broom @ 1250 sqm per hour	hour	0.060	345.00	20.70	P&M-033
		Air compressor 210 cfm	hour	0.060	210.00	12.60	P&M-001
		Mastic cooker	hour	6.000	125.00	750.00	P&M-043
		Bitumen boiler 1500 litres capacity	hour	6.000	198.00	1188.00	P&M-011
		Tractor for towing and positioning of mastic cooker and bitumen boiler	hour	1.150	237.00	272.55	P&M-076
		c) Material					
		Base mastic (without coarse aggregates) = 60 %					
		Coarse aggregate (13.2 mm to 6.3 mm) = 40 %					
		i) Bitumen (VG-30)					
		@ 12% by weight of mix 2.30 x 12.00/100 = 0.276	tonne	0.276	40138.00	11078.09	M-041
		ii) Coarse Aggregate					
		iv) Crushed stone chippping 6.7 mm size 100% pasing 11.2mm and retained on 2.36 mm @ 40 per cent by weight of mix = 2.300 x 40/100 = 0.92 MT = 0.92/1.456 = 0.632	cum	0.632	4430.00	2799.76	M-075
		iii) Fine Aggregate					
		Crushed stone dust or grit passing 2.36mm and retained on 75 micron @ 30 per cent by weight of mix = 2.30 x 30/100 = 0.604 tonnes = 0.69/1.625 = 0.425	cum	0.425	2510.00	1066.75	M-070
		iv) Filler					
		Lime stone dust filler with calcium content not less than 80 per cent by weight @ 18 per cent by weight of mix = 2.30 x 18/100 = 0.414	tonne	0.414	6395.00	2647.53	M-126
		v) Stone chips for skid resistance					
		Stone chips of 13.2 mm nominal @0.005cum per 10 sqm = 20 x 0.005/10 = 0.010	cum	0.010	4825.00	48.25	M-184
		vi) Bitumen (VG-30) for precoating					
		@ 2 per cent by weight = 0.20 x 1.456 x 2.30/100 = 0.0005 MT = 0.7 kg	tonne	0.0007	40138.00	28.10	M-041
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				3307.89	
		e) Contractor's profit @ 15 % on (a+b+c+d)				4027.74	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				308.79	
		Cost for 20.00 sqm = a+b+c+d+e+f				31188.15	
		Rate per sqm = (a+b+c+d+e+f)/20				1559.41	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
					say	***1559.40***	

Note:- 1.Where tack coat is required to be provided before laying mastic asphalt, the same is required to be measured and paid separately.
2.The quantities of binder, filler and aggregates are for estimating purpose. Exact quantities shall be as per mix design.
3.This rate analysis is based on for a specific case and is meant for estimating purposes only. Actual design is required to be done for each case.

5.14 516 Slurry Seal

Providing and laying slurry seal consisting of a mixture of fine aggregates, portland cement filler, bituminous emulsion and water on a road surface including cleaning of surface, mixing of slurry seal in a suitable mobile plant, laying and compacting to provide even riding surface as per MoRT&H Technical Specification Clause 516.

Case- I: 5 mm thickness

Unit = sqm
Taking output = 16000 sqm (80 cum)
Taking density of 2.2 tonnes per cum

weight of mix = 176 tonnes

a) Labour					
Mate	day	0.240	310.00	74.40	L-17
Mazdoor(unskilled)	day	6.000	310.00	1860.00	L-18
b) Machinery					
Hydraulic broom @ 1250 sqm per hour	hour	6.000	345.00	2070.00	P&M-033
Air compressor 210 cfm	hour	6.000	210.00	1260.00	P&M-001
Mobile slurry seal equipment	hour	6.000	1028.00	6168.00	P&M-045
Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
Tipper 5.5 cum capacity	hour	6.000	334.00	2004.00	P&M-073
Pneumatic tyred roller with individual wheel load not exceeding 1.5 tonnes	hour	6.000	1180.00	7080.00	P&M-053
Water tanker	hour	2.000	200.00	400.00	P&M-084
c) Material					
Bitumen Emulsion (RS-1) @ 11 per cent of mix 80 x 2.2 x 0.11	tonne	19.360	37082.00	717907.52	M-045
Fine aggregate 4.75 mm and below 87 per cent of total mix,80 x 2.2 x 0.87 = 153.12 tonnes. Taking density1.5, = 153.12/1.5 = 102.08 cum	cum	102.080	5015.00	511931.20	M-009
Filler (Ordinary portland cement) @ 2 per cent of total mix = 80 x 2.2 x 0.02	tonne	3.520	5800.00	20416.00	M-052
Water	KL	12.000	133.00	1596.00	M-196
d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				179599.34	
e) Contractor's profit @ 15 % on (a+b+c+d)				218682.97	
f) Add Cess @ 1.00 % on (a+b+c+d+e)				16765.69	
Cost for 16000 sqm = a+b+c+d+e+f				1693335.12	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Rate per sqm = (a+b+c+d+e+f)/16000				105.83	
					say	***105.80***	
		Case- II: 3 mm thickness					
		Unit = sqm					
		Taking output = 20000 sqm (60 cum)					
		Taking density of 2.2 tonnes per cum					
		weight of mix = 132 tonnes					
		a) Labour					
		Mate	day	0.240	310.00	74.40	L-17
		Mazdoor(unskilled)	day	6.000	310.00	1860.00	L-18
		b) Machinery					
		Hydraulic broom @ 1250 sqm per hour	hour	6.000	345.00	2070.00	P&M-033
		Air compressor 210 cfm	hour	6.000	210.00	1260.00	P&M-001
		Mobile slurry seal equipment	hour	6.000	1028.00	6168.00	P&M-045
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Tipper 5.5 cum capacity	hour	6.000	334.00	2004.00	P&M-073
		Pneumatic tyred roller with individual wheel load not exceeding 1.5 tonnes	hour	6.000	1180.00	7080.00	P&M-053
		Water tanker	hour	2.000	200.00	400.00	P&M-084
		c) Material					
		Bitumen Emulsion (RS-1) @ 13 per cent of mix = 60 x 2.2 x 0.13	tonne	17.160	37082.00	636327.12	M-045
		Fine aggregate 3 mm and below 85 per cent of total mix, 60x 2.2 x 0.85 = 112.2 tonnes. Taking density 1.5,= 112.2/1.5 = 74.80 cum	cum	74.800	5015.00	375122.00	M-009
		Filler (Ordinary portland cement) @ 2 per cent of total mix = 60x 2.2 x 0.02	tonne	2.640	5800.00	15312.00	M-052
		Water	KL	12.000	133.00	1596.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				148198.49	
		e) Contractor's profit @ 15 % on (a+b+c+d)				180448.80	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				13834.41	
		Cost for 30000 sqm = a+b+c+d+e+f				1397275.22	
		Rate per sqm = (a+b+c+d+e+f)/20000				69.86	
					say	***69.90***	
		Case- III: 1.5 mm thickness					
		Unit = sqm					
		Taking output = 24000 sqm (36 cum)					
		Taking density of 2.2 tonnes per cum					
		weight of mix = 79.20 tonnes					
		a) Labour					
		Mate	day	0.240	310.00	74.40	L-17
		Mazdoor(unskilled)	day	6.000	310.00	1860.00	L-18
		b) Machinery					
		Hydraulic broom @ 1250 sqm per hour	hour	6.000	345.00	2070.00	P&M-033
		Air compressor 210 cfm	hour	6.000	210.00	1260.00	P&M-001
		Mobile slurry seal equipment	hour	6.000	1028.00	6168.00	P&M-045
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Tipper 5.5 cum capacity	hour	6.000	334.00	2004.00	P&M-073

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Pneumatic tyred roller with individual wheel load not exceeding 1.5 tonnes	hour	6.000	1180.00	7080.00	P&M-053
		Water tanker	hour	2.000	200.00	400.00	P&M-084
		c) Material					
		Bitumen Emulsion (RS-1) @ 16 per cent of mix, 36 x 2.2 x 0.16	tonne	12.672	37082.00	469903.10	M-045

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Fine aggregate 2.36 mm and below,82 per cent of total mix,36x 2.2 x 0.82 = 64.94 tonnes. Taking density 1.5 = 64.94/1.5 = 43.30 cum	cum	43.300	5015.00	217149.50	M-009
		Filler (Ordinary portland cement) @ 2 per cent of total mix = 36x 2.2 x 0.02	tonne	1.584	5800.00	9187.20	M-052
		Water	KL	12.000	133.00	1596.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				101760.24	
		e) Contractor's profit @ 15 % on (a+b+c+d)				123904.87	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				9499.37	
		Cost for 24000 sqm = a+b+c+d+e+f				959436.69	
		Rate per sqm = (a+b+c+d+e+f)/24000				39.98	
					say	***40.00***	
5.15	**517**	**Recycling of Bituminous Pavement with Central Recycling Plant** Recycling pavement by cold milling of existing bituminous layers, planning the surface after cold milling, reclaiming excavated material to the extent of 30 per cent of the required quantity, hauling and stock piling the reclaimed material near the central recycling plant after carrying out necessary checks and evaluation, adding fresh material including rejuvenators as required, mixing in a hot mix plant, transporting and laying at site and compacting to the required grade, level and thickness, all as specified in MoRT&H Technical Specification Clause 517. ***Unit = cum*** ***Taking output = 120 cum (276 tonnes)***						
		a) Labour					
		Mate	day	0.480	310.00	148.80	L-17
		Mazdoor(unskilled)	day	10.000	310.00	3100.00	L-18
		Mazdoor(skilled)	day	2.000	395.00	790.00	L-20
		b) Machinery					
		Cold milling machine @ 20 cum per hour	hour	6.000	1850.00	11100.00	P&M-021
		Hydraulic broom @ 1250 sqm per hour	hour	1.280	345.00	441.60	P&M-033
		Air compressor 210 cfm	hour	1.280	210.00	268.80	P&M-001
		Bitumen emulsion pressure distributor	hour	0.910	202.00	183.82	P&M-012
		Hot mix plant 100-120 TPH producing an average of 75 tonnes per hour	hour	3.000	15400.00	46200.00	P&M-005
		Electric generator set 250 KVA	hour	3.000	625.00	1875.00	P&M-025
		Front end loader 1.00 cum bucket capacity	hour	3.000	920.00	2760.00	P&M-030
		Tipper 5.5 cum capacity	hour	18.000	334.00	6012.00	P&M-073
		Smooth wheeled roller 8-10 tonnes	hour	1.950	392.00	764.40	P&M-068
		Vibratory roller 8 tonnes	hour	1.950	1395.00	2720.25	P&M-083
		Smooth wheeled tandem roller 6-8 tonnes	hour	1.950	1205.00	2349.75	P&M-058

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		c) Material					
		i) Bitumen					
		A bitumen content is 4.5 per cent bitumen weight of mix. For reclaimed material, fresh bitumen will be required to the extent of 60 per cent of normal requirement.					
		In a mix of 276 tonnes, 82.8 tonne is reclaimed and balance 193.2 tonne is fresh mix.					
		Bitumen (VG-30) required for reclaimed mix of 82.8 tonne @ 60 per cent of 4.50% of bitumen by weight of mix= 82.8 x 0.60 x0.045 = 2.236	tonne	2.236	40138.00	89748.57	M-041
		Bitumen (VG-30) required for fresh mix of 193.2 tonnes @ of 4.50% of bitumen by weight = 193.2 x 0.045 = 8.694	tonne	8.694	40138.00	348959.77	M-041
		ii) Aggregates					
		Percentage of mix requiring fresh aggregates - 70 per cent					
		Weight of fresh mix = 276 x 0.70 = 193.2 tonne					
		Weight of fresh aggregate in the mix = 193.2 x 0.955 = 184.51 tonne					
		Taking average density of 1.5 tonnes/cum, total volume of aggregate = 123.01cum.					
		Size wise requirement of fresh aggregates					
		37.5 - 25 mm @ 23 per cent	cum	28.290	4090.00	115706.10	M-012
		25 - 10 mm @ 15 per cent	cum	18.450	4485.00	82748.25	M-010
		10- 5 mm @ 20 per cent	cum	24.600	4852.00	119359.20	M-006
		Below 5 mm @40 per cent	cum	49.200	4965.00	244278.00	M-013
		Filler (ordinary portland cement) @ 2 per cent = 5.52 tonnes of 276 tonne	tonne	5.520	5800.00	32016.00	M-052
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				156170.01	
		e) Contractor's profit @ 15 % on (a+b+c+d)				190155.05	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				14578.55	
		Cost for 120 cum of DBM = a+b+c+d+e+f				1472433.92	
		Rate per cum = (a+b+c+d+e+f)/120				12270.28	
					say	***12270.30***	
		Note:- Although the total rolling time is only 4 hours as per norms, all the three rollers have to be available at site for 3 hours each to match with the output of re-cycling plant. To cater for their idling time, these have been multiplied with a factor of 0.65.					
5.16	**518**	**Fog Seal**					
		Providing and applying low viscosity bitumen emulsion for sealing cracks less than 3 mm wide or incipient fretting or disintegration in an existing bituminous surfacing as per MoRT&H Technical Specification Clause 518.					
		i) Without Blinding					
		Unit = sqm					
		Taking output = 10500 sqm					
		a) Labour					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Mate	day	0.400	310.00	124.00	L-17
		Mazdoor(unskilled)	day	10.000	310.00	3100.00	L-18
		b) Machinery					
		Hydraulic broom @ 1250 sqm per hour	hour	6.000	345.00	2070.00	P&M-033
		Air compressor 210 cfm	hour	6.000	210.00	1260.00	P&M-001
		Bitumen emulsion pressure distributor	hour	6.000	202.00	1212.00	P&M-012
		c) Material					
		Bitumen emulsion (SS-1) @ 0.75 kg per sqm	tonne	7.875	38830.00	305786.25	M-046
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				44054.09	
		e) Contractor's profit @ 15 % on (a+b+c+d)				53640.95	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				4112.47	
		Cost for 10500 sqm = a+b+c+d+e+f				415359.77	
		Rate per sqm = (a+b+c+d+e+f)/10500				39.56	
					say	***39.60***	
		ii) With Blinding					
		Unit = sqm					
		Taking output = 10500 sqm					
		a) Labour					
		Mate	day	0.560	310.00	124.00	L-17
		Mazdoor(unskilled)	day	10.000	310.00	3100.00	0.00
		Mazdoor(unskilled) for precoating grit	day	4.000	310.00	0.00	L-18
		b) Machinery					
		Hydraulic broom @ 1250 sqm per hour	hour	6.000	345.00	2070.00	P&M-033
		Air compressor 210 cfm	hour	6.000	210.00	1260.00	P&M-001
		Bitumen emulsion pressure distributor	hour	6.000	202.00	1212.00	P&M-012
		c) Material					
		Bitumen emulsion (SS-1) @ 0.75 kg per sqm	tonne	7.875	38830.00	0.00	M-046
		Bitumen emulsion (SS-1) for precoating grit @ 2 per cent of grit,39.38 x 0.02	tonne	0.7875	38830.00	305786.25	M-046
		Aggregate:- Crushed stone grit 3 mm size @ 3.75 kg per sqm	cum	26.250	2535.00	66543.75	M-068
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				53403.49	
		e) Contractor's profit @ 15 % on (a+b+c+d)				65024.92	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				4985.24	
		Cost for 10500 sqm = a+b+c+d+e+f				503509.66	
		Rate per sqm = (a+b+c+d+e+f)/10500				47.95	
					say	***48.00***	
5.17	**519**	**Bituminous Cold Mix (Including Gravel Emulsion)**					

CHAPTER - 5
BASES AND SURFACE COURSES (BITUMINOUS)

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Providing, laying and rolling of bituminous cold mix on prepared base consisting of a mixture of unheated mineral aggregate and emulsified or cutback bitumen, including mixing in a plant of suitable type and capacity, transporting, laying, compacting and finishing to specified grades and levels as per MoRT&H Technical Specification Clause 519.					
		Case-I:- Using bitumen emulsion and 9.5 mm or 13.2 mm size aggregate					
		Unit = cum					
		Taking output = 205 cum (451 tonne)					
		a) Labour					
		Mate	day	0.840	310.00	260.40	L-17
		Mazdoor(unskilled)	day	16.000	310.00	4960.00	L-18
		Mazdoor(skilled)	day	5.000	395.00	1975.00	L-20
		b) Machinery					
		Drum mix plant for cold mixes of appropriate capacity but not less than 75 tonnes/hour.	hour	6.000	2190.00	13140.00	P&M-024
		Electric generator 125 KVA	hour	6.000	625.00	3750.00	P&M-025
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Tipper 5.50 cum capacity	hour	18.640	334.00	6225.76	P&M-073
		Paver finisher	hour	6.000	1050.00	6300.00	P&M-049
		Pneumatic tyred roller with individual wheel load not exceeding 1.5 tonnes	hour	3.900	1180.00	4602.00	P&M-053
		Smooth wheeled steel tandem roller 8 tonnes	hour	3.900	1205.00	4699.50	P&M-058
		c) Material					
		Bitumen emulsion (SS-1) @ 8 per cent of weight of total mix	tonne	36.080	38830.00	1400986.40	M-046
		Filler (cement)@ 2 per cent of weight of total mix	tonne	9.020	6395.00	57682.90	M-126
		Total aggregates 90.00 % of weight mix					
		Aggregates size 19 to 9.5 mm - 25.00 %	cum	67.650	4770.00	322690.50	M-014
		Aggregates size 9.5 to 6 mm - 29.00 %	cum	78.470	4780.00	375086.60	M-015
		Aggregates size 6 to 0.075 mm - 36.00 %	cum	97.420	4055.00	395038.10	M-016
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				365709.86	
		e) Contractor's profit @ 15 % on (a+b+c+d)				445294.05	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				34139.21	
		Cost for 205 cum = a+b+c+d+e+f				3448060.28	
		Rate per cum = (a+b+c+d+e+f)/205				16819.81	
					say	***16819.80***	
		Case-II:- Using bitumen emulsion and 19 mm or 26.5 mm nominal size aggregate					
		Unit = cum					
		Taking output = 205 cum (451 tonne)					
		a) Labour					
		Mate	day	0.840	310.00	260.40	L-17
		Mazdoor(unskilled)	day	16.000	310.00	4960.00	L-18
		Mazdoor(skilled)	day	5.000	395.00	1975.00	L-20
		b) Machinery					

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BASES AND SURFACE COURSES (BITUMINOUS)

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Drum mix plant for cold mixes of appropriate capacity but not less than 75 tonnes/hour.	hour	6.000	2190.00	13140.00	P&M-024
		Electric generator 125 KVA	hour	6.000	625.00	3750.00	P&M-025
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Tipper 5.50 cum capacity	hour	18.640	334.00	6225.76	P&M-073
		Paver finisher	hour	6.000	1050.00	6300.00	P&M-049
		Pneumatic tyred roller with individual wheel load not exceeding 1.5 tonnes	hour	3.900	1180.00	4602.00	P&M-053
		Smooth wheeled steel tandem roller 8 tonnes	hour	3.900	1205.00	4699.50	P&M-058
		c) Material					
		Bitumen emulsion (SS-1) @ 8 per cent of weight of total mix	tonne	36.080	38830.00	1400986.40	M-046
		Filler (cement)@ 2 per cent of weight of total mix	tonne	9.020	6395.00	57682.90	M-126
		Total aggregates 90.00 % of weight mix					
		Aggregates size 37.5 to 19 mm - 25.00 %	cum	67.650	4180.00	282777.00	M-017
		Aggregates size 19 to 6 mm - 30.00 %	cum	81.180	4675.00	379516.50	M-018
		Aggregates size 6 to 0.075 mm - 35.00 %	cum	94.710	4055.00	384049.05	M-016
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				359180.45	
		e) Contractor's profit @ 15 % on (a+b+c+d)				437343.74	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				33529.69	
		Cost for 205 cum = a+b+c+d+e+f				3386498.40	
		Rate per cum = (a+b+c+d+e+f)/205				16519.50	
					say	***16519.50***	
		Case-III:- Using cutback bitumen and 9.5 mm or 13.2 mm nominal size aggregate					
		Unit = cum					
		Taking output = 205 cum (451 tonne)					
		a) Labour					
		Mate	day	0.840	310.00	260.40	L-17
		Mazdoor(unskilled)	day	16.000	310.00	4960.00	L-18
		Mazdoor(skilled)	day	5.000	395.00	1975.00	L-20
		b) Machinery					
		Drum mix plant for cold mixes of appropriate capacity but not less than 75 tonnes/hour.	hour	6.000	2190.00	13140.00	P&M-024
		Electric generator 125 KVA	hour	6.000	625.00	3750.00	P&M-025
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Tipper 5.50 cum capacity	hour	18.640	334.00	6225.76	P&M-073
		Paver finisher	hour	6.000	1050.00	6300.00	P&M-049
		Pneumatic tyred roller with individual wheel load not exceeding 1.5 tonnes	hour	3.900	1180.00	4602.00	P&M-053
		Smooth wheeled steel tandem roller 8 tonnes	hour	3.900	1205.00	4699.50	P&M-058
		c) Material					
		Bitumen (VG-30) @ 5 .00% of weight of total mix	tonne	22.550	40138.00	905111.90	M-041
		Filler (cement)@ 2 per cent of weight of total mix	tonne	9.020	6395.00	57682.90	M-126
		Total aggregates 93.00 % of weight mix					
		19 mm to 9.5 mm 26.00 %	cum	72.700	4770.00	346779.00	M-014
		9.5 mm to 6 mm 31.00 %	cum	86.680	4780.00	414330.40	M-015
		6 mm to 0.075 mm 36.00 %	cum	100.660	4055.00	408176.30	M-016

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BASES AND SURFACE COURSES (BITUMINOUS)

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				306783.60	
		e) Contractor's profit @ 15 % on (a+b+c+d)				373544.51	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				28638.41	
		Cost for 205 cum = a+b+c+d+e+f				2892479.69	
		Rate per cum = (a+b+c+d+e+f)/205				14109.66	
					say	***14109.70***	
		Case-IV:- Using cutback bitumen and 19 mm or 26.5 mm nominal size aggregate					
		Unit = cum					
		Taking output = 205 cum (451 tonne)					
		a) Labour					
		Mate	day	0.840	310.00	260.40	L-17
		Mazdoor(unskilled)	day	16.000	310.00	4960.00	L-18
		Mazdoor(skilled)	day	5.000	395.00	1975.00	L-20
		b) Machinery					

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BASES AND SURFACE COURSES (BITUMINOUS)

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Drum mix plant for cold mixes of appropriate capacity but not less than 75 tonnes/hour.	hour	6.000	2190.00	13140.00	P&M-024
		Electric generator 125 KVA	hour	6.000	625.00	3750.00	P&M-025
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Tipper 5.50 cum capacity	hour	18.640	334.00	6225.76	P&M-073
		Paver finisher	hour	6.000	1050.00	6300.00	P&M-049
		Pneumatic tyred roller with individual wheel load not exceeding 1.5 tonnes	hour	3.900	1180.00	4602.00	P&M-053
		Smooth wheeled steel tandem roller 8 tonnes	hour	3.900	1205.00	4699.50	P&M-058
		c) Material					
		Bitumen (VG-30) @ 5 .00% of weight of total mix	tonne	22.550	40138.00	905111.90	M-041
		Filler (cement)@ 2 per cent of weight of total mix	tonne	9.020	6395.00	57682.90	M-126
		Total aggregates 93.00 % of weight mix					
		37.5 mm to 19 mm 25.00 %	cum	69.910	4180.00	292223.80	M-017
		19 mm to 6 mm 30.00 %	cum	83.890	4675.00	392185.75	M-018
		6 mm to 0.075 mm 38.00 %	cum	106.260	4055.00	430884.30	M-016
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				299197.74	
		e) Contractor's profit @ 15 % on (a+b+c+d)				364307.86	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				27930.27	
		Cost for 205 cum = a+b+c+d+e+f				2820957.18	
		Rate per cum = (a+b+c+d+e+f)/205				13760.77	
					say	***13760.80***	

(Applicable to cases I to IV)

Note:- 1.Density of aggregates has been assumed 1.5 gms/cc

2. Tack coat where provided will be measured and paid separately.

3. Though the rollers are required only for 3.5 hours each as per norms of output, but these are required to be available at site for 6 hours as the drum mix plant and the paver would take 6 hours for mixing and paving. To cater for the idle period, their usage rates have been multiplied by a factor of 0.65

4. Analysis is based on 1000 m lead mixed material. Cost of additional cartage may be added as per site requirements.

5.18 520 Sand Asphalt Base Course

Providing, laying and rolling sand-asphalt base course composed of sand, mineral filler and bituminous binder on a prepared sub-grade or sub-base to the lines, levels, grades and cross sections as per the drawings including mixing in a plant of suitable type and capacity, transporting, laying, compacting and finishing. as per MoRT&H Technical Specification Clause 520.

Unit = cum

Taking output = 205 cum (451 tonne)

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BASES AND SURFACE COURSES (BITUMINOUS)

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		a) Labour					
		Mate	day	0.840	310.00	260.40	L-17
		Mazdoor(unskilled)	day	16.000	310.00	4960.00	L-18
		Mazdoor(skilled)	day	5.000	395.00	1975.00	L-20
		b) Machinery					
		Hot mix plant 100-120 TPH producing an average of 75 tonnes per hour	hour	6.000	15400.00	92400.00	P&M-005
		Electric generator set 250 KVA	hour	6.000	625.00	3750.00	P&M-025
		Front end loader 1.00 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Tipper 5.5 cum capacity	hour	18.640	334.00	6225.76	P&M-073
		Paver finisher	hour	6.000	2250.00	13500.00	P&M-050
		smooth wheeled roller 8-10 tonnes for initial break down rolling.	hour	3.900	392.00	1528.80	P&M-068
		Vibratory roller 8 tonnes for intermediate rolling.	hour	3.900	1395.00	5440.50	P&M-083
		Finish rolling with 8 tonnes smooth wheeled tandom rollers.	hour	3.900	1205.00	4699.50	P&M-058
		c) Material					
		Composition of mix (451 tonne) is assumed to be as under:-					
		Density 2.20 tonne per cum					
		Weight 451 tonne					
		Bitumen 5.00 %					
		Filler 2.00 %					
		Sand/aggt. of size 4.75 to 0.075 mm 93 per cent					
		Bitumen (VG-30) @ 5 per cent	tonne	22.550	40138.00	905111.90	M-041
		Filler (lime)@ 2 per cent	tonne	9.020	6395.00	57682.90	M-126
		Sand/ Aggregate of size 4.75 to 0.075 mm - 451 x 0.93 x 1/1.5	cum	279.620	4055.00	1133859.10	M-016
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				314286.40	
		e) Contractor's profit @ 15 % on (a+b+c+d)				382680.04	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				29338.80	
		Cost for 205 cum = a+b+c+d+e+f				2963219.10	
		Rate per cum = (a+b+c+d+e+f)/205				14454.73	
					say	***14454.70***	

Note:- 1. Tack coat will be measured and paid separately

2. Although the rollers are required only for 3 hours as per norms of output, but the same have to be available at site for six hours as the hot mix plant and paver will take six hours for mixing and paving the output of 450 tonnes considered in this analysis. To cater for the idle period of this roller, their usage rates has been multiplied by a factor of 0.65

3. Analysis is based on 1000 m lead mixed material. Cost of additional cartage may be added as per site requirements.

CHAPTER - 5
BASES AND SURFACE COURSES (BITUMINOUS)

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
5.19	**519.3**	**Recipe Cold Mix** Providing and laying of premix of crushed stone aggregates and emulsion binder, mixed in a batch type cold mixing plant, laid over prepared surface, by paver finisher, rolled with a pneumatic tyred roller initially and finished with a smooth steel wheel roller, all as per MoRT&H specification clause 519.3					
		Case-I:- 75 mm thickness					
		Unit = cum					
		Taking output = 205 cum (451 tonnes)					
		a) Labour					
		Mate	day	0.680	310.00	210.80	L-17
		Mazdoor(unskilled)	day	12.000	310.00	3720.00	L-18
		Mazdoor(skilled)	day	5.000	395.00	1975.00	L-20
		b) Machinery					
		Cold mixing plant @ 100-120 TPH capacity @ 75 tonne per hour	hour	6.000	8850.00	53100.00	P&M-009
		Electric generator 250 KVA	hour	6.000	625.00	3750.00	P&M-025
		Front end loader 1 cum capacity	hour	6.000	920.00	5520.00	P&M-030
		Tipper 5.50 cum capacity	hour	18.640	334.00	6225.76	P&M-073
		Paver finisher hydrostatic with electronic sensor	hour	6.000	2250.00	13500.00	P&M-050
		Pneumatic tyred roller12-15 tonnes.	hour	3.900	1180.00	4602.00	P&M-053
		Vibratory roller 8 tonnes.	hour	3.900	1395.00	5440.50	P&M-083
		Water tanker	hour	1.000	200.00	200.00	P&M-084
		c) Material					
		Bitumen emulsion (SS-1) @ 45 litres per tonne	tonne	20.300	38830.00	788249.00	M-046
		Crushed stone aggregates 40 mm nominal size	cum	297.000	4090.00	1214730.00	M-012
		Water	KL	6.000	133.00	798.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				295333.96	
		e) Contractor's profit @ 15 % on (a+b+c+d)				359603.25	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				27569.58	
		Cost for 2733 sqm = a+b+c+d+e+f				2784527.85	
		Rate per sqm = (a+b+c+d+e+f)/2733				1018.85	
					say	***1018.90***	
		Case-II:- 40 mm thickness					
		Unit = cum					
		Taking output = 205 cum (451 tonnes)					
		a) Labour					
		Mate	day	0.680	310.00	210.80	L-17
		Mazdoor(unskilled)	day	12.000	310.00	3720.00	L-18
		Mazdoor(skilled)	day	5.000	395.00	1975.00	L-20
		b) Machinery					
		Cold mixing plant @ 100-120 TPH capacity @ 75 tonne per hour	hour	6.000	8850.00	53100.00	P&M-009
		Electric generator 250 KVA	hour	6.000	625.00	3750.00	P&M-025
		Front end loader 1 cum capacity	hour	6.000	920.00	5520.00	P&M-030
		Tipper 5.50 cum capacity	hour	18.640	334.00	6225.76	P&M-073
		Paver finisher hydrostatic with electronic sensor	hour	6.000	2250.00	13500.00	P&M-050
		Pneumatic tyred roller12-15 tonnes.	hour	3.900	1180.00	4602.00	P&M-053
		Vibratory roller 8 tonnes.	hour	3.900	1395.00	5440.50	P&M-083
		Water tanker	hour	1.000	200.00	200.00	P&M-084
		c) Material					

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BASES AND SURFACE COURSES (BITUMINOUS)

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Bitumen emulsion (SS-1) @ 70 litres per tonne	tonne	31.570	38830.00	1225863.10	M-046
		Crushed stone aggregates 14 mm nominal size	cum	287.000	4090.00	1173830.00	M-012
		Water	KL	6.000	133.00	798.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				351072.29	
		e) Contractor's profit @ 15 % on (a+b+c+d)				427471.12	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				32772.79	
		Cost for 5125 sqm = a+b+c+d+e+f				3310051.35	
		Rate per sqm = (a+b+c+d+e+f)/5125				645.86	
					say	***645.90***	
		Case-III:- 25 mm thickness					
		Unit = cum					
		Taking output = 205 cum (451tonnes)					
		a) Labour					
		Mate	day	0.680	310.00	210.80	L-17
		Mazdoor(unskilled)	day	12.000	310.00	3720.00	L-18
		Mazdoor(skilled)	day	5.000	395.00	1975.00	L-20
		b) Machinery					
		Cold mixing plant @ 100-120 TPH capacity @ 75 tonne per hour	hour	6.000	8850.00	53100.00	P&M-009
		Electric generator 250 KVA	hour	6.000	625.00	3750.00	P&M-025
		Front end loader 1 cum capacity	hour	6.000	920.00	5520.00	P&M-030
		Tipper 5.50 cum capacity	hour	18.640	334.00	6225.76	P&M-073
		Paver finisher hydrostatic with electronic sensor	hour	6.000	2250.00	13500.00	P&M-050
		Pneumatic tyred roller12-15 tonnes.	hour	3.900	1180.00	4602.00	P&M-053
		Vibratory roller 8 tonnes.	hour	3.900	1395.00	5440.50	P&M-083
		Water tanker	hour	1.000	200.00	200.00	P&M-084
		c) Material					
		Bitumen emulsion (SS-1) @ 85 litres per tonne	tonne	38.340	38830.00	1488742.20	M-046
		Crushed stone aggregates 14 mm nominal size	cum	270.000	4090.00	1104300.00	M-012
		Water	KL	6.000	133.00	798.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				378237.84	
		e) Contractor's profit @ 15 % on (a+b+c+d)				460548.31	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				35308.70	
		Cost for 8200 sqm = a+b+c+d+e+f				3566179.12	
		Rate per sqm = (a+b+c+d+e+f)/8200				434.90	
					say	***434.90***	
5.20	**522**	**Crack Prevention Courses**					
		(i) Stress absorbing membrane (SAM) crack width less than 6 mm					
		Providing and laying of a stress absorbing membrane over a cracked road surface, with crack width below 6 mm after cleaning with a mechanical broom, using modified binder complying with clause 521, sprayed at the rate of 9 kg per 10 sqm and spreading 5.6 mm crushed stone aggregates @ 0.11 cum per 10 sqm with hydraulic chip spreader, sweeping the surface for uniform spread of aggregates and surface finished to conform to clause 902.					
		Unit = sqm					

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BASES AND SURFACE COURSES (BITUMINOUS)

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Taking output = 10500 sqm					
		a) Labour					
		Mate	day	0.240	310.00	74.40	L-17
		Mazdoor (unskilled)	day	6.000	310.00	1860.00	L-18
		b) Machinery					
		Mechanical broom @ 1250 sqm per hour	hour	6.000	345.00	2070.00	P&M-033
		Air compressor 250 cfm	hour	6.000	210.00	1260.00	P&M-001
		Bitumen pressure distributor @ 1750 sqm per hour	hour	6.000	202.00	1212.00	P&M-012
		Hydraulic Chip spreader	hour	6.000	3629.00	21774.00	P&M-038
		Smooth wheeled road roller 8-10 tonne	hour	6.000	1205.00	7230.00	P&M-058
		c) Material					
		Modified binder	tonne	9.450	41469.00	391882.05	M-258
		Crushed stone aggregates 5.6 mm size	cum	105.000	4430.00	465150.00	M-076
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				125398.00	
		e) Contractor's profit @ 15 % on (a+b+c+d)				152686.57	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				11705.97	
		Cost for 10500 sqm = a+b+c+d+e+f				1182302.99	
		Rate per sqm = (a+b+c+d+e+f)/10500				112.60	
					say	***112.60***	
		(ii) Stress absorbing membrane (SAM) with crack width 6 mm to 9 mm					
		Providing and laying of a stress absorbing membrane over a cracked road surface, with crack width 6 to 9 mm after cleaning with a mechanical broom, using modified binder complying with clause 521, sprayed at the rate of 11 kg per 10 sqm and spreading 11.2 mm crushed stone aggregates @ 0.12 cum per 10 sqm, sweeping the surface for uniform spread of aggregates and surface finished to conform to clause 902.					
		Unit = sqm					
		Taking output = 10500 sqm					
		a) Labour					
		Mate	day	0.240	310.00	74.40	L-17
		Mazdoor (unskilled)	day	6.000	310.00	1860.00	L-18
		b) Machinery					
		Mechanical broom @ 1250 sqm per hour	hour	6.000	345.00	2070.00	P&M-033
		Air compressor 250 cfm capacity	hour	6.000	210.00	1260.00	P&M-001
		Bitumen pressure distributor @ 1750 sqm per hour	hour	6.000	202.00	1212.00	P&M-012
		Hydraulic Chip spreader	hour	6.000	3629.00	21774.00	P&M-038
		Smooth wheeled road roller 8-10 tonne	hour	6.000	1205.00	7230.00	P&M-058
		c) Material					
		Modified binder	tonne	11.550	41469.00	478966.95	M-258
		Crushed stone chipping 11.2 mm size	cum	105.000	4730.00	496650.00	M-020
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				142059.18	
		e) Contractor's profit @ 15 % on (a+b+c+d)				172973.48	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				13261.30	

CHAPTER - 5
BASES AND SURFACE COURSES (BITUMINOUS)

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Cost for 10500 sqm = a+b+c+d+e+f				1339391.31	
		Rate per sqm = (a+b+c+d+e+f)/10500				127.56	
					say	***127.60***	
		(iii) Stress absorbing membrane (SAM) crack width above 9 mm and cracked area above 50 per cent Providing and laying a single coat of a stress absorbing membrane over a cracked road surface, with crack width above 9 mm and cracked area above 50 per cent after cleaning with a mechanical broom, using modified binder complying with clause 521, sprayed at the rate of 15 kg per 10 sqm and spreading 11.2 mm crushed stone aggregates @ 0.12 cum per 10 sqm, sweeping the surface for uniform spread of aggregates and surface finished to conform to clause 902.					
		Unit = sqm					
		Taking output = 10500 sqm					
		a) Labour					
		Mate	day	0.240	310.00	74.40	L-17
		Mazdoor (unskilled)	day	6.000	310.00	1860.00	L-18
		Mazdoor (skilled)	day	2.000	395.00	790.00	L-20
		b) Machinery					
		Mechanical broom @ 1250 sqm per hour	hour	6.000	345.00	2070.00	P&M-033
		Air compressor 250 cfm capacity	hour	6.000	210.00	1260.00	P&M-001
		Bitumen pressure distributor @ 1750 sqm per hour	hour	6.000	202.00	1212.00	P&M-012
		Hydraulic Chip spreader	hour	6.000	3629.00	21774.00	P&M-038
		Smooth wheeled road roller 8-10 tonne	hour	6.000	1205.00	7230.00	P&M-058
		c) Material					
		Modified binder	tonne	15.750	41469.00	653136.75	M-258
		Crushed stone aggregates 11.2 mm size	cum	126.000	4730.00	595980.00	M-020
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				180596.89	
		e) Contractor's profit @ 15 % on (a+b+c+d)				219897.61	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				16858.82	
		Cost for 10500 sqm = a+b+c+d+e+f				1702740.47	
		Rate per sqm = (a+b+c+d+e+f)/10500				162.17	
					say	***162.20***	
		In case 2nd coat is also required to be provided, material provided for the 2nd coat shall be as per table 500-47. **(iv) Case - IV : Bitumen impregnated geotextile** Providing and laying a bitumen impregnated geotextile layer after cleaning the road surface, geotextile conforming to requirements of clause 703.3, laid over a tack coat with 1.05 kg per sqm of paving grade bitumen and constructed to the requirement of clause 703.4.5					
		Unit = sqm					
		Taking output = 3500 sqm					
		a) Labour					

CHAPTER - 5
BASES AND SURFACE COURSES (BITUMINOUS)

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Mate	day	0.240	310.00	74.40	L-17
		Mazdoor (unskilled)	day	6.000	310.00	1860.00	L-18
		Mazdoor (skilled)	day	2.000	395.00	790.00	L-20
		b) Machinery					
		Mechanical broom @ 1250 sqm per hour	hour	2.800	345.00	966.00	P&M-033
		Air compressor 250 cfm capacity	hour	2.800	210.00	588.00	P&M-001
		Bitumen pressure distributor @ 1750 sqm per hour	tonne	2.000	202.00	404.00	P&M-012
		Pneumatic roller	hour	2.000	1180.00	2360.00	P&M-053
		c) Material					
		VG-30 bitumen @ 1.05 kg per sqm	tonne	3.680	40138.00	147707.84	M-041
		Geotextile including 10 per cent for overlaps	sqm	3850.00	50.00	192500.00	M-106
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				48788.66	
		e) Contractor's profit @ 15 % on (a+b+c+d)				59405.83	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				4554.45	
		Cost for 3500 sqm = a+b+c+d+e+f				459999.18	
		Rate per sqm = (a+b+c+d+e+f)/3500				131.43	
					say	***131.40***	
		As bitumen overlay construction shall follow closely the fabric placement on the same day, an output of 3500 sqm only has been considered for the analysis which will cover a length of 500 m, of 7 m wide carriagway. This can be conveniently overlaid by a bitumenious course in a day					

CHAPTER- 6
CEMENT CONCRETE PAVEMENTS

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
6.1	601	**Dry Lean Cement Concrete Sub- base** Construction of dry lean cement concrete Sub- base over a prepared sub-grade with coarse and fine aggregate conforming to IS: 383, the size of coarse aggregate not exceeding 25 mm, aggregate cement ratio not to exceed 15:1, aggregate gradation after blending to be as per table 600-1, cement content not to be less than 150 kg/ cum, optimum moisture content to be determined during trial length construction, concrete strength not to be less than 10 Mpa at 7 days, mixed in a batching plant, transported to site, laid with a paver with electronic sensor, compacting with 8-10 tonnes vibratory roller, finishing and curing as per MoRT&H specification clause 601.					
		Unit = cum					
		Taking output = 450 cum (990 tonne)					
		a) Labour					
		Mate	day	1.360	310.00	421.60	L-17
		Masion (1st Class)	day	1.000	440.00	440.00	L-15
		Mason (2nd Class)	day	1.000	395.00	395.00	L-16
		Mazdoor(unskilled)	day	22.000	310.00	6820.00	L-18
		Mazdoor(skilled)	day	6.000	395.00	2370.00	L-20
		Surveyor	day	1.000	550.00	550.00	L-26
		Bhisti	day	6.000	310.00	1860.00	L-01
		b) Machinery					
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Cement concrete batch mix plant @ 75 cum per hour	hour	6.000	15000.00	90000.00	P&M-013
		Electric generator 100 KVA	hour	6.000	445.00	2670.00	P&M-026
		Paver with electronic sensor	hour	6.000	2250.00	13500.00	P&M-050
		Vibratory roller 8-10 t capacity	hour	8.000	1395.00	11160.00	P&M-083
		Water tanker6 KL capacity	hour	8.000	200.00	1600.00	P&M-084
		Tipper	hour	20.450	334.00	6830.30	P&M-073
		c) Material					
		Crushed stone coarse aggregate of 25 mm and 12.5 mm nominal sizes graded as per table 600-1 @ 0.90 cum/cum of concrete conforming to clause 602.2.4.	cum	405.000	4910.00	1988550.00	M-071
		Sand as per IS: 383 and conforming to clause 602.2.4 @ 0.45 cum/cum of concrete	cum	202.500	560.00	113400.00	M-170
		Cement @ 150 kg/cum of concrete	tonne	67.500	5800.00	391500.00	M-052
		Cost of water	KL	48.000	133.00	6384.00	M-196
		d) Formwork @ 3.00 % on cost of material, labour and machinery i.e. on (a+b+c)				79319.13	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				382622.25	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				465886.84	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				35717.99	
		Cost for 450 cum = a+b+c+d+e+f+g				3607517.11	
		Rate per cum = (a+b+c+d+e+f+g)/450				8016.70	
					say	***8016.70***	

CHAPTER- 6
CEMENT CONCRETE PAVEMENTS

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
6.2	602	**Cement Concrete Pavement** Construction of un-reinforced, dowel jointed, plain cement concrete pavement over a prepared sub base with 43 grade cement @ 400 kg per cum (minimum), coarse and fine aggregate conforming to IS 383, maximum size of coarse aggregate not exceeding 25 mm, mixed in a batching and mixing plant as per approved mix design, transported to site, laid with a fixed form or slip form paver, spread, compacted and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints, joint filler, separation membrane, sealant primer, joint sealant, debonding strip, dowel bar, tie rod, admixtures as approved, curing compound, finishing to lines and grades as per drawing and as per MoRT&H specification clause 602. ***Unit = cum*** ***Taking output = 1050 cum (2415 tonne)***					
		a) Labour					
		Mate	day	7.000	310.00	2170.00	L-17
		Masion (1st Class)	day	5.000	440.00	2200.00	L-15
		Mason (2nd Class)	day	5.000	395.00	1975.00	L-16
		Mazdoor(unskilled)	day	129.000	310.00	39990.00	L-18
		Mazdoor(skilled)	day	6.000	395.00	2370.00	L-20
		Surveyor	day	2.000	550.00	1100.00	L-26
		Bhisti	day	14.000	310.00	4340.00	L-01
		Blacksmith for cutting of dowel bars i/c removal of burrs, fabrications & fixing of dowel bars	day	1.000	418.00	418.00	L-03
		b) Machinery					
		Road Sweeper @ 1250 sqm per hour	hour	2.800	345.00	966.00	P&M-055
		Front end loader 1 cum bucket capacity	hour	18.000	920.00	16560.00	P&M-030
		Cement concrete batch mix plant @ 175 cum per hour	hour	6.000	15000.00	90000.00	P&M-013
		Electric generator 100 KVA	hour	6.000	445.00	2670.00	P&M-026
		Paver with electronic sensor	hour	6.000	2250.00	13500.00	P&M-050
		Water tanker 6 KL capacity	hour	8.000	200.00	1600.00	P&M-084
		Tipper	hour	47.730	334.00	15941.82	P&M-073
		Needle vibtrator	hour	9.000	66.00	594.00	P&M-048
		Screed vibrator	hour	9.000	95.00	855.00	P&M-056
		Plate vibrator	hour	9.000	75.00	675.00	P&M-052
		Concrete joint cutting machine for initial & final cuts	hour	12.000	166.00	1992.00	P&M-041
		Texturing machine .	hour	12.000	305.00	3660.00	P&M-061
		c) Material					
		Crushed stone coarse aggregate of 25 mm and 12.5 mm nominal sizes graded as per table 600-1 @ 0.90 cum/cum of concrete conforming to clause 602.2.4.	cum	945.000	4910.00	4639950.00	M-071
		Sand as per IS: 383 and conforming to clause 602.2.4 @ 0.45 cum/cum of concrete	cum	472.500	560.00	264600.00	M-170
		Cement 43 grade @ 400 kg/cum of concrete	tonne	414.000	5800.00	2401200.00	M-052
		32 mm mild steel dowel bars of grade S 240	tonne	9.450	45000.00	425250.00	M-180

CHAPTER- 6
CEMENT CONCRETE PAVEMENTS

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		16 mm deformed steel tie bars of grade S 415	tonne	1.170	46000.00	53820.00	M-181
		Separation Membrane of impermeable plastic sheeting 125 micron thick	sqm	3675.000	21.50	79012.50	M-145
		Pre moulded Joint filler, 25 mm thick for expansion joint as per IS:1838.	sqm	16.330	1101.00	17979.33	M-117
		Joint sealant	kg	875.000	321.00	280875.00	M-119
		Sealant primer	kg	116.670	105.00	12250.35	M-172
		Polythene plastic sheathing,1.25 mm thick for dowel bars	sqm	46.670	21.50	1003.41	M-145
		Curing compound	liter	1850.000	57.80	106930.00	M-081
		Plastisizer as per IS marked 9103-1999 @ 0.5 per cent by weight of cement	kg	2070.000	39.00	80730.00	M-144
		Cost of water for curing	KL	216.000	133.00	28728.00	M-196
		Add 1 % of material for cost of miscellaneous materials like tarpauline, Hessian cloth, metal cap, cotton / compressible sponge and cradle for dowel bars, work bridges for men to approach concrete surface without walking over it, cutting blades and bites, minor equipments like scabbling machine, threads, ropes, guide wires and any other unforeseen items.				83923.29	
		d) Formwork @ 1.00 % on cost of material, labour and machinery i.e. on (a+b+c)				86798.29	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1231711.09	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1499750.71	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				114980.89	
		Cost for 1050cum = a+b+c+d+e+f+g				11613069.67	
		Rate per cum = (a+b+c+d+e+f+g)/1050				11060.07	
					say	***11060.10***	
		Note:- The quantities for cement, coarse aggregate and fine aggregates are for estimating only .The exact quantities will be as per mix design.					

CHAPTER- 6
CEMENT CONCRETE PAVEMENTS

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
6.3	603	**Rolled Cement Concrete Base** Construction of rolled cement concrete base course with coarse and fine aggregate conforming to IS:383, the size of coarse aggregate not exceeding 25 mm with minimum, aggregate cement ratio15:1 and minimum cement content of 200 kg/cum, aggregate gradation to be as per table 600-4 after blending, mixing in batching plant at optimum moisture content, transporting to site, laying with a paver with electronic sensor, compacting with 8-10 tonnes smooth wheeled vibratory roller to achieve, the designed flexural strength, finishing and curing as per MoRT&H specification clause 603.					
		Unit = cum					
		Taking output = 450 cum (990 tonne)					
		a) Labour					
		Mate	day	7.000	310.00	2170.00	L-17
		Masion (1st Class)	day	5.000	440.00	2200.00	L-15
		Mason (2nd Class)	day	5.000	395.00	1975.00	L-16
		Mazdoor(unskilled)	day	129.000	310.00	39990.00	L-18
		Mazdoor(skilled)	day	6.000	395.00	2370.00	L-20
		Surveyor	day	2.000	550.00	1100.00	L-26
		Bhisti	day	14.000	310.00	4340.00	L-01
		b) Machinery					
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Cement concrete batch mix plant @ 75 cum per hour	hour	6.000	15000.00	90000.00	P&M-013
		Electric generator 100 KVA	hour	6.000	445.00	2670.00	P&M-026
		Paver with electronic sensor @ 75 cum/hr.	hour	6.000	2250.00	13500.00	P&M-050
		Vibratory roller 8-10 t capacity	hour	8.000	1395.00	11160.00	P&M-083
		Water tanker with 5 km lead 6 KL capacity	hour	8.000	200.00	1600.00	P&M-084
		Tipper	hour	20.450	334.00	6830.30	P&M-073
		c) Material					
		Crushed stone coarse aggregate of 25 mm and 12.5 mm nominal sizes graded as per table 600-1 @ 0.90 cum/cum of concrete conforming to clause 602.2.4.	cum	405.000	4910.00	1988550.00	M-071
		Sand as per IS: 383 and conforming to clause 602.2.4 @ 0.45 cum/cum of concrete	cum	202.500	560.00	113400.00	M-170
		Cement @ 200 kg/cum of concrete	tonne	90.000	5800.00	522000.00	M-052
		Cost of water	KL	48.000	133.00	6384.00	M-196
		d) Formwork @ 1.00 % on cost of material, labour and machinery i.e. on (a+b+c)				28157.59	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				399570.32	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				486523.08	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				37300.10	
		Cost for 450cum = a+b+c+d+e+f+g				3767310.40	
		Rate per cum = (a+b+c+d+e+f+g)/450				8371.80	
					say	***8371.80***	

CHAPTER- 6
CEMENT CONCRETE PAVEMENTS

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
6.4		**Transition Section between Rigid and Flexible Pavement** **Note:-** 1.Due to change in the properties of materials and type of construction, a gradual change over from rigid pavement to flexible pavement is desirable to avoid any damage at the butting joint. After provision of an expansion joint in the cement concrete slab, the thickness of slab should be tapered to 15 cm over a length of 3 m towards the flexible pavement. The deficiency of thickness caused due to tapering of the slab should be made up by the asphaltic layers. 2.The quantities of items should be worked out based on the approved design and drawings and priced as per rates given under respective clauses for cement concrete and asphaltic work.					
6.5	Suggestive	**Cement - Flyash Concrete Pavement.** Construction reinforced-reinforced, dowel jointed, plain cement concrete pavement over a prepared sub base with 43 grade cement, coarse and fine aggregate conforming to IS 383, maximum size of coarse aggregate not exceeding 25 mm, replacing cement by fly ash to the extent of 15 per cent and sand by 10 per cent, mixed in a batching and mixing plant as per approved mix design, transported to site, laid with a fixed form or slip form paver, spread, compacted and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints, joint filler, separation membrane, sealant primer, joint sealant, debonding strip, dowel bar, tie rod, admixtures as approved, curing compound, finishing to lines and grades as per drawing ***Unit = cum*** ***Taking output = 1050 cum (2415 tonne)***					
		a) Labour					
		Mate	day	2.000	310.00	620.00	L-17
		Mazdoor(skilled)	day	15.000	395.00	5925.00	L-20
		Mazdoor(unskilled)	day	35.000	310.00	10850.00	L-18
		b) Machinery					
		Road Sweeper @ 1250 sqm per hour	hour	2.800	345.00	966.00	P&M-031
		Front end loader 1 cum bucket capacity	hour	18.000	920.00	16560.00	P&M-017
		Cement concrete batch mix plant @ 175 cum per hour (effective output)	hour	6.000	15000.00	90000.00	P&M-067
		Electric generator 250 KVA	hour	6.000	625.00	3750.00	P&M-025
		Slip form paver with electronic sensor	hour	6.000	2250.00	13500.00	P&M-050
		Water tanker 6 KL capacity	hour	36.000	200.00	7200.00	P&M-084
		Tipper	hour	47.730	334.00	15941.82	P&M-073
		Concrete joint cutting machine .	hour	12.000	166.00	1992.00	P&M-041
		Texturing machine .	hour	12.000	305.00	3660.00	P&M-061
		c) Material					

CHAPTER- 6
CEMENT CONCRETE PAVEMENTS

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Crushed stone coarse aggregates of 25mm and 12.5mm nominal size @ 0.90 cum/cum of concrete conforming to clause 602.2.4. .	cum	945.000	4910.00	4639950.00	M-071
		Sand as per IS: 383 and conforming to clause 602.2.4	cum	425.000	560.00	238000.00	M-170
		Cement 43 grade	tonne	357.000	5800.00	2070600.00	M-052
		Fly ash conforming to IS: 3812-1966 (Part-I)	tonne	109.000	18.75	2043.75	M-302
		32 mm mild steel dowel bars	tonne	9.450	45000.00	425250.00	M-180
		16 mm deformed steel tie bars	tonne	1.170	46000.00	53820.00	M-181
		Separation Membrane of impermeable plastic sheeting 125 micron thick	sqm	3675.000	21.50	79012.50	M-145
		Pre moulded Joint filler, 25 mm thick for expansion joint.	sqm	16.330	1101.00	17979.33	M-117
		Joint sealant	kg	875.000	321.00	280875.00	M-119
		Sealant primer	kg	116.670	105.00	12250.35	M-172
		Plastic sheath,1.25 mm thick for dowel bars	sqm	46.670	24.15	1127.08	M-147
		Curing compound	liter	1850.000	57.80	106930.00	M-081
		Super plastisizer admixture IS marked as per 9103-1999 @ 0.5 per cent by weight of cement	kg	2070.000	39.00	80730.00	M-004
		Water	KL	216.000	133.00	28728.00	M-196
		Add 1 per cent of material for cost of miscellaneous materials like tarpauline, Hessian cloth, metal cap, cotton / compressible sponge and cradle for dowel bars, work bridges for men to approach concrete surface without walking over it, cutting blades and bites, minor equipments like scabbling machine, threads, ropes, guide wires and any other unforeseen items.				80372.96	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				1164553.05	
		e) Contractor's profit @ 15 % on (a+b+c+d)				1417978.03	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				108711.65	
		Cost for 1050cum = a+b+c+d+e+f				10979876.51	
		Rate per cum = (a+b+c+d+e+f)/1050				10457.03	
					say	***10457.00***	

1.The quantities for cement, coarse aggregate and fine aggregates are for estimating only .The exact quantities will be as per mix design.

2.IRC: 68-1976 may be referred for guidelines on the design of cement-fly ash concrete for rigid pavement construction.

*Calculation of cement, sand and fly ash.

Cement @ 400 kg/cum = 1050 x 400 = 420 tonnes. 15 per cent of cement to be replaced by fly ash = 63 tonnes. Balance cement = 357 tonnes. Quantity of fly ash = 63 x specific gravity of fly ash /specific gravity of cement = 63 x 2.25/3.15 = 45 tonnes.

CHAPTER- 6
CEMENT CONCRETE PAVEMENTS

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Sand @ 0.45 cum / cum of concrete = 1050 x 0.45 = 472.50 x 1.6 = 756 tonnes.10 per cent to be replaced by flyash. Balance sand = 756 x 0.9 = 680.4 tonnes = 680.4 / 1.6 = 425 cum. Quantity of flyash = (756-680.4) x specific gravity of fly ash/specific gravity of sand = 76.4 x 2.25 / 2.687 = 63.97 tonnes (say 64 tonnes)					
		Fly ash Total fly ash = 45 + 64 = 109 tonnes.					
6.6	Suggestive	Construction of Base/Sub-Base of Pavement with Lean Concrete - Flyash.					
		Construction of Base/sub-base using cement, sand, fly ash and coarse aggregates proportioned as per table 4 of IRC: 74/1979 and with water content ratio, slump and compressive strength as defined in the said table, mix prepared in a batching and mixing plant and compacted with a vibratory roller 8-10 tonnes capacity within the time limit laid down vide clause 7.6.3 of IRC: 74-1979, construction joints properly formed at the end of day's work, cured for 14 days, all as specified in IRC: 74-1979 and as per approved plans.					
		Unit = cum					
		Taking output = 450 cum (990 tonne)					
		a) Labour					
		Mate	day	1.120	310.00	347.20	0.00
		Mazdoor(skilled)	day	6.000	310.00	1860.00	0.00
		Mazdoor(unskilled)	day	22.000	395.00	8690.00	0.00
		b) Machinery					
		Front end loader 1 cum bucket capacity	hour	6.000	920.00	5520.00	P&M-030
		Cement concrete batch mix plant @ 75 cum per hour	hour	6.000	15000.00	90000.00	P&M-013
		Electric generator 125 KVA	hour	6.000	445.00	2670.00	P&M-026
		Paver finisher with electronic sensor	hour	6.000	2250.00	13500.00	P&M-050
		Vibratory roller 8-10 t capacity	hour	8.000	1395.00	11160.00	P&M-083
		Water tanker6 KL capacity	hour	8.000	200.00	1600.00	P&M-084
		Tipper 10 T Capacity	hour	20.450	334.00	6830.30	P&M-073
		c) Material					
		Crushed stone coarse aggregate of 40 mm nominal size @ 0.90 cum/cum of concrete conforming to table 2 of IRC: 74-1979.	cum	405.000	4090.00	1656450.00	M-012
		Sand as per IS: 383 - 1970	cum	110.960	560.00	62137.60	M-170
		Cement @ 150 kg/cum of concrete	tonne	67.500	5800.00	391500.00	M-052
		Fly ash conforming to IS: 3812 (Part II)	cum	91.540	18.75	1716.38	M-302
		(Total fine aggregates = 450 x 0.45 = 202.50 cum To be divided in ratio of 2 sand : 1.65 flyash. Refer table 4 of IRC: 74-1979).					
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				316684.40	
		e) Contractor's profit @ 15 % on (a+b+c+d)				385599.88	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				29562.66	
		Cost for 450 cum = a+b+c+d+e+f				2985828.41	
		Rate per cum = (a+b+c+d+e+f)/450				6635.17	

CHAPTER- 6
CEMENT CONCRETE PAVEMENTS

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
					say	***6635.20***	
		1.Depending upon approved designs, crushed stone aggregates of nominal size 20mm can also be used as per gradation given in table 2 of IRC: 74-1979. 2.The ratio of specific gravities of fly ash and sand has been assumed to be 0.827. 3.The quantities of materials given in the analyses are for estimating purposes. Actual quantities shall be as per job mix formula. 4.Construction procedure as laid down in clause, of IRC: 74-1979 shall be followed.					

CHAPTER-7
GEOSYNTHETICS AND REINFORCED EARTH

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
7.1	700	Laying of a geotextile 120 gsm non woven membrane, 100% polyester of thickness 1 to 1.25 mm between pitching and embankment slopes on which pitching is laid to prevent escape of the embankment material through the voids of the pitching with cement concrete blocks as well as to allow free movement of water without creating any uplift head on the pitching as per drawing and MoRT&H Technical specifications clause 700, 2504 bonded to the membrane with intermittent touch by heating the membrane by Butane Torch as per manufactures recommendation.					
		Unit = sqm					
		Taking output = 30 sqm					
		a) Labour					
		Mate	day	0.040	310.00	12.40	L-17
		Butane Torch operator (skilled)	day	0.500	395.00	197.50	L-05
		Helper (skilled)	day	0.100	355.00	35.50	L-14
		mazdoor(semiskilled)	day	0.500	355.00	177.50	L-19
		b) Material					
		Geotextile 120 gsm non woven membrane, 100% polyester of thickness 1 to 1.25 mm	sqm	31.500	50.00	1575.00	M-106
		Fuel - LPG	Kg	5.000	79.34	396.70	M-100
		Add for cleaning of surface, cutting grooves etc. @2.00%				47.89	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				343.17	
		d) Contractor's profit @ 15 % on (a+b+c)				417.85	
		e) Add Cess @ 1.00 % on (a+b+c+d)				32.04	
		Cost for 30 sqm = a+b+c+d+e				3235.55	
		Rate per Sqm = (a+b+c+d+e)/ 30				107.85	
					say	***107.90***	
7.2	3100	**Reinforced Earth Structures** Reinforced earth Structures have four main components as under: a) Excavation for foundation, foundation concrete and cement concrete grooved seating in the foundation for facing elements (facia material). b) Facia material and its placement. c) Assembling, joining with facing elements and laying of the reinforcing elements. d) Earth fill with granular material which is to be retained by the wall. **Each component is analysed separately as under:** considering Average height of wall = 8 m.					
7.2	3102	**Assembling, joining and laying of reinforcing elements.**					
	A	**With reinforcing element of steel / Aluminium strips / polymeric strips.**					
		Unit = Running Metre					
		Taking Output = 450 m					
		a) Labour					
		Mate	day	0.360	310.00	111.60	L-17

		Mazdoor (Unskilled)	day	6.000	310.00	1860.00	L-18
		Mazdoor (Skilled)	day	3.000	395.00	1185.00	L-20
		b) Material					
		@ Reinforcement strips 60 mm wide 5 mm thick as per clause 3102.					
		1.Galvanised carbon steel strips	metre	450*1.1	143.00	70785.00	M-250
		or					
		2.Aluminium Strips	metre	450*1.1	157.00	77715.00	M-251
		or					
		3.Stainless steel strips	metre	450*1.1	163.00	80685.00	M-252
		@ Any one of the above alternative may be adopted as per approved design.					
		Add 10 per cent of the cost of reinforcing strip towards accessories like tie-strips, nuts and bolts and loops/lugs for joining reinforcing elements with the facia pannels, overlaps, heat bonding or extension.					
	Type 1	**1.Galvanised carbon steel strips**					
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				10388.79	
		d) Contractor's profit @ 15 % on (a+b+c)				12649.56	
		e) Add Cess @ 1.00 % on (a+b+c+d)				969.80	
		Cost of 450 m = a+b+c+d+e				97949.75	
		Rate per metre =(a+b+c+d+e)/450				217.67	
					say	***217.70***	
	Type 2	**2.Aluminium Strips**					
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				11362.46	
		d) Contractor's profit @ 15 % on (a+b+c)				13835.11	
		e) Add Cess @ 1.00 % on (a+b+c+d)				1060.69	
		Cost of 450 m = a+b+c+d+e				107129.86	
		Rate per metre =(a+b+c+d+e)/450				238.07	
					say	***238.10***	
	Type 3	**3.Stainless steel strips**					
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				11779.74	
		d) Contractor's profit @ 15 % on (a+b+c)				14343.20	
		e) Add Cess @ 1.00 % on (a+b+c+d)				1099.65	
		Cost of 450 m = a+b+c+d+e				111064.19	
		Rate per metre =(a+b+c+d+e)/450				246.81	
					say	***246.80***	
7.2(i)	**B**	**With reinforcing elements of synthetic geogrids**					
		Unit = sqm					
		Taking output = 300 sqm					
		a) Labour					
		Mate	day	0.360	310.00	111.60	L-17
		Mazdoor (Unskilled)	day	6.000	310.00	1860.00	L-18
		Mazdoor (Skilled)	day	3.000	395.00	1185.00	L-20
		b) Material					
		Synthetic Geogrids as per clause 3102.8 and approved design and specifications.	sqm	300.000	68.50	20550.00	M-253
		Add 10 per cent of the cost of reinforcing elements (synthetic geogrids) for accessories like tie-strips, nuts and bolts and loops/lugs for joining reinforcing elements with the facia pannels, overlaps and other protective elements for synthetic geogrids.				2055.00	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				3619.50	
		d) Contractor's profit @ 15 % on (a+b+c)				4407.17	
		e) Add Cess @ 1.00 % on (a+b+c+d)				337.88	

		Cost of 300 sqm of Synthetic geogrids = a+b+c+d+e				34126.15	
		Rate per sqm = (a+b+c+d+e)/ 300				113.75	
					say	***113.80***	
7.2	**3104**	**Facing elements of RCC**					
		Unit = sqm					
		Taking output = 75 sqm					
		a) Labour					
		Mate	day	0.180	310.00	55.80	L-17
		Mazdoor (Unskilled)	day	3.000	310.00	930.00	L-18
		Mazdoor (Skilled)	day	1.500	395.00	592.50	L-20
		b) Machinery					
		Light crane with lifting capacity upto 3 tonne	hour	6.000	500.00	3000.00	P&M-020
		c) Material					
		Pre-cast RCC M-35 facing elements of size as per design and 18 cm thick for 75 sqm. (Refer Item 12.6 (H) using batching plant)	cum	13.500	10957.90	147931.65	
		HYSD steel @ 5 kg / sqm (Assume rate of Item 13.5)	tonnes	0.380	68312.20	25958.64	
		Add @ 2 % of cost of facia pannels, for all necessary temporary form work, scaffolding and provision of loops/lugs for lifting of pannels and joining the reinforcing elements.				3477.81	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b)				1131.88	
		e) Contractor's profit @ 15 % on (a+b+d)				1378.20	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				105.66	
		Cost for 75 sqm = a+b+c+d+e+f				184562.13	
		Rate per sqm = (a+b+c+d+e+f)/ 75				2460.83	
					say	***2460.80***	

Note

1.The specification and construction details to be adopted shall be as per section 3100 of MoRT&H Specification.

2.Drainage arrangement shall be made as per approved design and drawings.

3.The quantity of filler media shall be calculated as per approved design and specifications and shall be priced separately.The rate for same to be adopted from chapter 15.

4.Excavation for foundation including foundation concrete and groove in the foundation for seating of bottom most facia panel and capping beam to be calculated as per design and priced separately. The rates for excavation and foundation concrete shall be taken from the chapter 12 & 13 in bridge section.

5.The earth fill to be retained is not included in this analysis. The same is to be worked out and provided separately complete as per clause 305.

, 6.For compaction of Earthwork, attention is invited to clause 3105.5 of MoRT&H Specification.

7.Length of reinforcing strips will vary with the height of wall and will be as per approved design and drawings.

8.The type of reinforcing elements to be adopted shall be as per approved design and specifications.

9.The market rate for supply of reinforcing elements and their accessories are to be ascertained from reputed firms in the field of earth reinforcement.

10.The earth fill material shall be clean, free draining, granular with high friction and low cohesion, non-corrosive, coarse grained with not 10 per cent of particles passing 75 micron sieve, free of any deleterious matter, chlorides, salts, acids, alkalies, mineral oil, fungus and microbes and shall be of specified PH value.

11.Capping beam is to be priced separately as per approved design. The rate for cement concrete shall be taken from the chapter of sub-structure in bridge section.

12.The cost of reinforced earth retaining wall shall include following:

(I) Excavation for foundation including backfilling.

(ii) Foundation concrete as per approved design.

(iii) Cost of facial pannels and their erection .

(iv) Cost of reinforcing elements including their fixing and joining with the facial pannels.

(v) Drainage arrangement including filter media as per approved design and drawings.

13. The compacted earth filling to be retained shall form part of embankment.

7.3 702 Sub-Surface Drain with Geotextiles

Construction of sub surface drain 200 mm dia using geotextiles treated with carbon black with physical properties as given in clause 702.2.3 formed in to a stable network and a planar geocomposite structure, joints wrapped with geotextile to prevent ingress of soil, all as per clause 702 and approved drawings including excavation and backfilling.

Unit = Running metre
Taking output = one metre

a) Labour					
Mate	day	0.040	310.00	12.40	L-17
Mazdoor (skilled)	day	0.250	395.00	98.75	L-20
Mazdoor (Unskilled)	day	0.500	310.00	155.00	L-18
b) Material					
Geonets, geomembrane and geotextile to make planar geocomposite stable network for sub surface drain including wrapping of joints with 160 mm over lapping with geotextile .					
Geonets	sqm	1.000	68.50	68.50	M-279
Geomembrane	sqm	1.000	68.50	68.50	M-280
Geotextile	sqm	2.000	50.00	100.00	M-281
Add 2 % cost of material for miscellaneous items like synthetic cord				4.74	
c) Add GST (multiplying factor) @ 0.1405 on (a+b)				71.36	
d) Contractor's profit @ 15 % on (a+b+c)				86.89	
e) Add Cess @ 1.00 % on (a+b+c+d)				6.66	
Rate per metre = a+b+c+d+e				672.80	
			say	***673.00***	

Surplus excavated material to be used at site. Hence seprate cost for disposal not added.

7.4 702.4 Narrow Filter Sub-Surface Drain

Construction of a narrow filter sub- surface drain consisting of porous or perforated pipe laid in narrow trench surrounded by a geotextile filter fabric, with a minimum of 450 mm overlap of fabric and installed as per clause 702.3 and 309.3.5 including excavation and backfilling.

Unit = Running metre length
Taking output = one metre

a) Labour					
Mate	day	0.040	310.00	12.40	L-17
Mazdoor (skilled)	day	0.250	395.00	98.75	L-20
Mazdoor (Unskilled)	day	0.500	310.00	155.00	L-18
b) Material					
Perforated geosynthetic pipe 150 mm dia	metre	1.000	51.35	51.35	M-282
Geotextile filter fabric	sqm	1.250	48.90	61.13	M-283
Add 2 % cost of material for miscellaneous item like synthetic cord				2.25	
c) Add GST (multiplying factor) @ 0.1405 on (a+b)				53.51	
d) Contractor's profit @ 15 % on (a+b+c)				65.16	
e) Add Cess @ 1.00 % on (a+b+c+d)				8.37	
Rate per metre = a+b+c+d+e				507.92	
			say	***508.00***	

Surplus excavated material to be used at site. Hence Separate cost for disposal not added.

7.5 703 Laying Paving Fabric Beneath a Pavement Overlay

Providing and laying paving fabric with physical requirements as per table 704-2 over a tack coat of paving grade Bitumen, laid at the rate of 1 kg per sqm over thoroughly cleaned and repaired surface to provide a water resistant membrane and crack retarding layer. Paving fabric to be free of wrinkling and folding and to be laid before cooling of tack coat, brooming and rolling of surface with pneumatic roller to maximise paving fabric contact with pavement surface.

Unit = sqm
Taking output = 2800 sqm

a) Labour					
Mate	day	0.800	310.00	248.00	L-17
Mazdoor (Unskilled)	day	20.000	310.00	6200.00	L-18
b) Machinery					
Road sweeper 1250 sqm per hour	hour	2.240	345.00	772.80	P&M-055
Pneumatic roller 14 tonnes 2000 sqm per hour	hour	1.400	1180.00	1652.00	P&M-053
Bitumen pressure distributor 1750 sqm per hour	hour	1.680	202.00	339.36	P&M-012
c) Material					
Paving Fabric	sqm	2940.00	48.90	143766.00	M-284
Bitumen VG-30	tonne	2.800	40138.00	112386.40	M-041
d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				37283.72	
e) Contractor's profit @ 15 % on (a+b+c+d)				45397.24	
f) Add Cess @ 1.00 % on (a+b+c+d+e)				3483.20	
Cost for 2800 sqm = a+b+c+d+e+f				351528.72	

		Rate per sqm =(a+b+c+d+e+f)/2800				125.55	
					say	***125.50***	
7.6	**704**	**Laying Boulder Apron in Crates of Synthetic Geogrids** Providing, preparing and laying of geogrid crated apron 1 m x 5 m, 600 mm thick including excavation and backfilling with baffles at 1 metre interval, made with geogrids having characteristics as per clause 704.2, joining sides with connectors/ring staples, top corners to be tie tensioned, placing of suitable cross interval ties in layers of 300 mm connecting opposite side with lateral braces and tied with polymer braids to avoid bulging, constructed as per clause 704.3. filled with stone with minimum size of 200 mm and specific gravity not less than 2.65, packed with stone spalls, keyed to the foundation recess in case of sloping ground and laid over a layer of geotextile to prevent migration of fines, all as per clause 704 and laid as per clause 2503.3 and approved design.					
		Unit = cum					
		Taking output = 3.00 cum					
		a) Labour					
		Mate	day	0.060	310.00	18.60	L-17
		Mazdoor(skilled)	day	0.500	310.00	155.00	L-18
		Mazdoor(unskilled)	day	1.500	395.00	592.50	L-20
		b) Material					
		Geo grids	sqm	21.000	68.50	1438.50	M-253
		Connectors/ Staples	each	50.000	6.00	300.00	M-301
		Polymer braids	metre	20.000	12.00	240.00	M-304
		Stones with minimum size of 200 mm	cum	3.450	3345.00	11540.25	M-182
		Stones spall for filling voids	cum	0.450	3395.00	1527.75	M-191
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				2221.67	
		d) Contractor's profit @ 15 % on (a+b+c)				2705.14	
		e) Add Cess @ 1.00 % on (a+b+c+d)				266.47	
		Cost for 3 cum = a+b+c+d+e				21005.88	
		Rate per cum = (a+b+c+d+e)/ 3				1615.84	
					say	***1615.80***	

CHAPTER-8
TRAFFIC SIGNS, MARKINGS & OTHER ROAD APPURTENANCES

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
8.1	**408**	**Cast in Situ Cement Concrete M20 Kerb**					
		Construction of cement concrete kerb with top and bottom width 115 and 165 mm respectively, 250 mm high in M 20 grade PCC on M-10 grade foundation 150 mm thick, foundation having 50 mm projection beyond kerb stone, kerb stone laid with kerb laying machine, foundation concrete laid manually, all complete as per drawings & MoRT&H technical specifications Clauses 408.					
		Unit = Running metre					
		Taking output = 360 metre					
		A. Using Concrete Mixer					
		a) Labour					
		Mate	day	0.720	310.00	223.20	L-17
		Mason (1st Class)	day	2.000	440.00	880.00	L-15
		Mazdoor (unskilled)	day	16.000	310.00	4960.00	L-18
		b) Machinery					
		Mechanical Concrete mixer 0.48/0.28 cum capacity	hour	16.000	192.00	3072.00	P&M-014
		Kerb casting machine @ 60 metres/hour	hour	6.000	443.00	2658.00	P&M-042
		Water tanker6 KL capacity	hour	6.000	200.00	1200.00	P&M-084
		c) Material					
		Cement	tonne	7.047	5800.00	40872.60	M-052
		Sand	cum	21.790	560.00	12202.40	M-170
		Stone aggregate 20 mm nominal size	cum	10.900	4875.00	53137.50	M-022
		Cost of water	KL	30.000	133.00	3990.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				17309.00	
		e) Contractor's profit @ 15 % on (a+b+c+d)				21075.70	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				1615.80	
		Cost for 360 meter = a+b+c+d+e+f				163196.20	
		Rate per metre = (a+b+c+d+e+f)/360				453.32	
					say	***453.30***	
		B. Using Batching Plant, Transit Mixer and Concrete Pump					
		Cement Concrete					
		Cement concrete of grade M20 = 12.60 cum					
		Cement concrete of grade M10 for base = 11.61 cum					
		Total Concrete = **24.21 cu.m**					
		a) Labour					
		Mate	day	0.120	310.00	37.20	L-17
		Mason (1st Class)	day	1.000	440.00	440.00	L-15
		Mazdoor (unskilled)	day	2.000	310.00	620.00	L-18
		b) Machinery					
		Concrete batching and mixing plant @ 15 cum/hr.	hour	2.000	15000.00	30000.00	P&M-013
		Kerb casting machine @ 60 metres/hour	hour	6.000	443.00	2658.00	P&M-042
		Water tanker 6 KL capacity	hour	15.000	200.00	3000.00	P&M-084
		Tipper 5.5 cum capacity	hour	6.000	334.00	2004.00	P&M-073
		c) Material					
		Cement	tonne	7.047	5800.00	40872.60	M-052

CHAPTER-8
TRAFFIC SIGNS, MARKINGS & OTHER ROAD APPURTENANCES

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Sand	cum	21.790	560.00	12202.40	M-170
		Stone aggregate 20 mm nominal size	cum	10.900	4875.00	53137.50	M-022
		Cost of water	KL	30.000	133.00	3990.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				20929.12	
		e) Contractor's profit @ 15 % on (a+b+c+d)				25483.62	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				1953.74	
		Cost for 360 meter = a+b+c+d+e+f				197328.19	
		Rate per metre = (a+b+c+d+e+f)/360				548.13	
					say	***548.10***	
8.2	**408**	**Cast in Situ Cement Concrete M 20 Kerb with Channel** Construction of cement concrete kerb with channel with top and bottom width 115 and 165 mm respectively, 250 mm high in M 20 grade PCC on M10 grade foundation 150 mm thick, kerb channel 300 mm wide, 50 mm thick in PCC M20 grade, sloped towards the kerb, kerb stone with channel laid with kerb laying machine, foundation concrete laid manually, all complete as per drawings & MoRT&H technical specifications Clauses 308.					
		A. Using Concrete Mixer ***Unit = Running metre*** ***Taking output = 300 metre length*** **a) Labour**					
		Mate	day	0.720	310.00	223.20	L-17
		Mason (1st Class)	day	2.000	440.00	880.00	L-15
		Mazdoor (unskilled)	day	16.000	310.00	4960.00	L-18
		b) Machinery					
		Mechanical Concrete mixer 0.48/0.28 cum capacity	hour	16.000	192.00	3072.00	P&M-014
		Kerb casting machine @ 60 metres/hour	hour	6.000	443.00	2658.00	P&M-042
		Water tanker6 KL capacity	hour	6.000	200.00	1200.00	P&M-084
		c) Material					
		Cement	tonne	9.010	5800.00	52258.00	M-052
		Sand	cum	36.590	560.00	20490.40	M-170
		Stone aggregate 20 mm nominal size	cum	18.300	4875.00	89212.50	M-022
		Cost of water	KL	36.000	133.00	4788.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				25253.77	
		e) Contractor's profit @ 15 % on (a+b+c+d)				30749.38	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				2357.45	
		Cost for 360 meter = a+b+c+d+e+f				238102.70	
		Rate per metre = (a+b+c+d+e+f)/300				793.68	
					say	***793.70***	
		B. Using Batching Plant, Transit Mixer and Concrete Pump ***Unit = Running metre*** ***Taking output = 300 metre length*** **Cement Concrete**					

CHAPTER-8
TRAFFIC SIGNS, MARKINGS & OTHER ROAD APPURTENANCES

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Cement concrete of grade M20= 17.48 cum Cement concrete of grade M10 for base = 23.18 cum Total Concrete = **40.66 cum**					
		a) Labour					
		Mate	day	0.120	310.00	37.20	L-17
		Mason (1st Class)	day	1.000	440.00	440.00	L-15
		Mazdoor (unskilled)	day	2.000	310.00	620.00	L-18
		b) Machinery					
		Concrete batching and mixing plant @ 15 cum/hr.	hour	2.000	15000.00	30000.00	P&M-013
		Kerb casting machine @ 60 metres/hour	hour	6.000	443.00	2658.00	P&M-042
		Water tanker 6 KL capacity	hour	15.000	200.00	3000.00	P&M-084
		Tipper 5.5 cum capacity	hour	6.000	334.00	2004.00	P&M-073
		c) Material					
		Cement	tonne	9.010	5800.00	52258.00	M-052
		Sand	cum	36.590	560.00	20490.40	M-170
		Stone aggregate 20 mm nominal size	cum	18.300	4875.00	89212.50	M-022
		Cost of water	KL	36.000	133.00	4788.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				28873.89	
		e) Contractor's profit @ 15 % on (a+b+c+d)				35157.30	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				2695.39	
		Cost for 300 meter = a+b+c+d+e+f				272234.68	
		Rate per metre = (a+b+c+d+e+f)/300				907.45	
					say	***907.40***	
8.3	**801**	**Printing New Letter and Figures of any Shade** Printing new letter and figures of any shade with synthetic enamel paint black or any other approved colour to give an even shade as per drawings and MoRT&H Technical Specification Clause 801. **i. Hindi** (Matras, commas and the like not to be measured and paid for Half letter shall be counted as half only) ***Details for 100 letters of 16 cm height i.e. 1600 cm*** ***Unit = per cm height per letter***					
		a) Labour					
		Mate	day	0.120	310.00	37.20	L-17
		Painter (1st Class)	day	2.000	395.00	790.00	L-22
		Mazdoor (unskilled)	day	1.000	310.00	310.00	L-18
		b) Material					
		Paint	Litre	0.700	170.00	119.00	M-142
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				176.50	
		d) Contractor's profit @ 15 % on (a+b+c)				214.90	
		e) Add Cess @ 1.00 % on (a+b+c+d)				16.48	
		Cost for 1600 cm = a+b+c+d+e				1664.08	
		Rate per cm height per letter = (a+b+c+d+e)/1600				1.04	
					say	***1.00***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		ii. English and Roman					
		Hyphens and the like not to be measured and paid for					
		Detail for 100 letters of 16 cm height. i.e.1600 cm					
		Unit = per cm height per letter					
		a) Labour					
		Mate	day	0.070	310.00	21.70	L-17
		Painter (1st Class)	day	1.250	395.00	493.75	L-22
		Mazdoor (unskilled)	day	0.500	310.00	155.00	L-18
		b) Material					
		Paint	Litre	0.500	170.00	85.00	M-142
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				106.14	
		d) Contractor's profit @ 15 % on (a+b+c)				129.24	
		e) Add Cess @ 1.00 % on (a+b+c+d)				9.91	
		Cost for 1600 cm = a+b+c+d+e				1000.74	
		Rate per cm height per letter = (a+b+c +d+e)/1600				0.63	
					say	***0.60***	
8.4	**801**	**Retro-Reflectorised Traffic Signs**					
		Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign as per IRC:67 made of high intensity grade shetting vide MoRT&H technical specification Clause 801.3, fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm below ground level as per drawings and MoRT&H Technical Specification Clause 801.					
		i) 900 mm equilateral triangle					
		Unit = Each					
		Taking output = one traffic sign					
		i) Excavation for foundation	cum	0.243	341.70	83.03	Item no. 12.1.I.A
		As per item no. 12.1.I.A of Chapter 12					
		ii) Cement concrete M15 grade	cum	0.122	9322.00	1137.28	Item no. 12.6.A
		As per item no. 12.6.A of Chapter 12					
		iii) Painting angle iron post two coats	sqm	0.430	63.80	27.43	Item no. 8.9
		As per item no. 8.9 of this Chapter					
		a) Labour (For fixing at site)					
		Mate	day	0.010	310.00	3.10	L-17
		Mazdoor (unskilled)	day	0.250	310.00	77.50	L-18
		b) Material					
		Mild steel angle iron 75 x 75 x 6 mm	kg	19.000	47.00	893.00	M-132
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		900 mm equilateral triangle	sqm	0.350	785.40	274.89	M-030
		Add 2 per cent of cost of angle iron towards cost of drilling holes, nuts, bolts etc.				23.36	
		c) Machinery					
		Tractor with trolley	hour	0.010	237.00	2.37	P&M-076
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				179.03	
		e) Contractor's profit @ 15 % on (a+b+c+d)				217.99	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				16.71	
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				2935.70	
					say	***2935.70***	
		ii) 600 mm equilateral triangle					
		Unit = Each					
		Taking output = one traffic sign					
		i) Excavation for foundation	cum	0.243	341.70	83.03	Item no. 12.1.I.A
		As per item no. 12.1.I.A of Chapter 12					
		ii) Cement concrete M15 grade	cum	0.122	9322.00	1137.28	Item no. 12.6.A
		As per item no. 12.6.A of Chapter 12					
		iii) Painting angle iron post two coats	sqm	0.430	63.80	27.43	Item no. 8.9
		As per item no. 8.9 of this Chapter					
		a) Labour (For fixing at site)					
		Mate	day	0.010	310.00	3.10	L-17
		Mazdoor (unskilled)	day	0.250	310.00	77.50	L-18
		b) Material					
		Mild steel angle iron 75 x 75 x 6 mm	kg	19.000	47.00	893.00	M-132
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint					
		900 mm equilateral triangle	sqm	0.156	785.40	122.52	M-030
		Add 2 per cent of cost of angle iron towards cost of drilling holes, nuts, bolts etc.				20.31	
		c) Machinery					
		Tractor with trolley	hour	0.010	237.00	2.37	P&M-076
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				157.19	
		e) Contractor's profit @ 15 % on (a+b+c+d)				191.40	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				14.67	
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				2729.82	
					say	***2729.80***	
		iii) 600 mm circular					
		Unit = Each					
		Taking output = one traffic sign					
		i) Excavation for foundation	cum	0.243	341.70	83.03	Item no. 12.1.I.A

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		As per item no. 12.1.I.A of Chapter 12					
		ii) Cement concrete M15 grade	cum	0.122	9322.00	1137.28	Item no. 12.6.A
		As per item no. 12.6.A of Chapter 12					
		iii) Painting angle iron post two coats	sqm	0.430	63.80	27.43	Item no. 8.9
		As per item no. 8.9 of this Chapter					
		a) Labour (For fixing at site)					
		Mate	day	0.010	310.00	3.10	L-17
		Mazdoor (unskilled)	day	0.250	310.00	77.50	L-18
		b) Material					
		Mild steel angle iron 75 x 75 x 6 mm	kg	19.000	47.00	893.00	M-132
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint					
		900 mm equilateral triangle	sqm	0.283	785.40	222.27	M-030
		Add 2 per cent of cost of angle iron towards cost of drilling holes, nuts, bolts etc.				22.31	
		c) Machinery					
		Tractor with trolley	hour	0.010	237.00	2.37	P&M-076
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				171.49	
		e) Contractor's profit @ 15 % on (a+b+c+d)				208.80	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				16.01	
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				2864.59	
					say	***2864.60***	
		iv) 800 mm x 600 mm rectangular					
		Unit = Each					
		Taking output = one traffic sign					
		i) Excavation for foundation	cum	0.243	341.70	83.03	Item no. 12.1.I.A
		As per item no. 12.1.I.A of Chapter 12					
		ii) Cement concrete M15 grade	cum	0.122	9322.00	1137.28	Item no. 12.6.A
		As per item no. 12.6.A of Chapter 12					
		iii) Painting angle iron post two coats	sqm	0.430	63.80	27.43	Item no. 8.9
		As per item no. 8.9 of this Chapter					
		a) Labour (For fixing at site)					
		Mate	day	0.010	310.00	3.10	L-17
		Mazdoor (unskilled)	day	0.250	310.00	77.50	L-18
		b) Material					
		Mild steel angle iron 75 x 75 x 6 mm	kg	19.000	47.00	893.00	M-132
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint					
		900 mm equilateral triangle	sqm	0.480	785.40	376.99	M-030
		Add 2 per cent of cost of angle iron towards cost of drilling holes, nuts, bolts etc.				25.40	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		c) Machinery					
		Tractor with trolley	hour	0.010	237.00	2.37	P&M-076
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				311.12	
		e) Contractor's profit @ 15 % on (a+b+c+d)				253.42	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				19.43	
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				3210.08	
					say	***3210.10***	
		v) 600 x 450 mm rectangular					
		Unit = Each					
		Taking output = one traffic sign					
		i) Excavation for foundation	cum	0.243	341.70	83.03	Item no. 12.1.I.A
		As per item no. 12.1.I.A of Chapter 12					
		ii) Cement concrete M15 grade	cum	0.122	9322.00	1137.28	Item no. 12.6.A
		As per item no. 12.6.A of Chapter 12					
		iii) Painting angle iron post two coats	sqm	0.430	63.80	27.43	Item no. 8.9
		As per item no. 8.9 of this Chapter					
		a) Labour (For fixing at site)					
		Mate	day	0.010	310.00	3.10	L-17
		Mazdoor (unskilled)	day	0.250	310.00	77.50	L-18
		b) Material					
		Mild steel angle iron 75 x 75 x 6 mm	kg	19.000	47.00	893.00	M-132
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint					
		900 mm equilateral triangle	sqm	0.270	785.40	212.06	M-030
		Add 2 per cent of cost of angle iron towards cost of drilling holes, nuts, bolts etc.				22.10	
		c) Machinery					
		Tractor with trolley	hour	0.010	237.00	2.37	P&M-076
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				170.15	
		e) Contractor's profit @ 15 % on (a+b+c+d)				207.04	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				15.87	
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				2850.95	
					say	***2850.90***	
		vi) 600 mm x 600 mm square					
		Unit = Each					
		Taking output = one traffic sign					
		i) Excavation for foundation	cum	0.243	341.70	83.03	Item no. 12.1.I.A
		As per item no. 12.1.I.A of Chapter 12					
		ii) Cement concrete M15 grade	cum	0.122	9322.00	1137.28	Item no. 12.6.A
		As per item no. 12.6.A of Chapter 12					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		iii) Painting angle iron post two coats	sqm	0.430	63.80	27.43	Item no. 8.9
		As per item no. 8.9 of this Chapter					
		a) Labour (For fixing at site)					
		Mate	day	0.010	310.00	3.10	L-17
		Mazdoor (unskilled)	day	0.250	310.00	77.50	L-18
		b) Material					
		Mild steel angle iron 75 x 75 x 6 mm	kg	19.000	47.00	893.00	M-132
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint					
		900 mm equilateral triangle	sqm	0.360	785.40	282.74	M-030
		Add 2 per cent of cost of angle iron towards cost of drilling holes, nuts, bolts etc.				23.51	
		c) Machinery					
		Tractor with trolley	hour	0.010	237.00	2.37	P&M-076
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				190.79	
		e) Contractor's profit @ 15 % on (a+b+c+d)				220.95	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				16.94	
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				2958.66	
					say	***2958.70***	
		vii) 900 mm octagon					
		Unit = Each					
		Taking output = one traffic sign					
		i) Excavation for foundation	cum	0.243	341.70	83.03	Item no. 12.1.I.A
		As per item no. 12.1.I.A of Chapter 12					
		ii) Cement concrete M15 grade	cum	0.122	9322.00	1137.28	Item no. 12.6.A
		As per item no. 12.6.A of Chapter 12					
		iii) Painting angle iron post two coats	sqm	0.430	63.80	27.43	Item no. 8.9
		As per item no. 8.9 of this Chapter					
		a) Labour (For fixing at site)					
		Mate	day	0.010	310.00	3.10	L-17
		Mazdoor (unskilled)	day	0.250	310.00	77.50	L-18
		b) Material					
		Mild steel angle iron 75 x 75 x 6 mm	kg	19.000	47.00	893.00	M-132
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint					
		900 mm equilateral triangle	sqm	0.672	785.40	527.79	M-030
		Add 2 per cent of cost of angle iron towards cost of drilling holes, nuts, bolts etc.				28.42	
		c) Machinery					
		Tractor with trolley	hour	0.010	237.00	2.37	P&M-076
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				216.58	
		e) Contractor's profit @ 15 % on (a+b+c+d)				262.31	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				20.11	
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				3278.93	
					say	***3278.90***	
		Note:- 1.Any one area of aluminium sheeting given at (i) to (vii) may be adopted as per site requirement and in accordance with IRC : 67. 2.Rate for excavation, cement concrete M-15 and painting may be taken from respective chapters. 3. The depth of foundation and quantity of cement concrete in the foundation are indicative. These may be increased for areas having higher wind velocities like in coastal areas. This is applicable to all road signs and directions boards.					
8.5	**801**	**Direction and Place Identification Signs upto 0.9 sqm Size Board.** Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of high intensity grade sheeting vide clause 801.3, fixed over aluminium sheeting, 2 mm thick with area not exceeding 0.9 sqm supported on a mild steel single angle iron post 75 x 75 x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 450 x 450 x 600 mm, 600 mm below ground level as per approved drawing and MoRT&H Technical Specification Clause 801.					
		Unit = sqm ***Taking output = 1.00 No (0.9 sqm)***					
		i) Excavation for foundation	cum	0.243	341.70	83.03	Item no. 12.1.I.A
		As per item no. 12.1.I.A of Chapter 12					
		ii) Cement concrete M15 grade	cum	0.122	9322.00	1137.28	Item no. 12.6.A
		As per item no. 12.6.A of Chapter 12					
		iii) Painting angle iron post two coats	sqm	0.430	63.80	27.43	Item no. 8.9
		As per item no. 8.9 of this Chapter					
		a) Labour (For fixing at site)					
		Mate	day	0.010	310.00	3.10	L-17
		Mazdoor (unskilled)	day	0.200	310.00	62.00	L-18
		b) Material					
		Mild steel angle iron 75 x 75 x 6 mm	kg	19.000	47.00	893.00	M-132
		Aluminium sheeting 2.00 mm thick fixed with encapsulated lens type reflective sheeting of size 0.90 sqm	sqm	0.900	993.20	893.88	M-031
		Add 2 per cent of cost of angle iron towards cost of drilling holes, nuts, bolts etc.				35.74	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		c) Machinery					
		Tractor with trolley	hour	0.020	237.00	4.74	P&M-076
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				265.89	
		e) Contractor's profit @ 15 % on (a+b+c+d)				323.75	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				24.82	
		Rate per Traffic sign = (i+ii+iii+a+b+c+d+e+f)				3754.67	
					say	***3754.70***	
		Note:- 1) Lettering and arrow marks on sign board to be provided separately as per actual requirement. Rates for these items have been analysed separately					
		2) Rate for excavation, cement concrete M-15 and painting has been taken from respective chapters					
8.6	**801**	**Direction and Place Identification Signs with size more than 0.9 sqm size Board.**					
		Providing and erecting direction and place identification retro- reflectorised sign as per IRC :67 made of high intensity grade sheeting vide clause 801.3, fixed over aluminium sheeting, 2 mm thick with area exceeding 0.9 sqm supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm, 2 Nos. firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete 450 x 450 x 600 mm, 600 mm below ground level as per approved drawing and MoRT&H Technical Specification Clause 801.					
		Unit = sqm					
		Taking output = 1.00 No (1.50 sqm)					
		i) Excavation for foundation	cum	0.486	341.70	166.07	Item no. 12.1.I.A
		As per item no. 12.1.I.A of Chapter 12					
		ii) Cement concrete M15 grade	cum	0.244	9322.00	2274.57	Item no. 12.6.A
		As per item no. 12.6.A of Chapter 12					
		iii) Painting angle iron post two coats	sqm	0.860	63.80	54.87	Item no. 8.9
		As per item no. 8.9 of this Chapter					
		a) Labour (For fixing at site)					
		Mate	day	0.010	310.00	3.10	L-17
		Mazdoor (unskilled)	day	0.300	310.00	93.00	L-18
		b) Material					
		Mild steel angle iron 75 x 75 x 6 mm	kg	38.000	47.00	1786.00	M-132
		Aluminium sheeting 2.00 mm thick fixed with encapsulated lens type reflective sheeting of size 0.90 sqm	sqm	1.500	993.20	1489.80	M-031

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Add 2 per cent of cost of angle iron towards cost of drilling holes, nuts, bolts etc.				65.52	
		c) Machinery					
		Tractor with trolley	hour	0.020	237.00	4.74	P&M-076
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				483.62	
		e) Contractor's profit @ 15 % on (a+b+c+d)				588.87	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				45.15	
		Rate per Traffic Sign = (i+ii+iii+a+b+c+d+e+f)				7055.29	
					say	***7055.30***	
		Note:- 1) Lettering and arrow marks on sign board to be provided separately as per actual requirement. Rates for these items have been analysed separately					
		2) Rate for excavation, cement concrete M-15 and painting may be taken from respective chapters					
8.7	**802**	**Overhead Signs**					
		Providing and erecting overhead signs with a corrosion resistant 2 mm thick aluminium alloy sheet reflectorised with high intensity retro-reflective sheeting of encapsulated lense type with vertical and lateral clearance given in clause 802.2 and 802.3 and installed as per clause 802.7 over a designed support system of aluminium alloy or galvanised steel trestles and trusses of sections and type as per structural design requirements and approved plans and MoRT&H Technical Specification Clause 802.					
		A. Truss and Vertical Support					
		Unit = tonne					
		Taking output = 1 tonne					
		a) Labour					
		Mate	day	0.240	310.00	74.40	L-17
		Blacksmith	day	2.000	418.00	836.00	L-03
		Mazdoor (unskilled)	day	4.000	310.00	1240.00	L-18
		b) Material					
		Aluminium alloy/galvanised steel including 5 per cent wastage	tonne	1.050	52000.00	54600.00	M-101
		Add 1 per cent on cost of material for nuts, bolts and drilling and welding consumables				546.00	
		Add 15 per cent on cost of material for fabrication of trusses as per approved design				8271.90	
		c) Machinery					
		Crane 3 tonne capacity	hour	3.000	500.00	1500.00	P&M-020
		Truck	hour	0.500	375.00	187.50	P&M-080
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				9449.44	
		e) Contractor's profit @ 15 % on (a+b+c+d)				11505.79	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				882.11	
		Rate per tonne = (a+b+c+d+e+f)				89093.14	
					say	***89093.10***	
		B. Aluminium Alloy Plate for Over Head Sign					
		Unit = sqm					
		Taking output = 1 sqm					
		a) Labour					
		Mate	day	0.010	310.00	3.10	L-17
		Blacksmith	day	0.100	418.00	41.80	L-03
		Mazdoor (unskilled)	day	0.150	310.00	46.50	L-18
		b) Material					
		Aluminium alloy plate,2 mm thick, fixed with high intensity grade sheeting vide clause 801.3	sqm	1.050	1047.21	1099.57	M-029
		Add 1 per cent of cost of labour for lifting arrangement, like ladders, pulleys, ropes etc				0.91	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				167.46	
		d) Contractor's profit @ 15 % on (a+b+c)				203.90	
		e) Add Cess @ 1.00 % on (a+b+c+d+e)				15.63	
		Rate per sqm = (a+b+c+d+e)				1578.88	
					say	***1578.90***	
		Note:- 1. The cost of excavation and foundation concrete for fixing of vertical support system to be worked out separately as per the approved drawing/design and to be included in the estimate. 2. Lettering and arrow marks on sign board to be provided separately as per actual requirement. Rates for these items have been included separately in this chapter.					
8.8	**803**	**Painting Two Coats on New Concrete Surfaces** Providing and painting two coats with synthetic enamel paint in all shades on new plastered concrete surfaces as per MoRT&H Technical Specification Clause 803. ***Unit = sqm*** ***Taking output = 40 sqm***					
		a) Labour					
		Mate	day	0.120	310.00	37.20	L-17
		Painter (1st Class)	day	2.000	395.00	790.00	L-22
		Mazdoor (unskilled)	day	1.000	310.00	310.00	L-18
		b) Material					
		Road marking paint/ sythetic enamel paint	Litre	6.000	170.00	1020.00	M-142
		Add for scaffolding @ 1 per cent of labour & material cost where required				21.57	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Add @ 5 per cent cost of labour and materials to prepare the surface by filling minuts roughness on the surface and priming the surface before laying 2 coats of painting.				107.86	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				321.27	
		d) Contractor's profit @ 15 % on (a+b+c)				391.19	
		e) Add Cess @ 1.00 % on (a+b+c+d)				29.99	
		Cost for 40 sqm = a+b+c+d+e				3029.08	
		Rate per sqm = (a+b+c+d+e)/40				75.73	
					say	***75.70***	
8.9	**803**	**Painting on Steel Surfaces** Providing and applying two coats of ready mix paint of approved brand on steel surface after through cleaning of surface to give an even shade as per MoRT&H Technical Specification Clause 803.					
		Unit = sqm					
		Taking output = 10 sqm					
		a) Labour					
		Mate	day	0.030	310.00	9.30	L-17
		Painter (1st Class)	day	0.450	395.00	177.75	L-22
		Mazdoor (unskilled)	day	0.250	310.00	77.50	L-18
		b) Material					
		Sythetic enamel paint	Litre	1.250	170.00	212.50	M-142
		Add for scaffolding @ 1 per cent of labour & material cost where required				4.77	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				67.70	
		d) Contractor's profit @ 15 % on (a+b+c)				82.43	
		e) Add Cess @ 1.00 % on (a+b+c+d)				6.32	
		Cost for 10 sqm = a+b+c+d+e				638.26	
		Rate per sqm= (a+b+c+d+e)/10				63.83	
					say	***63.80***	
8.10	**803**	**Painting on Wood Surfaces** Providing and applying two coats of ready mix paint of approved brand on wood surface after thorough cleaning of surface to give an even shade as per MoRT&H Technical Specification Clause 803.					
		Unit = sqm					
		Taking output = 10 sqm					
		a) Labour					
		Mate	day	0.030	310.00	9.30	L-17
		Painter (1st Class)	day	0.500	395.00	197.50	L-22
		Mazdoor (unskilled)	day	0.200	310.00	62.00	L-18
		b) Material					
		Sythetic enamel paint	Litre	1.500	170.00	255.00	M-142
		Add for scaffolding @ 1 per cent of labour & material cost where required				5.24	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				74.33	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		d) Contractor's profit @ 15 % on (a+b+c)				90.51	
		e) Add Cess @ 1.00 % on (a+b+c+d)				6.94	
		Cost for 10 sqm = a+b+c+d+e				700.81	
		Rate per sqm = (a+b+c+d+e)/10				70.08	
					say	***70.10***	
8.11	**803**	**Painting Lines, Dashes, Arrows etc on Roads in Two Coats on New Work**					
		Painting lines, dashes, arrows etc on roads in two coats on new work with ready mixed road marking paint conforming to IS:164 on bituminous surface, including cleaning the surface of all dirt, dust and other foreign matter, demarcation at site and traffic control as per MoRT&H Technical Specification Clause 803.					
		(i) Over 10 cm in width					
		Unit = sqm					
		Taking output = 10 sqm					
		a) Labour					
		Mate	day	0.080	310.00	24.80	L-17
		Painter (1st Class)	day	0.550	395.00	217.25	L-22
		Mazdoor (unskilled)	day	1.550	310.00	480.50	L-18
		b) Material					
		Road marking paint	Litre	1.480	155.25	229.77	M-168
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				133.80	
		d) Contractor's profit @ 15 % on (a+b+c)				162.92	
		e) Add Cess @ 1.00 % on (a+b+c+d)				12.49	
		Cost for 10 sqm = a+b+c+d+e				1261.53	
		Rate per sqm= (a+b+c+d+e)/10				126.15	
					say	***126.20***	
		(ii) Up to 10 cm in width					
		Unit = sqm					
		Taking output = 10 sqm					
		a) Labour					
		Mate	day	0.070	310.00	21.70	L-17
		Painter (1st Class)	day	0.350	395.00	138.25	L-22
		Mazdoor (unskilled)	day	1.350	310.00	418.50	L-18
		b) Material					
		Road marking paint	Litre	1.480	155.25	229.77	M-168
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				113.55	
		d) Contractor's profit @ 15 % on (a+b+c)				138.27	
		e) Add Cess @ 1.00 % on (a+b+c+d)				10.60	
		Cost for 10 sqm = a+b+c+d+e				1070.64	
		Rate per sqm= (a+b+c+d+e)/10				107.06	
					say	***107.10***	
8.12	**803**	**Painting Lines, Dashes, Arrows etc on Roads in Two Coats on Old Work**					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Painting lines, dashes, arrows etc on roads in two coats on old work with ready mixed road marking paint conforming to IS:164 on bituminous surface, including cleaning the surface of all dirt, dust and other foreign matter, demarcation at site and traffic control as per MoRT&H Technical Specification Clause 803.					
		(i) Over 10 cm in width					
		Unit = sqm					
		Taking output = 10 sqm					
		a) Labour					
		Mate	day	0.070	310.00	21.70	L-17
		Painter (1st Class)	day	0.350	395.00	138.25	L-22
		Mazdoor (unskilled)	day	1.350	310.00	418.50	L-18
		b) Material					
		Road marking paint	Litre	0.900	155.25	139.73	M-168
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				100.90	
		d) Contractor's profit @ 15 % on (a+b+c)				122.86	
		e) Add Cess @ 1.00 % on (a+b+c+d)				9.42	
		Cost for 10 sqm = a+b+c+d+e				951.36	
		Rate per sqm= (a+b+c+d+e)/10				95.14	
					say	***95.10***	
		(ii) Up to 10 cm in width					
		Unit = sqm					
		Taking output = 10 sqm					
		a) Labour					
		Mate	day	0.060	310.00	18.60	L-17
		Painter (1st Class)	day	0.300	395.00	118.50	L-22
		Mazdoor (unskilled)	day	1.250	310.00	387.50	L-18
		b) Material					
		Road marking Paint	Litre	0.900	155.25	139.73	M-168
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				93.34	
		d) Contractor's profit @ 15 % on (a+b+c)				113.65	
		e) Add Cess @ 1.00 % on (a+b+c+d)				8.71	
		Cost for 10 sqm = a+b+c+d+e				880.03	
		Rate per sqm= (a+b+c+d+e)/10				88.00	
					say	***88.00***	
8.13	**803**	**Road marking strips (retro-reflective) of specified shade/ colour using Hot Applied Thermoplastic material with Reflectorising Glass Beads on Bituminous Surface**					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Providing and applying 2.5 mm thick thick road marking strips (retro-reflective) of specified shade/ colour using hot thermoplastic material including reflectorising glass beads @ 250 gms per sqm area by fully/ semi automatic thermoplastic paint applicator machine fitted with profile shoe, glass beads dispenser, propane tank heater and profile shoe heater including cost of cleaning the road surface of all dirt, seals, oil, grease and foreign material etc, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35. The finished surface to be level, uniform and free from streaks and holes as per MoRT&H Technical Specification Clause 803.					
		Unit = sqm					
		Taking output = 200 sqm					
		a) Labour					
		Mate	day	4.000	310.00	1240.00	L-17
		Mazdoor (unskilled)	day	5.000	310.00	1550.00	L-18
		(for erecting barricades, traffic diversions, stretching ropes etc.)					
		b) Machinery					
		Paint applicator	hour	8.000	142.00	1136.00	P&M-054
		Tractor - trolley or equivalent for local shifting LPG cylinder for heating	hour	8.000	237.00	1896.00	P&M-076
		c) Material					
		Hot applied thermoplastic compound @ 5 kg/ sqm = 1000 kg, Wastage @ 5% = 50 Kg					
		Thermoplastic paint,(200 sqm @ 5kg/sqm = 1000 kg + wastage @5% = 50 kg, i.e. Total - 1050 kg	kg	1050.000	84.500	88725.000	M-114
		Commercial LPG in cylinder (Commercial cylinder of 19.00 kg capacity)	kg	142.000	79.34	11266.28	M-100
		Reflectorising glass beads (B-Class) to be sparayed over paint stripe @ 250 gms per sqm = 200 x 0.25 = 50 kg	kg	50.000	91.00	4550.00	M-166
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				15506.04	
		e) Contractor's profit @ 15 % on (a+b+c+d)				18880.40	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				1447.50	
		Cost for 200 sqm = a+b+c+d+e+f				146197.22	
		Rate per sqm = (a+b+c+d+e+f)/200				730.99	
					say	***731.00***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Note:- 1. A sealing primer may be applied in advance on cement concrete pavement to ensure proper bonding. Any laitance and/or curing compound to be removed where paint is required to be applied on concrete surface. 2.Cost of Painter & machine operator is already included in hire charges of paint applicator machine.					
8.14	**804**	**Kilometre Stone** Reinforced cement concrete M 15 grade kilometre stone of standard design as per IRC:8, fixing in position including painting and printing, etc. as per drawing and MoRT&H Technical Specification Clause 804.					
		(i) 5th kilometre stone (precast) ***Unit = Nos.*** ***Taking output = 6 Nos.***					
		a) M-15 grade of concrete	cum	2.350	9322.00	21906.70	Item no. 12.6.A
		As per item no. 12.6.A of Chapter 12					
		b) Steel reinforcement @ 5 kg per sqm	tonne	0.0221	68131.50	1505.71	Item no. 12.25
		As per item no. 12.25 of Chapter 12					
		c) Excavation in soil for foundation	cum	1.680	341.70	574.06	Item no. 12.1
		As per item no. 12.1 of Chapter 12					
		d) Painting two coats on concrete surface	sqm	9.850	75.70	745.65	Item no. 8.8
		As per item no. 8.8 of this Chapter					
		e) Lettering on km post (average 30 letters of 10 cm height each)	per cm per letter	1800.000	0.60	1080.00	Item no. 8.3.ii
		As per item no. 8.3.ii of this Chapter					
		Transportation and fixing					
		f) Labour					
		Mate	day	0.260	310.00	80.60	L-17
		Mason (1st Class)	day	0.600	440.00	264.00	L-15
		Mazdoor (unskilled)	day	6.000	310.00	1860.00	L-18
		g) Machinery					
		Tractor with trolley	hour	6.000	237.00	1422.00	P&M-076
		h) Add GST (multiplying factor) @ 0.1405 on (f+g)				509.54	
		i) Contractor's profit @ 15 % on (f+g+h)				620.42	
		j) Add Cess @ 1.00 % on (f+g+h+i)				47.57	
		Cost for 6 Nos. 5th km stone = a+b+c+d+e+f+g+h+i+j				30616.23	
		Rate for each 5th km stone = (a+b+c+d+e+f+g+h+i+j) /6				5102.71	
					say	***5102.70***	
		(ii) Ordinary kilometer stone (precast)					
		Unit = Nos. ***Taking output = 14 Nos.***					
		a) M-15 grade of concrete	cum	3.770	9322.00	35143.94	Item no. 12.6.A

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		As per item no. 12.6.A of Chapter 12					
		b) Steel reinforcement @ 5 kg per sqm	tonne	0.0263	68131.50	1791.86	Item no. 12.25
		As per item no. 12.43 of Chapter 12					
		c) Excavation in soil for foundation	cum	2.770	341.70	946.51	Item no. 12.1
		As per item no. 12.1 of Chapter 12					
		d) Painting two coats on concrete surface	sqm	11.410	75.70	863.74	Item no. 8.8
		As per item no. 8.8 of this Chapter					
		e) Lettering on km post (average 30 letters of 10 cm height each)	per cm per letter	1680.000	0.60	1008.00	Item no. 8.3.ii
		As per item no. 8.3.ii of this Chapter					
		Transportation and fixing					
		f) Labour					
		Mate	day	0.320	310.00	99.20	L-17
		Mason (1st Class)	day	1.000	440.00	440.00	L-15
		Mazdoor (unskilled)	day	7.000	310.00	2170.00	L-18
		g) Machinery					
		Tractor with trolley	hour	6.000	237.00	1422.00	P&M-076
		h) Add GST (multiplying factor) @ 0.1405 on (f+g)				580.43	
		i) Contractor's profit @ 15 % on (f+g+h)				706.75	
		j) Add Cess @ 1.00 % on (f+g+h+i)				54.18	
		Cost for 14 Nos. ordinary km stone = (a+b+ c +d+e+f+g+h+i+j)				45226.61	
		Rate for each ordinary km stone = (a+b+c+d+e+f+g+h+i+j)/14				3230.47	
					say	***3230.50***	
		(iii) Hectometer stone (precast)					
		Unit = Nos.					
		Taking output = 33 Nos.					
		a) M-15 grade of concrete	cum	1.580	9322.00	14728.76	Item no. 12.6.A
		As per item no. 12.6.A of Chapter 12					
		b) Steel reinforcement @ 5 kg per sqm	tonne	0.0660	68131.50	4496.68	Item no. 12.25
		As per item no. 12.25 of Chapter 12					
		c) Excavation in soil for foundation	cum	1.390	341.70	474.96	Item no. 12.1
		As per item no. 12.1 of Chapter 12					
		d) Painting two coats on concrete surface	sqm	6.270	75.70	474.64	Item no. 8.8
		As per item no. 8.8 of this Chapter					
		e) Lettering on km post (average 30 letters of 10 cm height each)	per cm per letter	330.000	0.60	198.00	Item no. 8.3.ii
		As per item no. 8.3.ii of this Chapter					
		Transportation and fixing					
		f) Labour					
		Mate	day	0.340	310.00	105.40	L-17
		Mason (1st Class)	day	1.500	440.00	660.00	L-15
		Mazdoor (unskilled)	day	7.000	310.00	2170.00	L-18

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		g) Machinery					
		Tractor with trolley	hour	6.000	237.00	1422.00	P&M-076
		h) Add GST (multiplying factor) @ 0.1405 on (f+g)				612.21	
		i) Contractor's profit @ 15 % on (f+g+h)				745.44	
		j) Add Cess @ 1.00 % on (f+g+h+i)				57.15	
		Cost for 33 Nos. Hectometer stone = (a+b+c+d+e+f+g+h+i+j)				26145.25	
		Rate for each Hectometer stone = (a+b+c+d+e+f+g+h+i+j)/33				792.28	
					say	***792.30***	
		Note:- The rate for excavation, cement concrete, steel reinforcement, painting and lettering may be taken from respective chapters.					
8.15	**805**	**Road Delineators**					
		Providing and installation of delineators (road way indicators, hazard markers, object markers), 80-100 cm high above ground level, painted black and white in 15 cm wide strips, fitted with 80 x 100 mm rectangular or 75 mm dia circular reflectorised panels at the top, buried or pressed into the ground and conforming to IRC-79 and the drawings and as per MoRT&H Technical Specification Clause 805.					
		Unit = Each					
		Taking output= 30 Nos.					
		a) Labour					
		Mate	day	0.040	310.00	12.40	L-17
		Mazdoor (unskilled)	day	1.000	310.00	310.00	L-18
		b) Material					
		Cost of approved type of delineators from ISI certified firm as per the standard drawing given in IRC - 79	each	30.000	380.00	11400.00	M-167
		c) Installation					
		Add 10 % Cost of materail				1140.00	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				1807.17	
		e) Contractor's profit @ 15 % on (a+b+c+d)				2200.44	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				168.70	
		Cost for 30 Nos. delineators = (a+b+c+d+e+f)				17038.70	
		Rate per delineators = (a+b+c+d+e+f)/30				567.96	
					say	***568.00***	
		Note:- In case of soft ground, a proper foundation may be provided as per approved design. In case foundation is required to be provided, the items of excavation and foundation concrete are required to be measured and paid separately.					
8.16	**806**	**Boundary pillar**					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Reinforced cement concrete M15 grade boundary pillars of standard design as per IRC:25-1967, fixed in position including finishing and lettering but excluding painting.					
		Unit = Each					
		Taking output = 57 Nos.					
		a) M-15 grade of the boundary stone	cum	1.250	9322.00	11652.50	Item no. 12.6.A
		As per item no. 12.6.A of Chapter 12					
		b) Steel reinforcement	tonne	0.0798	68131.50	5436.89	Item no. 12.25
		As per item no. 12.25 of Chapter 12					
		c) Excavation in soil	cum	10.720	341.70	3663.02	Item no. 12.1.I.A
		As per item no. 12.1 of Chapter 12					
		d) Lettering, each 10 cm high	per cm height per letter	2280.00	0.60	1368.00	Item no. 8.3.ii
		As per item no. 8.3.ii of this Chapter					
		Transportation and fixing					
		e) Labour					
		Mate	day	0.570	310.00	176.70	L-17
		Mazdoor (unskilled)	day	14.250	310.00	4417.50	L-18
		f) Machinery					
		Tractor with trolley	hour	6.000	237.00	1422.00	P&M-076
		g) Material					
		Stone spall	cum	11.970	3395.00	40638.15	M-191
		h) Add GST (multiplying factor) @ 0.1405 on (e+f+g)				6554.94	
		i) Contractor's profit @ 15 % on (e+f+g+h)				7981.39	
		j) Add Cess @ 1.00 % on (e+f+g+h+i)				611.91	
		Cost for 57 Nos. boundary pillar = (a+b+c+d+e+f+g+h+i+j)				83923.00	
		Rate for each boundary pillar = (a+b+c+d+e+f+g+h+i+j)/57				1472.33	
					say	***1472.30***	
		Note:- 1.In case of soft ground, a proper foundation may be provided as per approved design. In case foundation is required to be provided, the items of excavation and foundation concrete are required to be measured and paid separately. 2.In case of local stone is to be used in place of precast RCC stones, then rate of cement concrete and steel reinforcement may be deleted.					
8.17	**809**	**Reinforced Cement Concrete Crash Barrier**					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Provision of an Reinforced cement concrete crash barrier at the edges of the road, approaches to bridge structures and medians, constructed with M-20 grade concrete with TMT reinforcement conforming to IRC:21 and dowel bars 25 mm dia, 450 mm long at expansion joints filled with pre-moulded asphalt filler board, keyed to the structure on which it is built and installed as per design given in the enclosure to MOST circular No. RW/NH - 33022/1/94-DO III dated 24 June 1994 as per dimensions in the approved drawing and at locations directed by the Engineer, all as specified as per MoRT&H Technical Specification Clause 809.					
		Unit = metre					
		Taking output = 10 m					
		a) M 20 grade concrete					
		M 20 grade concrete	cum	3.000	11459.500	34378.50	Item 14.1A
		(Rate of 14.1.A.Case-I)					
		b) Labour					
		Mate	day	0.040	310.00	12.40	L-17
		Mazdoor (unskilled)	day	1.000	310.00	310.00	L-18
		c) Material					
		Steel bars including dowel bars	tonne	0.280	46000.00	12880.00	M-181
		Pre-moulded asphalt filler board	sqm	0.320	745.00	238.40	M-150
		d) Add GST (multiplying factor) @ 0.1405 on (b+c)				1888.43	
		e) Contractor's profit @ 15 % on (b+c+d)				2299.38	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				176.29	
		Cost for 10 metre = a+b+c+d+e+f				52183.40	
		Rate per metre = (a+b+c+d+e+f)/10				5218.34	
					say	***5218.30***	
		Note:- i) Excavation and backfilling are incidental to work and not to be measured separately. ii) Rate for RCC M 20 has been taken from chapter on super structure.					
8.18	**810**	**Metal Beam Crash Barrier**					
		A. Type - A, "W" : Metal Beam Crash Barrier					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Providing and erecting a "W" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 70 cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2 m centre to centre, 1.8 m high, 1.1 m below ground/road level, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a spacer of channel section 150 x 75 x 5 mm, 330 mm long complete as per MoRT&H Technical Specification Clause 810.					
		Unit = metre					
		Taking output = 4.5 metre					
		a) Labour					
		Mate	day	0.060	310.00	18.60	L-17
		Blacksmith	day	0.500	418.00	209.00	L-03
		Mazdoor (unskilled)	day	1.000	310.00	310.00	L-18
		b) Machinery					
		Tractor with trolley	hour	0.100	237.00	23.70	P&M-076
		c) Material					
		Corrugated sheet,3 mm thick, "W" beam section railing,4.5 m in length	kg	41.210	56.00	2307.76	M-065
		Channel post 150 x 75 x 5 mm,1.8 m long,3 Nos @ 16.4 kg per metre	kg	88.560	51.05	4521.29	M-177
		Spacer 150 x 75 x 5 mm channel 0.33 m long,3 Nos @ 16.4 kg per metre	kg	16.240	51.05	829.11	M-177
		Nuts and bolts	kg	20.000	82.30	1646.00	M-141
		Add 25 per cent of the cost of material for fabrication, nuts, bolts and washers etc.				2326.04	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				1712.91	
		e) Contractor's profit @ 15 % on (a+b+c+d)				2085.66	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				159.90	
		Cost for 4.5 metre = a+b+c+d+e+f				16149.97	
		Rate per metre = (a+b+c+d+e+f)/4.5				3588.88	
					say	***3588.90***	
		B. Type - B, "THRIE" : Metal Beam Crash Barrier					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Providing and erecting a "Thrie" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 85 cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2 m centre to centre, 2 m high with 1.15 m below ground level, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a space of channel section 150 x 75 x 5 mm, 546 mm long complete as per MoRT&H Technical Specification Clause 810.					
		Unit = Running metre					
		Taking output = 4.5 metre length					
		a) Labour					
		Mate	day	0.060	310.00	18.60	L-17
		Blacksmith	day	0.500	418.00	209.00	L-03
		Mazdoor (unskilled)	day	1.000	310.00	310.00	L-18
		b) Machinery					
		Tractor with trolley	hour	0.100	237.00	23.70	P&M-076
		c) Material					
		Corrugated sheet,3 mm thick, "Thrie" beam section railing,4.5 m in length	kg	72.940	56.00	4084.64	M-065
		Channel post 150 x 75 x 5 mm, 1.8 m long,3 Nos @ 16.4 kg per metre	kg	98.400	51.05	5023.66	M-177
		Spacer 150 x 75 x 5 mm channel 0..33 m long,3 Nos @ 16.4 kg per metre	kg	26.860	51.05	1371.30	M-177
		Bolts & nuts	kg	30.000	82.30	2469.00	M-141
		Add 15 per cent of the cost of material for fabrication, nuts, bolts and washers etc.)				1942.29	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				2171.03	
		e) Contractor's profit @ 15 % on (a+b+c+d)				2643.48	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				202.67	
		Cost for 4.5 metre = a+b+c+d+e+f				20469.36	
		Rate per metre= (a+b+c+d+e+f)/4.5				4548.75	
					say	***4548.70***	
		Note:- In the case of median crash barrier, 'W' metal beam or thrie beam section should be provided on both sides of the vertical posts fixed in the median. Extra provision for metal beam railing and spacer is required to be made when fixed in the median depending on approved design.					
8.19		**Road Markers/Road Stud with Lense Reflector**					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Providing and fixing of road stud 100x 100 mm, die-cast in aluminium, resistant to corrosive effect of salt and grit, fitted with lense reflectors, installed in concrete or asphaltic surface by drilling hole 30 mm upto a depth of 60 mm and bedded in a suitable bituminous grout or epoxy mortar, all as per BS 873 part 4:1973.					
		Unit = Nos					
		Taking output = 50 Nos					
		a) Labour					
		Mate	day	0.040	310.00	12.40	L-17
		Mazdoor (unskilled)	day	1.000	310.00	310.00	L-18
		b) Material					
		Aluminium studs 100 x 100 mm fitted with lense reflectors	each	50.000	230.00	11500.00	M-032
		Add 10 % of cost of material for fixing and installation				1150.00	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				1822.62	
		d) Contractor's profit @ 15 % on (a+b+c)				2219.25	
		e) Add Cess @ 1.00 % on (a+b+c+d)				170.14	
		Cost for 50 studs = a+b+c+d+e				17184.42	
		Rate per studs = (a+b+c+d+e)/50				343.69	
					say	***343.70***	
8.20		**Traffic Cone**					
		Provision of red fluorescent with white reflective sleeve traffic cone made of low density polyethylene (LDPE) material with a square base of 390 x 390 x 35 mm and a height of 770 mm, 4 kg in weight, placed at 1.5 m interval, all as per BS 873					
		Unit = Running metre					
		Taking output = 68 Nos.					
		a) Labour					
		Mate	day	0.020	310.00	6.20	L-17
		Mazdoor (unskilled)	day	0.500	310.00	155.00	L-18
		b) Material					
		Traffic cones with 150 mm reflective sleeve	each	68.000	538.00	36584.00	M-194
		c) Machinery					
		Tractor with trolley	hour	0.100	237.00	23.70	P&M-076
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				5166.03	
		e) Contractor's profit @ 15 % on (a+b+c+d)				6290.24	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				482.25	
		Cost for 68 Nos. = a+b+c+d+e+f				48707.42	
		Rate per metre = (a+b+c+d+e+f)/68				716.29	
					say	***716.30***	
8.21		**Drum Delineator in Construction Zone**					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Provision of metal drum/empty bitumen drum delineator, 300 mm in diameter, 800 mm high, filled with earth for stability, painted in circumferential strips of alternate black and white 100 mm wide fitted with reflectors 3 Nos of 7.5 cm dia, all as per IRC:SP:55-2001					
		Unit = each					
		Taking output = one drum delineator					
		a) Labour					
		Mate	day	0.020	310.00	6.20	L-17
		Mazdoor (unskilled)	day	0.250	310.00	77.50	L-18
		Painter (1st Class)	day	0.250	395.00	98.75	L-22
		b) Material					
		Paint	litre	0.500	170.00	85.00	M-142
		Steel drum 300 mm dia 1.2 m high/empty bitumen drum	each	1.000	305.00	305.00	M-043
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				80.43	
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				97.93	
		e) Add Cess @ 1.00 % on (a+b+c+d)				7.51	
		Rate per drum delineator = a+b+c+d+e				758.32	
					say	***758.30***	
8.22	**807**	**G.I Barbed Wire Fencing 1.2 Metre High**					
		Providing and fixing 1.2 metres high GI barbed wire fencing with 1.8 m angle iron posts 40 mm x 40 mm x 6 mm placed every 3 metres center to center founded in M15 grade cement concrete, 0.6 metre below ground level, every 15th post, last but one end post and corner post shall be strutted on both sides and end post on one side only and provided with 9 horizontal lines and 2 diagonals interwoven with horizontal wires, fixed with GI staples, turn buckles etc complete as per MoRT&H Technical Specification clause 807					
		Unit = per running metre					
		Taking output = 30 metres					
		a) Labour					
		Mate	day	0.090	310.00	27.90	L-17
		Blacksmith	day	0.250	418.00	104.50	L-03
		Mazdoor (unskilled)	day	2.000	310.00	620.00	L-18
		b) Material					
		Barbed wire 335 metres length @ 9.38 kg per 100 metres	kg	31.420	82.35	2587.44	M-037
		MS angle iron 40 mm x 40mm x 6 mm, 23 metres in length @ 3.5 kg per metre	kg	80.500	47.00	3783.50	M-192 /1000
		Add for GI staple binding wire, drilling holes etc. @ 2 % of the cost of material				127.42	
		c) Painting					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Applying two coats of painting on exposed surface of angle iron posts (Rate as per item no. 8.9)	sqm	2.110	63.80	134.62	Item 8.9
		d) Add GST (multiplying factor) @ 0.1405 on (a+b)				1018.73	
		e) Contractor's profit @ 15 % on (a+b+d)				1240.42	
		f) Add Cess @ 1.00 % on (a+b+d+e)				95.10	
		Cost for 30 metres fencing = a+b+c+d+e+f				9739.63	
		Rate per metre = (a+b+c+d+e+f)/30				324.65	
					say	***324.70***	
		Cost of excavation for foundation and foundation concrete to be added separately in the cost estimate as per approved design. The rate for these items may be taken from respective chapters.					
8.23	**807**	**G.I Barbed Wire Fencing 1.8 Metre High**					
		Providing and fixing 1.8 metres high GI barbed wire fencing with 2.4 m angle iron posts 50 mm x 50 mm x 6 mm placed every 3 metres center to center founded in M15 grade cement concrete, 0.6 metre below ground level, every 15th post, last but one end post and corner post shall be strutted on both sides and end post on one side only and provided with 12 horizontal lines and 2 diagonals interwoven with horizontal wires, fixed with GI staples, turn buckles etc complete as per clause 807					
		Unit = per running metre					
		Taking output = 30 metres					
		a) Labour					
		Mate	day	0.120	310.00	37.20	L-17
		Blacksmith	day	0.400	418.00	167.20	L-03
		Mazdoor (unskilled)	day	2.500	310.00	775.00	L-18
		b) Material					
		Barbed wire 428 metres length @ 9.38 kg per 100 metres	kg	40.150	82.35	3306.35	M-055
		MS angle iron 50 mm x 50 mm x 6 mm,33.8 metres in length @ 4.5 kg per metre	kg	152.000	47.00	7144.00	M-192 /1000
		Add for GI staple, binding wire, drilling holes etc. @ 2 % of the cost of material				209.01	
		c) Painting					
		Applying two coats of painting on exposed surface of angle iron posts	sqm	3.960	63.80	252.65	Item 8.9
		d) Add GST (multiplying factor) @ on (a+b)				1635.25	
		e) Contractor's profit @ on (a+b+d)				1991.10	
		f) Add Cess @ 1.00 % on (a+b+d+e)				152.65	
		Cost for 30 metres fencing = a+b+c+d+e+f				15670.41	
		Rate per metre = (a+b+c+d+e+f)/30				522.35	
					say	***522.30***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Cost of excavation for foundation and foundation concrete to be added separately in the cost estimate as per approved design. The rate for these items may be taken from respective chapters.					
8.24		**Fencing With Welded Steel Wire Fabric 75 mm x 50 mm**					
		Providing 1.20 metre high fencing with angle iron posts 50 mm x 50 mm x 6 mm at 3 metre center to center with 0.40 metre embedded in M15 grade cement concrete, corner, end and every 10th post to be strutted, provided with welded steel wire fabric of 75 mm x 50 mm mesh or 75 mm x 25 mm mesh and fixed to iron posts by flat iron 50 x 5 mm and bolts etc. complete in all respects.					
		Unit = Running metre					
		Taking output = 30 m					
		a) Labour					
		Mate	day	0.120	310.00	37.20	L-17
		Welder	day	1.000	418.00	418.00	L-03
		Mazdoor (unskilled)	day	2.000	310.00	620.00	L-18
		b) Material					
		i) Angle iron for posts 50 x 50 x 6 mm	kg	106.000	47.00	4982.00	M-192 /1000
		ii) Runner flat 50 x 5 mm	kg	26.000	47.00	1222.00	M-192 /1000
		iii) Welded steel wire fabric 75x50 mm mesh @ 4 kg/sqm, 4 x 30 x 1.2 + 5 per cent wastage	kg	151.000	53.40	8063.40	M-262
		OR					
		Welded steel wire fabric 75 x 25 mm mesh @ 7.75 kg/sqm, 7.75 x 30 x 1.2 + 5 per cent wastage	kg	293.000			
		Add 2.5 % of cost of material for drilling holes in angles, flats, splitting angle at bottom, nuts and bolts and welded consumables				285.35	
		c) Machinery					
		Tractor-trolley	hour	0.100	237.00	23.70	P&M-076
		d) Painting					
		Painting two coats including priming	sqm	8.000	63.80	510.40	Item 8.9
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				2199.06	
		f) Contractor's profit @ 15 % on (a+b+c+e)				2677.61	
		f) Add Cess @ 1.00 % on (a+b+c+e+f)				205.28	
		Cost for 30 metre = a+b+c+d+e+f				21243.99	
		Rate per metre = (a+b+c+d+e+f)/30				708.13	
					say	***708.10***	
		i) Adopt any one type of welded steel wire fabric 75 x 50 mm or 75 x 25 mm as per approved design.					
		ii) The item of excavation and cement concrete in foundation shall be measured and paid separately					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
8.25	**808**	**Tubular Steel Railing on Medium Weight Steel Channel (ISMC series) 100 mm x 50 mm**					
		Providing, fixing and erecting 50 mm dia steel pipe railing in 3 rows duly painted on medium weight steel channels (ISMC series) 100 mm x 50 mm, 1.2 metres high above ground, 2 m centre to centre, complete as per approved drawings					
		Unit = Running metre					
		Taking output = 10 metres					
		i) Excavation for foundation (6 Nos) 6 x 0.6 x 0.6 x 0.6	cum	1.296	341.70	442.84	Item No. 3.13
		ii) Foundation concrete M-15 grade PCC 6 x 0.6 x 0.6 x 0.3	cum	0.648	9322.00	6040.66	Item 12.6 (A)
		iii) Painting of pipe	sqm	4.710	63.80	300.50	Item 8.9
		iv) Painting of channel section 6 nos,1.8 metres each 0.2 x 1.8 x 6 = 2.16	sqm	2.160	63.80	137.81	Item 8.9
		a) Labour (For fixing at site)					
		Mate	day	0.010	310.00	3.10	L-17
		Mazdoor (unskilled)	day	0.250	310.00	77.50	L-18
		Plumber	day	0.010	395.00	3.95	L-23
		b) Material					
		Steel pipe 50 mm external dia as per IS:1239 for 30 m length	tonne	0.108	52700.00	5691.60	M-176
		Medium weight steel channel (ISMC series) 100 mm x 50 mm,10.8 metres length @ 9.2 kg per metre	kg	99.360	47.00	4669.92	M-192 /1000
		Add for drilling holes @ 2% of cost of channels				93.40	
		c) Machinery					
		Tractor-trolley	hour	0.040	237.00	9.48	P&M-076
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				1482.13	
		e) Contractor's profit @ 15 % on (a+b+c+d)				1804.66	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				138.36	
		Cost for 10 metre =i+ii+iii+iv+ a+b+c+d+e+f				20895.90	
		Rate per metre = (i+ii+iii+iv+a+b+c+d+e+f)/10				2089.59	
					say	***2089.60***	
8.26	**808**	**Tubular Steel Railing on Precast RCC Posts, 1.2 m High Above Ground Level**					
		Providing, fencing and erecting 50 mm dia painted steel pipe railing in 3 rows on precast M20 grade RCC vertical posts1.8 metres high (1.2 m above GL) with 3 holes 50 mm dia for pipe, fixed 2 metres centre to, complete as per approved drawing					
		Unit = Running metre					
		Taking output = 10 metres					
		i) Excavation for foundation (6 Nos) 6 x 0.6 x 0.6 x 0.6	cum	1.296	341.70	442.84	Item No. 3.13
		ii) Foundation concrete M - 15 grade PCC 6 x 0.6 x 0.6 x 0.3	cum	0.648	9322.00	6040.66	Item 12.6 (A)

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		iii) RCC M - 20 for pre cast posts 6 nos of 1.8 metres each	cum	0.320	11459.50	3667.04	Item 14.1
		iv) Painting of pipe	sqm	4.710	63.80	300.50	Item 8.9
		a) Labour					
		Mate	day	0.014	310.00	4.34	L-17
		Mazdoor (unskilled)	day	0.350	310.00	108.50	L-18
		Plumber	day	0.010	395.00	3.95	L-23
		b) Material					
		Steel pipe 50 mm dia as per IS:1239 for 30 m length	tonne	0.108	52700.00	5691.60	M-176
		c) Machinery					
		Tractor-trolley	hour	0.250	237.00	59.25	P&M-076
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				824.40	
		e) Contractor's profit @ 15 % on (a+b+c+d)				1003.81	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				97.85	
		Cost for 10 metre =i+ii+iii+iv+ a+b+c+d+e+f				18244.74	
		Rate per metre = (i+ii+iii+iv+a+b+c+d+e+f)/10				1824.47	
					say	***1824.50***	
8.27	**Suggestive**	**Flexible Crash Barrier, Wire Rope Safety Barrier**					
		Providing and erecting a wire rope safety barrier with vertical posts of medium weight RS Joist (ISMB series) 100 mm x 75 mm (11.50 kg/m), 1.50 m long 0.85 m above ground and 0.65 m below ground level, split at the bottom for better grip, embedded in M 15 grade cement concrete 450 x 450 x 450 mm, 1.50 m center to center and with 4 horizontal steel wire rope 40 mm dia and anchored at terminal posts 15 m apart. Terminal post to be embedded in M 15 grade cement concrete foundation 2400 x 450 x 900 mm (depth), strengthened by a strut of RS joist 100 x 75 mm, 2 m long at 450 inclination and a tie 100 x 8 mm, 1.50 m long at the bottom, all embedded in foundation concrete as per approved design and drawing, rate excluding excavation and cement concrete.					
		Unit = Running metre					
		Taking output = 15 metre					
		a) Labour					
		Mate	day	0.120	310.00	37.20	L-17
		Mazdoor (unskilled)	day	2.000	310.00	620.00	L-18
		Blacksmith	day	1.000	418.00	418.00	L-03
		b) Material					
		i) RS Joist 100 x 75 mm - 16.5 m @ 11.5 kg per metre	kg	190.000	47.00	8930.00	M-178 /1000
		ii) Struts - 2 Nos. for terminal posts,2 m long each 2 x 2 x 11.50	kg	46.000	47.00	2162.00	M-192 /1000
		iii) Tie 2 Nos. of 8 mm steel plate,1.5 sqm each for terminal posts @ 62.80 kg/sqm (2 x 1.5)	kg	188.400	47.00	8854.80	M-192 /1000

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		iv) Steel wire rope 40 mm, including 7.50 per cent extra for fixing at ends 15 x 4 x 1.075 @ 1 kg per m	kg	65.000	76.40	4966.00	M-263
		Add 5 % of cost of material for drilling, gripping, fixing, fabrication and welding consumables				1245.64	
		c) Painting					
		Applying 2 coats of painting on exposed surface	sqm	16.500	63.80	1052.70	Item 8.9
		d) Machinery					
		Tractor-trolley	hour	0.250	237.00	59.25	P&M-076
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+d)				3834.65	
		f) Contractor's profit @ 15 % on (a+b+d+e)				4669.13	
		g) Add Cess @ 1.00 % on (a+b+d+e+f)				357.97	
		Cost for 15 m = a+b+c+d+e+f+g				37207.34	
		Rate per m = (a+b+c+d+e+f+g)/15				2480.49	
					say	***2480.50***	
		The items of excavations and cement concrete works will be measured and included separately as per the approved designs and drawings.					
8.28	**Suggestive**	**Anti-Glare Devices in Median**					
	A.	**Plantation**					
		Plantation of shrubs and plants of approved species in the median. apart from cutting off glare from vehicle coming from opposite direction, these plants provide a pleasant envoirenment and are eco-friendly. The rate for this item is available in the chapter 11 on horticulture.					
	B.	**Anti-glare screen with 25 mm steel pipe framework fixed with circular and rectangular vans**					
		Providing and erecting an anti - glare screen with 25 mm dia vertical pipes fabricated and framed in the form of panels of one metre length and 1.75 metre height fixed with circular vane 250 mm dia at top and rectangular vane 600 x 300 mm at the middle, made out of steel sheet of 3 mm thickness, end vertical pipes of the panel made larger for embedding in foundation concrete, applying 2 coats of paint on all exposed surfaces, all as per approved design and drawings.					
		Unit = Running metre					
		Taking output = one metre					
		a) Labour					
		Mate	day	0.004	310.00	1.24	L-17
		Mazdoor (unskilled)	day	0.100	310.00	31.00	L-18
		b) Material					
		i) 25 mm steel pipe	tonne	0.025	52700.00	1323.82	M-176
		ii) MS sheet for 600 x 300 x 3 mm rectangular vane, one number @ 24kg/sqm	kg	4.320	47.00	203.04	M-192/1000

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		iii) MS sheet for 250 mm dia circular vane 3 mm thick,4 numbers @ 24 kg/sqm	kg	4.800	47.00	225.60	M-192 /1000
		Add 5 % cost of material for fabrication, welding, bending, nuts, bolts etc				89.24	
		c) Painting					
		Applying 2 coats of painting on exposed surface	sqm	1.830	63.80	116.75	Item 8.9
		d) Add GST (multiplying factor) @ 0.1405 on (a+b)				263.29	
		e) Contractor's profit @ 15 % on (a+b+d)				320.58	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				24.58	
		Rate per metre = a+b+c+d+e+f				2599.14	
					say	***2599.10***	
		The items of excavation and cement concrete as per approved design to be measured and paid separately					
	C.	**Anti-glare screen with rectangular vane of MS sheet**					
		Providing and erecting anti - glare screen with rectangular vanes of size 750 x 500 mm made from MS sheet, 3 mm thick and fixed on MS angle 50 x 50 x 6 mm at an angle of 450 to the direction of flow of traffic, 1.5 m center to center, top edge of the screen 1.75 m above ground level, vertical post firmly embedded in M-15 cement concrete foundation 0.60 m below ground level, applying 2 coats of paint on exposed faces, all complete as per approved design and drawings					
		Unit = Running metre					
		Taking output = 1.50 metre					
		a) Labour					
		Mate	day	0.004	310.00	1.24	L-17
		Mazdoor (unskilled)	day	0.100	310.00	31.00	L-18
		b) Material					
		i) Angle iron post,50 x 50 x 6 mm, length 2.35 m	kg	10.580	47.00	497.26	M-192/1000
		ii) MS sheet 3 mm thick @ 24 kg/sqm	kg	9.000	47.00	423.00	M-192/1000
		Add 5 % of cost of material for fabrication, nuts, bolts etc				46.01	
		c) Machinery					
		Tractor-trolley	hour	0.100	237.00	23.70	P&M-076
		d) Painting					
		Applying 2 coats of painting	sqm	0.850	63.80	54.23	Item 8.9
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				143.62	
		f) Contractor's profit @ 15 % on (a+b+c+e)				174.88	
		g) Add Cess @ 1.00 % on (a+b+c+e+f)				13.41	
		Cost for 1.5 m = a+b+c+d+e+f+g				1408.35	
		Rate per metre = (a+b+c+d+e+f)/1.50				938.90	
					say	***938.90***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		The items of excavation and cement concrete as per approved design to be measured and paid separately. Rate of painting has been analaysed separately in this chapter.					
8.29	Suggestive	**Street Lighting**					
		Providing and erecting street light mounted on a steel circular hollow pole of standard specifications for street lighting, 9 m high spaced 40 m apart, 1.8 m overhang on both sides if fixed in the median and on one side if fixed on the footpath, fitted with sodium vapour lamp and fixed firmly in concrete foundation.					
		Unit = Each					
		Taking output = one light					
		a) Labour					
		Mate	day	0.030	310.00	9.30	L-17
		Mazdoor (unskilled)	day	0.500	310.00	155.00	L-18
		Electrician	day	0.250	395.00	98.75	L-12
		b) Material					
		i) Steel circular hollow pole of standard specification for street lighting to mount light at 9 m height above road level	each	1.000	10496.00	10496.00	M-265
		ii) Sodium vapour lamp	each	1.000	518.00	518.00	M-266
		Add 5 % of cost of material for holder, electric cable, insulation, ladder, scaffolding etc				550.70	
		c) Painting					
		For Fixing in Median					
		Providing two coats of aluminium paint over steel circular hollow pipe with overhang on both sides	sqm	5.750	63.80	366.85	Item 8.9
		For fixing in Footpath					
		Providing two coats of aluminium paint over steel circular hollow pipe with overhang on one side	sqm	4.630	63.80	295.39	Item 8.9
	(i)	**For Fixing in Median**					
		d) Add GST (multiplying factor) @ 0.1405 on (a+b)				1661.80	
		e) Contractor's profit @ 15 % on (a+b+d)				2023.43	
		f) Add Cess @ 1.00 % on (a+b+d+e)				155.13	
		Rate per light for fixing in Median= a+b+c+d+e+f				16034.96	
					say	***16035.00***	
	(ii)	**For fixing in Footpath**					
		Rate per light for Fixing in Footpath = a+b+c+d+e+f				15963.51	
					say	***15963.50***	
		The items of excavation and cement concrete foundation will be measured and included separately in the estimate as per approved design and drawing. The rate for painting has been analysed in this chapter.					
8.30	Suggestive	**Lighting on Bridges**					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Providing and fixing lighting on bridges, mounted on steel hollow circular poles of standard specifications, 5 m high fixed on parapets with cement concrete, 20 m apart and fitted with sodium vapour lamp					
		Unit = Each					
		Taking output = one light					
		a) Labour					
		Mate	day	0.020	310.00	6.20	L-17
		Mazdoor (unskilled)	day	0.400	310.00	124.00	L-18
		Electrician	day	0.200	395.00	79.00	L-12
		b) Material					
		i) Steel circular hollow pole of standard specification for street lighting to mount light at 5 m above deck level	each	1.000	7475.00	7475.00	M-267
		ii) Sodium vapour lamp 70 watt	each	1.000	518.00	518.00	M-266
		Add 5 % of cost of material for holder, electric cable, insulation, ladder, scaffolding etc				399.65	
		c) Painting					
		Providing two coats of alluminium paint over steel circular hollow pipe	sqm	2.760	63.80	176.09	Item 8.9
		d) Add GST (multiplying factor) @ 0.1405 on (a+b)				1208.56	
		e) Contractor's profit @ 15 % on (a+b+d)				1471.56	
		f) Add Cess @ 1.00 % on (a+b+d+e)				112.82	
		Rate per light = a+b+c+d+e+f				11570.88	
					say	***11570.90***	
		The items of cement concrete to be measured and paid separately as per approved design. The rate for painting has already been analysed in this chapter.					
8.31	**Suggestive**	**Cable Duct Across the Road**					
		Providing and laying of a reinforced cement concrete pipe duct, 300 mm dia, across the road (new construction), extending from drain to drain in cuts and toe of slope to toe of slope in fills, constructing head walls at both ends, providing a minimum fill of granular material over top and sides of RCC pipe as per IRC:98-1997, bedded on a 0.3 m thick layer of granular material free of rock pieces, outer to outer distance of pipe at least half dia of pipe subject to minimum 450 mm in case of double and triple row ducts, joints to be made leak proof, invert level of duct to be above higher than ground level to prevent entry of water and dirt, all as per IRC: 98 - 1997 and approved drawings					
	(i)	**Single row for one utility service**					
		Unit = Running metre					
		Taking output = 20 metres					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		a) Random Brick masonry in cement mortar 1:6 for head wall both side	cum	2.360	8288.90	19561.80	Item 12.5 (IV)
		b) Labour					
		Mate	day	0.050	310.00	15.50	L-17
		Mazdoor (unskilled)	day	1.000	310.00	310.00	L-18
		Mazdoor (skilled)	day	0.250	395.00	98.75	L-20
		c) Material					
		Reinforced Cement Concrete pipe 300 mm dia	metre	20.000	800.00	16000.00	M-163
		Granular soil with PI less than 6 for bedding and sides of pipe (0.6 x 0.6 x 20 m)	cum	7.200	2535.00	18252.00	M-111
		Collar for joints 300 mm dia	each	9.000	160.00	1440.00	M-246
		Cement mortar 1:2 for joints	cum	0.020	4734.60	94.69	Item 12.5(I)
		d) Machinery					
		Tractor-trolley	hour	0.500	237.00	118.50	P&M-076
		e) Add GST (multiplying factor) @ 0.1405 on (b+c+d)				5104.29	
		f) Contractor's profit @ 15 % on (b+c+d+e)				6215.06	
		g) Add Cess @ 1.00 % on (b+c+d+e+f)				476.49	
		Cost for 20 metre = a+b+c+d+e+f+g				67687.08	
		Rate per metre = (a+b+c+d+e+f+g)/20				3384.35	
					say	***3384.40***	
(ii)		**Double row for two utility services** ***Unit = Running metre*** **Taking output = 20metres**					
		a) Random Brick masonry in cement mortar 1:6 for head wall both sides.	cum	3.370	8288.90	27933.59	Item 12.5 (IV)
		b) Labour					
		Mate	day	0.050	310.00	15.50	L-17
		Mazdoor (unskilled)	day	2.000	310.00	620.00	L-18
		Mazdoor (skilled)	day	0.250	395.00	98.75	L-20
		c) Material					
		Reinforced Cement Concrete pipe 300 mm dia	metre	40.000	800.00	32000.00	M-163
		Granular soil with PI less than 6 for bedding and sides of pipe (0.6 x 0.6 x 40 m)	cum	14.400	2535.00	36504.00	M-111
		Collar for joints 300 mm dia	each	18.000	160.00	2880.00	M-246
		Cement mortar 1:2 for joints	cum	0.040	4734.60	189.38	Item 12.5(I)
		d) Machinery					
		Tractor-trolley	hour	1.000	237.00	237.00	P&M-076
		e) Add GST (multiplying factor) @ 0.1405 on (b+c+d)				10192.52	
		f) Contractor's profit @ 15 % on (b+c+d+e)				12410.57	
		g) Add Cess @ 1.00 % on (b+c+d+e+f)				951.48	
		Cost for 20 metre = a+b+c+d+e+f+g				124032.80	
		Rate per metre = (a+b+c+d+e+f+g)/20				6201.64	
					say	***6201.60***	
(iii)		**Triple Row for three utility services** ***Unit = Running metre*** **Taking output = 20 metres**					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		a) Random Brick masonry in cement mortar 1:6 for head wall both sides.	cum	4.380	8288.90	36305.38	Item 12.5 (IV)
		b) Labour					
		Mate	day	0.160	310.00	49.60	L-17
		Mazdoor (unskilled)	day	3.000	310.00	930.00	L-18
		Mazdoor (skilled)	day	1.000	395.00	395.00	L-20
		c) Material					
		Reinforced Cement Concrete pipe 300 mm dia	metre	60.000	800.00	48000.00	M-163
		Granular soil with PI less than 6 for bedding and sides of pipe (0.6 x 0.6 x 60 m)	cum	21.600	2535.00	54756.00	M-111
		Collar for joints 300 mm dia	each	27.000	160.00	4320.00	M-246
		Cement mortar 1:2 for joints	cum	0.060	4734.60	284.08	Item 12.5(I)
		d) Machinery					
		Tractor-trolley	hour	1.500	237.00	355.50	P&M-076
		e) Add GST (multiplying factor) @ on (b+c+d)				15327.17	
		f) Contractor's profit @ on (b+c+d+e)				18662.60	
		g) Add Cess @ 1.00 % on (b+c+d+e+f)				1430.80	
		Cost for 20 metre = a+b+c+d+e+f+g				180816.13	
		Rate per metre = (a+b+c+d+e+f+g)/20				9040.81	
					say	***9040.80***	
		1.Inspection chamber at both ends is the responsibility of the agency who is laying the duct. Hence not included.					
		2.The rates for stone masonry / brick masonry and cement mortar to be adopted from respective clauses.					
8.32	**Suggestive**	**Gantry Mounted Variable Message Sign Board**					
		Providing and erecting gantry mounted variable message sign board electronically operated capable of flashing the desired message over a designed support system of aluminium alloy or galvanised steel, erected as per approved design and drawings and with lateral clearance as per clause 802.3					
	(i)	**Gantry Support System**					
		Unit = tonne					
		Taking output=1 tonne					
		a) Labour					
		Mate	day	0.120	310.00	37.20	L-17
		Mazdoor (unskilled)	day	2.000	310.00	620.00	L-18
		Blacksmith	day	1.000	418.00	418.00	L-03
		b) Material					
		Alluminium alloy/galvanised steel including 5 per cent wastage	tonne	1.050	53500.00	56175.00	M-268
		Add 15 % of cost of material for fabrication and erection.				8426.25	
		Add 1 % of cost of material for nuts, bolts and welding				561.75	
		c) Machinery					
		Truck 10 tonne	hour	1.000	375.00	375.00	P&M-080
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				9359.15	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		e) Contractor's profit @ 15 % on (a+b+c+d)				11395.85	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				964.09	
		Rate per tonne = a+b+c+d+e+f				88332.30	
					say	***88332.30***	
	(ii)	**Message Display** Message display board 6 sqm electronically operated with complete electronic fitments for flashing the pre-determined messages. This is a specilised commercial product and the lumpsum rate including erection at site is required to be as certained from the market and including in the rate analysis. The size of the board will vary depending upon specific location. The rate for the gantry mounted variable sign would be the addition of cost of gantry support system as per approved design determined at (i) above and the cost of message display board as certained from the market at (ii) above					
8.33	**Suggestive**	**Traffic Impact Attenuators at Abutments and Piers**					
	A.	**With Scrap Tyres** Provision and installation of traffic attenuators at abutment/pier of flyovers bridges using scrap tyres of size 100 x 20 retrieved from trucks laid in 2 rows and 4 tiers, one above the other and tied with 20 mm wire rope as per approved design and drawings.					
		Unit = sqm					
		Taking output = 20 sqm					
		a) Labour					
		Mate	day	0.080	310.00	24.80	L-17
		Mazdoor (unskilled)	day	1.500	310.00	465.00	L-18
		Blacksmith	day	0.250	418.00	104.50	L-03
		b) Material					
		Scrap tyres of size 900 x 20	each	80.000	270.00	21600.00	M-269
		20 mm steel wire rope	kg	150.000	76.40	11460.00	M-264
		Add 1 % of cost of wire rope for clamps etc.				114.60	
		c) Machinery					
		Tractor-trolley	hour	3.000	237.00	711.00	P&M-076
		d) Add GST (multiplying factor) @ on (a+b+c)				4844.43	
		e) Contractor's profit @ 15 % on (a+b+c+d)				5898.65	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				452.23	
		Cost for 20 sqm = a+b+c+d+e+f				45675.20	
		Rate per sqm = (a+b+c+d+e+f)/20				2283.76	
					say	***2283.80***	
	B.	**Using Plastic/Steel Barrel, Filled with Sand**					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Provision and installation of traffic impact attenuator at abutment/pier of flyovers bridges using plastic/steel barrels 0.60 m dia and 1.0 m in height, filled with sand in three rows and tied with20 mm steel wire rope as per approved design and drawings					
		Unit = sqm					
		Taking output = 20 sqm					
		a) Labour					
		Mate	day	0.130	310.00	40.30	L-17
		Mazdoor (unskilled)	day	3.000	310.00	930.00	L-18
		Blacksmith	day	0.250	418.00	104.50	L-03
		b) Material					
		Plastic barrels	each	50.000			
		or					
		Steel barrels	each	50.000	305.00	15250.00	M-043
		Sand	cum	8.000	460.00	3680.00	M-171
		20 mm steel wire rope	kg	15.000	76.40	1146.00	M-264
		Add 1 % of cost of wire rope for clamps etc.				11.46	
		c) Machinery					
		Tractor-trolley	hour	2.000	237.00	474.00	P&M-076
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				3039.89	
		e) Contractor's profit @ 15 % on (a+b+c+d)				3701.42	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				283.78	
		Cost for 20 sqm = a+b+c+d+e+f				28661.35	
		Rate per sqm = (a+b+c+d+e+f)/20				1433.07	
					say	***1433.10***	
8.34	**Suggestive**	**Roadside Amenities**					
	A.	**Rest areas**					
		Providing plainly furnished accommodation for rest rooms, dormitories, restaurants, stalls, shops, petrol pump, telephone booth, first aid room, traffic aid post, police assistance booth, including electricity, toilet and sewerage system					
		Pricing may be done based on current plinth area rates approved by PWD/CPWD/MES for a particular zone. Area is required to be assessed for specific location as per actual site conditions					
	B.	**Parking areas and bus laybyes for trucks, buses and light vehicles**					
		Pricing of parking areas may be done for the quantities of various items based on the approved dimensions and pavement design for a particular terrain and soil. Rates for items may be from respective chapters.					
	C.	**Lawn**					
		Providing a lawn planted with grass and its maintenance					
		Pricing of lawn may be done as per rates given in the chapter on horticulture for the quantities as per approved dimensions in the drawings					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
8.35	Suggestive	**Rumble Strips** Provision of 15 nos rumble strips covered with premix bituminous carpet, 15-20 mm high at center, 250 mm wide placed at 1 m center to center at approved locations to control speed, marked with white strips of road marking paint. ***Unit = sqm*** **Taking output = 100 sqm (including gaps)** The rate per sqm of premix carpet and road marking may be adopted from chapter 5 & 8 respectively for the quantities calculated from approved drawings					
8.36		**Safety Devices and Signs in Construction Zones** Provision and fixing of traffic signs for limited period at suitable locations in construction zone comprising of warning zone, approach transition zone, working zone and terminal transition zone with a minimum distance of 60 cm from the edge of the kerb in case of kerbed roads and 2 to 3 m from the edge of the carriageway in case of un-kerbed roads, the bottom edge of the lowest sign plate to be not less than 2 m above the road level, fixed on 60 mm x 60 mm x 6 mm angle iron post, founded and installed as per approved design and drawings, removed and disposed of after completion of construction work, all as per IRC:SP:55-2001 ***Unit = each*** **Taking output = one sign post** Following types of signs are required to be fixed in construction zones for safety of traffic a) Diversion one km ahead b) Traffic sign ahead c) Road ahead closed d) Men at work e) Road narrow f) Single file traffic g) Right lane diverted h) Left lane diverted i) Right lane closed j) Left lane closed k) Median closed l) Diversion to other carriageway m) Traffic signal ahead n) Two way traffic o) Un - even road p) Slippery road q) Loose chippings r) Dual carriageway ends s) Diversion t) Do not enter u) Road closed					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		v) Stop w) Slow x) One way y) Give way z) Overtaking prohibited aa) Speed limit bb) Weight limit cc) Height and length limit dd) No stopping or standing ee) Any other warning or regulatory safety sign as per site requirement and consistent with IRC:SP:55-2001 and IRC:67 The rate for traffic signs are already worked out and given elsewhere in this chapter. The same may be adopted.					
8.37	**suggestive**	**Portable Barricade in Construction Zone** Installation of a steel portable barricade with horizontal rail 300 mm wide, 2.5 m in length fitted on a 'A' frame made with 45 x 45 x 5 mm angle iron section, 1.5 m in height, horizontal rail painted (2 coats) with yellow and white stripes, 150 mm in width at an angle of 450, 'A' frame painted with 2 coats of yellow paint, complete as per IRC:SP:55-2001 ***Unit = each*** **Taking output = one steel portable barricade**					
		a) Labour					
		Mate	day	0.020	310.00	6.20	L-17
		Mazdoor (unskilled)	day	0.250	310.00	77.50	L-18
		Painter	day	0.500	395.00	197.50	L-22
		Welder	day	0.250	440.00	110.00	L-27
		b) Material					
		Angle iron 45 x 45 x 5 mm	kg	25.000	47.00	1175.00	M-192/1000
		MS sheet 300 mm wide,2.5 m long and 2.6 mm thick	kg	15.000	47.00	705.00	M-192 /1000
		Paint	litre	0.500	170.00	85.00	M-142
		Add 2 % of cost of steel for welding consumables, nuts & bolts and drilling holes				15.80	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				333.27	
		d) Contractor's profit @ 15 % on (a+b+c)				405.79	
		e) Add Cess @ 1.00 % on (a+b+c+d)				31.11	
		Rate per barricade = a+b+c+d+e				3142.17	
					say	***3142.20***	
8.38	**suggestive**	**Permanent Type Barricade in Construction Zone**					
	(i)	**With steel components**					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Construction of a permanent type barricade made of steel components, 1.5 m high from road level, fitted with 3 horizontal rails 200 mm wide and 4 m long on 50 x 50 x 5 mm angle iron vertical support, painted with yellow and white strips, 150 mm in width at an angle of450, complete as per IRC:SP:55-2001					
		Unit = each					
		Taking output = one barricade					
		a) Labour					
		Mate	day	0.050	310.00	15.50	L-17
		Mazdoor (unskilled)	day	0.300	310.00	93.00	L-18
		Painter	day	0.600	395.00	237.00	L-22
		Welder	day	0.300	440.00	132.00	L-27
		b) Material					
		Angle iron 50 x 50 x 5 mm,2 m long,2 Nos.	kg	15.000	47.00	705.00	M-192/1000
		MS sheet of 12 SWG,3 Nos of 200 mm width and 4 m length	kg	50.000	47.00	2350.00	M-192 /1000
		Paint	litre	1.000	170.00	170.00	M-142
		Add 1 % of cost of steel for welding consumables, nuts & bolts and drilling holes				30.55	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				524.49	
		d) Contractor's profit @ 15 % on (a+b+c)				638.63	
		e) Add Cess @ 1.00 % on (a+b+c+d)				48.96	
		Rate per barricade = a+b+c+d				4945.14	
					say	***4945.10***	
	(ii)	**With bricks**					
		Construction of a permanent type barricade made with brick work in mud mortar, 1.5 m high, 4 m long, 600 mm thick, plastered with cement mortar 1:6, painted with yellow and white strips					
		Unit = each					
		Taking output = one barricade					
		a) Labour					
		Mate	day	0.240	310.00	74.40	L-17
		Mazdoor (unskilled)	day	3.000	310.00	930.00	L-18
		Painter	day	1.000	395.00	395.00	L-22
		Mason	day	2.000	440.00	880.00	L-27
		b) Material					
		Brick	each	1641.00	12.45	20430.45	M-049
		Cement	kg	22.000	5.80	127.60	M-052 /1000
		Sand	cum	0.090	460.00	41.40	M-171
		Paint	litre	1.250	170.00	212.50	M-142
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				3244.33	
		d) Contractor's profit @ 15 % on (a+b+c)				3950.35	
		e) Add Cess @ 1.00 % on (a+b+c+d)				302.86	
		Rate per barricade = a+b+c+d+e				30588.90	
					say	***30588.90***	
8.39	**811**	**Road Traffic Signals electrically operated**					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Since it is a ready made item commercially produced and erected by specialised firm in the electrical and electronic field, rate may be taken based on market enquiry from firms specialised in this field and ISI certified for the approved design and drawing.					
8.40	Suggestive	**Items Related to Underpass/ Subway/ Overhead Bridge/ Overhead Foot Bridge** The items involved for underpass/ subway/ overhead bridge/ overhead foot bridge are earthwork, plain cement concrete, plastering, painting, information sign etc. The rates for these items are available in respective chapters which can be adopted for the quantities derived from the approved designs and drawings					
8.41	Suggestive	**Traffic Control System and Communication System** Providing a traffic control centre and communication system including telecommunication facilities and related accessories, CCTV, radar, vehicle detection camera, central computer system These are specialised item of telecommunication system and are the commercial products. The designer is required to contact the manufacturers to ascertain market prices. In case of civil works required to be executed for these installations, pricing may be done as per rates in relevant chapters for quantities derived as per approved design and drawing. As regards the locations where such devices are required to be installed, the traffic control authority should be consulted to finalise the location					
8.42	801	**Object Hazard Marking Traffic Signs** Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign as per IRC:67 made of high intensity grade shetting vide MoRT&H technical specification Clause 801.3, fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm below ground level as per IRC guideline/ MoRT&H Technical Specification Clause 801. **(i) 900 mm x 300 mm rectangular object hazard marking traffic signs** ***Unit = Each*** ***Taking output = one traffic sign***					

CHAPTER-8
TRAFFIC SIGNS, MARKINGS & OTHER ROAD APPURTENANCES

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		i) Excavation for foundation	cum	0.243	341.70	83.03	Item no. 12.1.I.A
		As per item no. 12.1.I.A of Chapter 12					
		ii) Cement concrete M15 grade	cum	0.122	9322.00	1137.28	Item no. 12.6.A
		As per item no. 12.6.A of Chapter 12					
		iii) Painting angle iron post two coats	sqm	0.430	63.80	27.43	Item no. 8.9
		As per item no. 8.9 of this Chapter					
		a) Labour (For fixing at site)					
		Mate	day	0.010	310.00	3.10	L-17
		Mazdoor (unskilled)	day	0.250	310.00	77.50	L-18
		b) Material					
		Mild steel angle iron 75 x 75 x 6 mm	kg	19.000	47.00	893.00	M-132
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint					
		900 mm x 300 mm rectangular	sqm	0.270	785.40	212.06	M-030
		Add 2 per cent of cost of angle iron towards cost of drilling holes, nuts, bolts etc.				22.10	
		c) Machinery					
		Tractor with trolley	hour	0.010	237.00	2.37	P&M-076
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				170.02	
		e) Contractor's profit @ 15 % on (a+b+c+d)				207.02	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				15.87	
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				2850.80	
					say	***2850.80***	
8.43	**801**	**Road Safety Convex Mirror** Providing and fixing pole mounting (50 mm dia steel pole of standard height) 800 mm dia strong unbreakabale highly reflective road safety convex mirror body made up of poly carbonate having large viewing angle from standard distance (minimum 6 m) firmly fixed to the gound by means of properly designed foundation with M-15 grade cement concrete 450mm x 45mm x 600 mm as per IRC guideline/ MoRT&H Technical Specification Clause 801.					
		Unit = Each					
		Taking output = one traffic sign (Convex Mirror 32 inchs - 800 MM Dia)					
		i) Excavation for foundation	cum	0.243	341.70	83.03	Item no. 12.1.I.A
		As per item no. 12.1.I.A of Chapter 12					
		ii) Cement concrete M15 grade	cum	0.122	9322.00	1137.28	Item no. 12.6.A
		As per item no. 12.6.A of Chapter 12					

CHAPTER-8
TRAFFIC SIGNS, MARKINGS & OTHER ROAD APPURTENANCES

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		iii) Painting angle iron post two coats	sqm	0.430	63.80	27.43	Item no. 8.9
		As per item no. 8.9 of this Chapter					
		a) Labour (For fixing at site)					
		Mate	day	0.010	310.00	3.10	L-17
		Mazdoor (unskilled)	day	0.250	310.00	77.50	L-18
		b) Material					
		Mild steel angle iron 75 x 75 x 6 mm	kg	19.000	47.00	893.00	M-132
		Convex Mirror 32 inchs - 800 MM Dia of body made up of poly carbonate, colour orange, pole mounting fittings & wall mounting fittings.	each	1.000	2375.000	2375.000	M-297
		c) Machinery					
		Tractor with trolley	hour	0.010	237.00	2.37	P&M-076
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				470.81	
		e) Contractor's profit @ 15 % on (a+b+c+d)				573.27	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				43.95	
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				5686.75	
					say	***5686.80***	
8.44	suggestive	**Permanent Type Barricade in Construction Zone** Construction of a permanent type barricade made of wooden components, 1.5 m high from road level, fitted with 3 horizontal planks 200 mm wide and 3.66 m long on 100 x 100mm wooden vertical post, painted with yellow and white strips, 150 mm in width at an angle of450, complete as per IRC:SP:55-2001					
		B.With wooden components					
		Unit = each					
		Taking output = one barricade					
		a) Labour					
		Mate	day	0.050	310.00	15.50	L-17
		Mazdoor (unskilled)	day	0.300	310.00	93.00	L-18
		Painter	day	0.600	395.00	237.00	L-22
		Carpenter	day	0.600	395.00	237.00	L-07
		b) Material					
		Timber	cum	0.180	20450.00	3681.00	M-233
		Add 1 per cent of cost of timber for nuts & bolts, nails, etc.				36.81	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				604.19	
		d) Contractor's profit @ 15 % on (a+b+c)				735.68	
		e) Add Cess @ 1.00 % on (a+b+c+d)				56.40	
		Rate per barricade = a+b+c+d+e				5696.58	
					say	***5696.60***	

CHAPTER-9
PIPE CULVERTS

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
9.1	2100	**PCC 1:3:6 in Foundation** Plain cement concrete 1:3:6 nominal mix in foundation with crushed stone aggregate 40 mm nominal size mechanically mixed, placed in foundation and compacted by vibration including curing for 14 days as per drawings & MoRT&H technical specifications Clauses 2100.					
		Unit = cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.640	310.00	198.40	L-17
		Mason (1st Class)	day	1.000	440.00	440.00	L-15
		Mazdoor (unskilled)	day	15.000	310.00	4650.00	L-18
		b) Machinery					
		Concrete mixer 0.4/ 0.28 cum	hour	6.000	192.00	1152.00	P&M-014
		Generator set 33 KVA	hour	6.000	225.00	1350.00	P&M-027
		Water tanker 6 KL capacity	hour	2.000	200.00	400.00	P&M-084
		c) Material					
		Cement	tonne	3.450	5800.00	20010.00	M-052
		Sand	cum	6.750	560.00	3780.00	M-170
		40mm aggregate	cum	13.500	4692.00	63342.00	M-023
		Cost of water	KL	18.000	133.00	2394.00	M-196
		d) Formawork @ 4.00 % on cost of materials, labour & machinery (a+b+c)				3908.66	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				14278.32	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				17385.51	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1332.89	
		Cost for 15 cum = a+b+c+d+e+f+g				134621.77	
		Rate per cum = (a+b+c+d+e+f+g)/15				8974.78	
					say	***8974.80***	
		Note:- Vibrator is a part of minor T & P which is already included in Add GST (multiplying factor) of the contractor.					
9.2	2900	**Providing and laying Reinforced Cement Concrete Pipe NP3 / prestressed concrete pipe on first class bedding in single Row.** Providing and Laying reinforced cement concrete pipe NP3 / prestressed concrete pipe with collar for culverts on first class bedding of granular material in single row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling , concrete and masonry works in head walls and parapets as per MoRT&H Technical specification Clause 2900.					
		Unit = metre					
		Taking output = 12.5 metres (5 pipes of 2.5 m length each)					
		A. 1200 mm dia					
		a) Labour					

CHAPTER-9
PIPE CULVERTS

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Mate	day	0.180	310.00	55.80	L-17
		Mason (1st Class)	day	0.500	440.00	220.00	L-15
		Mazdoor (unskilled)	day	4.000	310.00	1240.00	L-18
		b) Material					
		Sand	cum	0.070	560.00	39.20	M-170
		Cement	tonne	0.070	5800.00	406.00	M-052
		RCC pipe NP-3 including collar, 1200 mm dia	metre	12.500	12200.00	152500.00	M-155
		Granular material passing 5-6 mm sieve for class bedding	cum	5.000	4965.00	24825.00	M-013
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				25189.68	
		d) Contractor's profit @ 15 % on (a+b+c)				30671.35	
		e) Add Cess @ 1.00 % on (a+b+c+d)				2351.47	
		Cost for 12.5 metres = a+b+c+d+e				237498.51	
		Rate per metre= (a+b+c+d+e)/12.5				18999.88	
					say	***18999.90***	
		B. 1000 mm dia					
		a) Labour					
		Mate	day	0.140	310.00	43.40	L-17
		Mason (1st Class)	day	0.380	440.00	167.20	L-15
		Mazdoor (unskilled)	day	3.000	310.00	930.00	L-18
		b) Material					
		Sand	cum	0.040	560.00	22.40	M-170
		Cement	tonne	0.040	5800.00	232.00	M-052
		RCC pipe NP-3 including collar, 1000 mm dia	metre	12.500	9380.00	117250.00	M-156
		Granular material passing 5-6 mm sieve for class bedding	cum	4.500	4965.00	22342.50	M-013
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				19808.74	
		d) Contractor's profit @ 15 % on (a+b+c)				24119.44	
		e) Add Cess @ 1.00 % on (a+b+c+d)				1849.16	
		Cost for 12.5 metres = a+b+c+d+e				186764.84	
		Rate per metre = (a+b+c+d+e)/12.5				14941.19	
					say	***14941.20***	
		Note:- 1. In case of cement concrete bedding, quantity of PCC M15 is to be calculated as per design and priced separately and added . 2. The rate analysis does not include excavation, cement /masonry works in head walls, backfilling, protection works and parapet walls. The same are to be calculated as per approved design and drawings and priced separately on rates available under respective sections.					
9.3	**2900**	**Providing and laying Reinforced Cement Concrete Pipe NP3 / prestressed concrete pipe on first class bedding in double row.**					

CHAPTER-9
PIPE CULVERTS

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Providing and Laying reinforced cement concrete pipe NP3 / prestressed concrete pipe with collar for culverts on first class bedding of granular material in double row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets as per MoRT&H Technical specification Clause 2900					
		Unit = metre					
		Taking output = 12.5 metres (5 pipes of 2.5 m length each in two rows)					
		A. 1200 mm dia					
		a) Labour					
		Mate	day	0.460	310.00	142.60	L-17
		Mason (1st Class)	day	1.500	440.00	660.00	L-15
		Mazdoor (unskilled)	day	10.000	310.00	3100.00	L-18
		b) Material					
		Sand	cum	0.180	560.00	100.80	M-170
		Cement	tonne	0.140	5800.00	812.00	M-052
		RCC pipe NP-3 including collar, 1200 mm dia	metre	25.000	12200.00	305000.00	M-155
		Granular material passing 5-6 mm sieve for bedding	cum	13.750	4965.00	68268.75	M-013
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				53120.82	
		d) Contractor's profit @ 15 % on (a+b+c)				64680.75	
		e) Add Cess @ 1.00 % on (a+b+c+d)				4958.86	
		Cost for 12.5 metres = a+b+c+d+e				500844.58	
		Rate per metre= (a+b+c+d+e)/12.5				40067.57	
					say	***40067.60***	
		A. 1000 mm dia					
		a) Labour					
		Mate	day	0.270	310.00	83.70	L-17
		Mason (1st Class)	day	0.750	440.00	330.00	L-15
		Mazdoor (unskilled)	day	6.000	310.00	1860.00	L-18
		b) Material					
		Sand	cum	0.140	560.00	78.40	M-170
		Cement	tonne	0.100	5800.00	580.00	M-052
		RCC pipe NP-3 including collar, 1000 mm dia	metre	25.000	9380.00	234500.00	M-156
		Granular material passing 5.6 mm sieve for bedding	cum	12.500	4965.00	62062.50	M-013
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				42078.99	
		d) Contractor's profit @ 15 % on (a+b+c)				51236.04	
		e) Add Cess @ 1.00 % on (a+b+c+d)				3928.10	
		Cost for 12.5 metres = a+b+c+d+e				396737.73	
		Rate per metre = (a+b+c+d+e)/12.5				31739.02	
					say	***31739.00***	
		Note:- 1. In case of cement craddle bedding, quantity of PCC M15 is to be calculated as per design and priced separately and added. .					

CHAPTER-9
PIPE CULVERTS

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		2. The rate analysis does not include excavation, cement /masonry works in head walls, backfilling, protection works and parapet walls. The same are to be calculated as per approved design and drawings and priced separately on rates available under respective sections.					

CHAPTER- 10
MAINTENANCE OF ROADS

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
10.1	**3002**	**Restoration of Rain Cuts** Restoration of rain cuts with soil , moorum gravel or a mixture of these, clearing the loose soil, benching for 300 mm width laying fresh material in layers not exeeding 250 mm and compaction with plate compactor or power rammer to restore the original alignment, level and slopes as per drawings and MoRT&H technical specification Clause 3002.					
		Unit = cum					
		Taking output = 10 cum					
		a) Labour					
		Mate	day	0.080	310.00	24.80	L-17
		Mazdoor(unskilled)	day	2.000	310.00	620.00	L-18
		b) Machinery					
		Excavator 1.0 cum bucket capacity @ 60 cum per hour	hour	0.130	1200.00	156.00	P&M-034
		Tipper 5.50 cum, 10 T capacity	hour	2.270	334.00	758.18	P&M-073
		Add 10 per cent of cost of carriage towards loading and unloading charges.				91.42	
		Plate compactor	hour	0.500	75.00	37.50	P&M-051
		c) Material					
		Compensation for earth taken from private land	cum	7.500	17.05	127.88	M-061
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				255.12	
		e) Contractor's profit @ 15 % on (a+b+c+d)				310.63	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				23.82	
		Cost for 10 cum = a+b+c+d+e+f				2405.34	
		Rate per cum = (a+b+c+d+e+f)/10				240.53	
					say	***240.50***	
		Note:- Only 75 % of fresh material has been provided as 25 % can be retrieved at site from earth that is flown down the slope in the form of slurry and deposited at the foot of rain cuts					
10.2	**3003**	**Maintenance of Earthen shoulder (filling with fresh selected soil)** Making up loss of material / irregularities on shoulders to the design level by adding fresh approved selected soil and compacting it with appropriate equipment at OMC upto a lead of 1000 m as per MoRT&H technical specification Clause 3003.					
		Unit = sqm					
		Taking output = 100 sqm					
		Assuming average thickness of filling to be 150 mm					
		Quantity of fresh material = 15 cum					
		a) Labour					
		Mate	day	0.180	310.00	55.80	L-17
		Mazdoor(unskilled)	day	4.500	310.00	1395.00	L-18
		b) Machinery					
		Excavator 1.0 cum bucket capacity @ 60 cum per hour	hour	0.250	1200.00	300.00	P&M-034
		Tipper 5.50 cum, 10 T capacity	hour	3.000	334.00	1002.00	P&M-073

CHAPTER- 10
MAINTENANCE OF ROADS

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Add 10 per cent of cost of carriage towards loading and unloading charges.				130.20	
		Plate compactor	hour	12.000	75.00	900.00	P&M-051
		c) Material					
		Compensation for earth taken from private land	cum	15.000	17.05	255.75	M-003
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				567.44	
		e) Contractor's profit @ 15 % on (a+b+c+d)				690.93	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				52.97	
		Cost for 100 sqm = a+b+c+d+e+f				5350.09	
		Rate per sqm = (a+b+c+d+e+f)100				53.50	
					say	***53.50***	
10.3	**3003**	**Maintenance of Earth Shoulder (stripping excess soil)**					
		Stripping excess soil from the shoulder surface to achieve the approved level and compacting with plate compactor at OMC as per drawing and MoRT&H technical specification Clause 3003. ***Unit = sqm*** ***Taking output = 100 sqm*** Assuming average depth of stripping as 75 mm Quantity of earth cutting involved = 7.5 cum					
		a) Labour					
		Mate	day	0.100	310.00	31.00	L-17
		Mazdoor(unskilled)	day	2.500	310.00	775.00	L-18
		b) Machinery					
		Plate compactor	hour	4.000	75.00	300.00	P&M-051
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				155.39	
		d) Contractor's profit @ 15 % on (a+b+c)				189.21	
		e) Add Cess @ 1.00 % on (a+b+c+d)				14.51	
		Cost for 100 sqm = a+b+c+d+e				1465.11	
		Rate per sqm on = (a+b+c+d+e)100				14.65	
					say	***14.70***	
		Note:- The earth stripped from earthen shoulders to be dumped on the side slopes locally for disposal.					
10.4	**3004.2**	**Filling Pot-holes and Patch Repairs with open-Graded Premix surfacing, 20mm.**					
		Removal of all failed material, trimming of completed excavation to provide firm vertical faces, cleaning of surface, painting of tack coat on the sides and base of excavation as per clause 503, back filling the pot holes with hot bituminous material as per clause 511, compacting, trimming and finishing the surface to form a smooth continuous surface, all as per MoRT&H technical specification Clause 3004.2 ***Unit = Sqm***					

CHAPTER- 10
MAINTENANCE OF ROADS

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Taking out put = 10250 sqm (205 cum)(405 tonne)					
		a) Labour					
		Mate	Day	3.760	310.00	1165.60	L-17
		Mazdoor (unskilled)	Day	90.000	310.00	27900.00	L-18
		Mazdoor (skilled)	Day	4.000	395.00	1580.00	L-20
		b) Machinery					
		HMP 100-110 TPH Capacity	hour	6.000	15400.00	92400.00	P&M-005
		Air compressor 250 cfm	hour	6.000	210.00	1260.00	P&M-001
		Tipper 5.50 cum, 10 tonnes capacity	hour	45.000	334.00	15030.00	P&M-073
		Three wheeled 80-100 kN static Roller	hour	12.000	392.00	4704.00	P&M-065
		c) Material					
		Bitumen emulsion**(SS-1)** for tack coat including vertical sides of pot hole.	tonne	2.460	38830.00	95521.80	M-046
		Bitumen **(VG-30)**	tonne	14.970	40138.00	600865.86	M-041
		Crushed stone aggregates nominal size 13.2mm @ 0.18 cum/10 sqm	cum	184.500	4825.00	890212.50	M-184
		Crushed stone aggregates nominal size 11.2mm @.09 cum/ 10 sqm	cum	92.250	5015.00	462633.75	M-187
		Add for wastage @ 5.00 %				102461.70	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				322550.80	
		e) Contractor's profit @ 15 % on (a+b+c+d)				392742.90	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				30110.29	
		Cost for 10250 sqm = a+b+c+d+e+f				3041139.19	
		Rate per sqm = (a+b+c+d+e+f)/10250				296.70	
					say	***296.70***	
10.5	**3004.2**	**Filling Pot-holes and Patch Repairs with Bituminous concrete, 40mm.**					
		Removal of all failed material, trimming of completed excavation to provide firm vertical faces, cleaning of surface, painting of tack coat on the sides and base of excavation as per clause 503, back filling the pot holes with hot bituminous material as per clause 511, compacting, trimming and finishing the surface to form a smooth continuous surface, all as per MoRT&H technical specification Clause 3004.2					
		A. Grading - I (19 mm nominal size)					
		Unit = Sqm					
		Taking out put = 4900 sqm (196 cum) (450 Tonnes)					
		a) Labour					
		Mate	Day	2.920	310.00	905.20	L-17
		Mazdoor (unskilled)	Day	70.000	310.00	21700.00	L-18
		Mazdoor (skilled)	Day	3.000	395.00	1185.00	L-20
		b) Machinery					
		HMP 100-110 TPH Capacity	hour	6.000	15400.00	92400.00	P&M-005
		Air compressor 250 cfm	hour	6.000	210.00	1260.00	P&M-001
		Tipper 5.50 cum, 10 tonnes capacity	hour	45.000	334.00	15030.00	P&M-073
		Three wheeled 80-100 KN static Roller	hour	12.000	392.00	4704.00	P&M-065

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MAINTENANCE OF ROADS

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		c) Material					
		i) Bitumen emulsion**(SS-1)** for tack coat including vertical sides of pot hole.	tonne	1.180	38830.00	45819.40	M-046
		ii) Bitumen for BM **(VG-30)**	tonne	22.500	40138.00	903105.00	M-041
		iii) Aggregates					
		Grading I - 19 mm (Nominal size)					
		20-10mm 35 per cent	cum	99.75	4631.00	461942.25	M-011
		10-5 mm 23 per cent	cum	65.55	4852.00	318048.60	M-006
		5mm and below 40 per cent	cum	114.00	4965.00	566010.00	M-013
		Filler (cement) 2 per cent	tonne	8.550	5800.00	49590.00	M-052
		Add 5 per cent for wastage				117225.76	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				365148.99	
		e) Contractor's profit @ 15 % on (a+b+c+d)				444611.13	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				34086.85	
		Cost for 4900 cum = a+b+c+d+e+f				3442772.19	
		Rate per cum = (a+b+c+d+e+f)/4900				702.61	
					say	***<u>702.60</u>***	
		B. Grading - II (13mm nominal size)					
		Unit = Sqm					
		Taking out put = 4900 sqm (196 cum) (450 Tonnes)					
		a) Labour					
		Mate	Day	2.920	310.00	905.20	L-17
		Mazdoor (unskilled)	Day	70.000	310.00	21700.00	L-18
		Mazdoor (skilled)	Day	3.000	395.00	1185.00	L-20
		b) Machinery					
		HMP 100-110 TPH Capacity	hour	6.000	15400.00	92400.00	P&M-005
		Air compressor 250 cfm	hour	6.000	210.00	1260.00	P&M-001
		Tipper 5.50 cum, 10 tonnes capacity	hour	45.000	334.00	15030.00	P&M-073
		Three wheeled 80-100 KN static Roller	hour	12.000	392.00	4704.00	P&M-065
		c) Material					
		i) Bitumen emulsion**(SS-1)** for tack coat including vertical sides of pot hole.	tonne	1.180	38830.00	45819.40	M-046
		ii) Bitumen for BM **(VG-30)**	tonne	22.500	40138.00	903105.00	M-041
		iii) Aggregates					
		Grading II - 13 mm (Nominal size)					
		13.2-10 mm 30 per cent	cum	85.500	4770.00	407835.00	M-005
		10-5 mm 25 per cent	cum	71.250	4852.00	345705.00	M-006
		5 mm and Below 43 per cent	cum	122.550	4965.00	608460.75	M-013
		Filler (cement) 2 per cent	tonne	8.550	5800.00	49590.00	M-052
		Add 5 per cent for wastage				118025.76	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				367509.38	
		e) Contractor's profit @ 15 % on (a+b+c+d)				447485.17	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				34307.20	
		Cost for 4900 cum = a+b+c+d+e+f				3465026.85	
		Rate per cum = (a+b+c+d+e+f)/4900				707.15	
					say	***<u>707.10</u>***	
10.6	**3004.3.3**	**Crack Filling**					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Filling of crack using slow - curing bitumen emulsion and applying crusher dust in case crack are wider than 3 mm as per MoRT&H technical specification Clause 3004.3.3.					
		Unit = Running Meter					
		Taking out put = 500m					
		a) Labour					
		Mate	day	0.040	310.00	12.40	L-17
		Mazdoor (unskilled)	day	1.000	310.00	310.00	L-18
		b) Material					
		Bitumen emulsion**(SS-1)**	Kg	33.000	38.83	1281.39	M-046
		Stone crusher dust	cum	0.020	2510.00	50.20	M-070
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				232.39	
		d) Contractor's profit @ 15 % on (a+b+c)				282.96	
		e) Add Cess @ 1.00 % on (a+b+c+d)				21.69	
		Cost for 500sqm = a+b+c+d+e				2191.03	
		Rate per meter = (a+b+c+d+e)/500				4.38	
					say	***4.40***	
10.7	**3004.4**	**Dusting**					
		Applying crusher dust to areas of road where bleeding of excess bitumen has occurred as per MoRT&H technical specification Clause 3004.4.					
		Unit = Sqm					
		Taking output = 3500 sqm					
		a) Labour					
		Mate	day	0.080	310.00	24.80	L-17
		Mazdoor (unskilled)	day	2.000	310.00	620.00	L-18
		b) Material					
		Stone crusher dust finer than 3mm with not more than 10 per cent passing 0.075 sieve.	cum	6.250	2510.00	15687.50	M-070
		Add 5.00 % for wastage				816.62	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				2409.42	
		d) Contractor's profit @ 15 % on (a+b+c)				2933.75	
		e) Add Cess @ 1.00 % on (a+b+c+d)				224.92	
		Cost for 3500sqm = a+b+c+d+e				22717.01	
		Rate per meter = (a+b+c+d+e)/3500				6.49	
					say	***6.50***	
10.8	**3004.3.2**	**Fog Seal**					
	3004.3.4	**Crack Prevention courses.**					
10.8	**3004.5**	**Slurry Seal**					
10.8	**3004.6**	**Surface Dressing for maintenance works.**					
		These items have already been included in chapter 5.					
10.9	**3005.1**	**Repair of Joint Grooves with Epoxy Mortar**					
		Repair of spalled joint grooves of contraction joints, longitudinal joints and expansion joints in concrete pavements using epoxy mortar or epoxy concrete as per MoRT&H technical specification Clause 3005.1.					
		Unit = running metre					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Taking output = 10 metres					
		a) Labour					
		Mate	day	0.040	310.00	12.40	L-17
		Mazdoor(unskilled)	day	0.500	310.00	155.00	L-18
		Chiseller	day	0.500	310.00	155.00	L-09
		b) Material					
		Epoxy compound with accessories for preparing epoxy mortar	kg	10.000	320.00	3200.00	M-093
		Epoxy primer	kg	2.500	160.00	400.00	M-092
		Add 5 per cent for wastage				180.00	
		c) Machinery					
		Air compressor 250 cfm for cleaning	hour	0.050	210.00	10.50	P&M-001
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				577.86	
		e) Contractor's profit @ 15 % on (a+b+c+d)				703.61	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				53.94	
		Cost for 10 metres = a+b+c+d+e+f				5448.32	
		Rate per metre = (a+b+c+d+e+f)/10				544.83	
					say	***544.80***	
		Note:- The constituents of epoxy mortar / epoxy concrete will be as per the instruction and manual of the manufacturer.					
10.10	**3005.2**	**Repair of old Joints Sealant** Removal of existing sealant and resealing of contraction, longitudinal or expansion joints in concrete pavement with fresh sealant material as per MoRT&H technical specification Clause 3005.2.					
		Unit = running metre					
		Taking output = 10 metres					
		a) Labour					
		Mate	day	0.020	310.00	6.20	L-17
		Mazdoor(unskilled)	day	0.500	310.00	155.00	L-18
		b) Material					
		Bitumen Primer	kg	0.250	0.05	0.01	M-047
		Bituminous Sealant	kg	1.000	105.00	105.00	M-048
		c) Machinery					
		Air compressor 250 cfm for cleaning	hour	0.050	210.00	10.50	P&M-001
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				38.88	
		e) Contractor's profit @ 15 % on (a+b+c+d)				47.34	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				3.63	
		Cost for 10 metres = a+b+c+d+e+f				366.56	
		Rate per metre = (a+b+c+d+e+f)/10				36.66	
					say	***36.70***	
10.11	**3000**	**Hill Side Drain Clearance** Removal of earth from the choked hill side drain and disposing it on the valley side manually as per MoRT&H technical specification Clause 3000.					
		Unit = metre					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Taking output = 10 metres					
		a) Labour					
		Mate	day	0.040	310.00	12.40	L-17
		Mazdoor(unskilled)	day	1.000	310.00	310.00	L-18
		b) Add GST (multiplying factor) @ 0.1405 on (a)				45.30	
		c) Contractor's profit @ 15 % on (a+b)				55.15	
		d) Add Cess @ 1.00 % on (a+b+c+d)				4.23	
		Cost for 10 metres = a+b+c+d				427.08	
		Rate per metre = (a+b+c+d)/10				42.71	
					say	***42.70***	
10.12	**3000**	**Land Slide Clearance in soil**					
		Clearance of land slides in soil and ordinary rock by a bull-dozer D 80 A-12, 180 HP and disposal of the same on the valley side as per MoRT&H technical specification Clause 3000.					
		Unit = cum					
		Taking output = 100 cum					
		a) Labour					
		Mate	day	0.040	310.00	12.40	L-17
		Mazdoor(unskilled)	day	1.000	310.00	310.00	L-18
		b) Machinery					
		Dozer @ 60 cum per hour	hour	1.670	2370.00	3957.90	P&M-023
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				601.38	
		d) Contractor's profit @ 15 % on (a+b+c)				732.25	
		e) Add Cess @ 1.00 % on (a+b+c+d)				56.14	
		Cost for 100 cum = a+b+c+d+e				5670.07	
		Rate per cum = (a+b+c+d+e)/100				56.70	
					say	***56.70***	
		Note:- Land Slide clearance involves pushing of loose earth slided on the road surface from hill face on the valley side. Since no cutting of original ground is involved, the output of dozer has been taken as 60 cum per hour for soil, ordinary rock and blasted hard rock. However, if there are objection to disposing of earth on valley side, additional resources for its disposal shall be considered as per site conditions.					
10.13	**3000**	**Landslide Clearance in Hard Rock Requiring Blasting**					
		Clearing of land slide in hard rock requiring blasting for 50 per cent of the boulders and disposal of the same on the valley side as per MoRT&H technical specification Clause 3005.2.					
		Unit = cum					
		Taking output = 100 cum					
		a) Labour					
		Mate	day	0.090	310.00	27.90	L-17
		Mazdoor(unskilled)	day	1.500	310.00	465.00	L-18
		Driller	day	0.750	395.00	296.25	L-11
		Blaster	day	0.070	440.00	30.80	L-04

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		b) Machinery					
		Air compressor 250 cfm for cleaning	hour	2.500	210.00	525.00	P&M-001
		Dozer @ 60 cum per hour	hour	1.670	2370.00	3957.90	P&M-023
		c) Materials					
		Gelatine	kg	17.500	126.00	2205.00	M-105
		Electric Detonators	each	70.000	17.00	1189.65	M-087
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				1222.00	
		e) Contractor's profit @ 15 % on (a+b+c+d)				1487.92	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				114.07	
		Cost for 100 cum = a+b+c+d+e+f				11521.50	
		Rate per cum = (a+b+c+d+e+f)/100				115.21	
					say	***115.20***	

Note:- Credit for the rock if found acceptable as construction material shall be afforded

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
11.1	**307**	**Spreading of Sludge Farm Yard Manure or/and good Earth** Spreading of sludge / farm yard manure / good earth in required thickness (cost of sludge, farm yard manure or/and good earth to be paid for separately) MoRT&H technical specifications Clauses 307.					
		Unit = cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.200	310.00	62.00	L-18
		Mazdoor(unskilled)	day	2.000	310.00	620.00	L-17
		b) Add GST (multiplying factor) @ 0.1405 on (a)				95.82	
		c) Contractor's profit @ 15 % on (a+b)				116.67	
		d) Add Cess @ 1.00 % on (a+b+c)				8.94	
		Cost for 15 cum= a+b+c+d				903.44	
		Rate per cum = (a+b+c+d)/15				60.23	
					say	***60.20***	
11.2	**307**	**Grassing with ' Doobs' Grass** Grassing with 'Doobs' grass including watering and maintenance of the lawn for 30 days or more till the grass forms a thick lawn free from weeds and fit for moving including supplying good earth if needed as per MoRT&H technical specifications Clauses 307.					
		Unit = sqm					
		Taking output = 100 sqm					
		(i) In rows 150 mm apart in either direction					
		a) Labour					
		Mate	day	0.170	310.00	52.70	L-17
		Mazdoor (unskilled)	day	0.750	310.00	232.50	L-18
		Mazdoor (unskilled)	day	0.900	310.00	279.00	L-18
		b) Machinery					
		Water tanker 6 KL capacity	hour	0.500	200.00	100.00	P&M-084
		c) Material					
		Doob grass	kg	100.000	2.40	240.00	M-083
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				127.04	
		e) Contractor's profit @ 15 % on (a+b+c+d)				154.69	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				11.86	
		Cost for 100 sqm = a+b+c+d+e+f				1197.79	
		Rate per sqm= (a+b+c+d+e+f)/100				11.98	
					say	***12.00***	
		(ii) In rows 75 mm apart in either direction					
		a) Labour					
		Mate	day	0.190	310.00	58.90	L-17
		Mazdoor(unskilled) for grassing.	day	1.000	310.00	310.00	L-18
		Mazdoor(unskilled) for mtc. for 30 days	day	0.900	310.00	279.00	L-18
		b) Machinery					
		Water tanker 6 KL capacity	hour	0.750	200.00	150.00	P&M-084
		c) Material					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Doob grass	kg	150.000	2.40	360.00	M-083
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				162.68	
		e) Contractor's profit @ 15 % on (a+b+c+d)				198.09	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				15.19	
		Cost for 100 sqm = a+b+c+d+e+f				1533.86	
		Rate per sqm = (a+b+c+d+e+f)/100				15.34	
					say	***15.30***	
11.2		**(iii) In rows 50 mm apart in either direction**					
		a) Labour					
		Mate	day	0.220	310.00	68.20	L-17
		Mazdoor(unskilled) for grassing.	day	1.250	310.00	387.50	L-18
		Mazdoor(unskilled) for mtc. for 30 days	day	0.900	310.00	279.00	L-18
		b) Machinery					
		Water tanker 6 KL capacity	hour	1.000	200.00	200.00	P&M-084
		c) Material					
		Doob grass	kg	200.000	2.40	480.00	M-083
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				198.77	
		e) Contractor's profit @ 15 % on (a+b+c+d)				242.02	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				18.55	
		Cost for 100 sqm = a+b+c+d+e+f				1874.04	
		Rate per sqm = (a+b+c+d+e+f)/100				18.74	
					say	***18.70***	
11.3	**307**	**Planting and Maintaining of Flowering Plants and Shrubs** **(a)** Planting flowering plants and shrubs in central verge (200 plants and 800 shrubs in two rows in one km length of road where width of verge is 3 m and above) as per MoRT&H technical specifications Clauses 307. ***Unit = KM*** ***Taking output = 1.00 Km***					
		a) Labour					
		Mate	day	1.200	310.00	372.00	L-17
		Mazdoor(unskilled)	day	12.000	310.00	3720.00	L-18
		b) Machinery					
		Water tanker 6 KL capacity	hour	0.500	200.00	100.00	P&M-084
		c) Material					
		Plants	each	200.000	13.00	2600.00	M-098
		Shrubs	each	800.000	9.10	7280.00	M-099
		Pesticide	kg	0.500	147.00	73.50	M-143
		Manure sludge/Farm yard manure	cum	63.640	510.00	32456.40	M-094
		Cost of water	KL	36.000	133.00	4788.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				7220.28	
		e) Contractor's profit @ 15 % on (a+b+c+d)				8791.53	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				674.02	
		Rate per Km = (a+b+c+d+e+f)				68075.73	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
					say	***68075.70***	
		(b) Maintenance of flowering plants and shrubs in central verge for one year					
		Unit = km					
		Taking output = one km					
		a) Labour					
		Mate	day	36.500	310.00	11315.00	L-17
		Mazdoor	day	365.000	310.00	113150.00	L-18
		b) Machinery					
		Water tanker6 KL capacity	hour	90.000	200.00	18000.00	P&M-084
		c) Material					
		Replacement of casualties @ 10 per cent					
		Plants	each	20.000	13.00	260.00	M-098
		Shrubs	each	80.000	9.10	728.00	M-099
		Pesticide	kg	1.500	147.00	220.50	0.00
		Manure sludge/Farm yard manure	cum	10.000	510.00	5100.00	M-094
		Cost of water	KL	180.000	133.00	23940.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				24266.25	
		e) Contractor's profit @ 15 % on (a+b+c+d)				29546.96	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				2265.27	
		Rate per Km for one year = (a+b+c+d+e+f)				228791.98	
					say	***228792.00***	
11.4		**Wrought Iron and Mild Steel Welded Work**					
		Wrought iron and mild steel welded work (using angles, square bars, tees and channel in grills, grating frames, gates and tree guards of any size and design etc. including cost of screens and welding rods or bolts and nuts complete fixed in position but without the cost of excavation and concrete for fixing which will be paid separately as per MoRT&H technical specifications Clauses and as directed.					
		Unit = quintal					
		Taking output = 100.00 Kg					
		a) Labour					
		Mate	day	0.450	310.00	139.50	L-17
		Blacksmith	day	2.000	418.00	836.00	L-03
		Mazdoor(unskilled)	day	2.500	310.00	775.00	L-18
		b) Material					
		Angle, tees, channels etc	kg	105.000	47.00	4935.00	M-129
		Add for welding etc. @ 5.00 %				87.53	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				951.61	
		d) Contractor's profit @ 15 % on (a+b+c)				1158.70	
		e) Add Cess @ 1.00 % on (a+b+c+d)				88.83	
		Rate per KG = a+b+c+d+e				89.72	
					say	***89.70***	
11.5	**307**	**Planting and Maintaining of Permanent Hedges**					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
	A.	**Planting permanent hedges including digging of trenches** Planting permanent hedges including digging of trenches, 60 cm wide and 45 cm deep, refilling the excavated earth mixed with farmyard manure, supplied at the rate of 4.65 cum per 100 metres and supplying and planting hedge plants at 30 cm apart					
		Unit = Running metre					
		Taking output = 100metre					
		a) Labour					
		Mate	day	1.400	310.00	434.00	L-17
		Mazdoor for digging of trench 60 cm wide and 45 cm deep	day	10.000	310.00	3100.00	L-18
		Mazdoor for refilling the excavated earth mixed with cow dung, preparation of ground and digging of plant, from the nursery carriage to site and planting in position	day	4.000	310.00	1240.00	L-18
		b) Machinery					
		Water tanker6 KL capacity	hour	0.500	200.00	100.00	P&M-084
		c) Material				0.00	
		Cost of hedge plants 2 rows at 30 cm apart	each	680.000	24.85	16898.00	M-270
		Supply of farm yard manure at site of work	cum	4.670	510.00	2381.70	M-094
		Pesticide	kg	0.250	147.00	36.75	M-143
		Cost of water	KL	3.000	133.00	399.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				3454.82	
		e) Contractor's profit @ 15 % on (a+b+c+d)				4206.64	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				322.51	
		Cost for 100 metres = a+b+c+d+e+f				32573.42	
		Rate per metre = a+b+c+d+e+f)/100				325.73	
					say	***325.70***	
	B.	**Maintenance of hedge for one year**					
		Unit = Running metre					
		Taking output = 100 m					
		a) Labour					
		Mate	day	3.000	310.00	930.00	L-17
		Mazdoor (unskilled)	day	30.000	310.00	9300.00	L-18
		b) Machinery				0.00	
		Water tanker 6 KL capacity	hour	5.000	200.00	1000.00	P&M-084
		c) Material					
		Manure sludge/Farm yard manure	cum	2.000	510.00	1020.00	M-094
		Pesticide	kg	0.500	147.00	73.50	M-143
		Cost of water	KL	30.000	133.00	3990.00	M-196
		Cost of hedge plants @ 10 per cent casualty	each	68.000	24.85	1689.80	M-270
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				2529.46	
		e) Contractor's profit @ 15 % on (a+b+c+d)				3079.91	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				236.13	
		Cost for 100 metres = a+b+c+d+e+f				23848.80	
		Rate per metre = a+b+c+d+e+f)/100				238.49	
					say	***238.50***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
11.6	**307**	**Planting of Trees and their Maintenance for one Year** Planting of trees by the road side (Avenue trees) in 0.60 m dia holes, 1 m deep dug in the ground, mixing the soil with decayed farm yard/sludge manure, planting the saplings, backfilling the trench, watering, fixing the tree guard and maintaining the plants for one year.					
		Unit = Each					
		Taking output = 10 trees					
		a) Labour					
		Mate	day	1.700	310.00	527.00	L-17
		Mazdoor for planting	day	2.000	310.00	620.00	L-18
		Mazdoor for maintenance for one year	day	15.000	310.00	4650.00	L-18
		b) Machinery					
		Water tanker 6 KL capacity	hour	2.000	200.00	400.00	P&M-084
		c) Material					
		Sapling 2 m high 25 mm dia	each	10.000	25.00	250.00	M-271
		Farm yard manure	cum	0.940	510.00	479.40	M-094
		Pesticide	kg	0.500	147.00	73.50	M-143
		Cost of water	KL	12.000	133.00	1596.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				1207.72	
		e) Contractor's profit @ 15 % on (a+b+c+d)				1470.54	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				112.74	
		Cost for 10 trees = a+b+c+d+e+f				11386.91	
		Rate per trees = (a+b+c+d+e+f)/10				1138.69	
					say	***1138.70***	
11.7		**Making Tree Guard 53 cm dia and 1.3 m High as per Design from Empty Bitumen Drums** Making tree guard 53 cm dia and 1.3 m high as per design from empty bitumen drum, slit suitably to permit sun and air including providing and fixing 2 nos MS sheet rings 50 x 0.5 mm with rivets, complete in all respect.					
		Unit = Each					
		Taking output = one tree guard					
		a) Labour					
		Mate	day	0.020	310.00	6.20	L-17
		Blacksmith	day	0.150	418.00	62.70	L-03
		Mazdoor (unskilled)	day	0.070	310.00	21.70	L-18
		b) Material					
		Empty bitumen drum	each	1.000	305.00	305.00	M-043
		MS sheet 50 x 0.5 mm	kg	0.650	47.00	30.55	M-192 /1000
		Rivets 6 mm dia and 10 mm in length	each	0.176	82.30	14.48	M-045
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				61.91	
		e) Contractor's profit @ 15 % on (a+b+c+d)				75.38	
		f) Add Cess @ 1.00 % on (a+b+c+d+e+f)				5.78	
		Rate for each tree guard = a+b+c+d+f				583.70	
					say	***583.70***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
11.8		**Making Tree Guard 53 cm dia and 2 Metre High as per Design from Empty Bitumen Drums** Making tree guard 53 cm dia and 2 metres high as per design from empty bitumen drums, slit suitably to permit sun and air including providing and fixing four legs 40 cm long of 30 x 3 mm MS riveted to tree guard and providing and fixing 2 nos MS sheet rings 50 x 0.5 mm with rivets complete in all respects					
		Unit = Each					
		Taking output = one tree guard					
		a) Labour					
		Mate	day	0.040	310.00	12.40	L-17
		Blacksmith	day	0.200	418.00	83.60	L-03
		Mazdoor (unskilled)	day	0.200	310.00	62.00	L-18
		b) Material					
		Empty bitumen drum	each	1.500	305.00	457.50	M-043
		MS sheet 50 x 0.5 mm	kg	0.650	47.00	30.55	M-192 /1000
		Rivets 6 mm dia and 10 mm in length	each	0.350	82.30	28.81	M-141
		MS plate 30 x 3 mm	kg	1.300	47.00	61.10	M-192 /1000
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				103.40	
		d) Contractor's profit @ 15 % on (a+b+c)				125.90	
		e) Add Cess @ 1.00 % on (a+b+c+d)				9.65	
		Rate for each tree guard = a+b+c+d+e				974.91	
					say	***974.90***	
11.9		**Tree Guard with MS Iron** Providing and fixing MS iron tree guard 60 cm dia and 2 metre high above ground level formed of 4 Nos (25 x 6 mm) and 8 Nos (25 x 3 mm) vertical MS riveted to 3 Nos (25 x 6 mm) iron rings in two halves, bolted together with 8 mm dia and 30 mm long bolts including painting two coats with paint of approved brand over a coat of priming, complete in all respects.					
		Unit = Each					
		Taking output = one tree guard					
		a) Labour					
		Mate	day	0.050	310.00	15.50	L-17
		Blacksmith	day	0.250	418.00	104.50	L-03
		Mazdoor (unskilled)	day	0.250	310.00	77.50	L-18
		b) Material					
		MS iron 25 x 6 mm	kg	19.200	47.00	902.40	M-192 /1000
		MS iron 25 x 3 mm	kg	9.600	47.00	451.20	M-192 /1000
		Add 5 % of cost of material for riveting, bolting and welding accessories				67.68	
		c) Machinery					
		Tractor-trolley	hour	0.040	237.00	9.48	P&M-076
		d) Painting					
		Painting two coats including priming	sqm	1.770	63.80	112.93	Item 8.9

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				228.77	
		f) Contractor's profit @ 15 % on (a+b+c+e)				278.55	
		g) Add Cess @ 1.00 % on (a+b+c+e+f)				21.36	
		Rate per tree guard =a+b+c+d+e+f+g				2269.87	
					say	***2269.90***	
		1. The items of excavation and concreting to be measured and paid separately as per design .					
		2 . Rate of painting may be adopted from the chapter as Traffic signs.					
11.10		**Tree Guard with MS Angle Iron and Steel Wire**					
		Providing and fixing tree guard 0.60 metre square, 2.00 metre high fabricated with MS angle iron 30 x 30 x 3 mm, MS iron 25 x 3 mm and steel wire 3 mm dia welded and fabricated as per design in two halves bolted together.					
		Unit = Each					
		Taking output = one					
		a) Labour					
		Mate	day	0.050	310.00	15.50	L-17
		Blacksmith	day	0.250	418.00	104.50	L-03
		Welder	day	0.250	440.00	110.00	L-27
		Mazdoor (unskilled)	day	0.250	310.00	77.50	L-18
		b) Material					
		MS angle 30 x 30 x 3 mm	kg	13.500	47.00	634.50	M-192 /1000
		MS iron 25 x 3 mm	kg	18.000	47.00	846.00	M-192 /1000
		Steel wire 3 mm dia	kg	6.000	64.95	389.70	M-207
		Add 5 % of cost of material for riveting, bolting and welding accessories				93.51	
		c) Machinery					
		Tractor-trolley	hour	0.040	237.00	9.48	P&M-076
		d) Painting					
		Painting two coats including priming	sqm	1.500	63.80	95.70	Item 8.9
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				320.44	
		f) Contractor's profit @ 15 % on (a+b+c+e)				390.17	
		g) Add Cess @ 1.00 % on (a+b+c+e+f)				29.91	
		Rate per tree guard = a+b+c+d+e+f+g				3116.91	
					say	***3116.90***	
11.11		**Compensatory Afforestation**					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Planting trees as compensatory afforestation at the rate of 290 trees per hectare at a spacing of 6 m by grubbing and leveling the ground upto a depth of 150 mm, digging holes 0.9 m dia, 1 m deep, mixing farm yard/sludge manure with soil, planting of sapling 2 m high with 25 cm dia stem, backfilling the hole and watering.					
		Unit = Hectare					
		Taking output = one hectare					
		a) Labour					
		i) Planting					
		Mate	day	2.500	310.00	775.00	L-17
		Mazdoor (unskilled)	day	25.000	310.00	7750.00	L-18
		ii) For Maintenance for one year					
		Mate	day	5.000	310.00	1550.00	L-17
		Mazdoor (unskilled)	day	50.000	310.00	15500.00	L-18
		b) Machinery					
		Dozer 80 HP @ 1000 sqm/hour	hour	10.000	2370.00	23700.00	P&M-022
		Water tanker 6 KL capacity (for planting)	hour	3.000	200.00	600.00	P&M-084
		Water tanker 6 KL capacity (for maintenance)	hour	25.000	200.00	5000.00	P&M-084
		c) Material					
		Sapling 1 to 1.5 m high 2 cm dia stem	each	290.000	20.00	5800.00	M-270 x 0.8
		Add 10 % of sapling	each	29.000	20.00	580.00	M-270 x 0.8
		Decayed farm yard/sludge manure (planting)	cum	60.900	510.00	31059.00	M-094
		Decayed farm yard/sludge manure (maintenance)	cum	4.000	510.00	2040.00	M-094
		Pesticides for planting	kg	0.500	147.00	73.50	M-143
		Pesticides for maintenance	kg	1.500	147.00	220.50	M-143
		Cost of water	KL	18.000	133.00	2394.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				13634.40	
		e) Contractor's profit @ 15 % on (a+b+c+d)				16601.46	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				1272.78	
		Rate per hectare = a+b+c+d+e+f				128550.64	
					say	***128550.60***	
		Cost of fencing to be provided as per size of plot and approved design, measured and paid separately					
11.12	**307**	**Making Lawns including Ploughing and Dragging with 'Swagha' Breaking of Clod**					
		Making lawns including ploughing and breaking of clod, removal of rubbish, dressing and supplying doobs grass roots and planting at 15 cm apart, including supplying and spreading of farm yard manure at rate of 0.18 cum per 100 sqm					
		Unit = sqm					
		Taking output = 100 sqm					
		a) Labour					
		Mate	day	0.150	310.00	46.50	L-17

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Mazdoor (unskilled) for preparation of ground	day	0.500	310.00	155.00	L-18
		Mazdoor (unskileld) for fetching doobs grass roots and grassing at 15 cm apart	day	1.000	310.00	310.00	L-18
		b) Machinery					
		Water tanker6 KL capacity	hour	0.500	200.00	100.00	P&M-084
		Tractor with tiller	hour	0.010	320.00	3.20	P&M-077
		c) Material					
		Supply of farm yard manure at site of work	cum	0.180	510.00	91.80	M-094
		Fine grass	kg	100.000	2.40	240.00	M-083
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				132.98	
		e) Contractor's profit @ 15 % on (a+b+c+d)				161.92	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				12.41	
		Cost for 100 sqm = a+b+c+d+e+f				1253.82	
		Rate per sqm = (a+b+c+d+e+f)/100				12.54	
					say	***12.50***	
11.13	**307**	**Maintenance of Lawns or Turfing of Slopes** Maintenance of lawns or Turfing of slopes (rough grassing) for a period of one year including watering etc. ***Unit = sqm*** ***Taking output = 100 sqm***					
		a) Labour					
		Mazdoor(unskilled)	day	10.000	310.00	3100.00	L-17
		b) Machinery					
		Water tanker6 KL capacity	hour	15.000	200.00	3000.00	P&M-084
		c) Material					
		Water	KL	90.000	133.00	11970.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				2538.84	
		e) Contractor's profit @ 15 % on (a+b+c+d)				3091.33	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				237.00	
		Cost for 100 sqm = a+b+c+d+e+f				23937.16	
		Rate per sqm = (a+b+c+d+e+f)/100				239.37	
					say	***239.40***	
11.14	**307**	**Turfing Lawns with Fine Grassing including Ploughing, Dressing** Turfing lawns with fine grassing including ploughing, dressing including breaking of clods, removal of rubbish, dressing and supplying doobs grass roots at 10 cm apart, including supplying and spreading of farm yard manure at rate of0.6 cum per 100 sqm ***Unit = sqm*** ***Taking output = 100 sqm***					
		a) Labour					
		Mate	day	0.250	310.00	77.50	L-17
		Mazdoor(unskilled) for preparation of ground	day	1.000	310.00	310.00	L-18

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Mazdoor(unskilled) for fetching doobs grass roots hedges and grassing at 10 cm apart	day	1.500	310.00	465.00	L-18
		b) Machinery					
		Water tanker6 KL capacity	hour	0.500	200.00	100.00	P&M-084
		Tractor with tiller	hour	0.010	320.00	3.20	P&M-077
		c) Material					
		Supply of farm yard manure at site of work @ 0.6 cum per 100 sqm	cum	0.600	510.00	306.00	M-094
		Fine grass	kg	100.000	2.40	240.00	M-083
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				210.99	
		e) Contractor's profit @ 15 % on (a+b+c+d)				256.90	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				19.70	
		Cost for 100 sqm = a+b+c+d+e+f				1989.29	
		Rate per sqm = (a+b+c+d+e+f)/100				19.89	
					say	***19.90***	
11.15	**307**	**Maintenance of Lawns with Fine Grassing for the First Year** Maintenance of lawns with fine grassing for the first year including watering etc					
		Unit = sqm					
		Taking output = 100 sqm					
		a) Labour					
		Mazdoor(unskilled)	day	10.000	310.00	3100.00	L-18
		b) Machinery					
		Water tanker6 KL capacity	hour	20.000	200.00	4000.00	P&M-084
		c) Material					
		Water	KL	60.000	133.00	7980.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				2118.74	
		e) Contractor's profit @ on (a+b+c+d)				2579.81	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				197.79	
		Cost for 100 sqm = a+b+c+d+e+f				19976.34	
		Rate per sqm = (a+b+c+d+e+f)/100				199.76	
					say	***199.80***	
11.16	**308**	**Renovation Lawns including, Weeding, Forking the Ground, Top Dressing with Forked Soil** Renovation lawns including, weeding, forking the ground, top dressing with forked soil, watering and maintenance the lawns, for 30 days or more, till the grass forms a thick lawn, free from weeds, and fit for moving and disposal of rubbish as directed, including supplying good earth, if needed but excluding the cost of well decayed farm yard manure					
		Unit = sqm					
		Taking output = 100 sqm					
		a) Labour					
		Mate	day	0.120	310.00	37.20	L-17
		Mazdoor(unskilled)	day	3.000	310.00	930.00	L-18

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		b) Machinery					
		Water tanker6 KL capacity	hour	0.500	200.00	100.00	P&M-084
		c) Material					
		Water	KL	3.000	133.00	399.00	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				206.00	
		e) Contractor's profit @ 15 % on (a+b+c+d)				250.83	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				19.23	
		Cost for 100 sqm = a+b+c+d+e+f				1942.26	
		Rate per sqm = (a+b+c+d+e+f)				19.42	
					say	***19.40***	
11.17	**308.2**	**Supply at Site Well Decayed Farm Yard Manure** Supply at site of work well decayed farm yard manure, from any available source, approved by the engineer in charge including screening and stacking					
		Unit = cum					
		Taking output = one cum					
		a) Material					
		a) Cost of well decayed farm yard manure duly screened, loading, carriage, unloading and stacking at site	cum	1.000	510.00	510.00	M-094
		b) Add GST (multiplying factor) @ 0.1405 on (a)				71.66	
		c) Contractor's profit @ 15 % on (a+b)				87.25	
		d) Add Cess @ 1.00 % on (a+b+c)				6.69	
		Rate per cum = (a+b+c+d)				675.59	
						675.60	
11.18		**Half Brick Circular Tree Guard, in 2nd Class Brick, internal diametre 1.25 metres, and height 1.2 metres, above ground and 0.20 metre below ground** Half brick circular tree guard, in 2nd class brick, internal diametre 1.25 metres, and height 1.2 metres, above ground and 0.20 metre below ground, bottom two courses laid dry, and top three courses in cement mortar 1:6 (1 cement 6 sand) and the intermediate courses being in dry honey comb masonry, as per design complete					
		Unit = Each					
		Taking output = one tree guard					
		a) Labour					
		Mate	day	0.050	310.00	15.50	L-17
		Mason (2nd class)	day	0.250	395.00	98.75	L-16
		Mazdoor(unskilled)	day	0.250	310.00	77.50	L-18
		b) Material					
		Brick 2nd class including carriage	each	230.000	10.48	2410.40	M-303
		Cement mortar 1:6	cum	0.025	2748.60	68.72	Item 12.5
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				375.26	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		d) Contractor's profit @ 15 % on (a+b+c)				456.92	
		e) Add Cess @ 1.00 % on (a+b+c+d)				35.03	
		Rate per tree guard = a+b+c+d+e				3538.07	
					say	***3538.10***	
11.19		**Edging with 2nd Class Bricks, Laid Dry Lengthwise**					
		Edging with 2nd class bricks, laid dry lengthwise, including excavation, refilling, consolidation, with a hand packing and spreading nearly surplus earth within a lead of 50 metres					
		Unit = Metre					
		Taking output= 10 metres					
		a) Labour					
		Mate	day	0.002	310.00	0.62	L-17
		Mason (2nd class)	day	0.050	395.00	19.75	L-16
		Mazdoor(unskilled)	day	0.050	310.00	15.50	L-18
		b) Material					
		Brick 2nd class including carriage	each	50.000	10.48	524.00	M-303
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				78.66	
		d) Contractor's profit @ 15 % on (a+b+c)				95.78	
		e) Add Cess @ 1.00 % on (a+b+c+d)				7.34	
		Cost for 10 metre = a+b+c+d				741.65	
		Rate per metre = (a+b+c+d)/10				74.17	
					say	***74.20***	

CHAPTER-12
FOUNDATIONS

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
12.1	304	**Excavation for Structures** Earthwork in excavation for structures as per drawing and MoRT&H technical specifications Clause 304 including setting out, construction of shoring & bracing, removal of stumps & other deleterious material and disposal upto a lead of 50 m, dressing of sides & bottom and backfilling in trenches with excavated suitable material.					
		I. Ordinary soil **A. Manual Means** **(i) Upto 3 m depth** ***Unit = cum*** ***Taking output = 10 cum*** **a) Labour**					
		Mate	day	0.32	310.00	99.20	L-17
		Mazdoor(Unskilled)	day	8.00	310.00	2480.00	L-18
		b) Add GST (multiplying factor) @ 0.1405 on (a)				362.38	
		c) Contractor's profit @ 15 % on (a+b)				441.24	
		d) Add Cess @ 1.00 % on (a+b+c)				33.83	
		Cost for 10 cum = a+b+c+d				3416.64	
		Rate per cum = (a+b+c+d)/10				341.66	
					say	***341.70***	
		Note:- 1. Cost of dewatering may be added where required upto, 10 per cent of labour cost Assessment for dewatering shall be made as per site conditions. 2.The cost of shoring & shuttering, where needed, may be added @ 3 per cent on cost of excavation for open foundation. 3.The excavated earth if found suitable can be used partly for backfilling in trenches and partly for road work. Hence cost of disposal has not been added except for marshy soil. This note is common to all cases of item 12.1 excluding marshy soil					
		(ii) 3 m to 6 m depth **a) Labour**					
		Mate	day	0.38	310.00	117.80	L-17
		Mazdoor(Unskilled)	day	9.50	310.00	2945.00	L-18
		b) Add GST (multiplying factor) @ 0.1405 on (a)				430.32	
		c) Contractor's profit @ 15 % on (a+b)				523.97	
		d) Add Cess @ 1.00 % on (a+b+c)				40.17	
		Cost for 10 cum = a+b+c+d				4057.26	
		Rate per cum = (a+b+c+d)/10				405.73	
					say	***405.70***	
		Note:- 1. Cost of dewatering may be added, when required, up to 15 per cent labour cost. 2. The cost of shoring & shuttering, where needed, may be added @ 10 per cent on cost of excavation for open foundation.					
		(iii) Above 6 m depth					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		a) Labour					
		Mate	day	0.48	310.00	148.80	L-17
		Mazdoor(Unskilled)	day	12.00	310.00	3720.00	L-18
		b) Add GST (multiplying factor) @ 0.1405 on (a)				543.57	
		c) Contractor's profit @ 15 % on (a+b)				661.85	
		d) Add Cess @ 1.00 % on (a+b+c)				50.74	
		Cost for 10 cum = a+b+c+d				5124.96	
		Rate per cum = (a+b+c+d)/10				512.50	
					say	***512.50***	
		Note:- 1. Cost of dewatering may be added, when required, up to 20 per cent labour cost. 2. The cost of shoring & shuttering, where needed, may be added @ 15 per cent on cost of excavation for open foundation.					
		B. Mechanical Means					
		(i) Upto 3 m depth					
		Unit = cum					
		Taking output = 240 cum					
		a) Labour					
		Mate	day	0.32	310.00	99.20	L-17
		Mazdoor(Unskilled)	day	8.00	310.00	2480.00	L-18
		b) Machinery					
		Hydraulic excavator 1.0 cum bucket capacity	hour	6.00	1200.00	7200.00	P&M-034
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				1373.98	
		d) Contractor's profit @ 15 % on (a+b+c)				1672.98	
		e) Add Cess @ 1.00 % on (a+b+c+d)				128.26	
		Cost for 240 cum = a+b+c+d+e				12954.42	
		Rate per cum = (a+b+c+d+e)/240				53.98	
					say	***54.00***	
		Note:- 1. Cost of dewatering may be added, when required, up to 5 per cent labour cost. Assesment for dewatering shall be made as per site conditions. 2. The cost of shoring & shuttering, where needed, may be added @ 3 per cent on cost of excavation for open foundation. 3. The excavated earth if found suitable can be used partly for backfilling in trenches and partly for road work. Hence cost of disposal has not been added except for marshy soil. This note is common to all cases of item 12.1 excluding marshy soil					
		(ii) 3 m to 6 m depth					
		Unit = cum					
		Taking output = 210 cum					
		a) Labour					
		Mate	day	0.32	310.00	99.20	L-17
		Mazdoor(Unskilled)	day	8.00	310.00	2480.00	L-18
		b) Machinery					
		Hydraulic excavator 1.0 cum bucket capacity	hour	6.00	1200.00	7200.00	P&M-034

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				1373.98	
		d) Contractor's profit @ 15 % on (a+b+c)				1672.98	
		e) Add Cess @ 1.00 % on (a+b+c+d+e)				128.26	
		Cost for 210 cum = a+b+c+d+e				12954.42	
		Rate per cum = (a+b+c+d+e)/210				61.69	
					say	***61.70***	
		Note:- 1. Cost of dewatering may be added, when required, up to 7.5 per cent labour cost. 2. The cost of shoring & shuttering, where needed, may be added @ 10 per cent on cost of excavation for open foundation.					
		(iii) Above 6 m depth					
		Unit = cum					
		Taking output = 180 cum					
		a) Labour					
		Mate	day	0.32	310.00	99.20	L-17
		Mazdoor(Unskilled)	day	8.00	310.00	2480.00	L-18
		b) Machinery					
		Hydraulic excavator 1.0 cum bucket capacity	hour	6.00	1200.00	7200.00	P&M-034
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				1373.98	
		d) Contractor's profit @ 15 % on (a+b+c)				1672.98	
		e) Add Cess @ 1.00 % on (a+b+c+d)				128.26	
		Cost for 180 cum = a+b+c+d+e				12954.42	
		Rate per cum = (a+b+c+d+e)/180				71.97	
					say	***72.00***	
		Note:- 1. Cost of dewatering may be added, when required, up to 10 per cent of labour cost. 2. The cost of shoring & shuttering, where needed, may be added @ 15 per cent on cost of excavation for open foundation. 3. Labour provided for excavation by mechanical means includes that required for trimming of bottom and side slopes.					
		II. Ordinary Rock (not requiring blasting)					
		A. Manual Means					
		(i) Upto 3 m depth					
		Unit = cum					
		Taking output = 10 cum					
		a) Labour					
		Mate	day	0.40	310.00	124.00	L-17
		Mazdoor(Unskilled)	day	10.00	310.00	3100.00	L-18
		b) Add GST (multiplying factor) @ 0.1405 on (a)				452.97	
		c) Contractor's profit @ 15 % on (a+b)				551.55	
		d) Add Cess @ 1.00 % on (a+b+c)				42.29	
		Cost for 10 cum = a+b+c+d				4270.80	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Rate per cum = (a+b+c+d)/10				427.08	
					say	***427.10***	
		Note:- 1. Cost of dewatering upto 10 per cent of labour cost may be added, where required. Assessment for dewatering shall be made as per site conditions..					
		2. The cost of shoring & shuttering, where needed, may be added @ 3 per cent on cost of excavation for open foundation.					
		B. Mechanical Means					
		(i) Upto 3 m depth					
		Unit = cum					
		Taking output = 180 cum					
		a) Labour					
		Mate	day	0.24	310.00	74.40	L-17
		Mazdoor(Unskilled)	day	6.00	310.00	1860.00	L-18
		b) Machinery					
		Hydraulic excavator 1.0 cum bucket capacity	hour	6.00	1200.00	7200.00	P&M-034
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				1283.38	
		d) Contractor's profit @ 15 % on (a+b+c)				1562.67	
		e) Add Cess @ 1.00 % on (a+b+c+d)				119.80	
		Cost for 180 cum = a+b+c+d+e				12100.26	
		Rate per cum = (a+b+c+d+e)/180				67.22	
					say	***67.20***	
		Note:- 1.Cost of dewatering may be added, when required, up to 10 per cent labour cost. Assesment for dewatering shall be made as per site conditions. 2.The cost of shoring & shuttering, where needed, may be added @ 3 per cent on cost of excavation for open foundation. 3.In case of rock, foundation beyond 3 m is not dug and hence not included.					
		III. Hard Rock (requiring blasting)					
		A. Manual Means					
		Upto 3 m depth					
		Unit = cum					
		Taking output = 10 cum					
		a) Labour					
		Mate	day	0.53	310.00	164.30	L-17
		Driller	day	0.84	395.00	331.80	L-11
		Blaster	day	0.40	440.00	176.00	L-04
		Mazdoor(Unskilled)	day	12.00	310.00	3720.00	L-18
		b) Machinery					
		Air Compressor 250 cfm with 2 jack hammer for drilling.	hour	1.00	210.00	210.00	P&M-001
		c) Material					
		Gelatin 80%	kg	3.50	126.00	441.00	M-105
		Detonator electric	each	14.00	17.00	237.93	M-087
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				741.98	
		e) Contractor's profit @ 15 % on (a+b+c+d)				903.45	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				69.26	
		Cost for 10 cum = a+b+c+d+e+f				6995.73	
		Rate per cum = (a+b+c+d+e+f)/10				699.57	
					say	***699.60***	
		Note:- 1.Cost of dewatering upto10 per cent of (a+b), may be added, where required Assessment for dewatering shall be made as per site conditions. 2.In case of rock, foundation beyond 3 m is not dug and hence not included.					
		IV. Hard Rock (blasting prohibited) **Upto 3 m depth including 1.5 m depth in hard rock** **A. Mechanical Means** ***Unit = cum*** ***Taking output = 10 cum*** **a) Labour**					
		Mate	day	0.20	310.00	62.00	L-17
		Mazdoor(unskilled)	day	5.00	310.00	1550.00	L-18
		b) Machinery					
		Air Compressor 250 cfm with 2 jack hammer of pneumatic breaker	hour	10.00	210.00	2100.00	P&M-001
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				521.54	
		d) Contractor's profit @ 15 % on (a+b+c)				635.03	
		e) Add Cess @ 1.00 % on (a+b+c+d)				48.69	
		Cost for 10 cum = a+b+c+d+e				4917.25	
		Rate per cum = (a+b+c+d+e)/10				491.73	
					say	***491.70***	
		Note:- 1. Cost of dewatering upto10 per cent of (a+b), may be added, where required Assessment for dewatering shall be made as per site conditions. 2.In case of rock, foundation beyond 3 m is not dug and hence not included.					
		V. Marshy Soil **A. Manual means** ***Unit = cum*** ***Taking output = 10 cum*** **a) Labour**					
		Mate	day	0.40	310.00	124.00	L-17
		Mazdoor(unskilled)	day	10.00	310.00	3100.00	L-18
		b) Machinery					
		Tractor-trolley for removal.	hour	2.67	237.00	632.79	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				541.88	
		d) Contractor's profit @ 15 % on (a+b+c)				659.80	
		e) Add Cess @ 1.00 % on (a+b+c+d)				50.58	
		Cost for 10 cum = a+b+c+d+e				5109.05	
		Rate per cum = (a+b+c+d+e)/ 10				510.91	
					say	***510.90***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Note:- 1. Cost of dewatering @ 30 per cent of (a), may be added, where required Assessment for dewatering shall be made as per site conditions. 2. Shoring & strutting 15 per cent of (a), where required may be added 3. Since marshy soil cannot be used in filling in trenches, it shall be removed & replaced by approved quality of soil. The labour cost includes labour input for disposal of marshy soil excavated pit with a lead upto 50 m. 4. It is assumed that Marshy Soil will be available upto 3 m depth only. For deeper excavation below 3 m depth, refer analysis in item 12.1 (i) to (iv) for ordinary soil						
		B. Mechanical Means					
		a) Labour					
		Mate	day	0.16	310.00	49.60	L-17
		Mazdoor (unskilled)	day	4.00	310.00	1240.00	L-18
		b) Machinery					
		Hydraulic excavator 1.0 cum bucket capacity @ 60 cum per hour	hour	0.17	1200.00	204.00	P&M-034
		Tipper 5.5 cum capacity	hour	0.45	334.00	150.30	P&M-073
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				230.97	
		d) Contractor's profit @ 15 % on (a+b+c)				281.23	
		e) Add Cess @ 1.00 % on (a+b+c+d)				21.56	
		Cost for 10 cum = a+b+c+d+e				2177.66	
		Rate per cum = (a+b+c+d+e)/10				217.77	
					say	***217.80***	
		1. Cost of dewatering @ 30 per cent of (a) may be added. 2. Shoring & shutting @ 15 per cent of (a) may be added where required. 3. Since marshy soil cannot be used in filling in trenches, it shall be removed & replaced by approved quality of soil. The labour cost includes labour input for disposal of marshy soil excavated pit with a lead upto 50 m. 4. Marshy soil is generally available upto 3 m depth. The rate has, therefore, been done upto 3 m depth of excavation. For deeper excavation refer analysis in item 12.1.						
		VI. Back Filling in Marshy Foundation Pits					
		Unit : Cum					
		Taking Output : 6 cum					
		a) Labour					
		Mate	day	0.40	310.00	124.00	L-17
		Mazdoor(unskilled)	day	10.00	310.00	3100.00	L-18
		b) Machinery					
		Tractor-trolley for transportation	hour	2.67	237.00	632.79	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				541.88	
		d) Contractor's profit @ 15 % on (a+b+c)				659.80	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		e) Add Cess @ 1.00 % on (a+b+c+d)				50.58	
		Cost for 6 cum = a+b+c+d+e				5109.05	
		Rate per cum = (a+b+c+d+e)/6				851.51	
					say	***851.50***	
12.2	**304**	**Filling Annular Space Around Footing in Rock** ***Unit = cum*** ***Taking out put = 1 cum*** Lean cement concrete 1:3:6 nominal mix. Rate may be taken as per item 12.4.					
12.3	**304**	Sand Filling in foundation trenches as per drawing & MoRT&H technical specification clause 304.					
		Unit = cum					
		Taking output = 1 cum					
		a) Labour					
		Mate	day	0.01	310.00	3.10	L-17
		Mazdoor(unskilled)	day	0.30	310.00	93.00	L-18
		b) Material					
		Local Sand (assuming 20 per cent bulkage)	cum	1.20	460.00	552.00	M-171
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				91.06	
		d) Contractor's profit @ 15 % on (a+b+c)				110.87	
		e) Add Cess @ 1.00 % on (a+b+c+d)				8.50	
		Rate per cum = a+b+c+d+e				858.53	
					say	***858.50***	
12.4	**2100**	**PCC 1:3:6 in Foundation** Plain cement concrete 1:3:6 nominal mix in foundation with crushed stone aggregate 40 mm nominal size mechanically mixed, placed in foundation and compacted by vibration including curing for 14 days as per drawings & MoRT&H technical specifications Clauses 2100. (including centering, shuttering, staging etc. but excluding reinforcement).					
		Unit = cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.64	310.00	198.40	L-17
		Mason (1st calss)	day	1.00	440.00	440.00	L-15
		Mazdoor(unskilled)	day	12.00	310.00	3720.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Mechanical concrete mixer (0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		Water tanker 6 KL capacity	hour	2.00	200.00	400.00	P&M-084
		c) Material					
		cement	tonne	3.45	5800.00	20010.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		40 mm Aggregate	cum	13.50	4692.00	63342.00	M-023
		Cost of water	KL	18.00	133.00	2394.00	M-196
		d) Formawork @ 4.00 % on cost of material, labour & machinery (on a+b+c)				3908.66	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				14278.32	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				17385.51	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1332.89	
		Cost for 15 cum = a+b+c+d+e+f+g				134621.77	
		Rate per cum = (a+b+c+d+e+f+g)/15				8974.78	
					say	***8974.80***	
		Note:- Vibrator is a part of minor T & P which is already included in Add GST (multiplying factor) of the contractor.					
12.5	**1300**	Brick masonry work in cement mortar in foundation completed excluding pointing & plastering as per drawing & MoRT&H technical specifications Clauses 1300.					
		I. Brick Masonry in 1:2 Cement Mortar					
		Unit = cum					
		Taking output = 5 cum					
		a) Labour					
		Mate	day	0.48	310.00	148.80	L-17
		Mason (1st calss)	day	4.00	440.00	1760.00	L-15
		Mazdoor(unskilled)	day	5.00	310.00	1550.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Material					
		Bricks Ist class	each	1900.0	12.45	23655.00	M-049
		Cement mortar 1:2(Rate as in sub-analysis below)	cum	1.20	4734.60	5681.52	Sub Analysis
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				4738.41	
		d) Contractor's profit @ 15 % on (a+b+c)				5769.56	
		e) Add Cess @ 1.00 % on (a+b+c+d)				442.33	
		Cost for 5 cum = a+b+c+d+e				44675.62	
		Rate per cum (a+b+c+d+e)/5				8935.12	
					say	***8935.10***	
	Sub-analysis (Addl.)	***Cement Mortar1:2 (1cement :2 sand)***					
		Unit = 1 cum					
		Taking output = 1 cum					
		a) Materials					
		Cement	*tonne*	*0.67*	*5800.00*	*3897.60*	*M-052*
		Sand	*cum*	*0.93*	*560.00*	*520.80*	*M-170*
		b) Labour					
		Mate	*day*	*0.04*	*310.00*	*12.40*	*L-17*
		Mazdoor	*day*	*0.90*	*310.00*	*279.00*	*L-18*
		Bhisti	*day*	*0.08*	*310.00*	*24.80*	*L-01*
		Total Material and Labour = (a+b)			***say***	***4734.60***	
		II. Brick Masonry in 1:3 Cement Mortar					
		Unit = cum					
		Taking output = 5 cum					
		a) Labour					
		Mate	day	0.48	310.00	148.80	L-17
		Mason (1st calss)	day	4.00	440.00	1760.00	L-15

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Mazdoor(unskilled)	day	5.00	310.00	1550.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Material					
		Bricks Ist class	each	1900.0	12.45	23655.00	M-049
		Cement mortar 1:3 (Rate as in sub-analysis below)	cum	1.20	3862.20	4634.64	Sub Analysis
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				4591.32	
		d) Contractor's profit @ 15 % on (a+b+c)				5590.46	
		e) Add Cess @ 1.00 % on (a+b+c+d)				428.60	
		Cost for 5 cum = a+b+c+d+e				43288.83	
		Rate per cum (a+b+c+d+e)/5				8657.77	
					say	***8657.80***	
	Sub-analysis (Addl.)	***Cement Mortar1:3 (1cement : 3 sand)***					
		Unit = 1 cum					
		Taking output = 1 cum					
		a) Materials					
		Cement	*tonne*	*0.51*	*5800.00*	*2958.00*	*M-052*
		Sand	*cum*	*1.05*	*560.00*	*588.00*	*M-170*
		b) Labour					
		Mate	*day*	*0.04*	*310.00*	*12.40*	*L-17*
		Mazdoor	*day*	*0.90*	*310.00*	*279.00*	*L-18*
		Bhisti	*day*	*0.08*	*310.00*	*24.80*	*L-01*
		Total Material and Labour = (a+b)			***say***	***3862.20***	
		III. Brick Masonry in 1:4 Cement Mortar					
		Unit = cum					
		Taking output = 1 cum					
		a) Material					
		Bricks Ist class	each	380.00	12.45	4731.00	M-049
		Cement mortar 1:4 (Rate as in sub-analysis below)	cum	0.24	3263.40	783.22	Sub Analysis
		b) Material					
		Mate	day	0.10	310.00	31.00	L-17
		Mason (1st calss)	day	0.80	440.00	352.00	L-15
		Mazdoor(unskilled)	day	1.00	310.00	310.00	L-18
		Bhisti	day	0.60	310.00	186.00	L-01
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				898.25	
		d) Contractor's profit @ 15 % on (a+b+c)				1093.72	
		e) Add Cess @ 1.00 % on (a+b+c+d)				83.85	
		Rate per cum (a+b+c+d+e)				8469.03	
					say	***8469.00***	
	Sub-analysis (Addl.)	***Cement Mortar1:4(1cement :4 sand)***					
		Unit = 1 cum					
		Taking output = 1 cum					
		a) Materials					
		Cement	*tonne*	*0.40*	*5800.00*	*2320.00*	*M-052*
		Sand	*cum*	*1.12*	*560.00*	*627.20*	*M-170*
		b) Labour					
		Mate	*day*	*0.04*	*310.00*	*12.40*	*L-17*
		Mazdoor	*day*	*0.90*	*310.00*	*279.00*	*L-18*
		Bhisti	*day*	*0.08*	*310.00*	*24.80*	*L-01*

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Total Material and Labour = (a+b)			***say***	***3263.40***	
		IV. Brick Masonry in 1:6 Cement Mortar					
		Unit = cum					
		Taking output = 1 cum					
		a) Material					
		Bricks Ist class	each	380.00	12.45	4731.00	*M-049*
		Cement mortar 1:6 (Rate as in sub-analysis below)	cum	0.24	2748.60	659.66	Sub Analysis
		b) Labour					
		Mate	day	0.06	310.00	18.60	L-17
		Mason (1st calss)	day	0.80	440.00	352.00	L-15
		Mazdoor(unskilled)	day	1.00	310.00	310.00	L-18
		Bhisti	day	0.60	310.00	186.00	L-01
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				879.15	
		d) Contractor's profit @ 15 % on (a+b+c)				1070.46	
		e) Add Cess @ 1.00 % on (a+b+c+d)				82.07	
		Rate per cum (a+b+c+d+e)				8288.94	
					say	***8288.90***	
	Sub-analysis (Addl.)	***Cement Mortar1:6 (1cement :6 sand)***					
		Unit = 1 cum					
		Taking output = 1 cum					
		a) Materials					
		Cement	*tonne*	*0.29*	*5800.00*	*1682.00*	*M-052*
		Sand	*cum*	*1.34*	*560.00*	*750.40*	*M-170*
		b) Labour					
		Mate	*day*	*0.04*	*310.00*	*12.40*	*L-17*
		Mazdoor	*day*	*0.90*	*310.00*	*279.00*	*L-18*
		Bhisti	*day*	*0.08*	*310.00*	*24.80*	*L-01*
		Total Material and Labour = (a+b)			***say***	***2748.60***	
12.6	**1500, 1700 & 2100**	Plain / Reinforced cement concrete in open foundation as per drawings & MoRT&H technical specifications Clauses 1500, 1700, 2100. (including centering, shuttering, staging etc. but excluding reinforcement)					
		A. PCC Grade M15					
		Unit = cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason (1st calss)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	17.00	310.00	5270.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Mechanical Concrete mixer (cap. 0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	4.13	5800.00	23954.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		40 mm Aggregate	cum	8.10	4692.00	38005.20	M-023
		20 mm Aggregate	cum	4.05	4875.00	19743.75	M-022
		10 mm Aggregate	cum	1.35	4730.00	6385.50	M-020
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		***6767.00***			

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		d) Formwork @ 4 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				4059.88	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				14830.75	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				18058.15	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1384.46	
		Cost for 15 cum = a+b+c+d+e+f+g				139830.29	
		Rate per cum = (a+b+c+d+e+f+g)/15				9322.02	
					say	***9322.00***	
		B. PCC Grade M20					
		Unit : cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason (1st calss)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	17.00	310.00	5270.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Concrete mixer (cap. 0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	5.16	5800.00	29928.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		40 mm Aggregate	cum	5.40	4692.00	25336.80	M-023
		20 mm Aggregate	cum	5.40	4875.00	26325.00	M-022
		10 mm Aggregate	cum	2.70	4730.00	12771.00	M-020
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		***7185.00***			
		d) Formwork @ 4 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				4310.78	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				15747.26	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				19174.12	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1470.02	
		Cost for 15 cum = a+b+c+d+e+f+g				148471.57	
		Rate per cum = (a+b+c+d+e+f+g)/15				9898.10	
					say	***9898.10***	
		C. RCC Grade M20					
		Case- I:- Using Concrete Mixer					
		Unit = cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason (1st calss)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	17.00	310.00	5270.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Mechanical Concrete mixer (0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	5.21	5800.00	30218.00	M-052

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		***7244.00***			
		d) Formwork @ 4 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				4346.24	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				15876.83	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				19331.88	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1482.11	
		Cost for 15 cum = a+b+c+d+e+f+g				149693.16	
		Rate per cum = (a+b+c+d+e+f +g)/15				9979.54	
					say	***9979.50***	
		Case-II:- With Batching Plant, Transit Mixer and Concrete Pump					
		Unit : cum					
		Taking Output = 120 cum					
		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason (1st calss)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	15.00	310.00	4650.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	41.66	5800.00	241628.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		***7596.00***			
		d) Formwork @ 4 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				36458.58	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				133183.18	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				162165.92	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				12432.72	
		Cost for 120 cum = a+b+c+d+e+f+g				1255704.80	
		Rate per cum = (a+b+c+d+e+f +g)/120				10464.21	
					say	***10464.20***	
		D. PCC Grade M25					
		Case-I:- Using Concrete Mixer					
		Unit = cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason (1st calss)	day	1.50	440.00	660.00	L-15

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Mazdoor(unskilled)	day	17.00	310.00	5270.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Mechanical concrete mixer (0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	5.99	5800.00	34742.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		40 mm Aggregate	cum	5.40	4692.00	25336.80	M-023
		20 mm Aggregate	cum	5.40	4875.00	26325.00	M-022
		10 mm Aggregate	cum	2.70	4730.00	12771.00	M-020
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		***7506.00***			
		d) Formwork @ 3.75 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				4221.88	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				16411.14	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				19982.46	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1531.99	
		Cost for 15 cum = a+b+c+d+e+f+g				154730.87	
		Rate per cum = (a+b+c+d+e+f+g)/15				10315.39	
					say	***10315.40***	
		Case-II:- With Batching Plant, Transit Mixer and Concrete Pump					
		Unit : cum					
		Taking Output = 120 cum					
		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason (1st calss)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	15.00	310.00	4650.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	47.95	5800.00	278110.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		40 mm Aggregate	cum	43.20	4692.00	202694.40	M-023
		20 mm Aggregate	cum	43.20	4875.00	210600.00	M-022
		10 mm Aggregate	cum	21.60	4730.00	102168.00	M-020
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		***7860.00***			
		d) Formwork @ 3.75 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				35368.98	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				137485.12	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				167404.04	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				12834.31	
		cost of 120 cum = a+b+c+d+e+f+g				1296265.24	
		Rate per cum = (a+b+c+d+e+f+g)/120				10802.21	
					say	***10802.20***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		E. RCC Grade M25					
		Case-I:- Using Concrete Mixer					
		Unit = cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason (1st calss)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	17.00	310.00	5270.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Mechanical concrete mixer (0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	6.05	5800.00	35090.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		***7569.00***			
		d) Formwork @ 3.75 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				3896.23	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				16498.12	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				20088.37	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1540.11	
		cost of 15 cum = a+b+c+d+e+f+g				155550.93	
		Rate per cum (a+b+c+d+e+f+g)/15				10370.06	
					say	***10370.10***	
		Case-II:- With Batching Plant, Transit Mixer and Concrete Pump					
		Unit: cum					
		Taking Output = 120 cum					
		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason (1st calss)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	15.00	310.00	4650.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	48.38	5800.00	280604.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		***7921.00***			
		d) Formwork @ 3.75 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				35641.52	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				138544.51	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				168693.96	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				12933.20	
		cost of 120 cum = a+b+c+d+e+f+g				1306253.59	
		Rate per cum (a+b+c+d+e+f+g)/120				10885.45	
					say	***10885.40***	
		F. PCC Grade M30					
		Case-I:- Using Concrete Mixer					
		Unit = cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason (1st calss)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	17.00	310.00	5270.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Concrete mixer (cap. 0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	6.08	5800.00	35264.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		40 mm Aggregate	cum	5.40	4692.00	25336.80	M-023
		20 mm Aggregate	cum	5.40	4875.00	26325.00	M-022
		10 mm Aggregate	cum	2.70	4730.00	12771.00	M-020
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		***7541.00***			
		d) Formwork @ 3.50 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				3958.69	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				16447.50	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				20026.74	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1535.38	
		cost of 15 cum = a+b+c+d+e+f+g				155073.72	
		Rate per cum (a+b+c+d+e+f+g)/15				10338.25	
					say	***10338.20***	
		Case-II:- With Batching Plant, Transit Mixer and Concrete Pump					
		Unit : cum					
		Taking Output = 120 cum					
		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason (1st calss)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	15.00	310.00	4650.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	48.60	5800.00	281880.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		40 mm Aggregate	cum	43.20	4692.00	202694.40	M-023
		20 mm Aggregate	cum	43.20	4875.00	210600.00	M-022
		10 mm Aggregate	cum	21.60	4730.00	102168.00	M-020
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		***7892.00***			

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		d) Formwork @ 3.50 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				33143.00	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				137702.05	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				167668.18	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				12854.56	
		cost of 120 cum = a+b+c+d+e+f+g				1298310.59	
		Rate per cum (a+b+c+d+e+f+g)/120				10819.25	
					say	***10819.30***	
		G. RCC Grade M30					
		Case-I:- Using Concrete Mixer					
		Unit = cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason (1st calss)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	17.00	310.00	5270.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Meachanical concrete mixer (0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	6.10	5800.00	35380.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		***7588.00***			
		d) Formwork @ 3.50 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				3983.63	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				16551.14	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				20152.93	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1545.06	
		cost of 15 cum = a+b+c+d+e+f+g				156050.87	
		Rate per cum = (a+b+c+d+e+f+g)/15				10403.39	
					say	***10403.40***	
		Case-II:- With Batching Plant, Transit Mixer and Concrete Pump					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason (1st calss)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	15.00	310.00	4650.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	48.80	5800.00	283040.00	M-052

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Sand	cum	54.00	560.00	30240.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		***7941.00***			
		d) Formwork @ 3.50 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				33350.67	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				138564.90	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				168718.80	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				12935.11	
		cost of 120 cum = a+b+c+d+e+f+g				1306445.88	
		Rate per cum (a+b+c+d+e+f+g)/120				10887.05	
					say	***10887.00***	
		H. RCC Grade M35					
		Case-I:- Using Concrete Mixer					
		Unit = cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason (1st calss)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	17.00	310.00	5270.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Mechanical concrete mixer (0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	6.33	5800.00	36714.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		***7677.00***			
		d) Formwork @ 3.00 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				3454.56	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				16664.24	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				20290.63	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1555.62	
		cost of 15 cum = a+b+c+d+e+f+g				157117.15	
		Rate per cum = (a+b+c+d+e+f+g)/15				10474.48	
					say	***10474.50***	
		Case-II:- With Batching Plant, Transit Mixer and Concrete Pump					
		Unit ; cum					
		Taking Output = 120 cum					
		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason (1st calss)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	18.00	310.00	5580.00	L-18
		Bhisti	day	0.60	310.00	186.00	L-01
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	50.64	5800.00	293712.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		***8032.00***			
		d) Formwork @ 3.00 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				28912.03	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				139466.82	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				169816.99	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				13019.30	
		cost of 120 cum = a+b+c+d+e+f+g				1314949.55	
		Rate per cum = (a+b+c+d+e+f+g)/120				10957.91	
					say	***10957.90***	
		Note:- 1. Needle vibrator is an item of minor T&P which is already included in Add GST (multiplying factor). Hence not added in rate analysis of cement concrete works.					
		2. Where ever concrete is carried out using batching plant, transit mixer, concrete pump, Admixtures @ 0.4 per cent of weight of cement may be added for achieving desired slump of concrete.					
		WELL FOUNDATION					
12.7	**1200**	Providing and Constructing Temporary Island 16 m diameter for Construction of Well Foundation for 8 m dia. Well.					
		A. Assuming depth of water 1.0 m and height of island to be 1.25 m.					
		Unit = 1 No					
		Taking output = 1 No.					
		a) Labour					
		Mate	day	0.60	310.00	186.00	L-17
		Mazdoor(unskilled)	day	15.00	310.00	4650.00	L-18
		b) Machinery					
		Crane with grab 1 cum capacity	hour	6.00	925.00	5550.00	P&M-019
		c) Material					
		Earth (compacted)	cum	251.20	17.1	4282.96	M-061
		Sand bags	each	750.00	2.15	1612.50	M-088
		d) Consumables @ 2.5% on cost of (a+b+c)				138.75	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				2307.04	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				2809.09	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				215.36	
		Rate per No. (a+b+c+d+e+f+g)				21751.70	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
					say	***21751.70***	
		B. Assuming depth of water 4.0 m and height of island 4.5 m.					
		Unit = 1No					
		Taking output = 1 No					
		a) Labour					
		Mate	day	5.60	310.00	1736.00	L-17
		Mazdoor(unskilled)	day	140.00	310.00	43400.00	L-18
		b) Machinery					
		Crane with grab 1 cum capacity	hour	50.00	925.00	46250.00	P&M-019
		c) Material					
		Earth (compacted)	cum	904.32	17.1	15418.66	M-061
		Sand bags	each	6000.00	2.15	12900.00	M-088
		Wooden ballies 8" Dia	each	855.00	259.85	222171.75	M-240
		Wooden ballies 2" Dia for bracing	metre	190.00	37.05	7039.50	M-238
		d) Consumables and other arrangements for piling ballies @ 2.5 per cent of (a+b+c).				8722.90	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				50248.25	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				61183.06	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				4690.70	
		Rate per No. (a+b+c+d+e+f+g)				473760.82	
					say	***473760.80***	
		Note:- For other well diameters rate can be worked out on the basis of cross-sectional area of well. The diameter of the island shall be in the conformity with clause 1203.2 of MoRTH specifications.					
		C. Providing and constructing one span service road to reach island location from one pier location to another pier location					
		Assuming span length 30 m, width of service road 10m and depth of water 1m					
		Unit = 1 meter					
		Taking output = 30 metre					
		a) Labour					
		Mate	day	0.24	310.00	74.40	L-17
		Mazdoor(unskilled)	day	6.00	310.00	1860.00	L-18
		b) Machinery					
		Front end Loader 1 cum capacity	hour	27.00	920.00	24840.00	P&M-031
		Tipper 5.5 cum capacity	hour	28.00	334.00	9352.00	P&M-073
		c) Material					
		Earth	cum	450.00	17.1	7672.50	M-061
		Sand bags	each	300.00	2.15	645.00	M-088
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				6244.37	
		e) Contractor's profit @ 15 % on (a+b+c+d)				7603.24	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				582.92	
		Cost for 30 m (a+b+c+d+e+f)				58874.42	
		Rate per m (a+b+c+d+e+f)/30				1962.48	
					say	***1962.50***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
12.8	**1200 & 1900**	**Providing and Laying Cutting Edge of Mild Steel weighing 40 kg per metre for Well Foundation complete as per drawings & MoRT&H technical specifications Clauses 1200 & 1900**					
		Unit = 1 MT					
		Taking output = 1 MT					
		a) Labour					
		(for cutting, bending, making holes, joining, welding and erecting in position)					
		Mate	day	0.40	310.00	124.00	L-17
		Fitter	day	5.50	355.00	1952.50	L-13
		Blacksmith	day	5.50	418.00	2299.00	L-03
		Welder	day	5.50	440.00	2420.00	L-27
		Mazdoor(unskilled)	day	16.50	310.00	5115.00	L-18
		b) Material					
		Structural steel in plates, angles, etc including 5 per cent wastage	tonne	1.05	47000.00	49350.00	M-193
		Nuts & bolts	Kg	20.00	82.30	1646.00	M-141
		c) Electrodes, cutting gas and other consumables @ 10 per cent of cost of (b) above				5099.60	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				9554.86	
		e) Contractor's profit @ 15 % on (a+b+c+d)				11634.14	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				891.95	
		Rate per MT (a+b+c+d+e+f)				90087.05	
					say	***90087.10***	
12.9	**1200, 1500 & 1700**	**Plain / Reinforced cement concrete in well foundation as per drawings & MoRT&H technical specifications Clauses 1200, 1500, 1700. (including centering, shuttering, staging etc. but excluding reinforcement) .**					
		Unit = 1 cum					
		Taking output = 1 cum					
		A. Well curb					
		(i) RCC M20 Grade					
		Same as for 12.6 (C) except for formwork which shall be@ 20 per cent of the cost of concrete.					
		Case I:- Using Concrete Mixer					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)				7244.00	
		d) formwork @ 20 per cent of the cost of concrete				1448.80	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1221.34	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1487.12	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				114.01	
		Rate perm (a+b+c+d+e+f+g)				11515.27	
					say	***11515.30***	
		Case II:- With Batching Plant, Transit Mixer and Concrete Pump					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)				7596.00	
		d) formwork @ 20 per cent of the cost of concrete				1519.20	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1280.69	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1559.38	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				119.55	
		Rate perm (a+b+c+d+e+f+g)				12074.82	
					say	***12074.80***	
		(ii) RCC M25 Grade Same as for 12.6 (E) except for formwork which shall be@ 20 per cent of the cost of concrete. **Case I:- Using Concrete Mixer**					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)				7569.00	
		d) formwork @ 20 per cent of the cost of concrete				1513.80	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1276.13	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1553.84	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				119.13	
		Rate perm (a+b+c+d+e+f+g)				12031.90	
					say	***12031.90***	
		Case II:- With Batching Plant, Transit Mixer and Concrete Pump					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)				7921.00	
		d) formwork @ 20 per cent of the cost of concrete				1584.20	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1335.48	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1626.10	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				124.67	
		Rate per m (a+b+c+d+e+f+g)				12591.45	
					say	***12591.50***	
		(iii) RCC M35 Grade Same as for 12.6 (H) except for formwork which shall be@ 20 per cent of the cost of concrete. **Case I:- Using Concrete Mixer**					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)				7677.00	
		d) formwork @ 20 per cent of the cost of concrete				1535.40	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1294.34	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1576.01	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				120.83	
		Rate perm (a+b+c+d+e+f+g)				12203.58	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
					say	***12203.60***	
		Case II:- With Batching Plant, Transit Mixer and Concrete Pump					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)				8032.00	
		d) formwork @ 20 per cent of the cost of concrete				1606.40	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1354.20	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1648.89	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				126.41	
		Rate perm (a+b+c+d+e+f+g)				12767.90	
					say	***12767.90***	
		If curb concrete is carried out within steel liner, cost of formwork shall be excluded.					
		B. Well steining					
		(I) PCC M15 Grade					
		Same as for 12.6 (A) except for formwork which shall be @ 10 per cent of the cost of concrete.					
		Case I:- Using Concrete Mixer					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)				6767.00	
		d) formwork @ 10 per cent of the cost of concrete				676.70	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1045.84	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1273.43	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				97.63	
		Rate perm (a+b+c+d+e+f+g)				9860.60	
					say	***9860.60***	
		(ii) PCC M20 Grade					
		Same as for 12.6 (B) except for formwork which shall be @ 10 per cent of the cost of concrete.					
		Case I:- Using Concrete Mixer					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)				7185.00	
		d) formwork @ 10 per cent of the cost of concrete				718.50	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1110.44	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1352.09	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				103.66	
		Rate perm (a+b+c+d+e+f+g)				10469.69	
					say	***10469.70***	
		(iii) RCC M20 Grade					
		Same as for 12.6 (C) except for formwork which shall be @ 10 per cent of the cost of concrete.					
		Case I:- Using Concrete Mixer					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)				7244.00	
		d) formwork @ 10 per cent of the cost of concrete				724.40	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1119.56	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1363.19	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				104.51	
		Rate perm (a+b+c+d+e+f+g)				10555.67	
					say	***10555.70***	
		Case II:- With Batching Plant, Transit Mixer and Concrete Pump					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)				7596.00	
		d) formwork @ 10 per cent of the cost of concrete				759.60	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1173.96	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1429.43	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				109.59	
		Rate perm (a+b+c+d+e+f+g)				11068.59	
					say	***11068.60***	
		(iv) PCC M25 Grade Same as for 12.6 (D) except for formwork which shall be @ 10 per cent of the cost of concrete.					
		Case I:- Using Concrete Mixer					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)				7506.00	
		d) formwork @ 10 per cent of the cost of concrete				750.60	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1160.05	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1412.50	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				108.29	
		Rate perm (a+b+c+d+e+f+g)				10937.44	
					say	***10937.40***	
		Case II:- With Batching Plant, Transit Mixer and Concrete Pump					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)				7860.00	
		d) formwork @ 10 per cent of the cost of concrete				786.00	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1214.76	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1479.11	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				113.40	
		Rate perm (a+b+c+d+e+f+g)				11453.28	
					say	***11453.30***	
		(v) RCC M25 Grade Same as for 12.6 (E) except for formwork which shall be @ 10 per cent of the cost of concrete.					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Case I:- Using Concrete Mixer					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)				7569.00	
		d) formwork @ 10 per cent of the cost of concrete				756.90	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1169.79	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1424.35	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				109.20	
		Rate perm (a+b+c+d+e+f+g)				11029.24	
					say	***11029.20***	
		Case II:- With Batching Plant, Transit Mixer and Concrete Pump					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)				7921.00	
		d) formwork @ 10 per cent of the cost of concrete				792.10	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1224.19	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1490.59	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				114.28	
		Rate perm (a+b+c+d+e+f+g)				11542.16	
					say	***11542.20***	
		(vi) PCC M30 Grade Same as for 12.6 (F) except for formwork which shall be @ 10 per cent of the cost of concrete.					
		Case I:- Using Concrete Mixer					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)				7541.00	
		d) formwork @ 10 per cent of the cost of concrete				754.10	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1165.46	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1419.08	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				108.80	
		Rate perm (a+b+c+d+e+f+g)				10988.44	
					say	***10988.40***	
		Case II:- With Batching Plant, Transit Mixer and Concrete Pump					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)				7892.00	
		d) formwork @ 10 per cent of the cost of concrete				789.20	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1219.71	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1485.14	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				113.86	
		Rate perm (a+b+c+d+e+f+g)				11499.91	
					say	***11499.90***	
		(vii) RCC M30 Grade					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Same as for 12.6 (G) except for formwork which shall be @ 10 per cent of the cost of concrete **Case I:- Using Concrete Mixer**					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)				7588.00	
		d) formwork @ 10 per cent of the cost of concrete				758.80	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1172.73	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1427.93	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				109.47	
		Rate perm (a+b+c+d+e+f+g)				11056.93	
					say	***11056.90***	
		Case II:- With Batching Plant, Transit Mixer and Concrete Pump					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)				7941.00	
		d) formwork @ 10 per cent of the cost of concrete				794.10	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1227.28	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1494.36	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				114.57	
		Rate perm (a+b+c+d+e+f+g)				11571.31	
					say	***11571.30***	
		(viii) RCC M35 Grade Same as for 12.6 (H) except for formwork which shall be @ 10 per cent of the cost of concrete **Case I:- Using Concrete Mixer**					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)				7677.00	
		d) formwork @ 10 per cent of the cost of concrete				767.70	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1186.48	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1444.68	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				110.76	
		Rate perm (a+b+c+d+e+f+g)				11186.62	
					say	***11186.60***	
		Case II:- With Batching Plant, Transit Mixer and Concrete Pump					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)				8032.00	
		d) formwork @ 10 per cent of the cost of concrete				803.20	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1241.35	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1511.48	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				115.88	
		Rate perm (a+b+c+d+e+f+g)				11703.91	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
					say	***11703.90***	
		(ix) RCC M40 Grade					
		Case-I :- Using concrete mixer					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.92	310.00	285.20	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor (unskilled)	day	17.00	310.00	5270.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Mechanical concrete mixer (0.40/0.28 cum) fitted with water measuring device & preferably also with load cell.	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	6.45	5800.00	37410.00	M-052
		Sand (Coarse)	cum	6.75	2625.00	17718.75	M-169
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		Admixture	kg	25.75	39.00	1004.25	M-004
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		***8764.70***			
		d) Formwork @ 10 per cent on cost of concrete i.e. cost of material, labour and machinery				13146.97	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				20318.64	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				24740.30	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1896.76	
		cost of 15 cum = a+b+c+d+e+f+g				191572.37	
		Rate per cum = (a+b+c+d+e+f+g)/15				12771.49	
					say	***12771.50***	
		Case-II :- With Batching Plant, Transit Mixer and Concrete Pump					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor (unskilled)	day	15.00	310.00	4650.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	51.60	5800.00	299280.00	M-052
		Sand (Coarse)	cum	54.00	2625.00	141750.00	M-169
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		Admixture	kg	206.00	39.00	8034.00	M-004
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		***9072.20***			
		d) Formwork @ 10 per cent on cost of concrete i.e. cost of material, labour and machinery				108866.04	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				168252.46	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				204866.84	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				15706.46	
		cost of 120 cum = a+b+c+d+e+f+g				1586352.20	
		Rate per cum = (a+b+c+d+e+f+g)/120				13219.60	
					say	***13219.60***	
		C. Bottom Plug					
		Concrete to be placed using tremie pipe					
		Note: 10% extra cement to be added where under water concreting is involved					
		(i) PCC Grade M20					
		Case -I:- Using Concrete Mixer					
		Unit = cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor (unskilled)	day	17.00	310.00	5270.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Mechanical concrete mixer (capacity 0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		Light Crane 3 tonnes capacity for handling tremie pipe	hour	6.00	500.00	3000.00	P&M-020
		c) Material					
		Cement	tonne	5.55	5800.00	32190.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		40 mm Aggregate	cum	5.40	4692.00	25336.80	M-023
		20 mm Aggregate	cum	5.40	4875.00	26325.00	M-022
		10 mm Aggregate	cum	2.70	4730.00	12771.00	M-020
		Admixture	Kg	18.60	39.00	725.40	M-004
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		***7583.80***			
		Add 5.00 % towards cost of forming sump, protective bunds, chiselling and making arrangements for under water concreting with tremie pipe.				5687.84	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				16781.97	
		e) Contractor's profit @ 15 % on (a+b+c+d)				20433.99	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				1566.61	
		cost of 15 cum = a+b+c+d+e+f				158227.21	
		Rate per cum = (a+b+c+d+e+f)/15				10548.48	
					say	***10548.50***	
		case-II:-Using Batching Plant, Transit Mixer and Crane/concrete pump					
		Unit = cum					
		Taking Output = 120 cum					
		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor (unskilled)	day	15.00	310.00	4650.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	44.40	5800.00	257520.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		Admixture	Kg	148.80	39.00	5803.20	M-004
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		***7776.40***			
		Add 5.00 % towards cost of forming sump, protective bunds, chiselling and making arrangements for under water concreting with tremie pipe.				46657.98	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				137664.37	
		e) Contractor's profit @ 15 % on (a+b+c+d)				167622.29	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				12851.04	
		cost of 120 cum = a+b+c+d+e+f				1297955.28	
		Rate per cum = (a+b+c+d+e+f)/120				10816.29	
					say	***10816.30***	
		(ii) PCC Grade M25					
		Case-I:- Using Concrete Mixer					
		Unit = cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor (unskilled)	day	17.00	310.00	5270.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Mechanical concrete mixer (capacity 0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		Light Crane 3 tonnes capacity for handling tremie pipe	hour	6.00	500.00	3000.00	P&M-020
		c) Material					
		Cement	tonne	5.99	5800.00	34742.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		40 mm Aggregate	cum	5.40	4692.00	25336.80	M-023
		20 mm Aggregate	cum	5.40	4875.00	26325.00	M-022
		10 mm Aggregate	cum	2.70	4730.00	12771.00	M-020
		Admixture	Kg	21.60	39.00	842.40	M-004
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		***7761.80***			
		Add 5.00 % towards cost of forming sump, protective bunds, chiselling and making arrangements for under water concreting with tremie pipe.				5821.29	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				17175.72	
		e) Contractor's profit @ 15 % on (a+b+c+d)				20913.42	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				1603.36	
		cost of 15 cum = a+b+c+d+e+f				161939.59	
		Rate per cum = (a+b+c+d+e+f)/15				10795.97	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
					say	***10796.00***	
		Case-II:- Using Batching Plant, Transit Mixer and Crane/concrete pump					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor (unskilled)	day	15.00	310.00	4650.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	47.88	5800.00	277704.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		Admixture	Kg	172.80	39.00	6739.20	M-004
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		***7952.40***			
		Add 5.00 % towards cost of forming sump, protective bunds, chiselling and making arrangements for under water concreting with tremie pipe.				47713.98	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				140780.10	
		e) Contractor's profit @ 15 % on (a+b+c+d)				171416.05	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				13141.90	
		cost of 120 cum = a+b+c+d+e+f				1327331.63	
		Rate per cum = (a+b+c+d+e+f)/120				11061.10	
					say	***11061.10***	
		(iii) PCC Grade M30					
		Case-I:- Using Concrete Mixer					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor (unskilled)	day	17.00	310.00	5270.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Mechanical concrete mixer (capacity 0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		Light Crane 3 tonnes capacity for handling tremie pipe	hour	6.00	500.00	3000.00	P&M-020
		c) Material					
		Cement	tonne	6.08	5800.00	35264.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		40 mm Aggregate	cum	5.40	4692.00	25336.80	M-023
		20 mm Aggregate	cum	5.40	4875.00	26325.00	M-022
		10 mm Aggregate	cum	2.70	4730.00	12771.00	M-020
		Admixture	Kg	21.60	39.00	842.40	M-004

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		***7796.60***			
		Add 5.00 % towards cost of forming sump, protective bunds, chiselling and making arrangements for under water concreting with tremie pipe.				5847.39	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				17252.72	
		e) Contractor's profit @ 15 % on (a+b+c+d)				21007.19	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				1610.55	
		cost of 15 cum = a+b+c+d+e+f				162665.65	
		Rate per cum = (a+b+c+d+e+f)/15				10844.38	
					say	***10844.40***	
		Case-II:- Using Batching Plant, Transit Mixer and Crane/concrete pump					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor (unskilled)	day	15.00	310.00	4650.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	48.64	5800.00	282112.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		Admixture	Kg	172.80	39.00	6739.20	M-004
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		***7989.10***			
		Add 5.00 % towards cost of forming sump, protective bunds, chiselling and making arrangements for under water concreting with tremie pipe.				47934.38	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				141430.39	
		e) Contractor's profit @ 15 % on (a+b+c+d)				172207.86	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				13202.60	
		cost of 120 cum = a+b+c+d+e+f				1333462.83	
		Rate per cum = (a+b+c+d+e+f)/120				11112.19	
					say	***11112.20***	
		(iv) PCC Grade M35					
		Case-I:- Using Concrete Mixer					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor (unskilled)	day	17.00	310.00	5270.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		b) Machinery					
		Mechanical concrete mixer (capacity 0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		Light Crane 3 tonnes capacity for handling tremie pipe	hour	6.00	500.00	3000.00	P&M-020
		c) Material					
		Cement	tonne	6.29	5800.00	36482.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		40 mm Aggregate	cum	5.40	4692.00	25336.80	M-023
		20 mm Aggregate	cum	5.40	4875.00	26325.00	M-022
		10 mm Aggregate	cum	2.70	4730.00	12771.00	M-020
		Admixture	Kg	21.60	39.00	842.40	M-004
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		***7877.80***			
		Add 5.00 % towards cost of forming sump, protective bunds, chiselling and making arrangements for under water concreting with tremie pipe.				5908.29	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				17432.41	
		e) Contractor's profit @ 15 % on (a+b+c+d)				21225.97	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				1627.32	
		cost of 15 cum = a+b+c+d+e+f				164359.80	
		Rate per cum = (a+b+c+d+e+f)/15				10957.32	
					say	***10957.30***	
		Case-II:- Using Batching Plant, Transit Mixer and Crane/concrete pump					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor (unskilled)	day	15.00	310.00	4650.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	50.28	5800.00	291624.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		Admixture	Kg	172.80	39.00	6739.20	M-004
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		***8068.40***			
		Add 5.00 % towards cost of forming sump, protective bunds, chiselling and making arrangements for under water concreting with tremie pipe.				48409.98	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				142833.65	
		e) Contractor's profit @ 15 % on (a+b+c+d)				173916.48	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				13333.60	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		cost of 120 cum = a+b+c+d+e+f				1346693.31	
		Rate per cum = (a+b+c+d+e+f)/120				11222.44	
					say	***11222.40***	
		D. Intermediate plug					
		(i) PCC Grade M20					
		Case -I:- Using Concrete Mixer					
		Unit = cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor (unskilled)	day	17.00	310.00	5270.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Mechanical concrete mixer (capacity 0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		Light Crane 3 tonnes capacity for handling tremie pipe	hour	6.00	500.00	3000.00	P&M-020
		c) Material					
		Cement	tonne	5.55	5800.00	32190.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		40 mm Aggregate	cum	5.40	4692.00	25336.80	M-023
		20 mm Aggregate	cum	5.40	4875.00	26325.00	M-022
		10 mm Aggregate	cum	2.70	4730.00	12771.00	M-020
		Admixture	Kg	18.60	39.00	725.40	M-004
		Add 0.50 % towards cost of making arrangement for concreting with tremie pipe.				568.78	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				16062.74	
		e) Contractor's profit @ 15 % on (a+b+c+d)				19558.25	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				1499.47	
		cost of 15 cum = a+b+c+d+e+f				151446.04	
		Rate per cum = (a+b+c+d+e+f)/15				10096.40	
					say	***10096.40***	
		case-II:-Using Batching Plant, Transit Mixer and Crane/concrete pump					
		Unit = cum					
		Taking Output = 120 cum					
		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor (unskilled)	day	15.00	310.00	4650.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	44.40	5800.00	257520.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		Admixture	Kg	148.80	39.00	5803.20	M-004

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Add 0.50 % towards cost of making arrangement for concreting with tremie pipe.				4665.80	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				131764.47	
		e) Contractor's profit @ 15 % on (a+b+c+d)				160438.48	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				12300.28	
		cost of 120 cum = a+b+c+d+e+f				1242328.63	
		Rate per cum = (a+b+c+d+e+f)/120				10352.74	
					say	***10352.70***	
		(ii) PCC Grade M25					
		Case-I:- Using Concrete Mixer					
		Unit = cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor (unskilled)	day	17.00	310.00	5270.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Mechanical concrete mixer (capacity 0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		Light Crane 3 tonnes capacity for handling tremie pipe	hour	6.00	500.00	3000.00	P&M-020
		c) Material					
		Cement	tonne	5.99	5800.00	34742.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		40 mm Aggregate	cum	5.40	4692.00	25336.80	M-023
		20 mm Aggregate	cum	5.40	4875.00	26325.00	M-022
		10 mm Aggregate	cum	2.70	4730.00	12771.00	M-020
		Admixture	Kg	21.60	39.00	842.40	M-004
		Add 0.50 % towards cost of making arrangement for concreting with tremie pipe.				582.13	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				16439.61	
		e) Contractor's profit @ 15 % on (a+b+c+d)				20017.13	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				1534.65	
		cost of 15 cum = a+b+c+d+e+f				154999.32	
		Rate per cum = (a+b+c+d+e+f)/15				10333.29	
					say	***10333.30***	
		Case-II:- Using Batching Plant, Transit Mixer and Crane/concrete pump					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor (unskilled)	day	15.00	310.00	4650.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	47.88	5800.00	277704.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		Admixture	Kg	172.80	39.00	6739.20	M-004
		Add 0.50 % towards cost of making arrangement for concreting with tremie pipe.				4771.40	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				134746.67	
		e) Contractor's profit @ 15 % on (a+b+c+d)				164069.65	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				12578.67	
		cost of 120 cum = a+b+c+d+e+f				1270445.99	
		Rate per cum = (a+b+c+d+e+f)/120				10587.05	
					say	***10587.00***	
		(iii) PCC Grade M30					
		Case-I:- Using Concrete Mixer					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor (unskilled)	day	17.00	310.00	5270.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Mechanical concrete mixer (capacity 0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		Light Crane 3 tonnes capacity for handling tremie pipe	hour	6.00	500.00	3000.00	P&M-020
		c) Material					
		Cement	tonne	6.08	5800.00	35264.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		40 mm Aggregate	cum	5.40	4692.00	25336.80	M-023
		20 mm Aggregate	cum	5.40	4875.00	26325.00	M-022
		10 mm Aggregate	cum	2.70	4730.00	12771.00	M-020
		Admixture	Kg	21.60	39.00	842.40	M-004
		Add 0.50 % towards cost of making arrangement for concreting with tremie pipe.				584.74	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				16513.32	
		e) Contractor's profit @ 15 % on (a+b+c+d)				20106.88	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				1541.53	
		cost of 15 cum = a+b+c+d+e+f				155694.27	
		Rate per cum = (a+b+c+d+e+f)/15				10379.62	
					say	***10379.60***	
		Case-II:- Using Batching Plant, Transit Mixer and Crane/concrete pump					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor (unskilled)	day	15.00	310.00	4650.00	L-18

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	48.64	5800.00	282112.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		Admixture	Kg	172.80	39.00	6739.20	M-004
		Add 0.50 % towards cost of making arrangement for concreting with tremie pipe.				4793.44	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				135369.09	
		e) Contractor's profit @ 15 % on (a+b+c+d)				164827.52	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				12636.78	
		cost of 120 cum = a+b+c+d+e+f				1276314.42	
		Rate per cum = (a+b+c+d+e+f)/120				10635.95	
					say	***10636.00***	
		E. Top plug					
		(i). PCC Grade M15					
		Unit = cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason (1st calss)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	17.00	310.00	5270.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Mechanical Concrete mixer (cap. 0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	4.13	5800.00	23954.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		40 mm Aggregate	cum	8.10	4692.00	38005.20	M-023
		20 mm Aggregate	cum	4.05	4875.00	19743.75	M-022
		10 mm Aggregate	cum	1.35	4730.00	6385.50	M-020
		d) Formwork @ 0.00 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				0.00	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				14260.34	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				17363.61	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1331.21	
		Cost for 15 cum = a+b+c+d+e+f+g				134452.20	
		Rate per cum = (a+b+c+d+e+f+g)/15				8963.48	
					say	***8963.50***	
		(ii) PCC Grade M20					
		Unit : cum					
		Taking output = 15 cum					
		a) Labour					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Mate	day	0.86	310.00	266.60	L-17
		Mason (1st calss)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	17.00	310.00	5270.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Concrete mixer (cap. 0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	5.16	5800.00	29928.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		40 mm Aggregate	cum	5.40	4692.00	25336.80	M-023
		20 mm Aggregate	cum	5.40	4875.00	26325.00	M-022
		10 mm Aggregate	cum	2.70	4730.00	12771.00	M-020
		d) Formwork @ 0.00 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				0.00	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				15141.60	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				18436.65	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1413.48	
		Cost for 15 cum = a+b+c+d+e+f+g				142761.13	
		Rate per cum = (a+b+c+d+e+f+g)/15				9517.41	
					say	***9517.40***	
		(iii) PCC Grade M25					
		Case:- Using Concrete Mixer					
		Unit = cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason (1st calss)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	17.00	310.00	5270.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Mechanical concrete mixer (0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	5.99	5800.00	34742.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		40 mm Aggregate	cum	5.40	4692.00	25336.80	M-023
		20 mm Aggregate	cum	5.40	4875.00	26325.00	M-022
		10 mm Aggregate	cum	2.70	4730.00	12771.00	M-020
		d) Formwork @ 0.00 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				0.00	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				15817.97	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				19260.21	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1476.62	
		Cost for 15 cum = a+b+c+d+e+f+g				149138.19	
		Rate per cum = (a+b+c+d+e+f+g)/15				9942.55	
					say	***9942.50***	
		Case-II:- With Batching Plant, Transit Mixer and Concrete Pump					
		Unit : cum					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Taking Output = 120 cum					
		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason (1st calss)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	15.00	310.00	4650.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	47.95	5800.00	278110.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		40 mm Aggregate	cum	43.20	4692.00	202694.40	M-023
		20 mm Aggregate	cum	43.20	4875.00	210600.00	M-022
		10 mm Aggregate	cum	21.60	4730.00	102168.00	M-020
		d) Formwork @ 0.00 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				0.00	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				132515.78	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				161353.29	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				12370.42	
		cost of 120 cum = a+b+c+d+e+f+g				1249412.28	
		Rate per cum = (a+b+c+d+e+f+g)/120				10411.77	
					say	***10411.80***	
		(iv) PCC Grade M30					
		Case-I:- Using Concrete Mixer					
		Unit = cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason (1st calss)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		Bhisti	day	0.60	310.00	186.00	L-01
		b) Machinery					
		Concrete mixer (cap. 0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	6.08	5800.00	35264.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		40 mm Aggregate	cum	5.40	4692.00	25336.80	M-023
		20 mm Aggregate	cum	5.40	4875.00	26325.00	M-022
		10 mm Aggregate	cum	2.70	4730.00	12771.00	M-020
		d) Formwork @ 0.00 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				0.00	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				15917.44	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				19381.33	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1485.90	
		cost of 15 cum = a+b+c+d+e+f+g				150076.07	
		Rate per cum (a+b+c+d+e+f+g)/15				10005.07	
					say	***10005.10***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Case-II:- With Batching Plant, Transit Mixer and Concrete Pump					
		Unit : cum					
		Taking Output = 120 cum					
		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason (1st calss)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	15.00	310.00	4650.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	48.60	5800.00	281880.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		40 mm Aggregate	cum	43.20	4692.00	202694.40	M-023
		20 mm Aggregate	cum	43.20	4875.00	210600.00	M-022
		10 mm Aggregate	cum	21.60	4730.00	102168.00	M-020
		d) Formwork @ 0.00 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				0.00	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				133045.46	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				161998.24	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				12419.87	
		cost of 120 cum = a+b+c+d+e+f+g				1254406.37	
		Rate per cum (a+b+c+d+e+f+g)/120				10453.39	
					say	***10453.40***	
		F. Well cap					
		(i) RCC Grade M20					
		Case-I:- Using Concrete Mixer					
		Unit = cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason (1st calss)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	17.00	310.00	5270.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell.	hour	6.00	192.00	1152.00	P&M-014
		Electric Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	5.12	5800.00	29696.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork @ 4.00 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				4325.36	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				15800.55	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				19239.00	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1474.99	
		cost of 15 cum = a+b+c+d+e+f+g				148974.01	
		Rate per cum = (a+b+c+d+e+f+g)/15				9931.60	
					say	***9931.60***	
		Case-II:- With Batching Plant, Transit Mixer and Concrete Pump					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason (1st calss)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	15.00	310.00	4650.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Admixture	kg	163.68	39.00	6383.52	M-004
		Cement	tonne	40.92	5800.00	237336.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork @ 4.00 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				36542.24	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				133488.79	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				162538.04	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				12461.25	
		cost of 120 cum = a+b+c+d+e+f+g				1258586.24	
		Rate per cum = (a+b+c+d+e+f+g)/120				10488.22	
					say	***10488.20***	
		(ii) RCC Grade M25					
		Case-I:- Using Concrete Mixer					
		Unit = cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason (1st calss)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	17.00	310.00	5270.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell.	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	6.05	5800.00	35090.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		d) Formwork @ 3.75 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				4257.30	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				16548.85	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				20150.14	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1544.84	
		cost of 15 cum = a+b+c+d+e+f+g				156029.23	
		Rate per cum = (a+b+c+d+e+f+g)/15				10401.95	
					say	***10401.90***	
		Case-II:- With Batching Plant, Transit Mixer and Concrete Pump					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason (1st calss)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	15.00	310.00	4650.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Admixture	kg	193.60	39.00	7550.40	M-004
		Cement	tonne	48.40	5800.00	280720.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork @ 4.00 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				38324.27	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				139998.57	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				170464.45	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				13068.94	
		cost of 120 cum = a+b+c+d+e+f+g				1319963.02	
		Rate per cum = (a+b+c+d+e+f+g)/120				10999.69	
					say	***10999.70***	
		(iii) RCC Grade M30					
		Case-I:- Using Concrete Mixer					
		Unit = cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason (1st calss)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	17.00	310.00	5270.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell.	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		c) Material					
		Cement	tonne	6.10	5800.00	35380.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork @ 3.50 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				3983.63	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				16551.14	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				20152.93	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1545.06	
		cost of 15 cum = a+b+c+d+e+f+g				156050.87	
		Rate per cum = (a+b+c+d+e+f+g)/15				10403.39	
					say	***10403.40***	
		Case-II:- With Batching Plant, Transit Mixer and Concrete Pump					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason (1st calss)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	15.00	310.00	4650.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Admixture	kg	195.16	39.00	7611.24	M-004
		Cement	tonne	48.79	5800.00	282982.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork @ 3.50 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				33615.04	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				139663.28	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				170056.19	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				13037.64	
		cost of 120 cum = a+b+c+d+e+f+g				1316801.79	
		Rate per cum = (a+b+c+d+e+f+g)/120				10973.35	
					say	***10973.30***	
		(iv) RCC Grade M35					
		Case-I:- Using Concrete Mixer					
		Unit = cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason (1st calss)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	17.00	310.00	5270.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell.	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	6.33	5800.00	36714.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork @ 3.00 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				3454.56	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				16664.24	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				20290.63	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1555.62	
		cost of 15 cum = a+b+c+d+e+f+g				157117.15	
		Rate per cum = (a+b+c+d+e+f+g)/15				10474.48	
					say	***10474.50***	
		Case-II:- With Batching Plant, Transit Mixer and Concrete Pump					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason (1st calss)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	15.00	310.00	4650.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Admixture	kg	202.56	39.00	7899.84	M-004
		Cement	tonne	50.64	5800.00	293712.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork @ 3.00 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				29143.45	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				140583.13	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				171176.22	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				13123.51	
		cost of 120 cum = a+b+c+d+e+f+g				1325474.55	
		Rate per cum = (a+b+c+d+e+f+g)/120				11045.62	
					say	***11045.60***	
		(v) RCC M40 Grade					
		Case-I:- Using Concrete Mixer					
		Unit = cum					
		Taking output = 15 cum					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		a) Labour					
		Mate	day	0.92	310.00	285.20	L-17
		Mason (1st calss)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	17.00	310.00	5270.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell.	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	6.45	5800.00	37410.00	M-052
		Sand (Coarse)	cum	6.75	2625.00	17718.75	M-169
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork @ 3.00 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				3913.96	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				18880.31	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				22988.96	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1762.49	
		cost of 15 cum = a+b+c+d+e+f+g				178011.17	
		Rate per cum = (a+b+c+d+e+f+g)/15				11867.41	
					say	***11867.40***	
		Case-II:- With Batching Plant, Transit Mixer and Concrete Pump					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason (1st calss)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	15.00	310.00	4650.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	51.60	5800.00	299280.00	M-052
		Sand (Coarse)	cum	54.00	2625.00	141750.00	M-169
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		Admixture	kg	206.00	39.00	8034.00	M-004
		d) Formwork @ 3.00 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				32659.81	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				157545.49	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				191829.86	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				14706.96	
		cost of 120 cum = a+b+c+d+e+f+g				1485402.51	
		Rate per cum = (a+b+c+d+e+f+g)/120				12378.35	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
					say	***12378.40***	
		Note:- Wherever concrete is carried out using batching plant, transit mixer, concrete pump, Admixtures @ 0.4 % of weight of cement has been added for achieving desired slump of concrete.					
12.10	**1200**	Sinking of wells of circular shape in all kinds of soil, through all kinds of stratas and category, with or without water by all methods, other than pneumatic sinking including construction of cofferdams, wherever necessary including dressing for laying the well curbs, removal of underground snags, if any, such as logs, isolated boulders etc. encountered during sinking including use of Kentledge including supports, loading and unloading of weight etc.as per drawing and technical specification and removal of earths etc. with all lifts and lead upto 1000 m as per MoRT&H technical specification section 1200.					
		Unit = Cum.					
		Taking output = 38.50 Cum					
		(Considering the external diameter of well = 7.00 m.)					
		(i) Depth below bed level upto 5.00 M					
		Rate of sinking = 0.121 m per hour.					
		a) Labour					
		Mate	day	0.33	310.00	102.30	L-17
		Sinker (skilled)	day	2.75	440.00	1210.00	L-24
		Sinking helper (semi-skilled)	day	5.50	310.00	1705.00	L-25
		b) Machinery					
		Crane with grab bucket of 0.75 cum capacity and accessories.	hour	8.25	925.00	7631.25	P&M-019
		Consumables in sinking @10.00 % of (b)				763.13	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				1603.34	
		d) Contractor's profit @ 15 % on (a+b+c)				1952.25	
		e) Add Cess @ 1.00 % on (a+b+c+d)				149.67	
		cost of 38.50 cum = a+b+c+d+e				15116.94	
		Rate per cum = (a+b+c+d+e)/38.50				392.65	
					say	***392.60***	
		(ii) Depth beyond 5.00 m upto 10.00 m depth					
		Rate of sinking = 0.097 m per hour.					
		a) Labour					
		Mate	day	0.41	310.00	127.10	L-17
		Sinker (skilled)	day	3.44	440.00	1513.60	L-24
		Sinking helper (semi-skilled)	day	6.88	310.00	2132.80	L-25
		b) Machinery					
		Crane with grab bucket of 0.75 cum capacity and accessories.	hour	10.31	925.00	9536.75	P&M-019
		Air compressor with pneumatic chisel attachment	hour	3.25	322.00	1046.50	P&M-003

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Consumables in sinking @10.00 % of (b)				1058.33	
		c) Add 20.00% of cost, for Kentledge including supports, loading arrangement and Labour.				3083.02	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				2598.98	
		e) Contractor's profit @ 15 % on (a+b+c+d)				3164.56	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				242.62	
		cost of 38.50 cum = a+b+c+d+e+f				24504.25	
		Rate per cum = (a+b+c+d+e+f)/38.50				636.47	
					say	***636.50***	
		(iii) Depth beyond 10.00 m upto 15.00 m depth					
		Rate of sinking = 0.069 m per hour.					
		a) Labour					
		Mate	day	0.58	310.00	179.80	L-17
		Sinker (skilled)	day	4.81	440.00	2116.40	L-24
		Sinking helper (semi-skilled)	day	9.63	310.00	2985.30	L-25
		b) Machinery					
		Crane with grab bucket of 0.75 cum capacity and accessories.	hour	14.44	925.00	13357.00	P&M-019
		Air compressor with pneumatic chisel attachment	hour	3.25	322.00	1046.50	P&M-003
		Consumables in sinking @10.00 % of (b)				1440.35	
		c) Add 30.00% of cost, for Kentledge including supports, loading arrangement and Labour.				6337.61	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				3858.55	
		e) Contractor's profit @ 15 % on (a+b+c+d)				4698.23	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				360.20	
		cost of 38.50 cum = a+b+c+d+e+f				36379.92	
		Rate per cum = (a+b+c+d+e+f)/38.50				944.93	
					say	***944.90***	
		(iv) Depth beyond 15.00 m upto 20.00 m depth					
		Rate of sinking = 0.097 m per hour.					
		a) Labour					
		Mate	day	0.74	310.00	229.40	L-17
		Sinker (skilled)	day	6.19	440.00	2723.60	L-24
		Sinking helper (semi-skilled)	day	12.38	310.00	3837.80	L-25
		b) Machinery					
		Crane with grab bucket of 0.75 cum capacity and accessories.	hour	18.56	925.00	17168.00	P&M-019
		Air compressor with pneumatic chisel attachment	hour	3.25	322.00	1046.50	P&M-003
		Consumables in sinking @10.00 % of (b)				1821.45	
		c) Add 50.00% of cost, for Kentledge including supports, loading arrangement and Labour.				13413.38	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				5653.74	
		e) Contractor's profit @ 15 % on (a+b+c+d)				6884.08	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				527.78	
		cost of 38.50 cum = a+b+c+d+e+f				53305.72	
		Rate per cum = (a+b+c+d+e+f)/38.50				1384.56	
					say	***1384.60***	
12.11	**1200**	Sinking of twin D type wells in all kinds of soil, through all strata and category, with or without water by all methods, other than pneumatic sinking including construction of cofferdams, wherever necessary including dressing for laying the well curbs, removal of underground snags, if any, such as logs, isolated boulders etc. encountered during sinking including use of Kentledge including supports, loading and unloading of weight etc.as per drawing and technical specification and removal of earths etc. with all lifts and lead upto 1000 m as per MoRT&H technical specification section 1200.					
		Unit = Cum.					
		Taking output = 38.50 Cum					
		(Considering the external diameter of well = 7.00 m.)					
		(i) Depth below bed level upto 5.00 M					
		Rate of sinking = 0.121 m per hour.					
		a) Labour					
		Mate	day	0.50	310.00	155.00	L-17
		Sinker (skilled)	day	4.13	440.00	1817.20	L-24
		Sinking helper (semi-skilled)	day	8.25	310.00	2557.50	L-25
		b) Machinery					
		Crane with grab bucket of 0.75 cum capacity and accessories.	hour	8.25	925.00	7631.25	P&M-019
		Consumables in sinking @10.00 % of (b)				763.13	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				1815.83	
		d) Contractor's profit @ 15 % on (a+b+c)				2210.99	
		e) Add Cess @ 1.00 % on (a+b+c+d)				169.51	
		cost of 38.50 cum = a+b+c+d+e				17120.40	
		Rate per cum = (a+b+c+d+e)/38.50				444.69	
					say	***444.70***	
		(ii) Depth beyond 5.00 m upto 10.00 m depth					
		Rate of sinking = 0.097 m per hour.					
		a) Labour					
		Mate	day	0.62	310.00	192.20	L-17
		Sinker (skilled)	day	5.16	440.00	2270.40	L-24
		Sinking helper (semi-skilled)	day	10.32	310.00	3199.20	L-25
		b) Machinery					
		Crane with grab bucket of 0.75 cum capacity and accessories.	hour	10.31	925.00	9536.75	P&M-019
		Air compressor with pneumatic chisel attachment	hour	3.25	322.00	1046.50	P&M-003
		Consumables in sinking @10.00 % of (b)				1058.33	
		c) Add 20.00% of cost, for Kentledge including supports, loading arrangement and Labour.				3460.68	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				2917.35	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		e) Contractor's profit @ 15 % on (a+b+c+d)				3552.21	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				272.34	
		cost of 38.50 cum = a+b+c+d+e+f				27505.94	
		Rate per cum = (a+b+c+d+e+f)/38.50				714.44	
					say	***714.40***	
		(iii) Depth beyond 10.00 m upto 15.00 m depth					
		Rate of sinking = 0.069 m per hour.					
		a) Labour					
		Mate	day	0.87	310.00	269.70	L-17
		Sinker (skilled)	day	7.22	440.00	3176.80	L-24
		Sinking helper (semi-skilled)	day	14.45	310.00	4479.50	L-25
		b) Machinery					
		Crane with grab bucket of 0.75 cum capacity and accessories.	hour	14.44	925.00	13357.00	P&M-019
		Air compressor with pneumatic chisel attachment	hour	3.25	322.00	1046.50	P&M-003
		Consumables in sinking @10.00 % of (b)				1440.35	
		c) Add 30.00% of cost, for Kentledge including supports, loading arrangement and Labour.				7130.96	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				4341.56	
		e) Contractor's profit @ 15 % on (a+b+c+d)				5286.36	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				405.29	
		cost of 38.50 cum = a+b+c+d+e+f				40934.01	
		Rate per cum = (a+b+c+d+e+f)/38.50				1063.22	
					say	***1063.20***	
		(iv) Depth beyond 15.00 m upto 20.00 m depth					
		Rate of sinking = 0.097 m per hour.					
		a) Labour					
		Mate	day	1.11	310.00	344.10	L-17
		Sinker (skilled)	day	9.28	440.00	4083.20	L-24
		Sinking helper (semi-skilled)	day	18.57	310.00	5756.70	L-25
		b) Machinery					
		Crane with grab bucket of 0.75 cum capacity and accessories.	hour	18.56	925.00	17168.00	P&M-019
		Air compressor with pneumatic chisel attachment	hour	3.25	322.00	1046.50	P&M-003
		Consumables in sinking @10.00 % of (b)				1821.45	
		c) Add 50.00% of cost, for Kentledge including supports, loading arrangement and Labour.				15109.98	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				6368.85	
		e) Contractor's profit @ 15 % on (a+b+c+d)				7754.82	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				594.54	
		cost of 38.50 cum = a+b+c+d+e+f				60048.13	
		Rate per cum = (a+b+c+d+e+f)/38.50				1559.69	
					say	***1559.70***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
12.12	**1200**	Sand Filling in Wells complete as per Drawing & MoRT&H technical specifications Clauses 1200.					
		Unit = 1 cum					
		Taking output = 1 cum					
		a) Labour					
		Mate	day	0.01	310.00	3.10	L-17
		Mazdoor (Unskilled)	day	0.30	310.00	93.00	L-18
		b) Material					
		Sand from local quarry (assuming 20 % voids)	cum	1.20	460.00	552.00	M-171
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				91.06	
		d) Contractor's profit @ 15 % on (a+b+c)				110.87	
		e) Add Cess @ 1.00 % on (a+b+c+d)				8.50	
		Rate per cum (a+b+c+d+e)				858.53	
					say	***858.50***	
12.13	**1200 & 1900**	Providing Steel Liner 10 mm thick for Curbs and 6 mm thick for Steining of Wells including Fabricating and Setting out as per Detailed Drawing & MoRT&H technical specifications Clauses 1200 & 1900.					
		Unit = 1 MT					
		Taking output = 1 MT					
		a) Labour					
		(For cutting, bending, making holes, joining, welding and erection in position)					
		Mate	day	0.40	310.00	124.00	L-17
		Fitter	day	5.50	355.00	1952.50	L-13
		Blacksmith	day	5.50	418.00	2299.00	L-03
		Welder	day	5.50	440.00	2420.00	L-27
		Mazdoor (Unskilled)	day	16.50	310.00	5115.00	L-18
		b) Material					
		Structural steel in plates, angles, etc including 5.00 % wastage	tonne	1.05	47000.00	49350.00	M-193
		Nuts & Bolts	Kg	20.00	82.30	1646.00	M-141
		Electrodes, cutting gas and other consumables @ 10.00 %				6290.65	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				9722.20	
		d) Contractor's profit @ 15 % on (a+b+c)				11837.90	
		e) Add Cess @ 1.00 % on (a+b+c+d)				907.57	
		Rate for per MT (a+b+c+d+e)				91664.82	
					say	***91664.80***	
12.14	**1100 & 1700**	Bored Cast-in-Situ M-35 grade RCC pile excluding reinforcement complete as per Detailed Drawing & MoRT&H technical specifications Clauses 1100, 1700 and removal of excavated earth with all lifts and lead upto 1000 m.					
		A. 750 mm dia					
		Unit = meter					
		Taking output = 15 m					
		a) Materials					
		i. Concrete Grade M35	cum	6.62	10957.30	72537.33	Item 12.9 (C) iv

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Rate for concrete adopted same as for item no. 12.9 (C) (IV), Case-I Concrete to be cast with a tremie pipe 200mm dia.					
		ii. Bentonite	kg	300.00	3.20	960.00	M-036
		b) Labour					
		Mate	day	0.14	310.00	43.40	L-17
		Mazdoor(unskilled)	day	3.50	310.00	1085.00	L-18
		c) Machinery(for boring and construction)					
		Hydraulic piling Rig with bentonite pump.	hour	6.00	5417.00	32502.00	P&M-036
		Light crane 3 t capacity for lowering reinforcement cage	hour	0.50	500.00	250.00	P&M-020
		Front loader 1 cum bucket capacity.	hour	0.30	920.00	276.00	P&M-030
		Tipper 5.5 cum capacity for disposal of muck from pile bore hole	hour	0.30	334.00	100.20	P&M-073
		d) Add GST (multiplying factor) @ 0.1405 on (a.ii+b+c)				4947.93	
		e) Contractor's profit @ 15 % on (a+b+c+d), except on a.i				6024.68	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				461.89	
		Cost for 15 m = a+b+c+d+e+f				119188.43	
		Rate per metre (a+b+c+d+e+f)/15				7945.90	
					say	***7945.90***	
		B. 1000 mm dia ***Unit = meter*** ***Taking output = 10 m***					
		a) Materials					
		i. Concrete Grade M35	cum	7.85	10957.30	86014.81	Item 12.9 (C) iv
		Rate for concrete adopted same as for item no. 12.9 (C) (IV), Case-I Concrete to be cast with a tremie pipe 200mm dia.					
		ii. Bentonite	kg	350.00	3.20	1120.00	M-036
		b) Labour					
		Mate	day	0.16	310.00	49.60	L-17
		Mazdoor(unskilled)	day	4.00	310.00	1240.00	L-18
		c) Machinery(for boring and construction)					
		Hydraulic piling Rig with bentonite pump.	hour	6.00	5417.00	32502.00	P&M-036
		Light crane 3 t capacity for lowering reinforcement cage	hour	0.50	500.00	250.00	P&M-020
		Front loader 1 cum bucket capacity.	hour	0.40	920.00	368.00	P&M-030
		Tipper 5.5 cum capacity for disposal of muck from pile bore hole	hour	0.40	334.00	133.60	P&M-073
		d) Add GST (multiplying factor) @ 0.1405 on (a.ii+b+c)				5010.68	
		e) Contractor's profit @ 15 % on (a+b+c+d), except on a.i				6101.08	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				467.75	
		Cost for 10 m = a+b+c+d+e+f				133257.52	
		Rate per metre (a+b+c+d+e+f)/10				13325.75	
					say	***13325.80***	
		C. 1200 mm dia ***Unit = meter*** ***Taking output = 9 m***					
		a) Materials					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		i. Concrete Grade M35	cum	10.17	10957.30	111435.74	Item 12.9 (C) iv
		Rate for concrete adopted same as for item no. 12.9 (C) (IV), Case-I Concrete to be cast with a tremie pipe 200mm dia.					
		ii. Bentonite	kg	385.00	3.20	1232.00	M-036
		b) Labour					
		Mate	day	0.18	310.00	55.80	L-17
		Mazdoor(unskilled)	day	4.50	310.00	1395.00	L-18
		c) Machinery(for boring and construction)					
		Hydraulic piling Rig with bentonite pump.	hour	6.00	5417.00	32502.00	P&M-036
		Light crane 3 t capacity for lowering reinforcement cage	hour	0.50	500.00	250.00	P&M-020
		Front loader 1 cum bucket capacity.	hour	0.50	920.00	460.00	P&M-030
		Tipper 5.5 cum capacity for disposal of muck from pile bore hole	hour	0.50	334.00	167.00	P&M-073
		d) Add GST (multiplying factor) @ 0.1405 on (a.ii+b+c)				5066.68	
		e) Contractor's profit @ 15 % on (a+b+c+d), except on a.i				6169.27	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				472.98	
		Cost for 9 m = a+b+c+d+e+f				159206.47	
		Rate per metre (a+b+c+d+e+f)/9				17689.61	
					say	***17689.60***	
12.15	**1100 & 1700**	Driven Cast-in-place vertical M-35 grade RCC pile excluding reinforcement complete as per Detailed Drawing & MoRT&H technical specifications Clauses 1100, 1700. **A. 750 mm dia** ***Unit = meter*** ***Taking output = 40 m*** **a) Materials**					
		i. Concrete Grade M35	cum	17.68	10957.30	193725.06	Item 12.9 (C) iv
		Rate for concrete adopted same as for item no. 12.9 (C) (IV), Case-I Pile Shoes:-					
		ii. C.I shoes for pipe	kg	160.00	55.00	8800.00	M-051
		iii. M.S. calamps for shoe @ 35 kg per pile	kg	70.00	60.21	4214.49	M-130
		iv. Steel helmet and cushion block on top of casing head during driving	kg	50.00	56.05	2802.50	M-178
		b) Labour					
		Mate	day	0.12	310.00	37.20	L-17
		Mazdoor(unskilled)	day	3.00	310.00	930.00	L-18
		c) Machinery(for boring and construction)					
		Piling Rig including double acting pile driving hammer complete with power unit and accessories.	hour	6.00	5417.00	32502.00	P&M-037
		Light crane 5 t capacity for lowering reinforcement and handling steel casing	hour	0.50	500.00	250.00	P&M-020
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c), except on a.i				6959.83	
		e) Contractor's profit @ 15 % on (a+b+c+d), except on a.i				8474.40	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				649.70	
		Cost for 40 m = a+b+c+d+e+f				259345.20	
		Rate per metre (a+b+c+d+e+f)/40				6483.63	
					say	***6483.60***	
		B. 1000 mm dia					
		Unit = meter					
		Taking output = 30 m					
		a) Materials					
		i. Concrete Grade M35	cum	23.57	10957.30	258263.56	Item 12.9 (C) iv
		Rate for concrete adopted same as for item no. 12.9 (C) (IV), Case-I					
		Pile Shoes:-					
		ii. C.I shoes for pipe	kg	160.00	55.00	8800.00	M-051
		iii. M.S. calamps for shoe @ 35 kg per pile	kg	70.00	60.21	4214.49	M-130
		iv. Steel helmet and cushion block on top of casing head during driving	kg	50.00	56.05	2802.50	M-178
		b) Labour					
		Mate	day	0.16	310.00	49.60	L-17
		Mazdoor(unskilled)	day	4.00	310.00	1240.00	L-18
		c) Machinery(for boring and construction)					
		Piling Rig including double acting pile driving hammer complete with power unit and accessories.	hour	6.00	5417.00	32502.00	P&M-037
		Light crane 5 t capacity for lowering reinforcement and handling steel casing	hour	1.00	500.00	500.00	P&M-020
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c), except on a.i				7040.26	
		e) Contractor's profit @ 15 % on (a+b+c+d), except on a.i				8572.33	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				657.21	
		Cost for 30 m = a+b+c+d+e+f				324641.95	
		Rate per metre (a+b+c+d+e+f)/30				10821.40	
					say	***10821.40***	
		C. 1200 mm dia					
		Unit = meter					
		Taking output = 20 m					
		a) Materials					
		i. Concrete Grade M35	cum	22.63	10957.30	247963.70	Item 12.9 (C) iv
		Rate for concrete adopted same as for item no. 12.9 (C) (IV), Case-I					
		Pile Shoes:-					
		ii. C.I shoes for pipe	kg	160.00	55.00	8800.00	M-051
		iii. M.S. calamps for shoe @ 35 kg per pile	kg	70.00	60.21	4214.49	M-130
		iv. Steel helmet and cushion block on top of casing head during driving	kg	50.00	56.05	2802.50	M-178
		b) Labour					
		Mate	day	0.18	310.00	55.80	L-17
		Mazdoor(unskilled)	day	4.50	310.00	1395.00	L-18
		c) Machinery(for boring and construction)					
		Piling Rig including double acting pile driving hammer complete with power unit and accessories.	hour	6.00	5417.00	32502.00	P&M-037

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Light crane 5 t capacity for lowering reinforcement and handling steel casing	hour	0.50	500.00	250.00	P&M-020
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c), except on a.i				7027.78	
		e) Contractor's profit @ 15 % on (a+b+c+d), except on a.i				8557.14	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				656.05	
		Cost for 20 m = a+b+c+d+e+f				314224.45	
		Rate per metre (a+b+c+d+e+f)/20				15711.22	
					say	***15711.20***	
		Note:- 1. The quantity of concrete required to be removed above the designed top level of concrete, if any, will be provided for in the rate analysis.					
		2. In case steel lining is included in the design for driven cast-in-situ pile and is planned to be retained, the same may be included in the rate analysis. In case the temporary steel casing used during casting is planned to be removed, an additional cost @ 0.50 per cent of cost of concrete may be provided to cover its usage.					
12.16	**1100 & 1700**	Driven precast vertical M-35 grade RCC pile excluding reinforcement complete as per Detailed Drawing & MoRT&H technical specifications Clauses 1100, 1700.					
		A. 500 mm dia					
		Unit = meter					
		Taking output = 60 m					
		a) Materials					
		i. Concrete Grade M35	cum	11.79	10474.50	123494.36	Item 12.9 (F) iv
		Rate for concrete adopted same as for item no. 12.9 (F) (IV). Case-I					
		Pile Shoes:-					
		ii. C.I shoes for pipe	kg	240.00	55.00	13200.00	M-051
		iii. M.S. calamps for shoe	kg	105.00	60.21	6321.74	M-130
		iv. Steel helmet and cushion block on top of casing head during driving	kg	30.00	56.05	1681.50	M-178
		b) Labour					
		Mate	day	0.12	310.00	37.20	L-17
		Mazdoor(unskilled)	day	3.00	310.00	930.00	L-18
		c) Machinery					
		Crane 20 tonne capacity	hour	6.00	1525.00	9150.00	P&M-017
		Vibrating Pile driving hammer complete with power unit and accessories.	hour	6.00	950.00	5700.00	P&M-081
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c), except on a.i				5201.37	
		e) Contractor's profit @ 15 % on (a+b+c+d), except on a.i				6333.27	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				485.55	
		Cost for 60 m = a+b+c+d+e+f				172534.98	
		Rate per metre (a+b+c+d+e+f)/60				2875.58	
					say	***2875.60***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		B. 750 mm dia					
		Unit = meter					
		Taking output = 50 m					
		a) Materials					
		i. Concrete Grade M35	cum	22.10	10474.50	231486.45	Item 12.9 (F) iv
		Rate for concrete adopted same as for item no. 12.9 (F) (IV). Case-I					
		Pile Shoes:-					
		ii. C.I shoes for pipe	kg	160.00	55.00	8800.00	M-051
		iii. M.S. calamps for shoe	kg	70.00	60.21	4214.49	M-130
		iv. Steel helmet and cushion block on top of casing head during driving	kg	50.00	56.05	2802.50	M-178
		b) Labour					
		Mate	day	0.16	310.00	49.60	L-17
		Mazdoor(unskilled)	day	4.00	310.00	1240.00	L-18
		c) Machinery(for boring and construction)					
		Crane 20 tonne capacity	hour	6.00	1525.00	9150.00	P&M-017
		Vibrating Pile driving hammer complete with power unit and accessories.	hour	1.00	950.00	950.00	P&M-081
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c), except on a.i				3822.53	
		e) Contractor's profit @ 15 % on (a+b+c+d), except on a.i				4654.37	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				356.83	
		Cost for 50 m = a+b+c+d+e+f				267526.77	
		Rate per metre (a+b+c+d+e+f)/50				5350.54	
					say	***5350.50***	
		C. 1000 mm dia					
		Unit = meter					
		Taking output = 40 m					
		a) Materials					
		i. Concrete Grade M35	cum	31.43	10474.50	329213.54	Item 12.9 (F) iv
		Rate for concrete adopted same as for item no. 12.9 (F) (IV). Case-I					
		Pile Shoes:-					
		ii. C.I shoes for pipe	kg	160.00	55.00	8800.00	M-051
		iii. M.S. calamps for shoe	kg	70.00	60.21	4214.49	M-130
		iv. Steel helmet and cushion block on top of casing head during driving	kg	50.00	56.05	2802.50	M-178
		b) Labour					
		Mate	day	0.16	310.00	49.60	L-17
		Mazdoor(unskilled)	day	4.00	310.00	1240.00	L-18
		c) Machinery(for boring and construction)					
		Crane 20 tonne capacity	hour	6.00	1525.00	9150.00	P&M-017
		Vibrating Pile driving hammer complete with power unit and accessories.	hour	0.50	950.00	475.00	P&M-081
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c), except on a.i				3755.79	
		e) Contractor's profit @ 15 % on (a+b+c+d), except on a.i				4573.11	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				350.60	
		Cost for 40 m = a+b+c+d+e+f				364624.63	
		Rate per metre (a+b+c+d+e+f)/40				9115.62	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
					say	***9115.60***	
		Note:- 1. The quantity of concrete required to be removed above the designed top level of concrete, if any, will be provided for in the rate analysis.					
12.17	**1100&1700**	Driven precast vertical M-35 grade RCC pile excluding reinforcement complete as per detailed Drawing & MoRT&H technical specifications Clauses 1100, 1700.					
		A. 300 mm x 300 mm					
		Unit = meter					
		Taking output = 60 m					
		a) Materials					
		i. Concrete Grade M35	cum	5.40	10474.50	56562.30	Item 12.9 (F) iv
		Rate for concrete adopted same as for item no. 12.9 (F) (IV). Case-I					
		Pile Shoes:-					
		ii. C.I shoes for pipe	kg	240.00	55.00	13200.00	M-051
		iii. M.S. calamps for shoe	kg	105.00	60.21	6321.74	M-130
		iv. Steel helmet and cushion block on top of casing head during driving	kg	30.00	56.05	1681.50	M-178
		b) Labour					
		Mate	day	0.12	310.00	37.20	L-17
		Mazdoor(unskilled)	day	3.00	310.00	930.00	L-18
		c) Machinery(for boring and construction)					
		Crane 20 tonne capacity	hour	6.00	1525.00	9150.00	P&M-017
		Vibrating Pile driving hammer complete with power unit and accessories.	hour	6.00	950.00	5700.00	P&M-081
		Add 1 .00 % of (a+b+c) for carriage of piles from casting yard to work site and stacking, and other imponderables during installation.				370.20	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c), except on a.i				5253.38	
		e) Contractor's profit @ 15 % on (a+b+c+d), except on a.i				6396.60	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				490.41	
		Cost for 60 m = a+b+c+d+e+f				106093.33	
		Rate per metre (a+b+c+d+e+f)/60				1768.22	
					say	***1768.20***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		B. 500 mm x 500 mm					
		Unit = meter					
		Taking output = 50 m					
		a) Materials					
		i. Concrete Grade M35	cum	12.50	10474.50	130931.25	Item 12.9 (F) iv
		Rate for concrete adopted same as for item no. 12.9 (F) (IV). Case-I					
		Pile Shoes:-					
		ii. C.I shoes for pipe	kg	160.00	55.00	8800.00	M-051
		iii. M.S. calamps for shoe	kg	70.00	60.21	4214.49	M-130
		iv. Steel helmet and cushion block on top of casing head during driving	kg	30.00	56.05	1681.50	M-178
		b) Labour					
		Mate	day	0.16	310.00	49.60	L-17
		Mazdoor(unskilled)	day	4.00	310.00	1240.00	L-18
		c) Machinery(for boring and construction)					
		Crane 20 tonne capacity	hour	6.00	1525.00	9150.00	P&M-017
		Vibrating Pile driving hammer complete with power unit and accessories.	hour	1.00	950.00	950.00	P&M-081
		Add 1 .00 % of (a+b+c) for carriage of piles from casting yard to work site and stacking, and other imponderables during installation.				260.86	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c), except on a.i				3701.68	
		e) Contractor's profit @ 15 % on (a+b+c+d), except on a.i				4507.22	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				345.55	
		Cost for 50 m = a+b+c+d+e+f				165832.14	
		Rate per metre (a+b+c+d+e+f)/50				3316.64	
					say	***3316.60***	
		C. 750 mm x 750 mm					
		Unit = meter					
		Taking output = 40 m					
		a) Materials					
		i. Concrete Grade M35	cum	22.50	10474.50	235676.25	Item 12.9 (F) iv
		Rate for concrete adopted same as for item no. 12.9 (F) (IV). Case-I					
		Pile Shoes:-					
		ii. C.I shoes for pipe	kg	160.00	55.00	8800.00	M-051
		iii. M.S. calamps for shoe	kg	70.00	60.21	4214.49	M-130
		iv. Steel helmet and cushion block on top of casing head during driving	kg	30.00	56.05	1681.50	M-178
		b) Labour					
		Mate	day	0.18	310.00	55.80	L-17
		Mazdoor(unskilled)	day	4.50	310.00	1395.00	L-18
		c) Machinery(for boring and construction)					
		Crane 20 tonne capacity	hour	6.00	1525.00	9150.00	P&M-017
		Vibrating Pile driving hammer complete with power unit and accessories.	hour	0.50	950.00	475.00	P&M-081
		Add 1 .00 % of (a+b+c) for carriage of piles from casting yard to work site and stacking, and other imponderables during installation.				257.72	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c), except on a.i				3657.15	
		e) Contractor's profit @ 15 % on (a+b+c+d), except on a.i				4453.00	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				341.40	
		Cost for 40 m = a+b+c+d+e+f				270157.30	
		Rate per metre (a+b+c+d+e+f)/40				6753.93	
					say	***6753.90***	
		Note:- The quantity of concrete required to be removed above the designed top level of concrete, if any, will be provided for in the rate analysis.					
12.18	**1100, 1900**	Driven vertical steel piles complete as per detailed Drawing & MoRT&H technical specifications Clauses 1100, 1900.					
		A. 400 x 250 mm, H Section steel column (ISHB Series)					
		Unit = Running Meter					
		Taking output = 70 m					
		a) Labour					
		Mate	day	0.12	310.00	37.20	L-17
		Mazdoor(unskilled)	day	3.00	310.00	930.00	L-18
		b) Machinery					
		Crane 20 tonne capacity	hour	6.00	1525.00	9150.00	P&M-017
		Vibrating Pile driving hammer complete with power unit and accessories.	hour	6.00	950.00	5700.00	P&M-081
		c) Materials					
		Structural steel including 5 per cent wastage @ 82.20 kg/m	tonnes	6.04	47000.00	283880.00	M-193
		Add 0.5 per cent of (a+b+c) for providing steel helmet on top of pile head during driving, stacking of piles at site, providing anti-corrosion treatment and other imponderables during installation.				1419.40	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				42306.88	
		e) Contractor's profit @ 15 % on (a+b+c+d)				51513.52	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				3949.37	
		Cost for 70 m = a+b+c+d+e+f				398886.37	
		Rate per metre (a+b+c+d+e+f)/70				5698.38	
					say	***5698.40***	
		B. 450 x 250 mm, H Section steel column (ISHB Series)					
		Unit = Running Meter					
		Taking output = 60 m					
		a) Labour					
		Mate	day	0.14	310.00	43.40	L-17
		Mazdoor(unskilled)	day	3.50	310.00	1085.00	L-18
		b) Machinery					
		Crane 20 tonne capacity	hour	6.00	1525.00	9150.00	P&M-017
		Vibrating Pile driving hammer complete with power unit and accessories.	hour	6.00	950.00	5700.00	P&M-081
		c) Materials					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Structural steel including 5 per cent wastage @ 82.20 kg/m	tonnes	5.83	47000.00	274010.00	M-193
		Add 0.5 per cent of (a+b+c) for providing steel helmet on top of pile head during driving, stacking of piles at site, providing anti-corrosion treatment and other imponderables during installation.				1370.05	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				40935.86	
		e) Contractor's profit @ 15 % on (a+b+c+d)				49844.15	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				3821.38	
		Cost for 60 m = a+b+c+d+e+f				385959.84	
		Rate per metre (a+b+c+d+e+f)/60				6432.66	
					say	***6432.70***	
12.19	**1100**	**Pile Load Test on single Vertical Pile in accordance with IS:2911(Part-IV)**					
		Unit = 1 MT					
		Taking output = 1 MT					
		a) Initial and routine load test	tonne	1.00		770.00	
		b) Lateral load test	tonne	1.00		12430.00	
		Note:- Although, this item is incidental to work and is not required to be included in BOQ of contract, the same is required to be added in the estimate to assess cost of work.					
12.20	**1100, 1500 &1700**	Reinforced cement concrete in pile cap complete as per drawings & MoRT&H technical specifications Clauses 1100, 1500, 1700. (including centering shuttering, staging etc. but excluding reinforcement)					
		(i) RCC Grade M20					
		Unit = cum					
		Taking output = 15 cum					
		Case-I:- Using Concrete Mixer					
		a) Labour					
		Mate	day	0.90	310.00	279.00	L-17
		Mason(1st calss)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		Mazdoor for breaking pile head, bending bars, cleaning etc.	day	1.00	310.00	310.00	L-18
		b) Machinery					
		Mechanical concrete mixer (cap. 0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	5.12	5800.00	29696.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork @ 4.00 % on cost of concrete i.e. cost of a)Material, b)Labour and c)Machinery				4338.26	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				15847.66	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				19296.36	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1479.39	
		Cost for 15 cum = a+b+c+d+e+f+g				149418.18	
		Rate per metre (a+b+c+d+e+f+g)/15				9961.21	
					say	***9961.20***	
		Case-II:- With Batching Plant, Transit Mixer and Concrete Pump					
		Unit = cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.16	310.00	49.60	L-17
		Mason(1st calss)	day	0.38	440.00	167.20	L-15
		Mazdoor(unskilled)	day	2.50	310.00	775.00	L-18
		Mazdoor for breaking pile head, bending bars, cleaning etc.	day	1.00	310.00	310.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	0.75	15000.00	11250.00	P&M-013
		Generator 100 KVA	hour	0.75	445.00	333.75	P&M-026
		Loader	hour	0.75	920.00	690.00	P&M-030
		Transit Mixer	hour	2.00	788.00	1576.00	P&M-079
		Concrete Pump	hour	0.75	365.00	273.75	P&M-015
		c) Material					
		Cement	tonne	5.12	5800.00	29696.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork @ 4.00 % on cost of concrete i.e. cost of a)Material, b)Labour and c)Machinery				4557.23	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				16647.57	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				20270.34	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1554.06	
		Cost for 15 cum = a+b+c+d+e+f+g				156960.00	
		Rate per metre (a+b+c+d+e+f+g)/15				10464.00	
					say	***10464.00***	
		(ii) RCC Grade M25					
		Unit = cum					
		Taking output = 15 cum					
		Case-I:- Using Concrete Mixer					
		a) Labour					
		Mate	day	0.90	310.00	279.00	L-17
		Mason(1st calss)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		Mazdoor for breaking pile head, bending bars, cleaning etc.	day	1.00	310.00	310.00	L-18
		b) Machinery					
		Mechanical concrete mixer (cap. 0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	5.99	5800.00	34742.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork @ 4.00 % on cost of concrete i.e. cost of a)Material, b)Labour and c)Machinery				4540.10	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				16584.99	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				20194.14	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1548.22	
		Cost for 15 cum = a+b+c+d+e+f+g				156369.94	
		Rate per metre (a+b+c+d+e+f+g)/15				10424.66	
					say	***10424.70***	
		Case-II:- With Batching Plant, Transit Mixer and Concrete Pump					
		Unit = cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.16	310.00	49.60	L-17
		Mason(1st calss)	day	0.38	440.00	167.20	L-15
		Mazdoor(unskilled)	day	2.50	310.00	775.00	L-18
		Mazdoor for breaking pile head, bending bars, cleaning etc.	day	1.00	310.00	310.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	0.75	15000.00	11250.00	P&M-013
		Generator 100 KVA	hour	0.75	445.00	333.75	P&M-026
		Loader	hour	0.75	920.00	690.00	P&M-030
		Transit Mixer	hour	2.00	788.00	1576.00	P&M-079
		Concrete Pump	hour	0.75	365.00	273.75	P&M-015
		c) Material					
		Cement	tonne	5.99	5800.00	34742.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork @ 4.00 % on cost of concrete i.e. cost of a)Material, b)Labour and c)Machinery				4759.07	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				17384.89	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				21168.11	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1622.89	
		Cost for 15 cum = a+b+c+d+e+f+g				163911.77	
		Rate per metre (a+b+c+d+e+f+g)/15				10927.45	
					say	***10927.50***	
		(iii) RCC Grade M30					
		Unit = cum					
		Taking output = 15 cum					
		Case-I:- Using Concrete Mixer					
		a) Labour					
		Mate	day	0.90	310.00	279.00	L-17
		Mason(1st calss)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		Mazdoor for breaking pile head, bending bars, cleaning etc.	day	1.00	310.00	310.00	L-18
		b) Machinery					
		Mechanical concrete mixer (cap. 0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	6.10	5800.00	35380.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		d) Formwork @ 4.00 % on cost of concrete i.e. cost of a)Material, b)Labour and c)Machinery				4565.62	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				16678.21	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				20307.65	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1556.92	
		Cost for 15 cum = a+b+c+d+e+f+g				157248.90	
		Rate per metre (a+b+c+d+e+f+g)/15				10483.26	
					say	***10483.30***	
		Case-II:- With Batching Plant, Transit Mixer and Concrete Pump					
		Unit = cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.16	310.00	49.60	L-17
		Mason(1st calss)	day	0.38	440.00	167.20	L-15
		Mazdoor(unskilled)	day	2.50	310.00	775.00	L-18
		Mazdoor for breaking pile head, bending bars, cleaning etc.	day	1.00	310.00	310.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	0.75	15000.00	11250.00	P&M-013
		Generator 100 KVA	hour	0.75	445.00	333.75	P&M-026
		Loader	hour	0.75	920.00	690.00	P&M-030
		Transit Mixer	hour	2.00	788.00	1576.00	P&M-079
		Concrete Pump	hour	0.75	365.00	273.75	P&M-015
		c) Material					
		Cement	tonne	6.10	5800.00	35380.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork @ 4.00 % on cost of concrete i.e. cost of a)Material, b)Labour and c)Machinery				4784.59	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				17478.11	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				21281.63	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1631.59	
		Cost for 15 cum = a+b+c+d+e+f+g				164790.72	
		Rate per metre (a+b+c+d+e+f+g)/15				10986.05	
					say	***10986.00***	
		(i) RCC Grade M35					
		Unit = cum					
		Taking output = 15 cum					
		Case-I:- Using Concrete Mixer					
		a) Labour					
		Mate	day	0.90	310.00	279.00	L-17
		Mason(1st calss)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		Mazdoor for breaking pile head, bending bars, cleaning etc.	day	1.00	310.00	310.00	L-18
		b) Machinery					
		Mechanical concrete mixer (cap. 0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	6.33	5800.00	36714.00	M-052

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork @ 4.00 % on cost of concrete i.e. cost of a)Material, b)Labour and c)Machinery				4618.98	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				16873.13	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				20544.99	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1575.12	
		Cost for 15 cum = a+b+c+d+e+f+g				159086.72	
		Rate per metre (a+b+c+d+e+f+g)/15				10605.78	
					say	***10605.80***	
		Case-II:- With Batching Plant, Transit Mixer and Concrete Pump					
		Unit = cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.16	310.00	49.60	L-17
		Mason(1st calss)	day	0.38	440.00	167.20	L-15
		Mazdoor(unskilled)	day	2.50	310.00	775.00	L-18
		Mazdoor for breaking pile head, bending bars, cleaning etc.	day	1.00	310.00	310.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	0.75	15000.00	11250.00	P&M-013
		Generator 100 KVA	hour	0.75	445.00	333.75	P&M-026
		Loader	hour	0.75	920.00	690.00	P&M-030
		Transit Mixer	hour	2.00	788.00	1576.00	P&M-079
		Concrete Pump	hour	0.75	365.00	273.75	P&M-015
		c) Material					
		Cement	tonne	6.33	5800.00	36714.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork @ 4.00 % on cost of concrete i.e. cost of a)Material, b)Labour and c)Machinery				4837.95	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				17673.04	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				21518.97	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1649.79	
		Cost for 15 cum = a+b+c+d+e+f+g				166628.55	
		Rate per metre (a+b+c+d+e+f+g)/15				11108.57	
					say	***11108.60***	
12.21	**1100, 1700**	**Levelling Course for Pile cap**					
		Providing and laying of PCC M15 levelling course 100 mm thick below the pile cap. (including centering, shuttering, staging etc. but excluding reinforcement)					
		Unit = cum					
		Taking output = 15 cum					
		Case-I:- Using Concrete Mixer					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason(1st calss)	day	1.50	440.00	660.00	L-15

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Mazdoor(unskilled)	day	17.00	310.00	5270.00	L-18
		Mazdoor for breaking pile head, bending bars, cleaning etc.	day	3.00	310.00	930.00	L-18
		b) Machinery					
		Mechanical concrete mixer (cap. 0.40/0.28 cum) fitted with water measuring device & preferably also with load cell.	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	4.13	5800.00	23954.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		40 mm Aggregate	cum	8.10	4692.00	38005.20	M-023
		20 mm Aggregate	cum	4.05	4875.00	19743.75	M-022
		10 mm Aggregate	cum	1.35	4730.00	6385.50	M-020
		d) Formwork @ 0.00 % on cost of concrete i.e. cost of a)Material, b)Labour and c)Machinery				0.00	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				14260.34	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				17363.61	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1331.21	
		Cost for 15 cum = a+b+c+d+e+f+g				134452.20	
		Rate per cum (a+b+c+d+e+f+g)/15				8963.48	
					say	***8963.50***	
12.22	**1600**	Supplying, fitting & placing uncoated Mild steel reinforcement in foundation complete as per drawings & MoRT&H technical specifications Clauses 1600.					
		Unit = 1 MT					
		Taking output = 1 MT					
		a) Material					
		MS bars including 5 per cent overlaps and wastage	tonne	1.05	45000.00	47250.00	M-180
		Binding wire	Kg	6.00	52.00	312.00	M-039
		b) Labour for cutting, bending, shifting to site, tying and placing in position					
		Mate	day	0.28	310.00	86.80	L-17
		Blacksmith	day	1.50	418.00	627.00	L-03
		Mazdoor(unskilled)	day	5.50	310.00	1705.00	L-18
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				7022.30	
		d) Contractor's profit @ 15 % on (a+b+c)				8550.47	
		e) Add Cess @ 1.00 % on (a+b+c+d)				655.54	
		Rate for per MT (a+b+c+d+e)				66209.10	
					say	***66209.10***	
12.23	**1100 & 1700**	Bored Cast-in-Situ M-30 grade RCC pile excluding reinforcement complete as per Detailed Drawing & MoRT&H technical specifications Clauses 1100, 1700 and removal of excavated earth with all lifts and lead upto 1000 m.					
		A. 750 mm dia					
		Unit = meter					
		Taking output = 15 m					
		a) Materials					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		i. Concrete Grade M30	cum	6.62	10844.40	71789.93	Item 12.9 (C) iii
		Rate for concrete adopted same as for item no. 12.9 (C) (III), Case-I					
		ii. Bentonite	kg	300.00	3.20	960.00	M-036
		b) Labour					
		Mate	day	0.14	310.00	43.40	L-17
		Mazdoor(unskilled)	day	3.50	310.00	1085.00	L-18
		c) Machinery(for boring and construction)					
		Hydraulic piling Rig with bentonite pump.	hour	6.00	5417.00	32502.00	P&M-036
		Light crane 3 t capacity for lowering reinforcement cage	hour	0.50	500.00	250.00	P&M-020
		Front loader 1 cum bucket capacity.	hour	0.30	920.00	276.00	P&M-030
		Tipper 5.5 cum capacity for disposal of muck from pile bore hole	hour	0.30	334.00	100.20	P&M-073
		d) Add GST (multiplying factor) @ 0.1405 on (a.ii+b+c)				4947.93	
		e) Contractor's profit @ 15 % on (a.ii+b+c+d)				6024.68	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				461.89	
		Cost for 15 m = a+b+c+d+e+f				118441.03	
		Rate per metre (a+b+c+d+e+f)/15				7896.07	
					say	***7896.10***	
		B. 1000 mm dia					
		Unit = meter					
		Taking output = 10 m					
		a) Materials					
		i. Concrete Grade M30	cum	7.85	10844.40	85128.54	Item 12.9 (C) iii
		Rate for concrete adopted same as for item no. 12.9 (C) (III), Case-I					
		ii. Bentonite	kg	350.00	3.20	1120.00	M-036
		b) Labour					
		Mate	day	0.16	310.00	49.60	L-17
		Mazdoor(unskilled)	day	4.00	310.00	1240.00	L-18
		c) Machinery(for boring and construction)					
		Hydraulic piling Rig with bentonite pump.	hour	6.00	5417.00	32502.00	P&M-036
		Light crane 3 t capacity for lowering reinforcement cage	hour	0.50	500.00	250.00	P&M-020
		Front loader 1 cum bucket capacity.	hour	0.40	920.00	368.00	P&M-030
		Tipper 5.5 cum capacity for disposal of muck from pile bore hole	hour	0.40	334.00	133.60	P&M-073
		d) Add GST (multiplying factor) @ 0.1405 on (a.ii+b+c)				5010.68	
		e) Contractor's profit @ 15 % on (a.ii+b+c+d)				6101.08	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				467.75	
		Cost for 10 m = a+b+c+d+e+f				132371.25	
		Rate per metre (a+b+c+d+e+f)/10				13237.13	
					say	***13237.10***	
		C. 1200 mm dia					
		Unit = meter					
		Taking output = 9 m					
		a) Materials					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		i. Concrete Grade M30	cum	10.17	10844.40	110287.55	Item 12.9 (C) iii
		Rate for concrete adopted same as for item no. 12.9 (C) (III), Case-I					
		ii. Bentonite	kg	385.00	3.20	1232.00	M-036
		b) Labour					
		Mate	day	0.18	310.00	55.80	L-17
		Mazdoor(unskilled)	day	4.50	310.00	1395.00	L-18
		c) Machinery(for boring and construction)					
		Hydraulic piling Rig with bentonite pump.	hour	6.00	5417.00	32502.00	P&M-036
		Light crane 3 t capacity for lowering reinforcement cage	hour	0.50	500.00	250.00	P&M-020
		Front loader 1 cum bucket capacity.	hour	0.50	920.00	460.00	P&M-030
		Tipper 5.5 cum capacity for disposal of muck from pile bore hole	hour	0.50	334.00	167.00	P&M-073
		d) Add GST (multiplying factor) @ 0.1405 on (a.ii+b+c)				5066.68	
		e) Contractor's profit @ 15 % on (a.ii+b+c+d)				6169.27	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				472.98	
		Cost for 9 m = a+b+c+d+e+f				158058.28	
		Rate per metre (a+b+c+d+e+f)/9				17562.03	
					say	***17562.00***	
12.24	**1600**	Supplying, fitting & placing Thermo-Mechanically treated bar/ Cold twisted deformed steel bar reinforcement in foundation complete as per drawings & MoRT&H technical specifications Clauses 1600.					
		Unit = 1 MT					
		Taking output = 1 MT					
		a) Material					
		Steel bars including 5 per cent overlaps and wastage	tonne	1.05	46000.00	48300.00	M-181
		Binding wire	Kg	6.00	52.00	312.00	M-039
		b) Labour for cutting, bending, shifting to site, tying and placing in position					
		Mate	day	0.40	310.00	124.00	L-17
		Blacksmith	day	2.00	418.00	836.00	L-03
		Mazdoor(unskilled)	day	6.00	310.00	1860.00	L-18
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				7226.20	
		d) Contractor's profit @ 15 % on (a+b+c)				8798.73	
		e) Add Cess @ 1.00 % on (a+b+c+d)				674.57	
		Rate for per MT (a+b+c+d+e)				68131.49	
					say	***68131.50***	

ADDITIONAL ITEMS BY USING JHAMA BRICK AGGREGATE (i.e. LOCALLY AVAILABLE MATERIALS)

12.25	**2100**	**PCC 1:3:6 (using jhama brick aggregate) in Foundation**

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Plain cement concrete 1:3:6 nominal mix in foundation (using jhama brick aggregate) 40 mm nominal size mechanically mixed, placed in foundation and compacted by vibration including curing for 14 days as per drawings & MoRT&H technical specifications Clauses 2100. (including centering, shuttering, staging etc. but excluding reinforcement).					
		Unit = cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.60	310.00	186.00	L-17
		Mason (1st calss)	day	1.00	440.00	440.00	L-15
		Mazdoor(unskilled)	day	12.00	310.00	3720.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Mechanical concrete mixer (0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		Water tanker 6 KL capacity	hour	2.00	200.00	400.00	P&M-084
		c) Material					
		cement	tonne	3.45	5800.00	20010.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		40 mm Jhama brick aggregate	cum	13.50	3452.00	46602.00	M-214
		Cost of water	KL	18.00	133.00	2394.00	M-196
		d) Formawork @ 4.00 % on cost of material, labour & machinery (on a+b+c)				3238.56	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				11830.46	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				14404.95	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1104.38	
		Cost for 15 cum = a+b+c+d+e+f+g				111542.35	
		Rate per cum = (a+b+c+d+e+f+g)/15				7436.16	
					say	***7436.20***	
12.26	**1500, 1700 & 2100**	Plain / Reinforced cement concrete (using jhama brick aggregate) in open foundation as per drawings & MoRT&H technical specifications Clauses 1500, 1700, 2100 (including centering, shuttering, staging etc. but excluding reinforcement).					
		A. PCC Grade M15 (using jhama brick aggregate)					
		Unit = cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason (1st calss)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	17.00	310.00	5270.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Mechanical Concrete mixer (cap. 0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	4.13	5800.00	23954.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		40 mm Jhama brick aggregate	cum	8.10	3452.00	27961.20	M-214

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		20 mm Jhama brick aggregate	cum	4.05	3957.00	16025.85	M-213
		10 mm Jhama brick aggregate	cum	1.35	3880.00	5238.00	M-212
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		***5773.00***			
		d) Formwork @ 4 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				3463.51	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				12652.19	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				15405.50	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1181.09	
		Cost for 15 cum = a+b+c+d+e+f+g				119289.93	
		Rate per cum = (a+b+c+d+e+f+g)/15				7952.66	
					say	***7952.70***	
		B. PCC Grade M20 (using jhama brick aggregate)					
		Unit : cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason (1st calss)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	17.00	310.00	5270.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Concrete mixer (cap. 0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	5.16	5800.00	29928.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		40 mm Jhama brick aggregate	cum	5.40	3452.00	18640.80	M-213
		20 mm Jhama brick aggregate	cum	5.40	3957.00	21367.80	M-212
		10 mm Jhama brick aggregate	cum	2.70	3880.00	10476.00	M-020
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		***6255.00***			
		d) Formwork @ 4 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				3752.85	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				13709.15	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				16692.48	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1279.76	
		Cost for 15 cum = a+b+c+d+e+f+g				129255.44	
		Rate per cum = (a+b+c+d+e+f+g)/15				8617.03	
					say	***8617.00***	
12.27	**1200, 1500 & 1700**	Plain / Reinforced cement concrete (using jhama brick aggregate) in well foundation as per drawings & MoRT&H technical specifications Clauses 1200, 1500, 1700(including centering, shuttering, staging etc. but excluding reinforcement.					
		A. Well steining					
		(I) PCC M15 Grade (using jhama brick aggregate)					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Same as for 12.27 (A) except for formwork which shall be @ 10 per cent of the cost of concrete instead of 4 per cent.					
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)				5773.00	
		d) formwork @ 10 per cent of the cost of concrete				577.30	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				892.22	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1086.38	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				83.29	
		Rate perm (a+b+c+d+e+f+g)				8412.18	
					say	***8412.20***	
		(ii) PCC M20 Grade (using jhama brick aggregate) Same as for 12.27 (B) except for formwork which shall be @ 10 per cent of the cost of concrete instead of 4 per cent.					
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)				6255.00	
		d) formwork @ 10 per cent of the cost of concrete				625.50	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				966.71	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1177.08	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				90.24	
		Rate perm (a+b+c+d+e+f+g)				9114.53	
					say	***9114.50***	
		B. Intermediate plug					
		(i) PCC Grade M20 (using jhama brick aggregate)					
		Case -I:- Using Concrete Mixer					
		Unit = cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor (unskilled)	day	17.00	310.00	5270.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Mechanical concrete mixer (capacity 0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		Light Crane 3 tonnes capacity for handling tremie pipe	hour	6.00	500.00	3000.00	P&M-020
		c) Material					
		Cement	tonne	5.55	5800.00	32190.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		40 mm Jhama brick aggregate	cum	5.40	3452.00	18640.80	M-214
		20 mm Jhama brick aggregate	cum	5.40	3957.00	21367.80	M-213
		10 mm Jhama brick aggregate	cum	2.70	3880.00	10476.00	M-212
		Admixture	Kg	18.60	39.00	725.40	M-004
		Add 0.50 % towards cost of making arrangement for concreting with tremie pipe.				499.04	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				14093.22	
		e) Contractor's profit @ 15 % on (a+b+c+d)				17160.13	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				1315.61	
		cost of 15 cum = a+b+c+d+e+f				132876.61	
		Rate per cum = (a+b+c+d+e+f)/15				8858.44	
					say	***8858.40***	
		C. Top plug					
		(i). PCC Grade M15 (using jhama brick aggregate)					
		Unit = cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason (1st calss)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	17.00	310.00	5270.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Mechanical Concrete mixer (cap. 0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	4.13	5800.00	23954.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		40 mm Jhama brick aggregate	cum	8.10	3452.00	27961.20	M-214
		20 mm Jhama brick aggregate	cum	4.05	3957.00	16025.85	M-213
		10 mm Jhama brick aggregate	cum	1.35	3880.00	5238.00	M-212
		d) Formwork @ 0.00 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				0.00	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				12165.56	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				14812.98	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1135.66	
		Cost for 15 cum = a+b+c+d+e+f+g				114701.86	
		Rate per cum = (a+b+c+d+e+f+g)/15				7646.79	
					say	***7646.80***	
		(ii) PCC Grade M20 (using jhama brick aggregate)					
		Unit : cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason (1st calss)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	17.00	310.00	5270.00	L-18
		Bhisti	day	3.00	310.00	930.00	L-01
		b) Machinery					
		Concrete mixer (cap. 0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	5.16	5800.00	29928.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		40 mm Jhama brick aggregate	cum	5.40	3452.00	18640.80	M-214
		20 mm Jhama brick aggregate	cum	5.40	3957.00	21367.80	M-213
		10 mm Jhama brick aggregate	cum	2.70	3880.00	10476.00	M-212

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		d) Formwork @ 0.00 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				0.00	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				13181.88	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				16050.46	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1230.54	
		Cost for 15 cum = a+b+c+d+e+f+g				124284.08	
		Rate per cum = (a+b+c+d+e+f+g)/15				8285.61	
					say	***8285.60***	

CHAPTER-13
SUB-STRUCTURE

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
13.1	**1300 & 2200**	Brick Masonry(1st Class) work in cement mortar in substructure complete excluding pointing & plastering, as per drawing & MoRT&H technical specification Clauses 1300, 2200.					
		I. In 1:3 Cement Mortar					
		Unit = cum					
		Taking output = 1 cum					
		a) Material					
		Bricks Ist class	each	380.00	12.45	4731.00	M-049
		Cement mortar 1:3 (Rate as in Item 12.5 B sub-analysis)	cum	0.24	3862.20	926.93	Item 12.5 B sub-analysis
		b) Labour					
		Mate	day	0.10	310.00	31.00	L-17
		Mason(1st Class)	day	0.80	440.00	352.00	L-15
		Mazdoor(unskilled)	day	1.60	310.00	496.00	L-18
		Bhisti	day	0.20	310.00	62.00	L-01
		Add for scaffolding @ 5.00 % of cost of material and labour				329.95	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				973.51	
		d) Contractor's profit @ 15 % on (a+b+c)				1185.36	
		e) Add Cess @ 1.00 % on (a+b+c+d)				90.88	
		Rate per cum (a+b+c+d+e)				9178.62	
					say	***9178.60***	
		II. In 1:4 Cement Mortar					
		Unit = cum					
		Taking output = 1 cum					
		a) Material					
		Bricks Ist class	each	380.00	12.45	4731.00	M-049
		Cement mortar 1:4 (Rate as in Item 12.5 C sub-analysis)	cum	0.24	3263.40	783.22	Item 12.5 C sub-analysis
		b) Labour					
		Mate	day	0.10	310.00	31.00	L-17
		Mason(1st Class)	day	0.80	440.00	352.00	L-15
		Mazdoor(unskilled)	day	1.60	310.00	496.00	L-18
		Bhisti	day	0.20	310.00	62.00	L-01
		Add for scaffolding @ 5.00 % of cost of material and labour				322.76	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				952.31	
		d) Contractor's profit @ 15 % on (a+b+c)				1159.54	
		e) Add Cess @ 1.00 % on (a+b+c+d)				88.90	
		Rate per cum (a+b+c+d+e)				8978.72	
					say	***8978.70***	
13.2	**1300 & 2200**	Pointing with cement mortar on brickwork in substructure as per drawing & MoRT&H technical specification Clauses 1300, 2200.					
		I. In 1:3 Cement Mortar					
		Unit = Sqm					
		Taking output = 10 sqm					
		a) Material					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Cement mortar 1:3 (Rate as in Item 12.5 B sub-analysis)	cum	0.03	3862.20	115.87	Item 12.5 B sub-analysis
		b) Labour					
		Mate	day	0.04	310.00	12.40	L-17
		Mason(1st Class)	day	0.50	440.00	220.00	L-15
		Mazdoor(unskilled)	day	0.50	310.00	155.00	L-18
		Bhisti	day	0.20	310.00	62.00	L-01
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				79.42	
		d) Contractor's profit @ 15 % on (a+b+c)				96.70	
		e) Add Cess @ 1.00 % on (a+b+c+d)				7.41	
		Rate per 10 sqm (a+b+c+d+e)				748.80	
		Rate per sqm = (a+b+c+d+e)/10				74.88	
					say	***74.90***	
		II. In 1:4 Cement Mortar					
		Unit = Sqm					
		Taking output = 10 sqm					
		a) Material					
		Cement mortar 1:4 (Rate as in Item 12.5 C sub-analysis)	cum	0.03	3263.40	97.90	Item 12.5 C sub-analysis
		b) Labour					
		Mate	day	0.04	310.00	12.40	L-17
		Mason(1st Class)	day	0.50	440.00	220.00	L-15
		Mazdoor(unskilled)	day	0.50	310.00	155.00	L-18
		Bhisti	day	0.20	310.00	62.00	L-01
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				76.90	
		d) Contractor's profit @ 15 % on (a+b+c)				93.63	
		e) Add Cess @ 1.00 % on (a+b+c+d)				7.18	
		Rate per 10 sqm (a+b+c+d+e)				725.01	
		Rate per sqm = (a+b+c+d+e)/10				72.50	
					say	***72.50***	
		Note:- Scaffolding is already included in item 13.1					
13.3	**1300 & 2200**	Plastering with cement mortar 15 mm thick on brickwork in substructure as per MoRT&H technical specification Clauses 1300 & 2200.					
		I. In 1:3 Cement Mortar					
		Unit = 10 sqm					
		Taking output = 10 sqm					
		a) Material					
		Cement mortar 1:3 (Rate as in Item 12.5 B sub-analysis)	cum	0.24	3862.20	926.93	Item 12.5 B sub-analysis
		b) Labour					
		Mate	day	0.06	310.00	18.60	L-17
		Mason(1st Class)	day	0.60	440.00	264.00	L-15
		Mazdoor(unskilled)	day	0.60	310.00	186.00	L-18
		Bhisti	day	0.30	310.00	93.00	L-01
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				209.14	
		d) Contractor's profit @ 15 % on (a+b+c)				254.65	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		e) Add Cess @ 1.00 % on (a+b+c+d)				19.52	
		Rate per 10 sqm (a+b+c+d+e)				1971.84	
		Rate per sqm (a+b+c+d+e)/10				197.18	
					say	***197.20***	
		II. In 1:4 Cement Mortar					
		Unit = Sqm					
		Taking output = 10 sqm					
		a) Material					
		Cement mortar 1:4 (Rate as in Item 12.5 C sub-analysis)	cum	0.24	3263.40	783.22	Item 12.5 C sub-analysis
		b) Labour					
		Mate	day	0.06	310.00	18.60	L-17
		Mason(1st Class)	day	0.60	440.00	264.00	L-15
		Mazdoor(unskilled)	day	0.60	310.00	186.00	L-18
		Bhisti	day	0.30	310.00	93.00	L-01
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				188.95	
		d) Contractor's profit @ 15 % on (a+b+c)				230.06	
		e) Add Cess @ 1.00 % on (a+b+c+d)				17.64	
		Rate per 10 sqm (a+b+c+d+e)				1781.47	
		Rate per sqm = (a+b+c+d+e)/10				178.15	
					say	***178.10***	
		Note:- Scaffolding is already included in item 13.1					
13.4	**1500, 1700 & 2200**	Plain/reinforced cement concrete in substructure complete including formwork as per drawings & MoRT&H technical specification Clauses 1500, 1700, 2200. (including centering, shuttering, staging etc. but excluding reinforcement)					
		Unit = cum					
		Taking output = 1 cum					
		(i) PCC M15 Grade (Upto 5m height)					
		Case-I:- Using Concrete Mixer Same as Item 12.6 (A) upto 5 m height, except for formwork which shall be 10 per cent instead of 4 per cent of cost of material, labour and machinery.					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (A)				6767.00	Item 12.6 (A)
		d) Formwork @10.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				676.70	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1045.84	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1273.43	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				97.63	
		Rate per Cum (a+b+c+d+e+f+g)				9860.60	
					say	***9860.60***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		(ii) PCC M20 Grade (Upto 5m height)					
		Case-I:- Using Concrete Mixer Same as Item 12.6 (B) upto 5 m height, except for formwork which shall be 10 per cent instead of 4 per cent of cost of material, labour and machinery.					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (B)				7185.00	Item 12.6 (B)
		d) Formwork @10.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				718.50	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1110.44	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1352.09	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				103.66	
		Rate per Cum (a+b+c+d+e+f+g)				10469.69	
					say	***10469.70***	
		(iii) PCC M25 Grade					
		a. upto 5 m height					
		Case-I:- Using Concrete Mixer					
		Same as Item 12.6 (D) upto 5 m height with the only change that the provision of form work shall be 10 per cent					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (D) Case I				7506.00	Item 12.6 (D) / C-I
		d) Formwork @10.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				750.60	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1160.05	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1412.50	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				108.29	
		Rate per cum (a+b+c+d+e+f+g)				10937.44	
					say	***10937.40***	
		Case II:- With Batching Plant, Transit Mixer and Concrete Pump					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (D) Case II				7860.00	Item 12.6 (D) / C-II
		d) Formwork @10.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				786.00	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1214.76	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1479.11	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				113.40	
		Rate per cum (a+b+c+d+e+f+g)				11453.28	
					say	***11453.30***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		b. For height above 5 m upto 10 m					
		Same as Item 12.6 (D) with the following changes: (i) Add 2 per cent of cost of material, Labour and machinery excluding form work to cater for extra lift. (ii) The provision of form work shall be 12 per cent					
		Case-I:- Using Concrete Mixer					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (D) Case I				7506.00	Item 12.6 (D) / C-I
		Add @2 .00 % to cater extra lift				150.12	
		d) Formwork @12.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				918.73	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1204.77	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1466.94	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				112.47	
		Rate per cum (a+b+c+d+e+f+g)				11359.03	
					say	***11359.00***	
		Case II:- With Batching Plant, Transit Mixer and Concrete Pump					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (D) Case II				7860.00	Item 12.6 (D) / C-II
		Add @2 .00 % to cater extra lift				157.20	
		d) Formwork @12.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				962.06	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1261.59	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1536.13	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				117.77	
		Rate per cum (a+b+c+d+e+f+g)				11894.75	
					say	***11894.70***	
		(c) For height above 10 m					
		Same as Item 12.6 (D) with the following changes: (i) Add 4 per cent of cost of material, labour and machinery excluding form work to cater for extra lift. (ii) The provision of form work shall be 15 per cent					
		Case-I:- Using Concrete Mixer					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (D) Case I				7506.00	Item 12.6 (D) / C-I
		d) formwork					
		Add @ 4 .00 % to cater extra lift				300.24	
		d) Formwork @ 15.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				1170.94	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1261.29	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1535.77	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				117.74	
		Rate per cum (a+b+c+d+e+f+g)				11891.98	
					say	***11892.00***	
		Case II:- With Batching Plant, Transit Mixer and Concrete Pump					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (D) Case II				7860.00	Item 12.6 (D) / C-II
		Add @ 4 .00 % to cater extra lift				314.40	
		d) Formwork @ 15.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				1226.16	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1320.78	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1608.20	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				123.30	
		Rate per cum (a+b+c+d+e+f+g)				12452.83	
					say	***12452.80***	
		(iv) PCC M30 Grade					
		a. upto 5 m height					
		Same as Item 12.6 (F) upto 5 m height with the only change that the provision of form work shall be 10 per cent of cost of material, labour and machinery.					
		Case-I:- Using Concrete Mixer					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (F) Case I				7541.00	Item 12.6 (F) / C-I
		d) Formwork @10.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				754.10	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1165.46	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1419.08	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				108.80	
		Rate per cum (a+b+c+d+e+f+g)				10988.44	
					say	***10988.40***	
		Case II:- With Batching Plant, Transit Mixer and Concrete Pump					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (F) Case II				7892.00	Item 12.6 (F) / C-II
		d) Formwork @10.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				789.20	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1219.71	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1485.14	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				113.86	
		Rate per cum (a+b+c+d+e+f+g)				11499.91	
					say	***11499.90***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		For height above 5 m upto 10 m					
		Same as Item 12.6 (F) with the following changes: (i) Add 2 per cent of cost of material, Labour and machinery excluding form work to cater for extra lift. (ii) The provision of form work shall be 12 per cent of cost of material, labour and machinery.					
		Case-I:- Using Concrete Mixer					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (F) Case I				7541.00	Item 12.6 (F) / C-I
		Add @ 2 .00 % to cater extra lift				150.82	
		d) Formwork @ 12.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				923.02	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1210.38	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1473.78	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				112.99	
		Rate per cum (a+b+c+d+e+f+g)				11412.00	
					say	***11412.00***	
		Case II:- With Batching Plant, Transit Mixer and Concrete Pump					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (F) Case II				7892.00	Item 12.6 (F) / C-II
		Add @ 2 .00 % to cater extra lift				157.84	
		d) Formwork @ 12.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				965.98	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1266.72	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1542.38	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				118.25	
		Rate per cum (a+b+c+d+e+f+g)				11943.17	
					say	***11943.20***	
		(c) For height above 10 m					
		Same as Item 12.6 (F) with the following changes: (i) Add 4 per cent of cost of material, labour and machinery excluding form work to cater for extra lift. (ii) The provision of form work shall be 15 per cent of cost of material, labour and machinery					
		Case-I:- Using Concrete Mixer					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (F) Case I				7541.00	Item 12.6 (F) / C-I
		Add @ 4 .00 % to cater extra lift				301.64	
		d) Formwork @ 15.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				1176.40	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1267.17	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1542.93	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				118.29	
		Rate per cum (a+b+c+d+e+f+g)				11947.43	
					say	***11947.40***	
		Case II:- With Batching Plant, Transit Mixer and Concrete Pump					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (F) Case II				7892.00	Item 12.6 (F) / C-II
		Add @ 4 .00 % to cater extra lift				315.68	
		d) Formwork @ 15.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				1231.15	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1326.16	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1614.75	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				123.80	
		Rate per cum (a+b+c+d+e+f+g)				12503.53	
					say	***12503.50***	
		(v) RCC M 20 Grade					
		a. upto 5 m height					
		Same as Item 12.6 (C) upto 5 m height, except for formwork which shall be 10 per cent of cost of material, labour and machinery.					
		Case-I:- Using Concrete Mixer					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (C) Case I				7244.00	Item 12.6 (C) / C-I
		d) Formwork @10.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				724.40	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1119.56	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1363.19	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				104.51	
		Rate per cum (a+b+c+d+e+f+g)				10555.67	
					say	***10555.70***	
		Case II:- With Batching Plant, Transit Mixer and Concrete Pump					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (C) Case II				7596.00	Item 12.6 (C) / C-II
		d) Formwork @10.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				759.60	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1173.96	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1429.43	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				109.59	
		Rate per cum (a+b+c+d+e+f+g)				11068.59	
					say	***11068.60***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		b. For height above 5 m upto 10 m					
		For height, upto 10m, add 2 per cent of cost as above excluding formwork. For cost of formwork add 12 per cent of cost of material, labour and machinery.					
		Case-I:- Using Concrete Mixer					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (C) Case I				7244.00	Item 12.6 (C) / C-I
		Add @ 2 .00 % to cater extra lift				144.88	
		d) Formwork @ 12.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				886.67	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1162.71	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1415.74	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				108.54	
		Rate per cum (a+b+c+d+e+f+g)				10962.54	
					say	***10962.50***	
		Case II:- With Batching Plant, Transit Mixer and Concrete Pump					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6(C) Case II				7596.00	Item 12.6 (C) / C-II
		Add @ 2 .00 % to cater extra lift				151.92	
		d) Formwork @ 12.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				929.75	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1219.21	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1484.53	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				113.81	
		Rate per cum (a+b+c+d+e+f+g)				11495.23	
					say	***11495.20***	
		(c) For height above 10 m					
		Same as Item 12.6 (C) with the following changes: (i) Add 4 per cent of cost of material, labour and machinery excluding form work to cater for extra lift. (ii) The provision of form work shall be 15 per cent of cost of material, labour and machinery.					
		Case-I:- Using Concrete Mixer					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (C) Case I				7244.00	Item 12.6 (C) / C-I
		Add @ 4 .00 % to cater extra lift				289.76	
		d) Formwork @ 15.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				1130.06	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1217.27	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1482.16	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				113.63	
		Rate per cum (a+b+c+d+e+f+g)				11476.89	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
					say	***11476.90***	
		Case II:- With Batching Plant, Transit Mixer and Concrete Pump					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (C) Case II				7596.00	Item 12.6 (C) / C-II
		Add @ 4 .00 % to cater extra lift				303.84	
		d) Formwork @ 15.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				1184.98	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1276.42	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1554.18	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				119.15	
		Rate per cum (a+b+c+d+e+f+g)				12034.57	
					say	***12034.60***	
		(vi) RCC M 25 Grade					
		a. upto 5 m height					
		Same as Item 12.6 (E) upto 5m height, excluding formwork. For cost of formwork, add 10 per cent of cost of material, labour and machinery.					
		Case-I:- Using Concrete Mixer					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (E) Case I				7569.00	Item 12.6 (E) / C-I
		d) Formwork @10.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				756.90	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1169.79	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1424.35	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				109.20	
		Rate per cum (a+b+c+d+e+f+g)				11029.24	
					say	***11029.20***	
		Case II:- With Batching Plant, Transit Mixer and Concrete Pump					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (E) Case II				7921.00	Item 12.6 (E) / C-II
		d) Formwork @10.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				792.10	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1224.19	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1490.59	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				114.28	
		Rate per cum (a+b+c+d+e+f+g)				11542.16	
					say	***11542.20***	
		b. For height above 5 m upto 10 m					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		For height, upto 10m, add 1.8 per cent of cost as above excluding formwork. For cost of formwork add 11.8 per cent of cost of material, labour and machinery					
		Case-I:- Using Concrete Mixer					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (E) Case I				7569.00	Item 12.6 (E) / C-I
		Add @ 1.18 % to cater extra lift				89.31	
		d) Formwork @ 11.80 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				903.68	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1202.96	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1464.74	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				112.30	
		Rate per cum (a+b+c+d+e+f+g)				11342.00	
					say	***11342.00***	
		Case II:- With Batching Plant, Transit Mixer and Concrete Pump					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (E) Case II				7921.00	Item 12.6 (E) / C-II
		Add @ 1.18 % to cater extra lift				93.47	
		d) Formwork @ 11.80 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				945.71	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1258.90	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1532.86	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				117.52	
		Rate per cum (a+b+c+d+e+f+g)				11869.46	
					say	***11869.50***	
		(c) For height above 10 m					
		For height, above 10m, add 4 per cent of cost as above excluding formwork. For cost of formwork add 15 per cent of cost of material, labour and machinery					
		Case-I:- Using Concrete Mixer					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (E) Case I				7569.00	Item 12.6 (E) / C-I
		Add @ 4 .00 % to cater extra lift				302.76	
		d) Formwork @ 15.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				1180.76	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1271.88	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1548.66	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				118.73	
		Rate per cum (a+b+c+d+e+f+g)				11991.79	
					say	***11991.80***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Case II:- With Batching Plant, Transit Mixer and Concrete Pump					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (E) Case II				7921.00	Item 12.6 (E) / C-II
		Add @ 4 .00 % to cater extra lift				316.84	
		d) Formwork @ 15.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				1235.68	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1331.03	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1620.68	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				124.25	
		Rate per cum (a+b+c+d+e+f+g)				12549.48	
					say	***12549.50***	
		(vii) RCC M 30 Grade					
		a. upto 5 m height					
		Same as Item 12.6 (G) upto 5m height, excluding formwork. For cost of formwork, add 10 per cent of cost of material, labour and machinery.					
		Case-I:- Using Concrete Mixer					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (G) Case I				7588.00	Item 12.6 (G) / C-I
		d) Formwork @10.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				758.80	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1172.73	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1427.93	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				109.47	
		Rate per cum (a+b+c+d+e+f+g)				11056.93	
					say	***11056.90***	
		Case II:- With Batching Plant, Transit Mixer and Concrete Pump					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (G) Case II				7941.00	Item 12.6 (G) / C-II
		d) Formwork @10.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				794.10	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1227.28	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1494.36	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				114.57	
		Rate per cum (a+b+c+d+e+f+g)				11571.31	
					say	***11571.30***	
		b. For height above 5 m upto 10 m					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		For height, upto 10m, add 1.6 per cent of cost as above excluding formwork. For cost of formwork add 11.5 per cent of cost of material, labour and machinery					
		Case-I:- Using Concrete Mixer					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (G) Case I				7588.00	Item 12.6 (G) / C-I
		Add @ 1.6 % to cater extra lift				121.41	
		d) Formwork @ 11.50 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				886.58	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1207.74	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1470.56	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				112.74	
		Rate per cum (a+b+c+d+e+f+g)				11387.03	
					say	***11387.00***	
		Case II:- With Batching Plant, Transit Mixer and Concrete Pump					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (G) Case II				7941.00	Item 12.6 (G) / C-II
		Add @ 1.6 % to cater extra lift				127.06	
		d) Formwork @ 11.50 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				927.83	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1263.92	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1538.97	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				117.99	
		Rate per cum (a+b+c+d+e+f+g)				11916.76	
					say	***11916.80***	
		(c) For height above 10 m					
		For height, above 10m, add 3.5 per cent of cost as above excluding formwork. For cost of formwork add 14 per cent of cost of material, labour and machinery					
		Case-I:- Using Concrete Mixer					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (G) Case I				7588.00	Item 12.6 (G) / C-I
		Add @ 3.50 % to cater extra lift				265.58	
		d) Formwork @ 14.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				1099.50	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1257.91	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1531.65	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				117.43	
		Rate per cum (a+b+c+d+e+f+g)				11860.06	
					say	***11860.10***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Case II:- With Batching Plant, Transit Mixer and Concrete Pump					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (G) Case II				7941.00	Item 12.6 (G) / C-II
		Add @ 3.50 % to cater extra lift				277.94	
		d) Formwork @ 14.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				1150.65	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1316.43	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1602.90	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				122.89	
		Rate per cum (a+b+c+d+e+f+g)				12411.80	
					say	***12411.80***	
		(viii) RCC M 35 Grade					
		a. upto 5 m height					
		Same as Item 12.6 (H) upto 5m height, excluding formwork. For cost of formwork, add 10 per cent of cost of material, labour and machinery.					
		Case-I:- Using Concrete Mixer					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6(H) Case I				7677.00	Item 12.6 (H) / C-I
		d) Formwork @10.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				767.70	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1186.48	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1444.68	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				110.76	
		Rate per cum (a+b+c+d+e+f+g)				11186.62	
					say	***11186.60***	
		Case II:- With Batching Plant, Transit Mixer and Concrete Pump					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (H) Case II				8032.00	Item 12.6 (H) / C-II
		d) Formwork @10.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				803.20	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1241.35	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1511.48	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				115.88	
		Rate per cum (a+b+c+d+e+f+g)				11703.91	
					say	***11703.90***	
		b. For height above 5 m upto 10 m					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		For height, upto 10m, add 1.4 per cent of cost as above excluding formwork. For cost of formwork add 11 per cent of cost of material, labour and machinery .					
		Case-I:- Using Concrete Mixer					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (H) Case I				7677.00	Item 12.6 (H) / C-I
		Add @ 1.40 % to cater extra lift				107.48	
		d) Formwork @ 11.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				856.29	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1214.03	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1478.22	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				113.33	
		Rate per cum (a+b+c+d+e+f+g)				11446.35	
					say	***11446.30***	
		Case II:- With Batching Plant, Transit Mixer and Concrete Pump					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (H) Case II				8032.00	Item 12.6 (H) / C-II
		Add @ 1.40 % to cater extra lift				112.45	
		d) Formwork @ 11.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				895.89	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1270.17	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1546.58	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				118.57	
		Rate per cum (a+b+c+d+e+f+g)				11975.65	
					say	***11975.70***	
		(c) For height above 10 m					
		For height, above 10m, add 3 per cent of cost as above excluding formwork. For cost of formwork add 13 per cent of cost of material, labour and machinery					
		Case-I:- Using Concrete Mixer					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (H) Case I				7677.00	Item 12.6 (H) / C-I
		Add @ 3.00 % to cater extra lift				230.31	
		d) Formwork @ 13.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				1027.95	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1255.40	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1528.60	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				117.19	
		Rate per cum (a+b+c+d+e+f+g)				11836.46	
					say	***11836.50***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Case II:- With Batching Plant, Transit Mixer and Concrete Pump					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.6 (H) Case II				8032.00	Item 12.6 (H) / C-II
		Add @ 3.00 % to cater extra lift				240.96	
		d) Formwork @ 13.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				1075.48	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1313.46	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1599.29	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				122.61	
		Rate per cum (a+b+c+d+e+f+g)				12383.80	
					say	***12383.80***	
		Note:- The basic components of this analysis are the same as those of items 12.6 (A to H). The only changes are as under: a) Ramps/Stairs: Extra expenditure on structures which are more than 5 m high @ 2 per cent of cost for height upto 10 m and 4 per cent for heights above 10 m will be involved for approaching the work spot by providing higher ramp/stair case for use by the working parties. b) The above mentioned percentages have been suitably modified for different categories as cost for various categories varies, whereas effort for access for same height will be similar. As the cost of richer concrete is comparatively more, the percentage to be added has been reduced to maintain the same cost for extra efforts.					
13.5	**1600 & 2200**	Supplying, fitting & placing Thermo-Mechanically treated bar/ Cold twisted deformed steel bar reinforcement in substructure complete as per drawings & MoRT&H technical specification Clauses 1600, 2200. ***Output: MT*** ***Taking output = 1 MT***					
		a) Material					
		Steel bars including 5 per cent overlaps and wastage	tonne	1.05	46000.00	48300.00	M-181
		Binding wire	kg	6.00	52.00	312.00	M-039
		b) Labour for cutting, bending, shifting to site, tying and placing in position					
		Mate	day	0.34	310.00	105.40	L-17
		Blacksmith	day	2.00	418.00	836.00	L-03
		Mazdoor(unskilled)	day	6.50	310.00	2015.00	L-18
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				7245.36	
		d) Contractor's profit @ 15 % on (a+b+c)				8822.06	
		e) Add Cess @ 1.00 % on (a+b+c+d)				676.36	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Rate for per MT (a+b+c+d+e)				68312.18	
					say	***68312.20***	
13.6	**1600 & 2200**	Supplying, fitting & placing MS bar reinforcement in substructure complete as per drawings & MoRT&H technical specification Clauses 1600, 2200.					
		Unit = MT					
		Taking output = 1 MT					
		a) Material					
		MS bars including 5 per cent overlaps and wastage	tonne	1.05	45000.00	47250.00	M-180
		Binding wire	kg	6.00	52.00	312.00	M-039
		b) Labour for straightening, cutting, bending, shifting to site, tying and placing in position					
		Mate	day	0.28	310.00	86.80	L-17
		Blacksmith	day	1.50	418.00	627.00	L-03
		Mazdoor(unskilled)	day	5.50	310.00	1705.00	L-18
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				7022.30	
		d) Contractor's profit @ 15 % on (a+b+c)				8550.47	
		e) Add Cess @ 1.00 % on (a+b+c+d)				655.54	
		Rate for per MT (a+b+c+d+e)				66209.10	
					say	***66209.10***	
13.7	**2706 & 2200**	Providing weepholes in brick masonry / stone masonry, plain / reinforced concrete abutment, wing wall, return wall with 100 mm dia AC pipe or uPVC pipe (110 mm OD of 6.0 Kg/cm2 pressure) extending through the full width of the structures with slope of 1(V):20(H) towards drawing face complete as per drawing and MoRT&H technical specification clauses 2706, 2200.					
		Unit = Mtr.					
		Taking output = 30 Mtr.					
		a) Labour					
		Mate	day	0.03	310.00	9.30	L-17
		Mason(1st Class)	day	0.50	440.00	220.00	L-15
		Mazdoor(unskilled)	day	0.25	310.00	77.50	L-18
		b) Material					
		AC pipe / uPVC pipe (6.00 kg/cm2) 100 mm dia including wastage @ 5 per cent.	metre	31.50	197.00	6205.50	M-001
		Average length of weep hole is taken as one metre for the purpose of analysis.					
		MS clamps (assume total 30 nos weep hole)	each.	30.00	40.71	1221.34	M-131
		Cement mortar 1:3 (Rate as sub-analysis in Item 12.5.III)	cum	0.05	3263.40	163.17	Item 12.5 (III) sub-analysis(c)
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				1109.50	
		d) Contractor's profit @ 15 % on (a+b+c)				1350.95	
		e) Add Cess @ 1.00 % on (a+b+c+d)				103.57	
		Cost for 30 m = a+b+c+d+e				10460.83	
		Rate per mtr (a+b+c+d+e)/30				348.69	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
					say	***348.70***	
13.8	**710.1.4. of IRC:78 & 2200**	Backfilling behind abutment, wing wall & return wall complete as per drawings, clause 710.1.4 of IRC:78 & MoRT&H technical specification Clause 2200.					
		Unit = cum					
		Taking output = 10 cum					
		I) Granular material					
		a) Labour					
		Mate	day	0.32	310.00	99.20	L-17
		Mazdoor(unskilled)	day	7.00	310.00	2170.00	L-18
		Bhisti	day	1.00	310.00	310.00	L-19
		b) Machinery					
		Plate compactor	hour	2.50	75.00	187.50	P&M-051
		Water Tanker	hour	0.05	200.00	10.00	P&M-084
		c) Material					
		Granular material	cum	12.00	2535.00	30420.00	M-111
		Water	cum	0.30	133.00	39.90	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				4669.74	
		e) Contractor's profit @ 15 % on (a+b+c+d)				5685.95	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				435.92	
		Cost for 10 cum of granular backfill = a+b+c+d+e+f				44028.22	
		Rate per cum = (a+b+c+d+e+f)/10				4402.82	
					say	***4402.80***	
		II) Sandy material					
		a) Material					
		Sand from local quarry	cum	12.00	460.00	5520.00	M-171
		b) Labour					
		Mate	day	0.40	310.00	124.00	L-17
		Mazdoor(unskilled)	day	10.00	310.00	3100.00	L-18
		Bhisti	day	0.40	310.00	124.00	L-01
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				1245.95	
		d) Contractor's profit @ 15 % on (a+b+c)				1517.09	
		e) Add Cess @ 1.00 % on (a+b+c+d+e+f)				116.31	
		Cost for 10 cum of sandy backfill = a+b+c+d+e				11747.36	
		Rate per cum = (a+b+c+d+e)/10				1174.74	
					say	***1174.70***	
13.9	**710.1.4. of IRC:78 and 2200**	Providing and laying of Filter media with granular materials/stone crushed aggregates satisfying the requirements laid down in clause 2504.2.2. of MoRT&H specifications to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided over the entire surface behind abutment, wing wall and return wall to the full height compacted to a firm condition complete as per drawing and clause 710.1.4 of IRC:78 & MoRT&H technical specification Clause 2200.					
		Unit = cum					

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SUB-STRUCTURE

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Taking output = 10 cum.					
		a) Labour					
		Mate	day	0.34	310.00	105.40	L-17
		Mazdoor(unskilled)	day	7.00	310.00	2170.00	L-18
		Mazdoor(Skilled)	day	1.00	395.00	395.00	L-20
		Bhisti	day	0.50	310.00	155.00	L-01
		b) Material					
		Filter media as per specifications.	cum	12.00	2775.00	33300.00	M-096
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				5075.62	
		d) Contractor's profit @ 15 % on (a+b+c)				6180.15	
		e) Add Cess @ 1.00 % on (a+b+c+d+e)				473.81	
		cost for 10 cum of Fiter Media = a+b+c+d+e				47854.98	
		Rate per cum = (a+b+c+d+e)/10				4785.50	
					say	***4785.50***	
13.10	**2000 & 2200**	Supplying, fitting and fixing in position true to line and level elastomeric bearing conforming to IRC: 83 (Part-II) section IX and clause 2005 of MoRTH specifications complete including all accessories as per drawing and Technical Specifications. Unit: one cubic centimetre Considering an elastomeric bearing of size 500 x 400 x 96 mm for this analysis. Overall volume - 19200 cu.cm Volume of 6 nos. 488 x 388 x 4 mm size reinforcing steel plates = 4545 cu.cm. Hence volume of elastometer = 14655 cu.cm.						
		a) Labour					
		Mate	day	0.06	310.00	18.60	L-17
		Mazdoor (unskilled)	day	1.00	310.00	310.00	L-18
		Mazdoor (Skilled)	day	0.50	395.00	197.50	L-20
		b) Material					
		Elastomeric bearing assembly consisting of 7 layers of elastomer bonded to 6 nos. internal reinforcing steel laminates by the process of vulcanisation, complete with all components as per drawing and Technical Specifications.	cucm	19200	1.00	19200.00	M-085
		Add 1 % of cost of bearing assembly for foundation anchorage bolts and consumables.				192.00	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				2798.49	
		d) Contractor's profit @ 15 % on (a+b+c)				3407.49	
		e) Add Cess @ 1.00 % on (a+b+c+d)				261.24	
		cost for 19200 cu.cm of elastomeric bearing = a+b+c+d+e				26385.32	
		Rate per cu.cum of elastomeric bearing = (a+b+c+d+e)/19200				1.37	
					say	***1.40***	

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SUB-STRUCTURE

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
13.11	**2000 & 2200**	Supplying, fitting and fixing in position true to line and level POT-PTFE bearing consisting of a metal piston supported by a disc or unreinforced elastomer confined within a metal cylinder, sealing rings, dust seals, PTFE surface sliding against stainless steel mating surface, complete assembly to be of cast steel/fabricated structural steel, metal and elastomer elements to be as per IRC: 83 part-I & II respectively and other parts conforming to BS: 5400, section 9.1 & 9.2 and clause 2006 of MoRTH Specifications complete as per drawing and approved Technical Specifications.					
		Unit: one tonne capacity Considering a Pot bearing assembly of 250 tonne capacity for this analysis.					
		a) Labour					
		Mate	day	0.08	310.00	24.80	L-17
		Mazdoor(unskilled)	day	1.50	310.00	465.00	L-18
		Mazdoor(Skilled)	day	0.50	395.00	197.50	L-20
		b) Material					
		Pot type bearing assembly consisting of a metal piston supported by a disc, PTFE pads providing sliding surfaces against stainless steel mating together with cast steel assemblies/fabricated structural steel assemblies duly painted with all components as per clause 2006 and complete as per drawings and Technical Specifications. *(Average rate of Fixed POT-PTFE Bearings, Free POT-PTFE Bearings, Guided sliding (L) POT-PTFE Bearings, Guided sliding (T) POT-PTFE Bearings taken for analysis purpose)*	No	1.00	47750.00	47750.00	M-148
		Add 1 % for of cost of bearing assembly for foundation anchorage bolts and consumables.				477.50	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				6872.53	
		d) Contractor's profit @ 15 % on (a+b+c)				8368.10	
		e) Add Cess @ 1.00 % on (a+b+c+d)				641.55	
		cost for 250 tonnes capacity bearing = a+b+c+d+e				64796.98	
		Rate per tonne capacity = (a+b+c+d+e)/250				259.19	
					say	***259.20***	

ADDITIONAL ITEMS BY USING JHAMA BRICK AGGREGATE (i.e. LOCALLY AVAILABLE MATERIALS)

CHAPTER-13
SUB-STRUCTURE

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
13.12	**1500, 1700 & 2200**	Plain/reinforced cement concrete (using jhama brick aggregate) in substructure complete including formwork as per drawings & MoRT&H technical specification Clauses 1500, 1700, 2200. (including centering, shuttering, staging etc. but excluding reinforcement).					
		Unit = cum					
		Taking output = 1 cum					
		(i) PCC M15 Grade (using jhama brick aggregate)					
		Case-I:- Using Concrete Mixer (Upto 5m height)					
		Same as Item 12.27 (A) upto 5 m height, except for formwork which shall be 10 per cent instead of 4 per cent of cost of material, labour and machinery.					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.27 (A)				5773.00	Item 12.27 (A)
		d) Formwork @15.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				865.95	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				932.77	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1135.76	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				87.07	
		Rate per Cum (a+b+c+d+e+f+g)				8794.56	
					say	***8794.60***	
		(ii) PCC M20 Grade (using jhama brick aggregate)					
		(Upto 5m height)					
		Case-I:- Using Concrete Mixer					
		Same as Item 12.27 (B) upto 5 m height, except for formwork which shall be 10 per cent instead of 4 per cent of cost of material, labour and machinery.					
		a+b+c) Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.27 (B)				6255.00	Item 12.27 (B)
		d) Formwork @15.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				938.25	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				1010.65	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				1230.59	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				94.34	
		Rate per Cum (a+b+c+d+e+f+g)				9528.83	
					say	***9528.80***	

CHAPTER-13
SUB-STRUCTURE

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
13.13	**2504.2.2**	Providing & laying filter media with jhama brick aggregates as per specification to a thickness of not less than 600 mm with smaller size towards the soil & bigger size towards the wall & providing over the entire surface behind abutment, wing wall, return wall to the full height, compacted to firm condition complete as per drawing and MoRT&H technical specification clause 2504.2.2					
		Unit = cum					
		Taking output = 10 cum.					
		a) Material					
		Filter media as per specifications (considering jhama brick aggregate)	cum	12.00	2373.00	28476.00	M-216
		b) Labour					
		Mate	day	0.40	310.00	124.00	L-17
		Mazdoor(unskilled)	day	7.00	310.00	2170.00	L-18
		Mazdoor(Skilled)	day	1.00	395.00	395.00	L-20
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				4378.68	
		d) Contractor's profit @ 15 % on (a+b+c)				5331.55	
		e) Add Cess @ 1.00 % on (a+b+c+d)				408.75	
		cost for 10 cum of Filter Media = a+b+c+d+e				41283.99	
		Rate per cum = (a+b+c+d+e)/10				4128.40	
					say	***4128.40***	
		OTHER ADDITIONAL ITEMS					
13.14	**2000, 1000 & 2200**	**Supplying, fitting and fixing in position true to line and level cast steel rocker bearing conforming to IRC: 83(Pt.-1) section IX and clause 2003 of MoRT&H specifications complete including all accessories as per drawing and Technical Specifications.**					
		Unit: one tonne capacity					
		Considering a 250 tonne capacity bearing for this analysis					
		a) Labour					
		Mate	day	0.06	310.00	18.60	L-17
		Mazdoor (Skilled)	day	0.50	395.00	197.50	L-20
		Mazdoor (unskilled)	day	1.00	310.00	310.00	L-18
		b) Material					
		Cast steel rocker bearing assembly of 250 tonne design load capacity duly painted complete with all its components as per drawing and specifications	each.	1.00	60255.00	60255.00	M-272
		Add 1% of cost of bearing assembly for foundation anchorage bolts, lifting arrangements, grease and other consumables.				602.55	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				8624.40	
		d) Contractor's profit @ 15 % on (a+b+c)				10501.21	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		e) Add Cess @ 1.00 % on (a+b+c+d)				805.09	
		cost for 250 tonnes capacity bearing = a+b+c+d+e				81314.35	
		Rate per tonne capacity = (a+b+c+d+e)/250				325.26	
					say	***325.00***	
13.15	**2000 , 1000 & 2200**	**Supplying, fitting and fixing in position true to line and level forged steel roller bearing conforming to IRC: 83(Pt.-1) section IX and clause 2003 of MoRT&H specifications complete including all accessories as per drawing and Technical Specifications.**					
		Unit: one tonne capacity Considering a 250 tonne capacity bearing for this analysis					
		a) Labour					
		Mate	day	0.06	310.00	18.60	L-17
		Mazdoor (unskilled)	day	1.00	310.00	310.00	L-18
		Mazdoor (Skilled)	day	0.50	395.00	197.50	L-20
		b) Material					
		Forged steel roller bearing of 250 tonne design load capacity duly painted complete with all its components as per drawing and specifications	each.	1.00	128040.00	128040.00	M-273
		Add 1 % of cost of bearing assembly for foundation anchorage bolts, lifting arrangements, grease and other consumables.				1280.40	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				18243.43	
		d) Contractor's profit @ 15 % on (a+b+c)				22213.49	
		e) Add Cess @ 1.00 % on (a+b+c+d)				1703.03	
		cost for 250 tonnes capacity bearing = a+b+c+d+e				172006.46	
		Rate per tonne capacity = (a+b+c+d+e)/250				688.03	
					say	***688.00***	
13.16	**2000 & 2200**	**Supplying, fitting and fixing in position true to line and level sliding plate bearing with PTFE surface sliding on stainless steel complete including all accessories as per drawing and Technical Specifications and BS: 5400, section 9.1 & 9.2 (for PTFE) and clause 2004 of MoRT&H Specifications.**					
		Unit: one tonne capacity Considering a 80 tonne capacity bearing for this analysis					
		a) Labour					
		Mate	day	0.06	310.00	18.60	L-17
		Mazdoor (unskilled)	day	1.00	310.00	310.00	L-18
		Mazdoor (Skilled)	day	0.50	395.00	197.50	L-20
		b) Material					

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SUB-STRUCTURE

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		PTFE sliding plate bearing assembly of 80 tonnes design load capacity duly painted complete with all its components as per drawing and Technical Specifications	each.	1.00	17495.00	17495.00	M-274
		Add 1 % for foundation anchorage bolts and consumables.				174.95	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				2556.55	
		d) Contractor's profit @ 15 % on (a+b+c)				3112.89	
		e) Add Cess @ 1.00 % on (a+b+c+d)				238.65	
		cost for 80 tonnes capacity bearing = a+b+c+d+e				24104.14	
		Rate per tonne capacity = (a+b+c+d+e)/80				301.30	
					say	***301.00***	
13.17	**2000 & 2200**	**Supplying, fitting and fixing in position true to line and level sliding plate bearing with stainless steel plate sliding on stainless steel plate with mild steel matrix complete including all accessories as per drawing and MoRT&H Technical Specifications.**					
		Unit: one tonne capacity Considering the sliding bearing of 80 tonnes design capacity for this analysis.					
		a) Labour					
		Mate	day	0.04	310.00	12.40	L-17
		Mazdoor (unskilled)	day	0.75	310.00	232.50	L-18
		Mazdoor (Skilled)	day	0.35	310.00	108.50	L-18
		b) Material					
		Supply of sliding plate bearing of 80 tonne design capacity complete as per drawings and Technical Specifications.	each.	1.00	17410.00	17410.00	M-275
		Add 1 % of cost of bearing assembly for foundation anchorage bolts and consumables.				174.10	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				2520.22	
		d) Contractor's profit @ 15 % on (a+b+c)				3068.66	
		e) Add Cess @ 1.00 % on (a+b+c+d)				235.26	
		cost for 80 tonnes of capacity bearing = a+b+c+d+e				23761.64	
		Rate per tonne capacity = (a+b+c+d+e)/80				297.02	
					say	***297.00***	

CHAPTER-14
SUPER-STRUCTURE

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
14.1	1500, 1700 & 2100	Plain / Reinforced cement concrete in superstructure including all formworks required as per drawings & MoRT&H technical specifications Clauses 1500, 1700, 2100. (including centering, shuttering, staging etc. but excluding reinforcement)					
		A. RCC Grade M20					
		Case-I:- Using Concrete Mixer					
		i) For solid slab superstructure					
		a. Height upto 5 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	5.12	5800.00	29696.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 20.00 % of (a+b+c)				21626.82	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				18231.41	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				22198.85	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1701.91	
		Cost for 15 cum = a+b+c+d+e+f+g				171893.09	
		Rate per cum = (a+b+c+d+e+f+g)/15				11459.54	
					say	***11459.50***	
		b. Height 5 m to 10 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	5.12	5800.00	29696.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 25.00 % of (a+b+c)				27033.53	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				18991.05	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				23123.80	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1772.82	
		Cost for 15 cum = a+b+c+d+e+f+g				179055.30	

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SUPER-STRUCTURE

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Rate per cum = (a+b+c+d+e+f+g)/15				11937.02	
					say	***11937.00***	
		c. Height above 10 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	5.12	5800.00	29696.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 30.00 % of (a+b+c)				32440.23	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				19750.69	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				24048.75	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1843.74	
		Cost for 15 cum = a+b+c+d+e+f+g				186217.51	
		Rate per cum = (a+b+c+d+e+f+g)/15				12414.50	
					say	***12414.50***	
		ii) For T-Beam and slab superstructure					
		a. Height upto 5 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	5.12	5800.00	29696.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 25.00 % of (a+b+c)				27033.53	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				18991.05	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				23123.80	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1772.82	
		Cost for 15 cum = a+b+c+d+e+f+g				179055.30	
		Rate per cum = (a+b+c+d+e+f+g)/15				11937.02	
					say	***11937.00***	
		b. Height 5 m to 10 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					

CHAPTER-14
SUPER-STRUCTURE

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Mate	day	0.86	310.00	266.60	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	5.12	5800.00	29696.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 30.00 % of (a+b+c)				32440.23	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				19750.69	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				24048.75	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1843.74	
		Cost for 15 cum = a+b+c+d+e+f+g				186217.51	
		Rate per cum = (a+b+c+d+e+f+g)/15				12414.50	
					say	***12414.50***	
		c. Height above 10 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	5.12	5800.00	29696.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 35.00 % of (a+b+c)				37846.94	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				20510.34	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				24973.71	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1914.65	
		Cost for 15 cum = a+b+c+d+e+f+g				193379.73	
		Rate per cum = (a+b+c+d+e+f+g)/15				12891.98	
					say	***12892.00***	
		Case-II:- Using Batching Plant, Transit Mixer and Concrete Pump					
		i) For solid slab superstructure					
		a. Height upto 5 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	18.00	310.00	5580.00	L-18

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	40.92	5800.00	237336.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 20.00 % of (a+b+c)				181434.48	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				152949.27	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				186233.42	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				14277.90	
		Cost for 120 cum = a+b+c+d+e+f+g				1442067.46	
		Rate per cum = (a+b+c+d+e+f+g)/120				12017.23	
					say	***12017.20***	
		b. Height 5 m to 10 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	18.00	310.00	5580.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	40.92	5800.00	237336.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 25.00 % of (a+b+c)				226793.10	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				159322.15	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				193993.15	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				14872.81	
		Cost for 120 cum = a+b+c+d+e+f+g				1502153.61	
		Rate per cum = (a+b+c+d+e+f+g)/120				12517.95	
					say	***12517.90***	
		c. Height above 10 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	18.00	310.00	5580.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		c) Material					
		Cement	tonne	40.92	5800.00	237336.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 30.00 % of (a+b+c)				272151.72	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				165695.04	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				201752.87	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				15467.72	
		Cost for 120 cum = a+b+c+d+e+f+g				1562239.75	
		Rate per cum = (a+b+c+d+e+f+g)/120				13018.66	
					say	***13018.70***	
		ii) For T-Beam and slab superstructure					
		a. Height upto 5 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	18.00	310.00	5580.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	40.92	5800.00	237336.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 25.00 % of (a+b+c)				226793.10	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				159322.15	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				193993.15	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				14872.81	
		Cost for 120 cum = a+b+c+d+e+f+g				1502153.61	
		Rate per cum = (a+b+c+d+e+f+g)/120				12517.95	
					say	***12517.90***	
		b. Height 5 m to 10 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	18.00	310.00	5580.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	40.92	5800.00	237336.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 30.00 % of (a+b+c)				272151.72	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				165695.04	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				201752.87	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				15467.72	
		Cost for 120 cum = a+b+c+d+e+f+g				1562239.75	
		Rate per cum = (a+b+c+d+e+f+g)/120				13018.66	
					say	***13018.70***	
		c. Height above 10 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	18.00	310.00	5580.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	40.92	5800.00	237336.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 35.00 % of (a+b+c)				317510.34	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				172067.92	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				209512.60	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				16062.63	
		Cost for 120 cum = a+b+c+d+e+f+g				1622325.90	
		Rate per cum = (a+b+c+d+e+f+g)/120				13519.38	
					say	***13519.40***	
		B. RCC Grade M 25					
		Case-I:- Using Concrete Mixer					
		i) For solid slab superstructure					
		a. Height upto 5 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	5.99	5800.00	34742.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 20.00 % of (a+b+c)				22636.02	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				19082.16	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				23234.74	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1781.33	
		Cost for 15 cum = a+b+c+d+e+f+g				179914.36	
		Rate per cum = (a+b+c+d+e+f+g)/15				11994.29	
					say	***11994.30***	
		b. Height 5 m to 10 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	5.99	5800.00	34742.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 25.00 % of (a+b+c)				28295.03	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				19877.26	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				24202.86	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1855.55	
		Cost for 15 cum = a+b+c+d+e+f+g				187410.79	
		Rate per cum = (a+b+c+d+e+f+g)/15				12494.05	
					say	***12494.10***	
		c. Height above 10 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	5.99	5800.00	34742.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 30.00 % of (a+b+c)				33954.03	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				20672.35	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				25170.97	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1929.77	
		Cost for 15 cum = a+b+c+d+e+f+g				194907.22	
		Rate per cum = (a+b+c+d+e+f+g)/15				12993.81	
					say	***12993.80***	
		ii) For T-Beam and slab superstructure					
		a. Height upto 5 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	5.99	5800.00	34742.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 25.00 % of (a+b+c)				28295.03	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				19877.26	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				24202.86	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1855.55	
		Cost for 15 cum = a+b+c+d+e+f+g				187410.79	
		Rate per cum = (a+b+c+d+e+f+g)/15				12494.05	
					say	***12494.10***	
		b. Height 5 m to 10 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	5.99	5800.00	34742.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 30.00 % of (a+b+c)				33954.03	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				20672.35	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				25170.97	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1929.77	
		Cost for 15 cum = a+b+c+d+e+f+g				194907.22	
		Rate per cum = (a+b+c+d+e+f+g)/15				12993.81	
					say	***12993.80***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		c. Height above 10 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	5.99	5800.00	34742.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 35.00 % of (a+b+c)				39613.04	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				21467.44	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				26139.09	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				2004.00	
		Cost for 15 cum = a+b+c+d+e+f+g				202403.65	
		Rate per cum = (a+b+c+d+e+f+g)/15				13493.58	
					say	***13493.60***	
		Case-II:- Using Batching Plant, Transit Mixer and Concrete Pump					
		i) For solid slab superstructure					
		a. Height upto 5 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	18.00	310.00	5580.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	47.95	5800.00	278110.00	M-052
		Sand	cum	54.20	560.00	30352.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 20.00 % of (a+b+c)				189611.68	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				159842.65	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				194626.91	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				14921.40	
		Cost for 120 cum = a+b+c+d+e+f+g				1507061.03	
		Rate per cum = (a+b+c+d+e+f+g)/120				12558.84	
					say	***12558.80***	
		b. Height 5 m to 10 m					

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SUPER-STRUCTURE

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	18.00	310.00	5580.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	47.95	5800.00	278110.00	M-052
		Sand	cum	54.20	560.00	30352.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 25.00 % of (a+b+c)				237014.60	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				166502.76	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				202736.36	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				15543.12	
		Cost for 120 cum = a+b+c+d+e+f+g				1569855.24	
		Rate per cum = (a+b+c+d+e+f+g)/120				13082.13	
					say	***13082.10***	
		c. Height above 10 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	18.00	310.00	5580.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	47.95	5800.00	278110.00	M-052
		Sand	cum	54.20	560.00	30352.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 30.00 % of (a+b+c)				284417.52	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				173162.87	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				210845.82	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				16164.85	
		Cost for 120 cum = a+b+c+d+e+f+g				1632649.45	
		Rate per cum = (a+b+c+d+e+f+g)/120				13605.41	
					say	***13605.40***	
		ii) For T-Beam and slab superstructure					
		a. Height upto 5 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Mate	day	0.84	310.00	260.40	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	18.00	310.00	5580.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	47.95	5800.00	278110.00	M-052
		Sand	cum	54.20	560.00	30352.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 25.00 % of (a+b+c)				237014.60	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				166502.76	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				202736.36	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				15543.12	
		Cost for 120 cum = a+b+c+d+e+f+g				1569855.24	
		Rate per cum = (a+b+c+d+e+f+g)/120				13082.13	
					say	***13082.10***	

b. Height 5 m to 10 m

Unit = cum
Taking output = 120 cum

		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	18.00	310.00	5580.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	47.95	5800.00	278110.00	M-052
		Sand	cum	54.20	560.00	30352.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 30.00 % of (a+b+c)				284417.52	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				173162.87	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				210845.82	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				16164.85	
		Cost for 120 cum = a+b+c+d+e+f+g				1632649.45	
		Rate per cum = (a+b+c+d+e+f+g)/120				13605.41	
					say	***13605.40***	

c. Height above 10 m

Unit = cum
Taking output = 120 cum

		a) Labour					
		Mate	day	0.84	310.00	260.40	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	18.00	310.00	5580.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	47.95	5800.00	278110.00	M-052
		Sand	cum	54.20	560.00	30352.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 35.00 % of (a+b+c)				331820.44	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				179822.98	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				218955.27	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				16786.57	
		Cost for 120 cum = a+b+c+d+e+f+g				1695443.66	
		Rate per cum = (a+b+c+d+e+f+g)/120				14128.70	
					say	***14128.70***	
		C. RCC Grade M 30					
		Case-I:- Using Concrete Mixer					
		i) For solid slab superstructure					
		a. Height upto 5 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.90	310.00	279.00	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	21.00	310.00	6510.00	L-18
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	6.10	5800.00	35380.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		***7610.00***			
		d) Formwork and staging @ 20.00 % of (a+b+c)				22828.10	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				19244.09	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				23431.90	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1796.45	
		Cost for 15 cum = a+b+c+d+e+f+g				181441.04	
		Rate per cum = (a+b+c+d+e+f+g)/15				12096.07	
					say	***12096.10***	
		b. Height 5 m to 10 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.90	310.00	279.00	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	21.00	310.00	6510.00	L-18
		b) Machinery					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	6.10	5800.00	35380.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 25.00 % of (a+b+c)				28535.13	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				20045.93	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				24408.23	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1871.30	
		Cost for 15 cum = a+b+c+d+e+f+g				189001.08	
		Rate per cum = (a+b+c+d+e+f+g)/15				12600.07	
					say	***12600.10***	
		c. Height above 10 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.90	310.00	279.00	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	21.00	310.00	6510.00	L-18
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	6.10	5800.00	35380.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 30.00 % of (a+b+c)				34242.15	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				20847.76	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				25384.56	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1946.15	
		Cost for 15 cum = a+b+c+d+e+f+g				196561.12	
		Rate per cum = (a+b+c+d+e+f+g)/15				13104.07	
					say	***13104.10***	
		ii) For T-Beam and slab superstructure					
		a. Height upto 5 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.90	310.00	279.00	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	21.00	310.00	6510.00	L-18
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Cement	tonne	6.10	5800.00	35380.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 25.00 % of (a+b+c)				28535.13	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				20045.93	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				24408.23	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1871.30	
		Cost for 15 cum = a+b+c+d+e+f+g				189001.08	
		Rate per cum = (a+b+c+d+e+f+g)/15				12600.07	
					say	***12600.10***	
		b. Height 5 m to 10 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.90	310.00	279.00	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	21.00	310.00	6510.00	L-18
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	6.10	5800.00	35380.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 30.00 % of (a+b+c)				34242.15	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				20847.76	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				25384.56	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1946.15	
		Cost for 15 cum = a+b+c+d+e+f+g				196561.12	
		Rate per cum = (a+b+c+d+e+f+g)/15				13104.07	
					say	***13104.10***	
		c. Height above 10 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.90	310.00	279.00	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	21.00	310.00	6510.00	L-18
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	6.10	5800.00	35380.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 35.00 % of (a+b+c)				39949.18	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				21649.60	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				26360.89	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				2021.00	
		Cost for 15 cum = a+b+c+d+e+f+g				204121.17	
		Rate per cum = (a+b+c+d+e+f+g)/15				13608.08	
					say	***13608.10***	
		Case-II:- Using Batching Plant, Transit Mixer and Concrete Pump					
		i) For solid slab superstructure					
		a. Height upto 5 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.88	310.00	272.80	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	19.00	310.00	5890.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	48.79	5800.00	282982.00	M-052
		Sand	cum	54.60	560.00	30576.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 20.00 % of (a+b+c)				190695.36	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				160756.19	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				195739.25	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				15006.68	
		Cost for 120 cum = a+b+c+d+e+f+g				1515674.28	
		Rate per cum = (a+b+c+d+e+f+g)/120				12630.62	
					say	***12630.60***	
		b. Height 5 m to 10 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.88	310.00	272.80	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	19.00	310.00	5890.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	48.79	5800.00	282982.00	M-052
		Sand	cum	54.60	560.00	30576.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 25.00 % of (a+b+c)				238369.20	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				167454.36	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				203895.05	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				15631.95	
		Cost for 120 cum = a+b+c+d+e+f+g				1578827.37	
		Rate per cum = (a+b+c+d+e+f+g)/120				13156.89	
					say	***13156.90***	
		c. Height above 10 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.88	310.00	272.80	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	19.00	310.00	5890.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	48.79	5800.00	282982.00	M-052
		Sand	cum	54.60	560.00	30576.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 30.00 % of (a+b+c)				286043.04	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				174152.54	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				212050.86	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				16257.23	
		Cost for 120 cum = a+b+c+d+e+f+g				1641980.47	
		Rate per cum = (a+b+c+d+e+f+g)/120				13683.17	
					say	***13683.20***	
		ii) For T-Beam and slab superstructure					
		a. Height upto 5 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.88	310.00	272.80	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	19.00	310.00	5890.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	48.79	5800.00	282982.00	M-052
		Sand	cum	54.60	560.00	30576.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 25.00 % of (a+b+c)				238369.20	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				167454.36	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				203895.05	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				15631.95	
		Cost for 120 cum = a+b+c+d+e+f+g				1578827.37	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Rate per cum = (a+b+c+d+e+f+g)/120				13156.89	
					say	***13156.90***	
		b. Height 5 m to 10 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.88	310.00	272.80	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	19.00	310.00	5890.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	48.79	5800.00	282982.00	M-052
		Sand	cum	54.60	560.00	30576.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 30.00 % of (a+b+c)				286043.04	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				174152.54	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				212050.86	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				16257.23	
		Cost for 120 cum = a+b+c+d+e+f+g				1641980.47	
		Rate per cum = (a+b+c+d+e+f+g)/120				13683.17	
					say	***13683.20***	
		c. Height above 10 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.88	310.00	272.80	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	19.00	310.00	5890.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	48.79	5800.00	282982.00	M-052
		Sand	cum	54.60	560.00	30576.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 35.00 % of (a+b+c)				333716.88	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				180850.71	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				220206.66	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				16882.51	
		Cost for 120 cum = a+b+c+d+e+f+g				1705133.56	
		Rate per cum = (a+b+c+d+e+f+g)/120				14209.45	
					say	***14209.40***	
		D. RCC / PSC Grade M 35					
		Case-I:- Using Concrete Mixer					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		i) For solid slab superstructure					
		a. Height upto 5 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.90	310.00	279.00	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	21.00	310.00	6510.00	L-18
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	6.33	5800.00	36714.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 18.00 % of (a+b+c)				20785.41	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				19144.52	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				23310.66	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1787.15	
		Cost for 15 cum = a+b+c+d+e+f+g				180502.24	
		Rate per cum = (a+b+c+d+e+f+g)/15				12033.48	
					say	***12033.50***	
		b. Height 5 m to 10 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.90	310.00	279.00	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	21.00	310.00	6510.00	L-18
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	6.33	5800.00	36714.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 23.00 % of (a+b+c)				26559.14	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				19955.73	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				24298.40	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1862.88	
		Cost for 15 cum = a+b+c+d+e+f+g				188150.64	
		Rate per cum = (a+b+c+d+e+f+g)/15				12543.38	
					say	***12543.40***	
		c. Height above 10 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.90	310.00	279.00	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	21.00	310.00	6510.00	L-18

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SUPER-STRUCTURE

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	6.33	5800.00	36714.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 28.00 % of (a+b+c)				32332.86	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				20766.93	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				25286.14	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1938.60	
		Cost for 15 cum = a+b+c+d+e+f+g				195799.04	
		Rate per cum = (a+b+c+d+e+f+g)/15				13053.27	
					say	***13053.30***	
		ii) For T-Beam and slab superstructure					
		a. Height upto 5 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.90	310.00	279.00	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	21.00	310.00	6510.00	L-18
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	6.33	5800.00	36714.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 23.00 % of (a+b+c)				26559.14	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				19955.73	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				24298.40	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1862.88	
		Cost for 15 cum = a+b+c+d+e+f+g				188150.64	
		Rate per cum = (a+b+c+d+e+f+g)/15				12543.38	
					say	***12543.40***	
		b. Height 5 m to 10 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.90	310.00	279.00	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	21.00	310.00	6510.00	L-18
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		c) Material					
		Cement	tonne	6.33	5800.00	36714.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 28.00 % of (a+b+c)				32332.86	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				20766.93	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				25286.14	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1938.60	
		Cost for 15 cum = a+b+c+d+e+f+g				195799.04	
		Rate per cum = (a+b+c+d+e+f+g)/15				13053.27	
					say	***13053.30***	
		c. Height above 10 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.90	310.00	279.00	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	21.00	310.00	6510.00	L-18
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	6.33	5800.00	36714.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 33.00 % of (a+b+c)				38106.59	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				21578.14	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				26273.88	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				2014.33	
		Cost for 15 cum = a+b+c+d+e+f+g				203447.44	
		Rate per cum = (a+b+c+d+e+f+g)/15				13563.16	
					say	***13563.20***	
		(iii) For Box girder and balanced cantilever					
		a. Height upto 5 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.90	310.00	279.00	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	21.00	310.00	6510.00	L-18
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	6.33	5800.00	36714.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		d) Formwork and staging @ 38.00 % of (a+b+c)				43880.31	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				22389.35	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				27261.62	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				2090.06	
		Cost for 15 cum = a+b+c+d+e+f+g				211095.84	
		Rate per cum = (a+b+c+d+e+f+g)/15				14073.06	
					say	***14073.10***	
		b. Height 5 m to 10 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.90	310.00	279.00	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	21.00	310.00	6510.00	L-18
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	6.33	5800.00	36714.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 48.00 % of (a+b+c)				55427.76	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				24011.77	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				29237.10	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				2241.51	
		Cost for 15 cum = a+b+c+d+e+f+g				226392.64	
		Rate per cum = (a+b+c+d+e+f+g)/15				15092.84	
					say	***15092.80***	
		c. Height above 10 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.90	310.00	279.00	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	21.00	310.00	6510.00	L-18
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	6.33	5800.00	36714.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 58.00 % of (a+b+c)				66975.21	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				25634.18	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				31212.58	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				2392.96	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Cost for 15 cum = a+b+c+d+e+f+g				241689.44	
		Rate per cum = (a+b+c+d+e+f+g)/15				16112.63	
					say	***16112.60***	
		Case-II:- Using Batching Plant, Transit Mixer and Concrete Pump					
		i) For solid slab superstructure					
		a. Height upto 5 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.88	310.00	272.80	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	19.00	310.00	5890.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	50.64	5800.00	293712.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 18.00 % of (a+b+c)				173496.74	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				159800.14	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				194575.15	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				14917.43	
		Cost for 120 cum = a+b+c+d+e+f+g				1506660.26	
		Rate per cum = (a+b+c+d+e+f+g)/120				12555.50	
					say	***12555.50***	
		b. Height 5 m to 10 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.88	310.00	272.80	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	19.00	310.00	5890.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	50.64	5800.00	293712.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 23.00 % of (a+b+c)				221690.28	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				166571.33	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				202819.86	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				15549.52	
		Cost for 120 cum = a+b+c+d+e+f+g				1570501.80	
		Rate per cum = (a+b+c+d+e+f+g)/120				13087.52	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
					say	***13087.50***	
		c. Height above 10 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.88	310.00	272.80	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	19.00	310.00	5890.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	50.64	5800.00	293712.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 28.00 % of (a+b+c)				269883.82	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				173342.52	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				211064.57	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				16181.62	
		Cost for 120 cum = a+b+c+d+e+f+g				1634343.34	
		Rate per cum = (a+b+c+d+e+f+g)/120				13619.53	
					say	***13619.50***	
		ii) For T-Beam and slab superstructure					
		a. Height upto 5 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.88	310.00	272.80	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	19.00	310.00	5890.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	50.64	5800.00	293712.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 23.00 % of (a+b+c)				221690.28	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				166571.33	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				202819.86	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				15549.52	
		Cost for 120 cum = a+b+c+d+e+f+g				1570501.80	
		Rate per cum = (a+b+c+d+e+f+g)/120				13087.52	
					say	***13087.50***	
		b. Height 5 m to 10 m					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.88	310.00	272.80	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	19.00	310.00	5890.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	50.64	5800.00	293712.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 28.00 % of (a+b+c)				269883.82	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				173342.52	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				211064.57	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				16181.62	
		Cost for 120 cum = a+b+c+d+e+f+g				1634343.34	
		Rate per cum = (a+b+c+d+e+f+g)/120				13619.53	
					say	***13619.50***	
		c. Height above 10 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.88	310.00	272.80	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	19.00	310.00	5890.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	50.64	5800.00	293712.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 33.00 % of (a+b+c)				318077.36	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				180113.72	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				219309.28	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				16813.71	
		Cost for 120 cum = a+b+c+d+e+f+g				1698184.87	
		Rate per cum = (a+b+c+d+e+f+g)/120				14151.54	
					say	***14151.50***	
		iii) For Box girder and balanced cantilever					
		a. Height upto 5 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Mate	day	0.88	310.00	272.80	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	19.00	310.00	5890.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	50.64	5800.00	293712.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 38.00 % of (a+b+c)				366270.90	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				186884.91	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				227553.99	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				17445.81	
		Cost for 120 cum = a+b+c+d+e+f+g				1762026.41	
		Rate per cum = (a+b+c+d+e+f+g)/120				14683.55	
					say	***14683.60***	
		b. Height 5 m to 10 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.88	310.00	272.80	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	19.00	310.00	5890.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	50.64	5800.00	293712.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 48.00 % of (a+b+c)				462657.98	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				200427.29	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				244043.41	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				18709.99	
		Cost for 120 cum = a+b+c+d+e+f+g				1889709.48	
		Rate per cum = (a+b+c+d+e+f+g)/120				15747.58	
					say	***15747.60***	
		c. Height above 10 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.88	310.00	272.80	L-17
		Mason(1st class)	day	3.00	440.00	1320.00	L-15
		Mazdoor(unskilled)	day	19.00	310.00	5890.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Cement	tonne	50.64	5800.00	293712.00	M-052
		Sand	cum	54.00	560.00	30240.00	M-170
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 58.00 % of (a+b+c)				559045.06	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				213969.68	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				260532.83	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				19974.18	
		Cost for 120 cum = a+b+c+d+e+f+g				2017392.56	
		Rate per cum = (a+b+c+d+e+f+g)/120				16811.60	
					say	***16811.60***	
		E. PSC Grade M 40					
		Case-I:- Using Concrete Mixer					
		i) For solid slab superstructure					
		a. Height upto 5 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.96	310.00	297.60	L-17
		Mason(1st class)	day	2.00	440.00	880.00	L-15
		Mazdoor(unskilled)	day	22.00	310.00	6820.00	L-18
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Admixture @ 0.4 per cent of cement	kg	25.80	39.00	1006.20	M-004
		Cement	tonne	6.45	5800.00	37410.00	M-052
		Sand (Coarse)	cum	6.75	2625.00	17718.75	M-169
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 20.00 % of (a+b+c)				26332.81	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				22198.56	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				27029.31	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				2072.25	
		Cost for 15 cum = a+b+c+d+e+f+g				209296.98	
		Rate per cum = (a+b+c+d+e+f+g)/15				13953.13	
					say	***13953.10***	
		b. Height 5 m to 10 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.96	310.00	297.60	L-17
		Mason(1st class)	day	2.00	440.00	880.00	L-15
		Mazdoor(unskilled)	day	22.00	310.00	6820.00	L-18
		b) Machinery					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Admixture @ 0.4 per cent of cement	kg	25.80	39.00	1006.20	M-004
		Cement	tonne	6.45	5800.00	37410.00	M-052
		Sand (Coarse)	cum	6.75	2625.00	17718.75	M-169
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 25.00 % of (a+b+c)				32916.01	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				23123.50	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				28155.53	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				2158.59	
		Cost for 15 cum = a+b+c+d+e+f+g				218017.69	
		Rate per cum = (a+b+c+d+e+f+g)/15				14534.51	
					say	***14534.50***	
		c. Height above 10 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.96	310.00	297.60	L-17
		Mason(1st class)	day	2.00	440.00	880.00	L-15
		Mazdoor(unskilled)	day	22.00	310.00	6820.00	L-18
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Admixture @ 0.4 per cent of cement	kg	25.80	39.00	1006.20	M-004
		Cement	tonne	6.45	5800.00	37410.00	M-052
		Sand (Coarse)	cum	6.75	2625.00	17718.75	M-169
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 30.00 % of (a+b+c)				39499.22	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				24048.44	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				29281.76	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				2244.93	
		Cost for 15 cum = a+b+c+d+e+f+g				226738.39	
		Rate per cum = (a+b+c+d+e+f+g)/15				15115.89	
					say	***15115.90***	
		ii) For T-Beam and slab superstructure					
		a. Height upto 5 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.96	310.00	297.60	L-17
		Mason(1st class)	day	2.00	440.00	880.00	L-15
		Mazdoor(unskilled)	day	22.00	310.00	6820.00	L-18
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Admixture @ 0.4 per cent of cement	kg	25.80	39.00	1006.20	M-004
		Cement	tonne	6.45	5800.00	37410.00	M-052
		Sand (Coarse)	cum	6.75	2625.00	17718.75	M-169
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 25.00 % of (a+b+c)				32916.01	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				23123.50	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				28155.53	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				2158.59	
		Cost for 15 cum = a+b+c+d+e+f+g				218017.69	
		Rate per cum = (a+b+c+d+e+f+g)/15				14534.51	
					say	***14534.50***	
		b. Height 5 m to 10 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.96	310.00	297.60	L-17
		Mason(1st class)	day	2.00	440.00	880.00	L-15
		Mazdoor(unskilled)	day	22.00	310.00	6820.00	L-18
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Admixture @ 0.4 per cent of cement	kg	25.80	39.00	1006.20	M-004
		Cement	tonne	6.45	5800.00	37410.00	M-052
		Sand (Coarse)	cum	6.75	2625.00	17718.75	M-169
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 30.00 % of (a+b+c)				39499.22	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				24048.44	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				29281.76	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				2244.93	
		Cost for 15 cum = a+b+c+d+e+f+g				226738.39	
		Rate per cum = (a+b+c+d+e+f+g)/15				15115.89	
					say	***15115.90***	
		c. Height above 10 m					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.96	310.00	297.60	L-17
		Mason(1st class)	day	2.00	440.00	880.00	L-15
		Mazdoor(unskilled)	day	22.00	310.00	6820.00	L-18
		b) Machinery					
		Mechanical concrete mixer 0.40/0.28 cum capacity fitted with water measuring device & preferably also with load cell	hour	6.00	192.00	1152.00	P&M-014
		Generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Admixture @ 0.4 per cent of cement	kg	25.80	39.00	1006.20	M-004
		Cement	tonne	6.45	5800.00	37410.00	M-052
		Sand (Coarse)	cum	6.75	2625.00	17718.75	M-169
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork and staging @ 35.00 % of (a+b+c)				46082.42	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				24973.38	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				30407.98	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				2331.28	
		Cost for 15 cum = a+b+c+d+e+f+g				235459.10	
		Rate per cum = (a+b+c+d+e+f+g)/15				15697.27	
					say	***15697.30***	
		Case-II:- Using Batching Plant, Transit Mixer and Concrete Pump					
		i) For solid slab / voided slab superstructure					
		a. Height upto 5 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.94	310.00	291.40	L-17
		Mason(1st class)	day	3.50	440.00	1540.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Admixture @ 0.4 per cent of cement	kg	206.40	39.00	8049.60	M-004
		Cement	tonne	51.60	5800.00	299280.00	M-052
		Sand (Coarse)	cum	54.00	2625.00	141750.00	M-169
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 18.00 % of (a+b+c)				196118.46	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				180636.00	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				219945.22	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				16862.47	
		Cost for 120 cum = a+b+c+d+e+f+g				1703109.14	
		Rate per cum = (a+b+c+d+e+f+g)/120				14192.58	
					say	***14192.60***	
		b. Height 5 m to 10 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.94	310.00	291.40	L-17
		Mason(1st class)	day	3.50	440.00	1540.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Admixture @ 0.4 per cent of cement	kg	206.40	39.00	8049.60	M-004
		Cement	tonne	51.60	5800.00	299280.00	M-052
		Sand (Coarse)	cum	54.00	2625.00	141750.00	M-169
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 23.00 % of (a+b+c)				250595.81	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				188290.06	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				229264.93	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				17576.98	
		Cost for 120 cum = a+b+c+d+e+f+g				1775274.78	
		Rate per cum = (a+b+c+d+e+f+g)/120				14793.96	
					say	***14794.00***	
		c. Height above 10 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.94	310.00	291.40	L-17
		Mason(1st class)	day	3.50	440.00	1540.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Admixture @ 0.4 per cent of cement	kg	206.40	39.00	8049.60	M-004
		Cement	tonne	51.60	5800.00	299280.00	M-052
		Sand (Coarse)	cum	54.00	2625.00	141750.00	M-169
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 28.00 % of (a+b+c)				305073.16	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				195944.13	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				238584.64	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				18291.49	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Cost for 120 cum = a+b+c+d+e+f+g				1847440.43	
		Rate per cum = (a+b+c+d+e+f+g)/120				15395.34	
					say	***15395.30***	
		ii) For T-beam & slab including launching of precast by launching truss upto 40 m span					
		a. Height upto 5 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.94	310.00	291.40	L-17
		Mason(1st class)	day	3.50	440.00	1540.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Admixture @ 0.4 per cent of cement	kg	206.40	39.00	8049.60	M-004
		Cement	tonne	51.60	5800.00	299280.00	M-052
		Sand (Coarse)	cum	54.00	2625.00	141750.00	M-169
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 23.00 % of (a+b+c)				250595.81	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				188290.06	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				229264.93	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				17576.98	
		Cost for 120 cum = a+b+c+d+e+f+g				1775274.78	
		Rate per cum = (a+b+c+d+e+f+g)/120				14793.96	
					say	***14794.00***	
		b. Height 5 m to 10 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.94	310.00	291.40	L-17
		Mason(1st class)	day	3.50	440.00	1540.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Admixture @ 0.4 per cent of cement	kg	206.40	39.00	8049.60	M-004
		Cement	tonne	51.60	5800.00	299280.00	M-052
		Sand (Coarse)	cum	54.00	2625.00	141750.00	M-169
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 28.00 % of (a+b+c)				305073.16	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				195944.13	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				238584.64	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				18291.49	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Cost for 120 cum = a+b+c+d+e+f+g				1847440.43	
		Rate per cum = (a+b+c+d+e+f+g)/120				15395.34	
					say	***15395.30***	
		c. Height above 10 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.94	310.00	291.40	L-17
		Mason(1st class)	day	3.50	440.00	1540.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Admixture @ 0.4 per cent of cement	kg	206.40	39.00	8049.60	M-004
		Cement	tonne	51.60	5800.00	299280.00	M-052
		Sand (Coarse)	cum	54.00	2625.00	141750.00	M-169
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 33.00 % of (a+b+c)				359550.51	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				203598.20	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				247904.36	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				19006.00	
		Cost for 120 cum = a+b+c+d+e+f+g				1919606.07	
		Rate per cum = (a+b+c+d+e+f+g)/120				15996.72	
					say	***15996.70***	
		iii) For cast-in-situ Box girder, segmental construction and balanced cantilever					
		a. Height upto 5 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.94	310.00	291.40	L-17
		Mason(1st class)	day	3.50	440.00	1540.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Admixture @ 0.4 per cent of cement	kg	206.40	39.00	8049.60	M-004
		Cement	tonne	51.60	5800.00	299280.00	M-052
		Sand (Coarse)	cum	54.00	2625.00	141750.00	M-169
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 38.00 % of (a+b+c)				414027.86	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				211252.27	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				257224.07	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				19720.51	
		Cost for 120 cum = a+b+c+d+e+f+g				1991771.71	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Rate per cum = (a+b+c+d+e+f+g)/120				16598.10	
					say	***16598.10***	
		b. Height 5 m to 10 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.94	310.00	291.40	L-17
		Mason(1st class)	day	3.50	440.00	1540.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Admixture @ 0.4 per cent of cement	kg	206.40	39.00	8049.60	M-004
		Cement	tonne	51.60	5800.00	299280.00	M-052
		Sand (Coarse)	cum	54.00	2625.00	141750.00	M-169
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 48.00 % of (a+b+c)				522982.56	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				226560.40	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				275863.49	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				21149.53	
		Cost for 120 cum = a+b+c+d+e+f+g				2136102.99	
		Rate per cum = (a+b+c+d+e+f+g)/120				17800.86	
					say	***17800.90***	
		c. Height above 10 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.94	310.00	291.40	L-17
		Mason(1st class)	day	3.50	440.00	1540.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Admixture @ 0.4 per cent of cement	kg	206.40	39.00	8049.60	M-004
		Cement	tonne	51.60	5800.00	299280.00	M-052
		Sand (Coarse)	cum	54.00	2625.00	141750.00	M-169
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 58.00 % of (a+b+c)				631937.26	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				241868.54	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				294502.92	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				22578.56	
		Cost for 120 cum = a+b+c+d+e+f+g				2280434.28	
		Rate per cum = (a+b+c+d+e+f+g)/120				19003.62	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
					say	***19003.60***	
		F. PSC Grade M 45 Using Batching Plant, Transit Mixer and Concrete Pump i) For solid slab / voided slab superstructure					
		a. Height upto 5 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.94	310.00	291.40	L-17
		Mason(1st class)	day	3.50	440.00	1540.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Admixture @ 0.4 per cent of cement	kg	223.20	39.00	8704.80	M-004
		Cement	tonne	55.80	5800.00	323640.00	M-052
		Sand (Coarse)	cum	54.00	2625.00	141750.00	M-169
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 16.00 % of (a+b+c)				178329.95	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				181651.35	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				221181.52	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				16957.25	
		Cost for 120 cum = a+b+c+d+e+f+g				1712682.27	
		Rate per cum = (a+b+c+d+e+f+g)/120				14272.35	
					say	***14272.40***	
		b. Height 5 m to 10 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.94	310.00	291.40	L-17
		Mason(1st class)	day	3.50	440.00	1540.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Admixture @ 0.4 per cent of cement	kg	223.20	39.00	8704.80	M-004
		Cement	tonne	55.80	5800.00	323640.00	M-052
		Sand (Coarse)	cum	54.00	2625.00	141750.00	M-169
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 21.00 % of (a+b+c)				234058.06	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				189481.15	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				230715.21	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				17688.17	
		Cost for 120 cum = a+b+c+d+e+f+g				1786504.79	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Rate per cum = (a+b+c+d+e+f+g)/120				14887.54	
					say	***14887.50***	
		c. Height above 10 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.94	310.00	291.40	L-17
		Mason(1st class)	day	3.50	440.00	1540.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Admixture @ 0.4 per cent of cement	kg	223.20	39.00	8704.80	M-004
		Cement	tonne	55.80	5800.00	323640.00	M-052
		Sand (Coarse)	cum	54.00	2625.00	141750.00	M-169
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 26.00 % of (a+b+c)				289786.17	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				197310.95	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				240248.90	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				18419.08	
		Cost for 120 cum = a+b+c+d+e+f+g				1860327.30	
		Rate per cum = (a+b+c+d+e+f+g)/120				15502.73	
					say	***15502.70***	
		ii) For T-beam & slab including launching of precast by launching truss upto 40 m span					
		a. Height upto 5 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.94	310.00	291.40	L-17
		Mason(1st class)	day	3.50	440.00	1540.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Admixture @ 0.4 per cent of cement	kg	223.20	39.00	8704.80	M-004
		Cement	tonne	55.80	5800.00	323640.00	M-052
		Sand (Coarse)	cum	54.00	2625.00	141750.00	M-169
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 21.00 % of (a+b+c)				234058.06	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				189481.15	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				230715.21	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				17688.17	
		Cost for 120 cum = a+b+c+d+e+f+g				1786504.79	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Rate per cum = (a+b+c+d+e+f+g)/120				14887.54	
					say	***14887.50***	
		b. Height 5 m to 10 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.94	310.00	291.40	L-17
		Mason(1st class)	day	3.50	440.00	1540.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Admixture @ 0.4 per cent of cement	kg	223.20	39.00	8704.80	M-004
		Cement	tonne	55.80	5800.00	323640.00	M-052
		Sand (Coarse)	cum	54.00	2625.00	141750.00	M-169
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 26.00 % of (a+b+c)				289786.17	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				197310.95	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				240248.90	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				18419.08	
		Cost for 120 cum = a+b+c+d+e+f+g				1860327.30	
		Rate per cum = (a+b+c+d+e+f+g)/120				15502.73	
					say	***15502.70***	
		c. Height above 10 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.94	310.00	291.40	L-17
		Mason(1st class)	day	3.50	440.00	1540.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Admixture @ 0.4 per cent of cement	kg	223.20	39.00	8704.80	M-004
		Cement	tonne	55.80	5800.00	323640.00	M-052
		Sand (Coarse)	cum	54.00	2625.00	141750.00	M-169
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 31.00 % of (a+b+c)				345514.28	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				205140.75	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				249782.58	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				19150.00	
		Cost for 120 cum = a+b+c+d+e+f+g				1934149.81	
		Rate per cum = (a+b+c+d+e+f+g)/120				16117.92	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
					say	***16117.90***	
		iii) For cast-in-situ Box girder, segmental construction and balanced cantilever					
		a. Height upto 5 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.94	310.00	291.40	L-17
		Mason(1st class)	day	3.50	440.00	1540.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Admixture @ 0.4 per cent of cement	kg	223.20	39.00	8704.80	M-004
		Cement	tonne	55.80	5800.00	323640.00	M-052
		Sand (Coarse)	cum	54.00	2625.00	141750.00	M-169
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 36.00 % of (a+b+c)				401242.39	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				212970.55	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				259316.27	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				19880.91	
		Cost for 120 cum = a+b+c+d+e+f+g				2007972.32	
		Rate per cum = (a+b+c+d+e+f+g)/120				16733.10	
					say	***16733.10***	
		b. Height 5 m to 10 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.94	310.00	291.40	L-17
		Mason(1st class)	day	3.50	440.00	1540.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Admixture @ 0.4 per cent of cement	kg	223.20	39.00	8704.80	M-004
		Cement	tonne	55.80	5800.00	323640.00	M-052
		Sand (Coarse)	cum	54.00	2625.00	141750.00	M-169
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 46.00 % of (a+b+c)				512698.61	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				228630.14	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				278383.64	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				21342.75	
		Cost for 120 cum = a+b+c+d+e+f+g				2155617.35	
		Rate per cum = (a+b+c+d+e+f+g)/120				17963.48	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
					say	***17963.50***	
		c. Height above 10 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.94	310.00	291.40	L-17
		Mason(1st class)	day	3.50	440.00	1540.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Admixture @ 0.4 per cent of cement	kg	223.20	39.00	8704.80	M-004
		Cement	tonne	55.80	5800.00	323640.00	M-052
		Sand (Coarse)	cum	54.00	2625.00	141750.00	M-169
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 56.00 % of (a+b+c)				624154.83	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				244289.74	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				297451.02	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				22804.58	
		Cost for 120 cum = a+b+c+d+e+f+g				2303262.37	
		Rate per cum = (a+b+c+d+e+f+g)/120				19193.85	
					say	***19193.90***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		G. PSC Grade M 50 Using Batching Plant, Transit Mixer and Concrete Pump i) For cast-in-situ Box girder, segmental construction and balanced cantilever					
		a. Height upto 5 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.94	310.00	291.40	L-17
		Mason(1st class)	day	3.50	440.00	1540.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Admixture @ 0.4 per cent of cement	kg	235.20	39.00	9172.80	M-004
		Cement	tonne	58.80	5800.00	341040.00	M-052
		Sand (Coarse)	cum	54.00	2625.00	141750.00	M-169
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 35.00 % of (a+b+c)				396350.57	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				214793.70	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				261536.17	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				20051.11	
		Cost for 120 cum = a+b+c+d+e+f+g				2025161.74	
		Rate per cum = (a+b+c+d+e+f+g)/120				16876.35	
					say	***16876.30***	
		b. Height 5 m to 10 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.94	310.00	291.40	L-17
		Mason(1st class)	day	3.50	440.00	1540.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Admixture @ 0.4 per cent of cement	kg	235.20	39.00	9172.80	M-004
		Cement	tonne	58.80	5800.00	341040.00	M-052
		Sand (Coarse)	cum	54.00	2625.00	141750.00	M-169
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 45.00 % of (a+b+c)				509593.59	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				230704.34	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				280909.22	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				21536.37	
		Cost for 120 cum = a+b+c+d+e+f+g				2175173.73	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Rate per cum = (a+b+c+d+e+f+g)/120				18126.45	
					say	***18126.40***	
		c. Height above 10 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.94	310.00	291.40	L-17
		Mason(1st class)	day	3.50	440.00	1540.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Admixture @ 0.4 per cent of cement	kg	235.20	39.00	9172.80	M-004
		Cement	tonne	58.80	5800.00	341040.00	M-052
		Sand (Coarse)	cum	54.00	2625.00	141750.00	M-169
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 55.00 % of (a+b+c)				622836.61	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				246614.99	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				300282.27	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				23021.64	
		Cost for 120 cum = a+b+c+d+e+f+g				2325185.71	
		Rate per cum = (a+b+c+d+e+f+g)/120				19376.55	
					say	***19376.50***	
		H. PSC Grade M 55 Using Batching Plant, Transit Mixer and Concrete Pump					
		i) For cast-in-situ Box girder, segmental construction and balanced cantilever					
		a. Height upto 5 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.94	310.00	291.40	L-17
		Mason(1st class)	day	3.50	440.00	1540.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Admixture @ 0.4 per cent of cement	kg	254.00	39.00	9906.00	M-004
		Cement	tonne	63.50	5800.00	368300.00	M-052
		Sand (Coarse)	cum	54.00	2625.00	141750.00	M-169
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 35.00 % of (a+b+c)				406148.19	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				220103.31	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				268001.23	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				20546.76	
		Cost for 120 cum = a+b+c+d+e+f+g				2075222.89	
		Rate per cum = (a+b+c+d+e+f+g)/120				17293.52	
					say	***17293.50***	
		b. Height 5 m to 10 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.94	310.00	291.40	L-17
		Mason(1st class)	day	3.50	440.00	1540.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Admixture @ 0.4 per cent of cement	kg	254.00	39.00	9906.00	M-004
		Cement	tonne	63.50	5800.00	368300.00	M-052
		Sand (Coarse)	cum	54.00	2625.00	141750.00	M-169
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 45.00 % of (a+b+c)				522190.53	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				236407.26	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				287853.18	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				22068.74	
		Cost for 120 cum = a+b+c+d+e+f+g				2228943.11	
		Rate per cum = (a+b+c+d+e+f+g)/120				18574.53	
					say	***18574.50***	
		c. Height above 10 m					
		Unit = cum					
		Taking output = 120 cum					
		a) Labour					
		Mate	day	0.94	310.00	291.40	L-17
		Mason(1st class)	day	3.50	440.00	1540.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	15000.00	90000.00	P&M-013
		Generator 100 KVA	hour	6.00	445.00	2670.00	P&M-026
		Loader	hour	6.00	920.00	5520.00	P&M-030
		Transit Mixer	hour	15.00	788.00	11820.00	P&M-079
		Concrete Pump	hour	6.00	365.00	2190.00	P&M-015
		c) Material					
		Admixture @ 0.4 per cent of cement	kg	254.00	39.00	9906.00	M-004
		Cement	tonne	63.50	5800.00	368300.00	M-052
		Sand (Coarse)	cum	54.00	2625.00	141750.00	M-169
		20 mm Aggregate	cum	64.80	4875.00	315900.00	M-022
		10 mm Aggregate	cum	43.20	4730.00	204336.00	M-020
		d) Formwork and staging @ 55.00 % of (a+b+c)				638232.87	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				252711.21	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				307705.12	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				23590.73	
		Cost for 120 cum = a+b+c+d+e+f+g				2382663.32	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Rate per cum = (a+b+c+d+e+f+g)/120				19855.53	
					say	***19855.50***	
		Note:- 1.Wherever concrete is carried out using batching plant, transit mixer, concrete pump, admixers conforming IS: 9103 @ 0.4 per cent of weight of cement may be added for achieving desired slump of concrete. 2. Cement provided for various components of the super structure is for estimating purpose only. Actual quantity of cement will be as per approved mix design. Similarly, the provision for coarse and fine aggregates is for estimating purpose and the exact quantity shall be as per the mix design. 3. The items like needle and surface vibrators are part of minor T & P which is already covered under the overhead charges. As such these items have not been added separately in the rate analysis.					
14.2	**1600**	Supplying, fitting & placing Thermo-Mechanically treated bar/ Cold twisted deformed steel bar reinforcement in superstructure complete as per drawings & MoRT&H technical specification Clauses 1600. ***Unit = 1 MT*** ***Taking output = 1 MT*** **a) Labour for cutting, bending, tying and placing in position**					
		Mate	day	0.44	310.00	136.40	L-17
		Blacksmith	day	3.00	418.00	1254.00	L-03
		Mazdoor(unskilled)	day	8.00	310.00	2480.00	L-18
		b) Material					
		Steel bar including 5 per cent for laps and wastage	tonne	1.05	46000.00	48300.00	M-181
		Binding wire	Kg	8.00	52.00	416.00	M-039
		Basic Cost of Labour & Material (a+b)		**52586.40**			
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				7388.39	
		d) Contractor's profit @ 15 % on (a+b+c)				8996.22	
		e) Add Cess @ 1.00 % on (a+b+c+d)				689.71	
		Rate per MT = a+b+c+d				69660.72	
					say	***69660.70***	
14.3	**1800**	High tensile steel wires/strands including all accessories for stressing, stressing operations and grouting complete as per drawings & MoRT&H technical specification Clauses 1800. ***Unit = 1 MT*** ***Taking output = 0.377 MT*** Details of cost for 12T13 strand 40 m long cable (weight = 0.377 MT) **a) Labour** **i) For making and fixing cables, anchorages**					
		Mate	day	0.16	310.00	49.60	L-17
		Blacksmith	day	1.00	418.00	418.00	L-03
		Mazdoor(unskilled)	day	3.00	310.00	930.00	L-18

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		ii) For prestressing					
		Mate	day	0.05	310.00	15.50	L-17
		Fitter	day	0.25	355.00	88.75	L-13
		Mazdoor(unskilled)	day	1.00	310.00	310.00	L-18
		iii) For grouting					
		Mate	day	0.05	310.00	15.50	L-17
		Mason(1st class)	day	0.25	440.00	110.00	L-15
		Mazdoor(unskilled)	day	1.00	310.00	310.00	L-18
		b) Machinery					
		Stressing jack with pump	hour	2.50	290.00	725.00	P&M-060
		Grouting pump with agitator	hour	1.00	271.00	271.00	P&M-032
		Generator	hour	3.50	225.00	787.50	P&M-027
		c) Material					
		H.T. Strand @ 9.42 kg/m including 2 per cent for wastage and extra length for jacking	tonne	0.39	80388.00	30949.38	M-115
		Sheathing duct ID 66 mm along with 5 per cent extra length 40 x 1.05 = 42 m.	metre	42.00	42.20	1772.40	M-175
		Tube anchorage set complete with bearing plate, permanent wedges etc	each	2.00	5150.00	10300.00	M-195
		Cement for grouting including 3 per cent wastage @ 3.00 kg/m = 3 x 1.03 x 40 = 123.60 kg (say, = 125 kg)	tonne	0.125	5800.00	725.00	M-052
		Add 0.50 per cent cost of material for Spacers, Insulation tape and miscellaneous items				2187.34	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				7020.08	
		e) Contractor's profit @ 15 % on (a+b+c+d)				8547.76	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				655.33	
		Cost for 0.377 MT (a+b+c+d+e+f)				66188.13	
		Rate per MT = (a+b+c+d+e+f)/0.377				175565.34	
					say	***175565.30***	
		Note:- Cost of HT steel has been taken for delivery at site. Hence carriage has not been considered.					
14.4	**2702**	Providing and laying Cement concrete wearing coat M-30 grade including all formworks & required reinforcement complete as per drawings & MoRT&H technical specification Clauses 2702. (including centering, shuttering, staging etc. but excluding reinforcement)					
		Unit = 1 cum					
		Taking output = 1 cum					
		a) Labour					
		Mazdoor(unskilled) for cleaning deck slab concrete surface.	day	0.15	310.00	46.50	L-18
		b) Material					
		Cement concrete M30 Grade, **Rate as per relevant item of concrete in Item 14.1 excluding formwork**	cum	1.00	7610.00	7610.00	Item no. 14.1.C.Case-1
		Steel bar reinforcement, **Rate as per item No 14.2(Excluding OH & CP)**	tonne	0.075	52586.40	3943.98	Item no. 14.2
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				1629.87	
		d) Contractor's profit @ 15 % on (a+b+c)				1984.55	
		e) Add Cess @ 1.00 % on (a+b+c+d)				152.15	
		Rate per cum (a+b+c+d+e)				15367.05	
					say	***15367.00***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
14.5	**515 & 2702**	**Mastic Asphalt** Providing and laying 12 mm thick mastic asphalt wearing course on top of deck slab excluding prime coat with paving grade bitumen meeting the requirements given in table 500-29, prepared by using mastic cooker and laid to required level and slope after cleaning the surface, including providing antiskid surface with bitumen precoated fine grained hard stone chipping of 9.5 mm nominal size at the rate of 0.005 cum per 10 sqm and at an approximate spacing of 10 cm center to center in both directions, pressed into surface when the temperature of surfaces not less than 100 degree C, protruding 1 mm to 4 mm over mastic surface, all complete as per MoRT&H Technical Specification Clause 515, 2702.					
		Unit = sqm ***Taking output = 72.50 sqm (2.001 tonnes)(0.87 cum) assuming a density of 2.3 tonnes/cum.***					
		a) Labour					
		Mate	day	0.49	310.00	151.90	L-17
		Mazdoor(unskilled)	day	11.00	310.00	3410.00	L-18
		Mazdoor(Skilled)	day	1.25	395.00	493.75	L-20
		b) Machinery					
		Hydraulic broom @ 1250 sqm per hour	hour	0.06	345.00	20.70	P&M-033
		Air compressor 210 cfm	hour	0.06	210.00	12.60	P&M-001
		Mastic cooker	hour	6.00	125.00	750.00	P&M-043
		Bitumen boiler 1500 litres capacity	hour	6.00	198.00	1188.00	P&M-011
		Tractor	hour	1.00	237.00	237.00	P&M-076
		c) Material Base mastic (without coarse aggregates) = 60 per cent Coarse aggregate(3.35mm to 9.5 mm size) = 40 per cent .					
		i) Bitumen (VG-30) @ 16.00% by weight of mix. 2.001 x 16.00/100 = 0.320	tonne	0.320	40138.00	12844.16	M-041
		ii) Coarse Agrregate Crushed stone chipping 6.7 mm size 100% passing 11.2 mm and retained on 2.36 mm @ 40.00 % by weight of mix = 2.001 x 40/100 = 0.8 MT = 0.8/1.456 = 0.549	cum	0.549	4430.00	2432.07	M-075
		iii) Fine Aggregate Crusher stone dust or grit passing 2.36 mm & retained on 75 micron @ 26.00 % by weight of mix = 2.001 x 26.00/100 = 0.520 tonnes = 0.520/1.625 = 0.32	cum	0.32	2510.00	803.20	M-069
		iv) Filler Lime stone dust filler with calcium carbonate content not less than 80 per cent by weight @ 18.00 % by weight of mix = 2.001 x 18.00/100 = 0.36	tonne	0.36	6395.00	2302.20	M-126
		v) Stone Chips for skid restance Stone chips of 13.2 mm nominal size @ 0.005 cum per 10 sqm = 72.50x0.005/10 = 0.036	cum	0.036	4825.00	173.70	M-184
		vi) Bitumen (VG-30) for precoating					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Bitumen for coating of chips @ 2.00 % by weight = 0.036 x 1.456 x 2.001/100 = 0.001048MT = 1.05kg	tonne	0.0010	40138.00	40.14	M-041
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				3492.75	
		e) Contractor's profit @ 15 % on (a+b+c+d)				4252.82	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				326.05	
		Cost for 72.50 sqm = a+b+c+d+e+f				32931.04	
		Rate per sqm = (a+b+c+d+e+f)/72.50				454.22	
					say	***454.20***	
		Note:- 1. The rates for 6 mm or any other thickness may be worked out on pro-rata basis. **2.** Where tack coat is required to be provided before laying mastic asphalt, the same is required to be measured and paid separately. **3.**The quantities of binder, filler and aggregates are for estimating purpose. Exact quantities shall be as per mix design. **4.**This rate analysis is based on for a specific case and is meant for estimating purposes only. Actual design is required to be done for each case. **5.**The quantity of bitumen works out 16 per cent of the mastic asphalt blocks without aggregates and falls within the standards laid down by MoRTH Specifications.					
14.6	**2703, 1500, 1600 & 1700**	Construction of precast RCC railing of M 30 Grade, aggregate size not exceeding 12 mm, true to line and grade, tolerance of vertical RCC post not to exceed 1 in 500, centre to centre spacing between vertical post not to exceed 2000 mm, leaving adequate space between vertical post for expansion, complete as per approved drawings (No. SD / 202), including all formworks required and MoRT&H Technical Specification Clause 2703, 1500, 1600, 1700. (including centering, shuttering, staging etc. and reinforcement)					
		Unit = 1 M ***Taking output = 2 x 24 m span = 48.00 m*** **a) Material**					
		Cement concrete M30 Grade, Rate as per relevant item of concrete in Item 14.1(C) Case-I, i(a) i.e. per cum basic cost (a+b+c) No. of vertical posts = (12 + 2)2 = 28 Nos., External area of vertical post 0.25x0.275 = 0.069sqm, Concrete in Vertical posts = 0.069 x 28 = 1.932 cum, Hand rail in 3 tiers = 3 x 24 = 72 m, External area = 0.170 x 0.175 = 0.03 sqm, Concrete in hand rails = 0.03 x 72 = 2.16 cum, Total Concrete = 1.932 + 2.16 = 4.092 cum. (Refer MoRTH SD / 202).	cum	4.092	7610.00	31140.12	Item no. 14.1.C.Case-1.i(a)
		Add 5.00% of above cost for form work for casting in casting yard.				1557.01	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Steel bar reinforcement, **Rate as per item No 14.2(Excluding OH & CP)**	tonne	0.865	52586.40	45487.24	Item no. 14.2
		Refer MoRTH SD / 202. Add 5 per cent of (a) for handling and fixing of precast panels in position				3909.22	
		b) Add GST (multiplying factor) @ 0.1405 on (a)				11534.15	
		c) Contractor's profit @ 15 % on (a+b)				14044.16	
		d) Add Cess @ 1.00 % on (a+b+c)				1076.72	
		Rate for 48 m (a+b+c+d)				108748.61	
		Rate per metre (a+b+c+d)/48				2265.60	
					say	***2265.60***	
		Note:- 1.Quantities of material have been adopted from standard plans of MoRTH vide drawing no. SD/202. 2.48 m length is the total linear length adding both sides of 24 m span.					
14.7	**2703, 1500, 1600 & 1700**	Construction of RCC railing of M 30 Grade in-situ with 20 mm nominal size aggregate, true to line and grade, tolerance of vertical RCC post not to exceed 1 in 500, centre to centre spacing between vertical post not to exceed 2000 mm, leaving adequate space between vertical post for expansion, complete as per approved drawings (No. SD / 202), including all formworks required and MoRT&H Technical Specification Clause 2703, 1500, 1600, 1700. (including centering, shuttering, staging etc. and reinforcement)					
		Unit = 1 M ***Taking output = 2 x 24 m span = 48.00 m.*** **a) Material**					
		Cement concrete M30 Grade, Rate as per relevant item of concrete in Item 14.1(C) Case-I, i(a) i.e. per cum basic cost (a+b+c) No. of vertical posts = (12 + 2)2 = 28 Nos., External area of vertical post 0.25x0.275 = 0.069sqm, Concrete in vehicle posts = 0.069 x 28 = 1.932 cum, Hand rail in 3 tiers = 3 x 24 = 72 m, External area = 0.170 x 0.175 = 0.03 sqm, Concrete in hand rails = 0.03 x 72 = 2.16 cum, Total Concrete = 1.932 + 2.16 = 4.092 cum. (Refer MoRTH SD / 202).	cum	4.092	7610.00	31140.12	Item no. 14.1.C.Case-1.i(a)
		Add 12.00 % of above cost for form work.				3736.81	
		Steel bar reinforcement, **Rate as per item No 14.2(Excluding OH & CP)**	tonne	0.865	52586.40	45487.24	Item no. 14.2
		refer MoRTH SD / 202. **b) Add GST (multiplying factor) @ 0.1405 on (a)**				11291.17	
		c) Contractor's profit @ 15 % on (a+b)				13748.30	
		d) Add Cess @ 1.00 % on (a+b+c)				1054.04	
		Rate for 48 m (a+b+c+d)				106457.67	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Rate per metre (a+b+c+d)/48				2217.87	
					say	***2217.90***	
		Note:- 1. Quantities of material have been adopted from standard plans of MoRTH vide drawing no. SD/202. **2.** 48 m length is the total linear length adding both sides of 24 m span.					
14.8	**2703.2 & 1900**	**Providing, fitting and fixing mild steel railing complete as per drawing and Technical Specification as per approved drawings and MoRT&H Technical Specification Clause 2703.2 & 1900.**					
		Unit = 1 M ***Taking output = 2 x 50 m span = 100.00 m***					
		a) Labour					
		Mate	day	2.80	310.00	868.00	L-17
		Mazdoor(unskilled)	day	40.00	310.00	12400.00	L-18
		Mazdoor (Skilled)	day	30.00	395.00	11850.00	L-20
		b) Material:					
		1) ISMC 100 = 2.806 x 1.05 = 2.9463 MT	tonne	2.9463	47000.00	138476.10	M-179
		2) MS Flat = 0.964 x 1.05 = 1.0122 MT	tonne	1.0122	47000.00	47573.40	M-133
		3) MS bars = 0.17 x 1.05 = 0.1785 MT	tonne	0.1785	45000.00	8032.50	M-180
		4) MS bolts, nuts and washers	kg	150.00	82.30	12345.00	M-141
		Add @ 5.00% of cost of material for painting one shop coat with red oxide primer and three coats of synthetic enamel paint and consumables to safeguard against weathering and corrosion.				10321.35	
		Add for cost of concrete for fixing vertical posts in the performed recess @ 1.00% of cost of material.				2064.27	
		Add for electricity charges, welding and drilling equipment, electrodes and other consumables @ 1.00% of cost of material.				2064.27	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				34562.28	
		d) Contractor's profit @ 15 % on (a+b+c)				42083.58	
		e) Add Cess @ 1.00 % on (a+b+c+d)				3226.41	
		Cost for 100 m steel railing = a+b+c+d+e				325867.16	
		Rate per metre (a+b+c+d+e)/100				3258.67	
					say	***3258.70***	
14.9	**2705**	**Providing and placing in position drainage Spouts complete as per drawing (SD / 205) and MoRT&H Technical Specification Clause 515, 2705.** ***Unit = 1 No.*** ***Taking output = 1 No.***					
		a) Labour					
		For fabrication					
		Mate	day	0.01	310.00	3.10	L-17
		Mazdoor(unskilled)	day	0.02	310.00	6.20	L-18
		Blacksmith, welder etc.	day	0.02	418.00	8.36	L-03
		For fixing in position					
		Mate	day	0.01	310.00	3.10	L-17
		Mason(1st class)	day	0.01	440.00	4.40	L-15
		Mazdoor(unskilled)	day	0.02	310.00	6.20	L-18

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		b) Material					
		i) Corrosion resistant Structural steel including 5 per cent wastage	Kg	4.00	47.00	188.00	M-193
		ii) GI pipe 100mm dia	metre	6.00	760.00	4560.00	M-109
		iii) GI bolt 10 mm Dia	each	6.00	9.50	57.00	M-107
		iv) Galvanised MS flat clamp	each	2.00	44.35	88.70	M-103
		Add @ 5.00% of cost of material and labour for electrodes, cutting gas, sealant, anti-corrosive bituminous paint, mild steel grating etc.				246.25	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				726.57	
		d) Contractor's profit @ 15 % on (a+b+c)				884.68	
		e) Add Cess @ 1.00 % on (a+b+c+d)				67.83	
		Rate per metre (a+b+c+d+e)				6850.39	
					say	***6850.40***	
		Note:- 1. In case of viaducts in urban areas, the drainage spouts should be connected with suitably located pipelines to discharge the surface run-off to drains provided at ground level. **2.** In case of bridges, sufficient length of G.I Pipe shall be provided to ensure that there is no splashing of water from the drainage spout on the structure.					
14.10	**2700**	PCC M15 Grade leveling course below approach slab complete including all formworks required as per drawings and MoRT&H Technical Specification Clause 2700. ***Unit = 1 cum*** ***Taking output = 1 cum*** **a) Material& labour**					
		Concrete, **Rate as per item No. 12.6 (A)** excluding formworks	cum	1.00	6767.00	6767.00	Item 12.6.A
		b) Add GST (multiplying factor) @ 0.1405 on (a)				950.76	
		c) Contractor's profit @ 15 % on (a+b)				1157.66	
		d) Add Cess @ 1.00 % on (a+b+c)				88.75	
		Rate per cum (a+b+c+d)				8964.18	
		Rate per cum			***say***	***8964.20***	
14.11	**1500,1600,1700 & 2704**	**Reinforced cement concrete approach slab including reinforcement and formwork complete as per drawings and MoRT&H Technical Specification Clause 2704, 1500, 1600, 1700.** **A. RCC M 30 Grade** ***Unit = 1 cum*** ***Taking output = 1 cum*** **a) Material**					
		Cement concrete M30 Grade, **for rate refer relevant item of concrete in item 12.6(G)**excluding formwork i.e. per cum basic cost (a+b+c) (Excluding OH & CP)	cum	1.00	7588.00	7588.00	Item 12.6(G)
		(Refer relevant item of concrete in item No. 12.6(G) except that form work may be added at the rate of 2.00% of cost.				151.76	
		Steel bar reinforcement, **Rate as per item No 14.2**(Excluding OH & CP)	tonne	0.05	52586.40	2629.32	Item 12.2

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		b) Add GST (multiplying factor) @ 0.1405 on (a)				1456.86	
		c) Contractor's profit @ 15 % on (a+b)				1773.89	
		d) Add Cess @ 1.00 % on (a+b+c)				136.00	
		Rate per cum (a+b+c+d)				13735.82	
					say	***13735.80***	
		B. RCC M 25 Grade					
		Unit = 1 cum					
		Taking output = 1 cum					
		a) Material					
		Cement concrete M25 Grade, **for rate refer relevant item of concrete in item 12.6(E)**excluding formwork i.e. per cum basic cost (a+b+c) (Excluding OH & CP)	cum	1.00	7569.00	7569.00	Item 12.6(E)
		(Refer relevant item of concrete in item No. 12.6(G) except that form work may be added at the rate of 2.00% of cost.				151.38	
		Steel bar reinforcement, **Rate as per item No 14.2**(Excluding OH & CP)	tonne	0.05	52586.40	2629.32	Item 12.2
		b) Add GST (multiplying factor) @ 0.1405 on (a)				1454.13	
		c) Contractor's profit @ 15 % on (a+b)				1770.57	
		d) Add Cess @ 1.00 % on (a+b+c)				135.74	
		Rate per cum (a+b+c+d)				13710.15	
					say	***13710.20***	
		Note:- The grade of reinforced cement concrete may be adopted as M30 for severe conditions and M25 for moderate conditions.					
14.12	**1600**	**Providing anti-corrosive treatment to Twisted steel/ deformed bar reinforcement with Fusion Bonded Epoxy Coating (FBEC).** ***Unit = 1 MT*** ***Taking output = 1 MT*** **To be taken as per the prevailing market rates.** **Note:-** Contractors generally do not have expertise for this item . The job is therefore, got done from specialised firms who have the expertise in the field of construction chemicals. The prevailing rate in the market is required to be ascertained from the market and added in the cost estimate. Detailed guidelines in this regard have been issued by MoRT&H vide their circular no. RW/NH-34041/44/91-S&R dated 21.3.2000.					
14.13	**1800 & 2300**	**Precast - pretensioned Girders** Providing, precasting, transportation and placing in position precast pretensioned concrete girders as per drawings and MoRT&H Technical Specification Clause 1800, 2300. (including centering, shuttering, staging etc. but excluding reinforcement) ***Unit = 1 cum*** ***Taking output = 1 cum*** Grade of concrete - M40					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		a) Labour					
		(i) Cutting, bending, making reinforcement cage, placing in position, binding etc. complete					
		Mate	day	0.07	310.00	21.70	L-17
		Mazdoor(Skilled)	day	0.35	395.00	138.25	L-20
		Mazdoor(unskilled)	day	1.40	310.00	434.00	L-18
		(ii) Cable cutting and threading in position including binding by insulation tape with HDPE pipes etc., prestessing and cutting of extra length of HT strand after de-stressing.					
		Taking quantity of HT strand 60 Kg/cum					
		Mate	day	0.03	310.00	9.30	L-17
		Mazdoor(Skilled)	day	0.14	395.00	55.30	L-20
		Mazdoor(unskilled)	day	0.50	310.00	155.00	L-18
		(iii) Erection and dismantling of shuttering					
		Taking shuttering area 10 sqm/cum of concrete					
		Mate	day	0.12	310.00	37.20	L-17
		Mazdoor(Skilled)	day	1.00	395.00	395.00	L-20
		Mazdoor(unskilled)	day	2.00	310.00	620.00	L-18
		(iv) Concreting by Batching plant and stationary concrete pump					
		Mate	day	0.03	310.00	9.30	L-17
		Mazdoor(Skilled)	day	0.05	395.00	19.75	L-20
		Mazdoor(unskilled)	day	0.60	310.00	186.00	L-18
		(v) Steam curing and manual curing					
		Mate	day	0.01	310.00	3.10	L-17
		Mazdoor(unskilled)	day	0.35	310.00	108.50	L-18
		(vi) Handling of precast girder, stacking in stockyard and again loading in trailor					
		Mate	day	0.01	310.00	3.10	L-17
		Mazdoor(unskilled)	day	0.25	310.00	77.50	L-18
		(vii) Placement of girders in position over pier caps including placement of sand jacks, channel, levelling etc.					
		Mate	day	0.01	310.00	3.10	L-17
		Mazdoor(Skilled)	day	0.06	395.00	23.70	L-20
		Mazdoor(unskilled)	day	0.24	310.00	74.40	L-18
		b) Machinery					
		i) At casting yard					
		Batching Plant @ 20 cum/hour	hour	0.05	15000.00	750.00	P&M-013
		Generator 100 KVA	hour	0.05	445.00	22.25	P&M-026
		Loader	hour	0.05	920.00	46.00	P&M-030
		Transit Mixer	hour	0.10	788.00	78.80	P&M-079
		Concrete Pump	hour	0.05	365.00	18.25	P&M-015
		Crane 35 tonne capacity	hour	0.10	1525.00	152.50	P&M-017
		Trailor 30 tonne capacity	hour	0.10	795.00	79.50	P&M-078
		ii) For transportation and placement at site					
		Crane 35 tonne capacity	hour	0.15	1525.00	228.75	P&M-017
		Trailer 30 tonne capacity	hour	0.15	795.00	119.25	P&M-078
		c) Material					
		Twisted steel/ deformed bar	tonne	0.10	46000.00	4600.00	M-181
		HT strand with 5 per cent as wastage and extra length for anchoring	tonne	0.06	80388.00	4823.28	M-115
		LDO for steam curing	Litre	37.00	68.75	2543.75	M-124
		Admixture @ 0.4% of cement	Kg	1.88	39.00	73.32	M-004
		Cement	tonne	0.47	5800.00	2726.00	M-052
		Sand	cum	0.45	560.00	252.00	M-170
		20 mm Aggregate	cum	0.54	4875.00	2632.50	M-022
		10 mm Aggregate	cum	0.36	4730.00	1702.80	M-020

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Add consumables such as binding wire, foam, packing tape, shuttering oil, HDPE pipe for unbonding of strand, bolt & nuts etc @ 1.00%of material cost				193.54	
		Cost of formwork, steam curing arrangement, pretensioning arrangement etc @ 5.00% of cost material, labour and machinery				1170.83	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				3454.55	
		e) Contractor's profit @ 15 % on (a+b+c+d)				4206.31	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				322.48	
		Rate per cum = (a+b+c+d+e+f)				32570.86	
					say	***32570.90***	
14.14	**800**	**Crash Barriers** The rate analysis for rigid crash barrier in reinforced cement concrete, semi-rigid crash barrier with metal beam and flexible crash barrier with wire ropes have been made and included in chapter-8 on Traffic and Transportation.					
14.15	**800**	**Painting on concrete surface** Providing and applying 2 coats of water based cement paint to unplastered concrete surface after cleaning the surface of dirt, dust, oil, grease, efflorescence and applying paint @ of 1 litre for 2 sqm as per drawings and MoRT&H Technical Specification Clause 800.					
		Unit = sqm					
		Taking output = 10 sqm					
		a) Labour					
		Mate	day	0.01	310.00	3.10	L-17
		Painter	day	0.25	395.00	98.75	L-22
		Mazdoor(Skilled)	day	0.25	395.00	98.75	L-20
		b) Material					
		Water based paint of approved quality for cement concrete surface	Litres	5.00	65.00	325.00	M-197
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				73.85	
		d) Contractor's profit @ 15 % on (a+b+c)				89.92	
		e) Add Cess @ 1.00 % on (a+b+c+d)				6.89	
		Cost for 10 sqm (a+b+c+d)				696.26	
		Rate per sqm (a+b+c+d+e)/10				69.63	
					say	***69.60***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
14.16	**2604**	**Burried Joint** Providing and laying a burried expansion joint, expansion gap being 20 mm, covered with 12 mm thick, 200 mm wide galvanised weldable structural steel plate as per IS: 2062, placed symmetrical to centre line of the joint, resting freely over the top surface of the deck concrete, welding of 8 mm dia. 100 mm long galvanised nails spaced 300 mm c/c along the centre line of the plate, all as per drawings and MoRT&H Technical Specification Clause 2604.					
		Unit = Running meter ***Taking output = 12 m***					
		a) Labour					
		Mate	day	0.02	310.00	6.20	L-17
		Mazdoor(unskilled)	day	0.40	310.00	124.00	L-18
		Mazdoor(Skilled)	day	0.20	395.00	79.00	L-20
		b) Material					
		Galvanised M.S plate 200 mm wide,12 mm thick @ 94.20 kg/sqm including 5 per cent wastage	kg	237.50	52.00	12350.00	M-101
		Add 1.00% of cost of steel plate cutting, welding consumables and galvanised nails.				123.50	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				1781.92	
		d) Contractor's profit @ 15 % on (a+b+c)				2169.69	
		e) Add Cess @ 1.00 % on (a+b+c+d)				166.34	
		Cost for 12 m = (a+b+c+d+e)				16800.66	
		Rate per m = (a+b+c+d+e)/12				1400.05	
					say	***1400.10***	
		Note:- Guidelines laid down vide the MoRTH circular No. RW/NH-34059/1/96-S&R dated 30.11.2000 and subsequent corrigendum dated 25.01.2001 may be reffered for expansion joints.					
14.17	**2605**	**Filler joint** (i) Providing & fixing 2 mm thick corrugated copper plate in expansion joint complete as per drawings and MoRT&H Technical Specification Clause 2605.					
		Unit = Running meter ***Taking output = 12 m***					
		a) Labour					
		Cutting, bending, carrying & fixing etc.					
		Mate	day	0.04	310.00	12.40	L-17
		Mazdoor(unskilled)	day	0.50	310.00	155.00	L-18
		Mazdoor(Skilled)	day	0.50	395.00	197.50	L-20
		b) Material					
		Copper plate - 12m long x 250 mm wide	kg	55.00	465.00	25575.00	M-063
		Area = 12 x 0.25 = 3 sqm Weight = 3 x 0.002 x 8900 = 53.4 kg Wastage @ 2.5 per cent = 1.33 kg/54.73 kg say = 55 kg.					
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				3644.56	
		d) Contractor's profit @ 15 % on (a+b+c)				4437.67	
		e) Add Cess @ 1.00 % on (a+b+c+d)				340.22	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Cost for 12 m = (a+b+c+d)				34362.35	
		Rate per m = (a+b+c+d+e)/12				2863.53	
					say	***2863.50***	
		(ii) Providing & fixing 20 mm thick compressible fibre board in expansion joint complete as per drawings and MoRT&H Technical Specification Clause 2605.					
		Unit = Running meter					
		Taking output = 12 m					
		a) Labour					
		For carrying, placing & fixing.					
		Mate	day	0.008	310.00	2.48	L-17
		Mazdoor(unskilled)	day	0.10	310.00	31.00	L-18
		Mazdoor(Skilled)	day	0.10	395.00	39.50	L-20
		b) Material					
		20 mm thick compressible fibre board 12 m long x 25 cm deep.	sqm	3.00	747.35	2242.05	M-062
		Area = 12 x 0.25 = 3 sqm					
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				325.26	
		d) Contractor's profit @ 15 % on (a+b+c)				396.04	
		e) Add Cess @ 1.00 % on (a+b+c+d)				30.36	
		Cost for 12 m = (a+b+c+d+e)				3066.70	
		Rate per m = (a+b+c+d+e)/12				255.56	
					say	***255.60***	
		(iii) Providing and fixing in position 20 mm thick premoulded joint filler in expansion joint for fixed ends of simply supported spans not exceeding 10 m to cater for a horizontal movement upto 20 mm, covered with sealant complete as per drawings and MoRT&H Technical Specification Clause 2605.					
		Unit = Running meter					
		Taking output = 12 m					
		a) Labour					
		Mate	day	0.01	310.00	3.10	L-17
		Mazdoor(unskilled)	day	0.20	310.00	62.00	L-18
		Mazdoor(Skilled)	day	0.10	395.00	39.50	L-20
		b) Material					
		Premoulded joint filler 12 m long,20 mm thick and 300 mm deep.	sqm	3.60	745.00	2682.00	M-150
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				391.52	
		d) Contractor's profit @ 15 % on (a+b+c)				476.72	
		e) Add Cess @ 1.00 % on (a+b+c+d)				36.55	
		Cost for 12 m = (a+b+c+d+e)				3691.38	
		Rate per m = (a+b+c+d+e)/12				307.62	
					say	***307.60***	
		(iv) Providing and filling joint sealing compound as per drawings and technical specifications with Sand and 6 per cent bitumen by weight as per drawings and MoRT&H Technical Specification Clause 2605.					
		Unit = Running meter					
		Taking output = 12 m					
		12m long x 100 mm wide x 10mm deep recess					
		a) Labour					
		Mate	day	0.02	310.00	6.20	L-17
		Mazdoor(unskilled)	day	0.50	310.00	155.00	L-18

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Mazdoor(Skilled)	day	0.10	395.00	39.50	L-20
		b) Material					
		Sand	cum	0.012	560.00	6.72	M-170
		Volume 12 x 0.1 x 0.01 = 0.012 cum					
		Weight 0.012 x 1400 = 16.8kg					
		Bitumen (VG-30)	Tonne	0.001	40138.00	40.14	M-041
		16.8 x 0.06 = 1 kg					
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				34.78	
		d) Contractor's profit @ 15 % on (a+b+c)				42.35	
		e) Add Cess @ 1.00 % on (a+b+c+d)				3.25	
		Cost for 12 m = (a+b+c+d)				327.94	
		Rate per m = (a+b+c+d+e)/12				27.33	
					say	***27.30***	
		Note:- For arriving at the final rate of filler joints per m length and per cm depth of joint filling compound, the rates at Sl. No. i), ii), iii) & iv) shall be added.					
14.18	**2600**	**Asphaltic Plug joint**					
		Providing and laying of asphaltic plug joint to provide for horizontal movement of 25 mm and vertical movement of 2 mm, depth of joint varying from 75 mm to 100 mm, width varying from 500 mm to 750 mm (in traffic direction), covered with a closure plate of 200 mm x 6 mm of weldable structural steel conforming to IS: 2062, asphaltic plug to consist of bitumen binder, carefully selected single size aggregate of 12.5 mm nominal size and a heat resistant foam caulking / backer rod, all as per drawings and MoRT&H Technical Specification Clause 2605.					
		Unit = meter					
		Taking output = 12.00 m					
		a) Labour					
		Mate	day	0.052	310.00	16.12	L-17
		Mazdoor(unskilled)	day	1.00	310.00	310.00	L-18
		Mazdoor(Skilled)	day	0.30	395.00	118.50	L-20
		b) Material					
		Crushed stone aggregate 12.5 mm nominal size	cum	0.75	4785.00	3588.75	M-021
		Bitumen (VG-30)	Tonne	0.0775	40138.00	3110.70	M-041
		Galvanised structural steel plate 200 mm wide,6 mm thick, 12 m long (2.4 sqm) @ 47.10 kg/sqm including 5 per cent wastage	Tonne	0.113	47000.00	5311.00	M-193
		Add 1.00 % for welding and foam caulking/backer rod and other incidentals.				124.55	
		c) Machinery					
		Mastic cooker 1 tonne capacity	hour	1.00	125.00	125.00	P&M-043
		Smooth 3-wheeled steel roller 8-10T capacity	hour	0.50	392.00	196.00	P&M-070
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				1812.54	
		e) Contractor's profit @ 15 % on (a+b+c+d)				2206.97	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				169.20	
		Cost for 12 m asphalt plug joint = (a+b+c+d+e+f)				17089.33	
		Rate per m = (a+b+c+d+e+f)/12				1424.11	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
					say	***1424.10***	
		Note:- The nominal size of aggregates shall be 12.5 mm for depth of joint upto 75 mm and 20 mm for joints of depth more than 75 mm.					
14.19	**2606**	**Elastomeric Slab Steel Expansion Joint** Providing and laying of an elastomeric slab steel expansion joint, catering to right or skew (less than 20 deg.), moderately curved with maximum horizontal movement upto 50 mm, complete as per approved drawings and standard specifications to be installed by the manufacturer / supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation as per drawings and MoRT&H Technical Specification Clause 2606.					
		Unit = meter					
		Taking output = 12.00 m					
		a) Labour					
		Mate	day	0.06	310.00	18.60	L-17
		Mazdoor(unskilled)	day	1.00	310.00	310.00	L-18
		Mazdoor(Skilled)	day	0.50	395.00	197.50	L-20
		b) Material					
		Supply of elastomeric slab seal expansion joint assembly manufactured by using chloroprene, elastomer for elastomeric slab unit conforming to clause 915.1 of IRC: 83 (part II), complete as per approved drawings and standard specification conforming to clause 2606 of MoRT&H Specification	metre	12.00	14345.00	172140.00	M-086
		Add 5.00 % of cost of material for anchorage reinforcement, welding and other incidentals.				8607.00	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				25468.87	
		d) Contractor's profit @ 15 % on (a+b+c)				31011.30	
		e) Add Cess @ 1.00 % on (a+b+c+d)				2377.53	
		Cost for 12 m = (a+b+c+d+e)				240130.80	
		Rate per m = (a+b+c+d+e)/12				20010.90	
					say	***20010.90***	
14.20	**2600**	**Compression Seal Joint** Providing and laying of compression seal joint consisting of steel armoured nosing at two edges of the joint gap suitably anchored to the deck concrete and a preformed chloroprene elastomer or closed cell foam joint sealer compressed and fixed into the joint gap with special adhesive binder to cater for a horizontal movement upto 40 mm and vertical movement of 3 mm as per drawings and MoRT&H Technical Specification Clause 2600.					
		Unit = Running meter					
		Taking output = 12 m					
		a) Labour					
		Mate	day	0.036	310.00	11.16	L-17
		Mazdoor(unskilled)	day	0.60	310.00	186.00	L-18
		Mazdoor(Skilled)	day	0.30	395.00	118.50	L-20

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		b) Material					
		1. Galvanised angle sections 100mm x 100mm of 12mm thickness weldable structural steel as per IS: 2062, 2 nos. of 12 m length each @ 17.7 kg/m and 5.00 % wastage.	Tonne	0.446	47000.00	20962.00	M-193
		Add 5.00% of cost of above for structural steel for anchorage, welding and other incidentals.				1063.88	
		Preformed continuous chloroprene elastomer or closed cell foam sealing element with high tear strength, vulcanised in a single operation for the full length of a joint to ensure water tightness.	metre	12.00	14345.00	172140.00	M-086
		Add 1.00 % of cost of sealing element for lubricant-cum-adhesive and other consumables.				1721.40	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				27566.51	
		d) Contractor's profit @ 15 % on (a+b+c)				33565.42	
		e) Add Cess @ 1.00 % on (a+b+c+d)				2573.35	
		Cost for 12 m = (a+b+c+d+e)				259908.22	
		Rate per m = (a+b+c+d+e)/12				21659.02	
					say	***21659.00***	
		Note:- 1. The installation shall be done by the manufacturer or his authorised representative to the satisfaction of the Engineer. **2.** The concreting for joining the expansion joint assembly with the deck has not been included in this analysis as the same is catered in the quantities of RCC deck. **3.** The anchoring bars of the expansion joint assembly shall be welded to the main reinforcement of the deck.					
14.21	**2607**	**Strip Seal Expansion Joint** Providing and laying of a strip seal expansion joint catering to maximum horizontal movement upto 70 mm, complete as per approved drawings and standard specifications to be installed by the manufacturer / supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation as per drawings and MoRT&H Technical Specification Clause 2607.					
		Unit = Running meter ***Taking output = 12 m***					
		a) Labour					
		Mate	day	0.05	310.00	15.50	L-17
		Mazdoor(unskilled)	day	1.00	310.00	310.00	L-18
		Mazdoor(Skilled)	day	0.25	395.00	98.75	L-20
		b) Material					
		Supply of complete assembly of strip seal expansion joint comprising of edge beams, anchorage, strip seal element and complete accessories as per approved specifications and drawings.	metre	12.00	9430.00	113160.00	M-192
		Add 5.00 % of cost of material for anchorage reinforcement, welding and other incidentals.				5679.21	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				16756.52	
		d) Contractor's profit @ 15 % on (a+b+c)				20403.00	
		e) Add Cess @ 1.00 % on (a+b+c+d)				1564.23	
		Cost for 12 m = (a+b+c+d+e)				157987.21	
		Rate per m = (a+b+c+d+e)/12				13165.60	
					say	***13165.60***	
		Note:- 1. The installation shall be done by the manufacturer or his authorised representative to the satisfaction of the Engineer. **2.** The concreting for joining the expansion joint assembly with the deck has not been included in this analysis as the same is catered in the quantities of RCC deck.					
14.22	**2600**	**Modular Strip / Box Seal Joint** Providing and laying of a modular strip / Box seal expansion joint including anchorage catering to a horizontal movement beyond 70 mm and upto 140 mm, complete as per approved drawings and standard specifications to be installed by the manufacturer / supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation as per drawings and MoRT&H Technical Specification Clause 2600.					
		Unit = Running meter ***Taking output = 12 m*** **a) Labour**					
		Mate	day	0.056	310.00	17.36	L-17
		Mazdoor(unskilled)	day	1.00	310.00	310.00	L-18
		Mazdoor(Skilled)	day	0.40	395.00	158.00	L-20
		b) Material					
		Supply of a modular strip/box seal joint assembly comprising of edge beams, central beam,2 modules chloroprene seal, anchorage elements, support and control system, all steel sections protected against corrosion and installed by the manufacturer or his authorised representative.	metre	12.00	10650.00	127800.00	M-127
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				18024.09	
		d) Contractor's profit @ 15 % on (a+b+c)				21946.42	
		e) Add Cess @ 1.00 % on (a+b+c+d)				1682.56	
		Cost for 12 m Modular strip/box seal joint = (a+b+c+d+e)				169938.43	
		Rate per m = (a+b+c+d+e)/12				14161.54	
					say	***14161.50***	
		Note:- 1. The installation shall be done by the manufacturer or his authorised representative to the satisfaction of the Engineer. **2.** The concreting for joining the expansion joint assembly with the deck has not been included in this analysis as the same is catered in the quantities of RCC deck.					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		3. The anchoring bars of the expansion joint assembly shall be welded to the main reinforcement of the deck.					
14.23	**2600**	**Modular Strip / Box Seal Joint** Providing and laying of a modular strip box seal expansion joint catering to a horizontal movement beyond 140 mm and upto 210 mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation as per drawings and MoRT&H Technical Specification Clause 2600.					
		Unit = Running meter ***Taking output = 12 m***					
		a) Labour					
		Mate	day	0.07	310.00	21.70	L-17
		Mazdoor(unskilled)	day	1.25	310.00	387.50	L-18
		Mazdoor(Skilled)	day	0.50	395.00	197.50	L-20
		b) Material					
		Supply of a modular box/box seal joint assembly containing 3 modules/cells and comprising of edge beams, two central beams, chloroprene seal, anchorage elements, support and control system, all steel sections protected against corrosion and installed by the manufacturer or his authorised representative.	metre	12.00	12935.00	155220.00	M-128
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				21893.65	
		d) Contractor's profit @ 15 % on (a+b+c)				26658.05	
		e) Add Cess @ 1.00 % on (a+b+c+d)				2043.78	
		Cost for 12 m Modular strip/box seal joint = (a+b+c+d+e)				206422.19	
		Rate per m = (a+b+c+d+e)/12				17201.85	
					say	***17201.80***	
		Note:- 1. The installation shall be done by the manufacturer or his authorised representative to the satisfaction of the Engineer. **2.** The concreting for joining the expansion joint assembly with the deck has not been included in this analysis as the same is catered in the quantities of RCC deck. **3.** The anchoring bars of the expansion joint assembly shall be welded to the main reinforcement of the deck.					
12.24	**1500, 1700, 2100**	Providing and laying reinforced cement concrete in superstructure in footpath slab at all heights including all formworks required as per drawings & MoRT&H technical specifications Clauses 1500, 1700, 2100. **A. RCC Grade M20** **Case- I:- Using Concrete Mixer**					
		Unit = cum ***Taking output = 15 cum***					

CHAPTER-14
SUPER-STRUCTURE

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		a) Labour					
		Mate	day	0.86	310.00	266.60	L-17
		Mason (1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Mechanical Concrete mixer (0.40/0.28 cum)	hour	6.00	192.00	1152.00	P&M-014
		Electric generator 33 KVA	hour	6.00	225.00	1350.00	P&M-027
		c) Material					
		Cement	tonne	5.12	5800.00	29696.00	M-052
		Sand	cum	6.75	560.00	3780.00	M-170
		20 mm Aggregate	cum	8.10	4875.00	39487.50	M-022
		10 mm Aggregate	cum	5.40	4730.00	25542.00	M-020
		d) Formwork @ 4.00% on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				4325.36	
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				15800.55	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				19239.00	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				1474.99	
		Cost for 15 cum = a+b+c+d+e+f+g				148974.01	
		Rate per cum = (a+b+c+d+e+f+g)/15				9931.60	
					say	***9931.60***	

Additional items for steel superstructure

14.25 1900 Supply and fabrication of steel work at fabricators workshop

Supply and fabrication of mild steel of IS:2062 structural steel work at fabricators workshop comprising of main truss, cross girders, deck stringers, wind bracings, kerb channel, jacking beams, connecting plates and other members and delivered at bridge site in undamaged condition including straightening, descaling, degreasing, cutting to size and shape, drilling, welding and grinding, supply of all MS/HTS shop or site bolts, nuts & washers, holding down bolts and nuts etc., trial assembling at workshop, one priming coat of shop paint with red lead paint conforming to IS-102 with all labour, material, cost of paints, consumables, stacking in protected condition etc. complete as per MoRT&H technical specification Clause 1900 and as directed by the Engineer-in-Charge.

Unit = MT
Worked out based on 40m single span or in multiples
Taking output = 425.472 MT

a) Labour (for cutting, bending, making holes, joining, welding and erecting in position)					
Mate	Day	421.22	310.00	130,578.20	L-17
Fitter	Day	2,340.10	355.00	830,735.50	L-13
Blacksmith	Day	2,340.10	418.00	978,161.80	L-03
Welder	Day	2,340.10	440.00	1,029,644.00	L-27
Mazdoor (Unskilled)	Day	2,340.14	310.00	725,443.40	L-18
b) Material					

CHAPTER-14
SUPER-STRUCTURE

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Structural steel in plates, angles, etc including 5 per cent wastage	tonne	446.750	47,000.00	20,997,250.00	M-193
		Nuts & bolts	Kg	12,764.20	82.30	1,050,493.66	M-141
		One coat of ready mixed,red lead primer painting at the shop confirming to IS:102 before shifting to site as per Section 1906.4					
		3/5 part considered for one coat of primer after cleaning as specified uner 1906.2 of section 1900	Sqm	4,995.04	30.70	153,347.73	
		(For analyisis purpose only rate assumed after deducting item no 10.6 of MoRD from 8.9 of MoRT&H)					
		Add @ 1% on cost of Structural steel, nuts & bolts for scaffolding and temporary arrangement for assembling				220,477.00	
		Electrodes, cutting gas and other consumables @ 10 % of cost of cost of Structural steel, nuts & bolts above				2,204,774.00	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				3957541.84	
		d) Contractor's profit @ 15 % on (a+b+c)				4818764.91	
		e) Add Cess @ 1.00 % on (a+b+c+d)				369438.64	
		Cost of 425.472 MT = a+b+c+d+e				37,466,650.68	
		Rate per MT = (a+b+c+d+e)/425.472				**88,059.03**	
					say	***88059.00***	
14.26	**1900**	**Taking delivery of fabricated steelwork**					
		Taking delivery of fabricated steel work leading to and at site as necessary, assembling and erection of fabricated steel structure to proper line, level and camber as per approved drawings complete in all respect including transportation and handling in and around site, as per approved drawing and specifications including supply of all fasterners, painting of all exposed surfaces of steel work after erection with one site coat of red lead primer paint conforming to IS-102 and two coats alumunimium paint conforming to IS-2339 including all labour, consumables and other materials, machinery, tools and tackles complete as per MoRT&H technical specification Clause no. 1900 and as directed by the Engineerin-Charge.					
		Unit = MT					
		Worked out based on 40m single span or in multiples					
		Taking output = 1 MT					
		a) Assembling and erection at site including labour component, erection cum dismandling of Staging, Scaffolding, Falseswork etc complete. (A full proof method statement of erection programe at site has tstatement to be submitted and get approved before start)					
		Formwork, Staging and Cost of erection 15%+15%=30% per MT cost of Item: 14.25 (a+b) .i.e 30% of (a+b)/425.472					
		66,563.50				19969.05	

CHAPTER-14
SUPER-STRUCTURE

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		b) One coat of ready mixed,red lead primer painting after erection at site confirming to IS:102 2/5 part considered for one coat of primer and also Two coat of aluminium paint over steel primer after cleaning as specified under 1906 of section 1900.					
		(For analyisis purpose only rate assumed from item no. 8.9 plus rate of prime coat as derived above in item no. 14.25)	Sqm	11.740	94.50	1,109.43	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				2805.65	
		d) Contractor's profit @ 15 % on (a+b+c)				3416.21	
		e) Add Cess @ 1.00 % on (a+b+c+d)				261.91	
		Cost of 1 MT = a+b+c+d				27,562.25	
		Rate per MT = (a+b+c+d+e)/1				**27,562.25**	
					say	***27562.20***	

CHAPTER - 15
RIVER TRAINING AND PROTECTION WORKS

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
15.1	2503	**Boulder apron laid dry without wire crates.** Providing and laying boulders apron on river bed for protection against scour with stone boulders weighing not less than 40 kg each complete as per drawing and MoRT&H Technical specifications clause 2503. ***Unit = cum*** ***Taking output = 1 cum***					
		a) Labour					
		Mate	day	0.04	310.00	12.40	L-17
		Mason (2ns Class)	day	0.35	395.00	138.25	L-16
		Mazdoor (unskilled)	day	0.75	310.00	232.50	L-18
		b) Material					
		Stone boulders with least dimension of 200 mm	cum	1.00	3345.00	3345.00	M-182
		Stone spalls of minimum size 25 mm	cum	0.20	3395.00	679.00	M-191
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				619.20	
		d) Contractor's profit @ 15 % on (a+b+c)				753.95	
		e) Add Cess @ 1.00 % on (a+b+c+d)				57.80	
		Rate per cum = (a+b+c+d+e)				5838.11	
					say	***5838.10***	
		Note:- Nominal excavation required for preparation of bed has been taken into account while making provision for labour.					
15.2	2503	**Boulder Apron Laid in Wire Crates** Providing and laying of boulder apron laid in wire crates made with 4mm dia GI wire conforming to IS: 280 & IS:4826 in 100 mm x 100 mm mesh (weaved diagonally) including 10 per cent extra for laps and joints laid with stone boulders weighing not less than 40 kg each as per drawing and MoRT&H Technical specifications clause 2503 ***Unit = cum*** ***Taking output = 3 mx1.5mx1.25m = 5.63 cum***					
		a) Labour					
		Mate	day	0.04	310.00	12.40	L-17
		Mazdoor (Skilled)	day	0.35	395.00	138.25	L-20
		Mazdoor(unskilled)	day	0.75	310.00	930.0	L-18
		b) Material					
		Galvanised steel wire crates of mesh size of 100 mm x 100 mm woven with 4 mm dia GI wire in rolls of required size.	kg	70.40	64.55	4544.32	M-104
		Stone boulders with least dimension of 200 mm	cum	5.63	3345.00	18832.35	M-182
		Stone spalls of minimum size 25 mm	cum	1.13	3395.00	3836.35	M-191
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				3975.3	
		d) Contractor's profit @ 15 % on (a+b+c)				4840.34	
		e) Add Cess @ 1.00 % on (a+b+c+d)				371.09	

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RIVER TRAINING AND PROTECTION WORKS

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Cost for 5.63 cum = a+b+c+d				37480.36	
		Rate per cum = (a+b+c+d)/5.63				6657.26	
					say	***6657.30***	
		Note:- Readymade woven wire crate rolls have been considered in the rate analysis. In case readymade rolls are not available, GI wire 4mm dia. @ 32 kg per 10 sqm may be provided. In that case 2 per cent of the cost of GI wire may be added for weaving the wire crates.					
15.3	**2503**	**i. Cement Concrete Blocks (size 0.5 x 0.5 x 0.5 m)** Providing and laying of apron with cement concrete blocks of size 0.5 x 0.5 x 0.5 m cast in-situ and made with nominal mix of M 15 grade cement concrete with a minimum cement content of 250 kg/cum as per IRC: 21-2000 as per drawings & MoRT&H technical specifications Clauses 2503					
		Unit = cum					
		Taking out put = 1 cum					
		Concrete Grade M15, **Rate as per item No. 12.6 (A) including OH & CP**	cum	1.00	9322.00	9322.00	Item 12.6 (A)
		Add 2 per cent of cost to account for excavation for preparation of bed, nominal surface reinforcement and filling of granular material in recesses between blocks.				186.44	
		Rate per cum				9508.44	
					say	***9508.40***	
		ii. Ist class brick blocks in CM 1:6 (size 0.5 x 0.5 x 0.5 m) Providing and laying of apron with Ist class brick blocks in CM 1:6 of size 0.5 x 0.5 x 0.5 m cast in-situ as per drawings & MoRT&H technical specifications Clauses 2503.					
		Unit = cum					
		Taking out put = 1 cum					
		1st Class brick work in CM 1:6, **Rate as per item No. 12.5 (iv) including OH & CP**	cum	1.00	8288.90	8288.90	Item 12.5(iv)
		Add 2 per cent of cost to account for excavation for preparation of bed, nominal surface reinforcement and filling of granular material in recesses between blocks.				165.78	
		Rate per cum				8454.68	
					say	***8454.70***	
15.4	**2504**	Providing and laying pitching on slopes laid over prepared filter media in front of toe of embankment complete as per drawing and MoRT&H Technical specifications clause 2504.					
		A. Stone/Boulder					
		Unit = cum					
		Taking output = 1 cum					
		a) Labour					

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RIVER TRAINING AND PROTECTION WORKS

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Mate	day	0.04	310.00	12.40	L-17
		Mason(2nd class)	day	0.35	395.00	138.25	L-16
		Mazdoor(unskilled)	day	0.75	310.00	232.50	L-18
		b) Material					
		Stone boulders with least dimension of 200 mm	cum	1.00	3345.00	3345.00	M-182
		Stone spalls of minimum size 25 mm	cum	0.20	3395.00	679.00	M-191
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				619.20	
		d) Contractor's profit @ 15 % on (a+b+c)				753.95	
		e) Add Cess @ 1.00 % on (a+b+c+d)				57.80	
		Rate per cum = (a+b+c+d+e)				5838.11	
					say	***5838.10***	
		B. Cement Concrete Blocks of size 0.3 x 0.3 x 0.3 m cast in cement concrete of Grade M 15 with nominal surface reinforcement.					
		Unit = cum					
		Taking output = 1 cum					
		Concrete Grade M15, **Rate as per item No. 12.6 (A) including OH & CP**	cum	1.00	9322.00	9322.00	Item 12.6 (A)
		Add 3.00% of cost to account for nominal surface reinforcement and filling of granular material in recesses between blocks.				279.66	
		Rate per cum				9601.66	
					say	***9601.70***	
15.5	**2504**	Providing and laying Filter material underneath pitching in slopes complete as per drawing and MoRT&H Technical specifications clause 2504.					
		Unit = cum					
		Taking output = 1 cum					
		a) Labour					
		Mate	day	0.05	310.00	15.50	L-17
		Mazdoor (Skilled)	day	0.25	395.00	98.75	L-20
		Mazdoor(unskilled)	day	1.00	310.00	310.00	L-18
		b) Material					
		Graded stone aggregate of required size	cum	1.20	2775.00	3330.00	M-096
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				527.47	
		d) Contractor's profit @ 15 % on (a+b+c)				642.26	
		e) Add Cess @ 1.00 % on (a+b+c+d)				49.24	
		Rate per cum = (a+b+c+d+e)				4973.22	
					say	***4973.20***	
		Includes Mazdoor required for trimming of slope to proper profile and preparation of bed.					
15.6	**700 & 2504**	**Geotextile Filter**					

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RIVER TRAINING AND PROTECTION WORKS

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Laying of a geotextile 120 gsm non woven membrane, 100% polyester of thickness 1 to 1.25 mm between pitching and embankment slopes on which pitching is laid to prevent escape of the embankment material through the voids of the stone pitching/cement concrete blocks as well as to allow free movement of water without creating any uplift head on the pitching as per drawing and MoRT&H Technical specifications clause 700, 2504.					
		Unit = sqm					
		Taking output = 10 sqm.					
		a) Labour					
		Mate	day	0.02	310.00	6.20	L-17
		Mazdoor(unskilled)	day	0.30	310.00	93.00	L-18
		Mazdoor(Skilled)	day	0.10	395.00	39.50	L-20
		b) Material					
		Geotextile 120 gsm non woven membrane, 100% polyester of thickness 1 to 1.25 mm	sqm	11.00	50.00	550.00	M-106
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				96.76	
		d) Contractor's profit @ 15 % on (a+b+c)				117.82	
		e) Add Cess @ 1.00 % on (a+b+c+d+e)				9.03	
		Cost for 10 sqm = a+b+c+d+e				912.31	
		Rate per sqm = (a+b+c+d+e)/10				91.23	
					say	***91.20***	
15.7	**2504.4**	**Toe protection** A toe wall for toe protection can either be in brick masonry in case of pitching with bricks in wire crates or it can be in PCC M 15 nominal mix if cement concert block have been used for pitching. Rates for toe wall can be adopted from respective clauses depending upon approved design. The rate for excavation for foundation, brick work and PCC M 15 have been analysed and given in respective chapters.					
15.8	**2505**	Providing and laying Flooring complete as per drawing and Technical specifications laid over 100 mm thick cement concrete bedding as per drawing and MoRT&H Technical specifications clause 2505.					
		A. Rubble stone laid in cement mortar 1:3, 300 mm thick					
		Unit = Sqm					
		Taking output = 10 sqm.					
		a) Labour					
		Mate	day	0.04	310.00	12.40	L-17
		Mazdoor(unskilled)	day	0.35	310.00	108.50	L-18
		Mazdoor(Skilled)	day	0.75	395.00	296.25	L-20
		b) Material					
		Cement mortor 1:3, (Rate as in Item 12.5.II.B sub-analysis) excluding OH & CP	cum	0.99	3862.20	3823.58	Item 12.5.II (B) sub-analysis

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Cement concrete bedding PCC M 15, **Rate as per item no. 12.6.A.(basic rate)**	cum	1.00	6767.00	6767.00	Item 12.6.A
		Stone boulders with least dimension of 200 mm	cum	3.00	3345.00	10035.00	M-182
		Stone spalls of minimum size 25 mm	cum	0.60	3395.00	2037.00	M-191
		Add 1 per cent of cost to account for excavation for preparation of bed.				230.80	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				3275.13	
		d) Contractor's profit @ 15 % on (a+b+c)				3987.85	
		e) Add Cess @ 1.00 % on (a+b+c+d)				305.74	
		Rate per sqm = (a+b+c+d+e)/10				3087.92	
					say	***3087.90***	
15.8		**B. Cement Concrete Blocks of size 0.3 x 0.3 x 0.3 m cast in cement concrete of Grade M 15** ***Unit = sqm*** ***Taking Out put = 9.55 sqm***					
		a) Concrete Grade M15, **Rate as per item No. 12.6 (A) including OH & CP**	cum	2.70	9322.00	25169.40	Item 12.6 (A)
		Cement Concrete bedding PCC M 15, Rate as per item No. 12.6 (A) including OH & CP	cum	0.96	9322.00	8949.12	Item 12.6 (A)
		b) Add 1 per cent of cost to account for excavation for preparation of bed.				341.19	
		Rate per sqm = (a+b)/9.55				3608.35	
					say	***3608.30***	
15.9	**2506**	**Dry Rubble Flooring** Construction of dry rubble flooring at cross drainage works for relatively less important works. ***Unit = cum*** ***Taking output = 1 cum***					
		a) Labour					
		Mate	day	0.04	310.00	12.40	L-17
		Mason(2nd class)	day	0.35	395.00	138.25	L-16
		Mazdoor(unskilled)	day	0.75	310.00	232.50	L-18
		b) Material					
		Stone boulders with least dimension of 200 mm	cum	1.00	3345.00	3345.00	M-182
		Stone spalls of minimum size 25 mm	cum	0.20	3395.00	679.00	M-191
		Add 1.00 % for trimming and preparation of base.				44.07	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				625.40	
		d) Contractor's profit @ 15 % on (a+b+c)				761.49	
		e) Add Cess @ 1.00 % on (a+b+c+d)				58.38	
		Rate per cum = (a+b+c+d+e)				5896.49	
					say	***5896.50***	
15.10	**2507.2**	**Curtain wall complete as per drawing and Technical specification**					

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RIVER TRAINING AND PROTECTION WORKS

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Curtain wall can either be in brick masonry or in PCC M 15 nominal mix . Rates for Curtain wall can be adopted from respective clauses depending upon approved design. The rate for excavation for foundation, brick work and PCC M 15 have been analysed and given in respective chapters.					
15.11	**2507.2**	**Flexible Apron** Construction of flexible apron 1 m thick comprising of loose stone boulders weighing not less than 40 kg beyond curtain wall as per drawing and MoRT&H Technical specifications clause 2507.2. ***Unit = cum*** ***Taking Output = 1 cum***					
		a) Labour					
		Mate	day	0.05	310.00	15.50	L-17
		Mason(2nd class)	day	0.25	395.00	98.75	L-16
		Mazdoor(unskilled)	day	1.00	310.00	310.00	L-18
		b) Material					
		Stone boulders with least dimension of 200 mm	cum	1.00	3345.00	3345.00	M-182
		Stone spalls of minimum size 25 mm	cum	0.20	3395.00	679.00	M-191
		Add 1.00 % of cost of (a+b) for trimming and preparation of bed.				44.48	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				631.23	
		d) Contractor's profit @ 15 % on (a+b+c)				768.59	
		e) Add Cess @ 1.00 % on (a+b+c+d)				58.93	
		Rate per cum = (a+b+c+d+e)				5951.48	
					say	***5951.50***	
15.12	**2503.3**	**Gabian Structure for Retaining Earth** Providing and construction of a gabian structure for retaining earth with segments of wire crates of size 7 m x 3 m x 0.6 m each divided into 1.5 m compartments by cross netting, made from 4 mm galvanised steel wire @ 32 kg per 10 sqm having minimum tensile strength of 300 Mpa conforming to IS:280 and galvanizing coating conforming to IS:4826, woven into mesh with double twist, mesh size not exceeding 100 x 100 mm, filled with boulders with least dimension of 200 mm, all loose ends to be tied with 4 mm galvanised steel wire as per drawing and MoRT&H Technical specifications clause 2503.3. ***Unit = cum*** ***Taking output = 7 x 3 x 0.6 = 12.60 cum***					
		a) Labour					
		Mate	day	0.28	310.00	86.80	L-17
		Mazdoor (Skilled)	day	2.00	395.00	790.00	L-20
		Mazdoor(unskilled)	day	5.00	310.00	1550.00	L-18
		b) Material					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Galvanised steel wire crates of mesh size 100 mm x 100 mm woven with 4mm dia. GI wire in rolls of required size.	kg	195.20	64.55	12600.16	M-104
		Stone boulders with least dimension of 200 mm	cum	12.60	3345.00	42147.00	M-182
		Stone spalls of minimum size 25 mm	cum	2.52	3395.00	8555.40	M-191
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				9234.98	
		d) Contractor's profit @ 15 % on (a+b+c)				11244.65	
		e) Add Cess @ 1.00 % on (a+b+c+d)				862.09	
		Cost for 12.60 cum (a+b+c+d+e)				87071.08	
		Rate per cum (a+b+c+d+e)/12.60				6910.40	
					say	***6910.40***	
15.13	**2503.3**	**Gabian Structure for Erosion Control, River Training Works and Protection works** Providing and constructing gabian structures for erosion control, river training works and protection works with wire crates of size 2 m x 1 m x 0.3 m each divided into 1m compartments by cross netting, made from 4 mm galvanised steel wire @ 32 kg per 10 sqm having minimum tensile strength of 300 Mpa conforming to IS:280 and galvanizing coating conforming to IS:4826, woven into mesh with double twist, mesh size not exceeding 100 mm x 100 mm, filled with boulders with least dimension of 200 mm, all loose ends to be securely tied with 4 mm galvanised steel wire. as per drawing and MoRT&H Technical specifications clause 2503.3. ***Unit = cum*** ***Taking output = 2 x 1 x 0.3 x 10 Nos. = 6.00 cum*** **a) Labour**						
		Mate	day	0.14	310.00	43.40	L-17
		Mazdoor (Skilled)	day	1.00	395.00	395.00	L-20
		Mazdoor(unskilled)	day	2.50	310.00	775.00	L-18
		b) Material					
		Galvanised steel wire crates of mesh size 100 mm x 100 mm woven with 4mm dia. GI wire in rolls of required size.	kg	208.00	64.55	13426.40	M-104
		Stone boulders with least dimension of 200 mm	cum	6.00	3345.00	20070.00	M-182
		Stone spalls of minimum size 25 mm	cum	1.20	3395.00	4074.00	M-191
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				5449.12	
		d) Contractor's profit @ 15 % on (a+b+c)				6634.94	
		e) Add Cess @ 1.00 % on (a+b+c+d)				508.68	
		Cost for 6.00 cum (a+b+c+d+e)				51376.54	
		Rate per cum (a+b+c+d+e)/6.00				8562.76	
					say	***8562.80***	

CHAPTER - 15
RIVER TRAINING AND PROTECTION WORKS

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Note:- Readymade woven wire crate rolls have been considered in the rate analysis. In case readymade rolls are not available, GI wire 4mm dia. @ 32 kg per 10 sqm may be provided. In that case 2 per cent of the cost of GI wire may be added for weaving the wire crates.					

CHAPTER-16
REPAIR AND REHABILITATION

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
16.1	**2809**	Removal of existing cement concrete wearing coat including its disposal complete as per Technical Specification without causing any detrimental effect to any part of the bridge structure and removal of dismantled material with all lifts and lead upto 1000 m as per drawing and MoRT&H Technical specifications clause 2809.					
		Unit = Sqm (Thickness 75 mm)					
		Taking output = 10 sqm					
		a) Labour					
		Mate	day	0.04	310.00	12.40	L-17
		Mazdoor(unskilled)	day	1.00	310.00	310.00	L-18
		b) Machinery					
		Air Compressor 250 cfm with pneumatic breaker/jack hammer along with accessories.	hour	1.00	315.00	315.00	P&M-002
		Tractor trolley.	hour	0.50	237.00	118.50	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				106.20	
		d) Contractor's profit @ 15 % on (a+b+c)				129.32	
		e) Add Cess @ 1.00 % on (a+b+c+d)				9.91	
		Cost for 10 sqm = (a+d+c+d+e)				1001.33	
		Rate per sqm = (a+b+c+d+e)/10				100.13	
					say	***100.10***	
16.2	**2809**	Removal of existing 12 mm thick mastic asphalt laid over asphaltic wearing coat comprising of 50 mm thick asphaltic concrete including disposal with all lift and lead upto 1000 m as per drawing and MoRT&H Technical specifications clause 2809.					
		Unit = Sqm					
		Taking output = 10 sqm					
		a) Labour					
		Mate	day	0.03	310.00	9.30	L-17
		Mazdoor(unskilled)	day	0.75	310.00	232.50	L-18
		b) Machinery					
		Air Compressor 250 cfm with pneumatic breaker.	hour	0.75	315.00	236.25	P&M-002
		Tractor-trolley.	hour	0.40	237.00	94.80	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				80.49	
		d) Contractor's profit @ 15 % on (a+b+c)				98.00	
		e) Add Cess @ 1.00 % on (a+b+c+d)				7.51	
		Cost for 10 sqm = (a+d+c+d+e)				758.85	
		Rate per sqm = (a+b+c+d+e)/10				75.88	
					say	***75.90***	
16.3	**2807**	Guniting concrete surface with cement mortar applied with compressor after cleaning surface and spraying with epoxy complete as per Technical Specification					
		Unit = Sqm					
		Taking output = 1 sqm					
		Assuming thickness 25 mm					

CHAPTER-16
REPAIR AND REHABILITATION

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		a) Labour					
		Mate	day	0.01	310.00	3.10	L-17
		Mason(2nd class)	day	0.04	395.00	15.80	L-16
		Mazdoor(unskilled)	day	0.14	310.00	43.40	L-18
		b) Machinery					
		Compressor with guniting equipment along with accessories	hour	0.75	750.00	562.50	P&M-004
		c) Material					
		Cement	tonne	0.016	5800.00	92.80	M-052
		Graded sand	cum	0.04	560.00	22.40	M-170
		Wire mesh 50 mm x 50 mm size of 3 mm wire	kg	2.00	64.95	129.90	M-207
		Epoxy	kg	0.67	650.00	435.50	M-089
		Accelerator compound for guniting @ 4 .00% of weight of cement	kg	0.64	135.00	86.40	M-002
		Add 2.00 % of cost of material for miscellaneous consumables like nozzles, wire brush, cotton waste etc.				15.34	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				197.70	
		e) Contractor's profit @ 15 % on (a+b+c+d)				240.73	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				18.46	
		Rate per sqm = (a+b+c+d+e+f)				1864.03	
					say	***1864.00***	
16.4	**2800**	Providing and inserting 15 mm dia GI nipples of required length with approved fixing compound after drilling holes for grouting including subsequent cutting/removal and sealing of the hole as necessary of nipples after completion of grouting with Cement/Epoxy as per drawing and MoRT&H Technical specifications clause 2800.					
		Unit = Number					
		Taking output = 1 No.					
		a) Labour					
		Mate	day	0.01	310.00	3.10	L-17
		Mazdoor (Skilled) labour for drilling	day	0.08	395.00	31.60	L-20
		Mazdoor (Skilled) labour for fixing nipple and sealing inlets	day	0.08	395.00	31.60	L-20
		Mazdoor(unskilled) for cutting and removing of nipples	day	0.04	310.00	12.40	L-18
		b) Material					
		Nipples	No	1.00	43.20	43.20	M-108
		Cement, fixing compound and consumables @ 15.00 % of cost of nipple				6.48	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				18.04	
		d) Contractor's profit @ 15 % on (a+b+c)				21.96	
		e) Add Cess @ 1.00 % on (a+b+c+d)				1.68	
		Rate per No. = (a+b+c+d+e)				170.06	
					say	***170.10***	

CHAPTER-16
REPAIR AND REHABILITATION

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
16.5	**2806**	Sealing of cracks/porous concrete by injection process through nipples/Grouting complete as per drawing and MoRT&H Technical specifications clause 2806.					
		A. Cement Grout					
		Unit = kg					
		Taking output = 1 kg					
		a) Labour					
		Mate	day	0.01	310.00	3.10	L-17
		Mazdoor (Skilled)	day	0.10	395.00	39.50	L-20
		Mazdoor (unskilled)	day	0.10	310.00	31.00	L-18
		b) Machinery					
		Grout pump with agitator and accessories	hour	0.10	271.00	27.10	P&M-032
		c) Material					
		Cement including 10.00 % wastage	tonne	0.0011	5800.00	6.38	M-052
		Admixtures (anti shrinkage compound)@ 10.00 % of cost of cement				0.64	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				15.13	
		e) Contractor's profit @ 15 % on (a+b+c+d)				18.43	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				1.41	
		Rate per kg = (a+b+c+d+e+f)				142.69	
					say	***142.70***	
		B. Cement Mortar (1:1) Grouting					
		Unit = kg					
		Taking output = 1 kg					
		a) Labour					
		Mate	day	0.01	310.00	3.10	L-17
		Mazdoor (Skilled)	day	0.10	395.00	39.50	L-20
		Mazdoor (unskilled)	day	0.10	310.00	31.00	L-18
		b) Machinery					
		Grout pump with agitator and accessories	hour	0.10	271.00	27.10	P&M-032
		c) Material					
		Cement including 10.00 % wastage	tonne	0.00055	5800.00	3.19	M-052
		Sand	cum	0.0004	560.00	0.22	M-170
		Admixtures (anti shrinkage compound) @ 20.00 % of cost of cement				0.64	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				14.72	
		e) Contractor's profit @ 15 % on (a+b+c+d)				17.92	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				1.37	
		Rate per kg = (a+b+c+d+e+f)				138.76	
					say	***138.80***	
16.6	**2800**	Patching of damaged concrete surface with polymer concrete and curing compounds, initiator and promoter, available in present formulations, to be applied as per instructions of manufacturer and as approved by the Engineer as per drawing and MoRT&H Technical specifications clause 2807.					
		Unit = sqm					
		Taking output = 10 sqm for an average thickness of 25mm.					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		a) Labour					
		Mate	day	0.06	310.00	18.60	L-17
		Mazdoor (Skilled)	day	0.75	395.00	296.25	L-20
		Mazdoor (unskilled)	day	0.75	310.00	232.50	L-18
		b) Machinery					
		Grout pump with agitator and accessories	hour	2.00	271.00	542.00	P&M-032
		c) Material					
		Pre-packed polymer concrete based on epoxy system complete with curing compound, intiator and promoter including 5 per cent wastage.	kg	315.00	205.00	64575.00	M-151
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				9225.84	
		e) Contractor's profit @ 15 % on (a+b+c+d)				11233.53	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				861.24	
		Cost for 10 sqm = a+b+c+d+e+f				86984.96	
		Rate per sqm = (a+b+c+d+e+f)/10				8698.50	
					say	***8698.50***	
		Note:- This item is a proprietory item available in market as pre-packed polymer concrete and is required to be applied as per instructions of the manufacturer.					
16.7	**2803**	Providing and sealing of crack / porous concrete with Epoxy resin by injection through nipples complete as per drawing and MoRT&H Technical specifications clause 2803.					
		Unit = kg					
		Taking output = 1 kg					
		a) Labour					
		Mate	day	0.01	310.00	3.10	L-17
		Mazdoor (Skilled)	day	0.10	395.00	39.50	L-20
		Mazdoor (unskilled)	day	0.10	310.00	31.00	L-18
		b) Machinery					
		Epoxy Injection gun	hour	0.10	175.00	17.50	P&M-029
		c) Material					
		Epoxy including 10 per cent wastage	kg	1.10	650.00	715.00	M-089
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				113.26	
		e) Contractor's profit @ 15 % on (a+b+c+d)				137.90	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				10.57	
		Rate per kg = (a+b+c+d+e+f)				1067.83	
					say	***1067.80***	
16.8	**2804**	Providing and applying epoxy mortar over leached, honey combed and spalled concrete surface and exposed steel reinforcement complete as per drawing and MoRT&H Technical specifications clause 2804.					
		Average thickness of 10mm					
		Unit = sqm					
		Taking output = 10 sqm					
		a) Labour					
		Mate	day	0.04	310.00	12.40	L-17

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Mazdoor (Skilled)	day	0.50	395.00	197.50	L-20
		Mazdoor (unskilled)	day	0.50	310.00	155.00	L-18
		b) Material					
		Epoxy resin-hardener mix for prime coat	kg	2.50	320.00	800.00	M-093
		Epoxy mortar	kg	2.20	360.00	792.00	M-090
		Epoxy resin -hardener mix for seal coat.	kg	2.00	320.00	640.00	M-093
		Add 8.40 % cost of material for other consumables like acetone etc and to cover wastage.				187.49	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				391.21	
		d) Contractor's profit @ 15 % on (a+b+c)				476.34	
		e) Add Cess @ 1.00 % on (a+b+c+d)				36.52	
		Cost for 10 sqm = a+b+c+d+e				3688.45	
		Rate per sqm = (a+b+c+d+e)/10				368.85	
					say	***368.80***	
16.9	**2807**	Removal of defective concrete, cleaning the surface thoroughly, applying the shotcrete mixture mechanically with compressed air under pressure, comprising of cement, sand, coarse aggregates, water and quick setting compound in the proportion as per clause 2807.1., sand and coarse aggregates conforming to IS: 383 and table 1 of IS: 9012 respectively, water cement ratio ranging from 0.35 to 0.50, density of gunite not less than 2000 kg/cum, strength not less than 25 Mpa and workmanship conforming to MoRT&H Technical specifications clause 2807.6.					
		unit: sqm					
		Taking output = 10 sqm, 40 mm average thickness.					
		a) Labour					
		Mate	day	0.04	310.00	12.40	L-17
		Mazdoor (Skilled)	day	0.50	395.00	197.50	L-20
		Mazdoor (unskilled)	day	0.50	310.00	155.00	L-18
		b) Machinery					
		Air compressor	hour	1.00	210.00	210.00	P&M-001
		Shotcreteing equipment	hour	1.00	305.00	305.00	P&M-057
		water tanker 6 KL capacity	hour	0.02	200.00	4.00	P&M-084
		c) Material					
		Cement	tonne	0.12	5800.00	696.00	M-052
		Sand	cum	0.15	560.00	84.00	M-170
		Coarse aggregate of size 4.75mm	cum	0.15	5015.00	752.25	M-009
		Quick setting compound	kg	2.50	138.00	345.00	M-154
		Water	KL	0.10	133.00	13.30	M-196
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				389.81	
		e) Contractor's profit @ 15 % on (a+b+c+d)				474.64	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				36.39	
		Cost for 10 sqm = a+b+c+d+e+f				3675.29	
		Rate per sqm = (a+b+c+d+e+f)/10				367.53	
					say	***367.50***	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
16.10	**2800**	Applying pre-packed cement based polymer mortar of strength 45 Mpa at 28 days for replacement of spalled concrete as per drawing and MoRT&H Technical specifications clause 2800.					
		Unit = sqm					
		Taking output = 10 sqm					
		Assumed thickness - 10 mm					
		a) Labour					
		Mate	day	0.04	310.00	12.40	L-17
		Mazdoor (Skilled)	day	0.50	395.00	197.50	L-20
		Mazdoor (unskilled)	day	0.50	310.00	155.00	L-18
		b) Material					
		Acrylic polymer bonding coat	Litre	1.40	265.00	371.00	M-003
		pre-packed cement based polymer mortar of strength 45 Mpa at 28 days	kg	12.00	205.00	2460.00	M-151
		Add 3.00 % on cost of material for wastage.				84.93	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				460.96	
		d) Contractor's profit @ 15 % on (a+b+c)				561.27	
		e) Add Cess @ 1.00 % on (a+b+c+d)				43.03	
		Cost for 10 sqm = a+b+c+d+e				4346.09	
		Rate per sqm = (a+b+c+d+e)/10				434.61	
					say	***434.60***	
16.11	**2805**	Eproxy bonding of new concrete to old concrete as per drawing and MoRT&H Technical specifications clause 2805.					
		Unit = sqm					
		Taking output = 10 sqm					
		a) Labour					
		Mate	day	0.04	310.00	12.40	L-17
		Mazdoor (Skilled)	day	0.50	395.00	197.50	L-20
		Mazdoor (unskilled)	day	0.50	310.00	155.00	L-18
		b) Material					
		Epoxy resin with pot life not less than 60-90 minutes and satisfying testing as per clause 2803.9	kg	8.00	650.00	5200.00	M-089
		Add 3 per cent of (a) above for wastage.				156.00	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				803.79	
		d) Contractor's profit @ 15 % on (a+b+c)				978.70	
		e) Add Cess @ 1.00 % on (a+b+c+d)				75.03	
		Cost for 10 sqm = a+b+c+d+e				7578.42	
		Rate per sqm = (a+b+c+d+e)/10				757.84	
					say	***757.80***	
16.12	**2810**	Providing external prestressing with high tensile steel wires/strands including drilling for passage of prestessing steel, all accessories for stressing and stressing operation and grouting complete as per drawing and MoRT&H Technical specifications clause 2810.					
		Span assumed: 25 m					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		No. of cables: 4 no.					
		No. of anchorages : 8 no.					
		Unit = MT					
		Taking output = 1 MT					
		Assume 12.7mm dia. Strand in 12T13 system. Weight-9.42 kg/m of cable.					
		a) Labour					
		i) For making holes in the structure .					
		Mate	day	0.24	310.00	74.40	L-17
		Mazdoor (Semi-skilled)	day	3.00	355.00	1065.00	L-19
		Mazdoor(unskilled)	day	3.00	310.00	930.00	L-18
		ii) For making and fixing anchorages for cables and placement of cables .					
		Mate	day	0.44	310.00	136.40	L-17
		Blacksmith	day	3.00	418.00	1254.00	L-03
		Mazdoor(unskilled)	day	8.00	310.00	2480.00	L-18
		iii) For prestressing					
		Mate	day	0.13	310.00	40.30	L-17
		Fitter	day	0.70	355.00	248.50	L-13
		Mazdoor(unskilled)	day	2.65	310.00	821.50	L-18
		iv) For grouting					
		Mate	day	0.13	310.00	40.30	L-17
		Mason(1st class)	day	0.70	440.00	308.00	L-15
		Mazdoor(unskilled)	day	2.65	310.00	821.50	L-18
		b) Machinery					
		Stressing jack with pump	hour	4.00	290.00	1160.00	P&M-060
		Grouting pump with agitator	hour	1.35	271.00	365.85	P&M-032
		c) Material					
		HTS strand including 5 per cent wastage and extra length for jacking	tonne	1.05	80388.00	84407.40	M-115
		HDPE pipes 75mm dia including 5 per cent wastage	metre	112.00	157.00	17584.00	M-112
		Cement for grouting	Tonne	0.400	5800.00	2320.00	M-052
		Tube anchorage set complete with bearing plate, permanent wedges etc	No	8.00	5150.00	41200.00	M-195
		Epoxy	kg	6.00	650.00	3900.00	M-089
		MS plates for deviator (where deviator blocks are not provided)	tonne	2.10	47000.00	98700.00	M-129
		Add 20 per cent cost of material for other materials like lead sheet, sleeves, deviator fixtures etc.				49622.28	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				43200.86	
		e) Contractor's profit @ 15 % on (a+b+c+d)				52602.04	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				4032.82	
		Rate per MT = (a+b+c+d+e+f)				407315.16	
					say	***407315.20***	
16.13	**2810**	Providing external prestressing with high tensile steel wires/strands including drilling for passage of prestessing steel, all accessories for stressing and stressing operation and grouting complete as per drawing and MoRT&H Technical specifications clause 2810.					
		Span assumed: 50 m					
		No. of cables: 4 no.					
		No. of anchorages : 8 no.					
		Unit = MT					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Taking output = 3.10 MT					
		Assume 12.7mm dia. Strand in 19T13 system. Weight-14.73 kg/m of cable.					
		a) Labour					
		i) For making holes in the structure.					
		Mate	day	0.08	310.00	24.80	L-17
		Mazdoor(Semi-skilled)	day	8.00	355.00	2840.00	L-19
		Mazdoor	day	8.00	310.00	2480.00	L-18
		ii) For making and fixing anchorages for cables and placement of cables .					
		Mate	day	1.28	310.00	396.80	L-17
		Blacksmith	day	7.00	418.00	2926.00	L-03
		Mazdoor(unskilled)	day	25.00	310.00	7750.00	L-18
		iii) For prestressing					
		Mate	day	0.20	310.00	62.00	L-17
		Fitter	day	1.00	355.00	355.00	L-13
		Mazdoor	day	4.00	310.00	1240.00	L-18
		iv) For grouting					
		Mate	day	0.26	310.00	80.60	L-17
		Mason(1st class)	day	1.50	440.00	660.00	L-15
		Mazdoor(unskilled)	day	5.00	310.00	1550.00	L-18
		b) Machinery					
		Stressing jack with pump	hour	7.00	290.00	2030.00	P&M-060
		Grouting pump with agitator	hour	3.00	271.00	813.00	P&M-032
		c) Material					
		HTS strand including 5 per cent wastage and extra length for jacking	tonne	3.10	80388.00	249202.80	M-115
		HDPE pipes 90mm dia including 5 per cent wastage	metre	224.00	212.00	47488.00	M-113
		Cement for grouting	tonne	1.01	5800.00	5858.00	M-052
		Tube anchorage set complete with bearing plate, permanent wedges etc	No	8.00	5150.00	41200.00	M-195
		Epoxy	kg	10.00	650.00	6500.00	M-089
		MS plates for deviator (where deviator blocks are not provided)	tonne	7.00	47000.00	329000.00	M-129
		Add 20 per cent cost of material for other materials like lead sheet, sleeves, deviator fixtures etc.				135849.76	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				117782.10	
		e) Contractor's profit @ 15 % on (a+b+c+d)				143413.33	
		f) Add Cess @ 1.00 % on (a+b+c+d+e				10995.02	
		Cost for 3.10 MT = a+b+c+d+e+f				1110497.21	
		Rate per MT = (a+b+c+d+e+f)/3.10				358224.91	
					say	***358224.90***	
16.14	**2810**	Providing external prestressing with high tensile steel wires/strands including drilling for passage of prestessing steel, all accessories for stressing and stressing operation and grouting complete as per drawing and MoRT&H Technical specifications clause 2810.					
		Span assumed: 100 m					
		No. of cables: 6 no.					
		No. of anchorages : 12 no.					
		Unit = MT					
		Taking output = 9.28 MT					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Assume 12.7mm dia. Strand in 19T13 system. Weight-14.73 kg/m of cable.					
		a) Labour					
		i) For making holes in the structure .					
		Mate	day	1.72	310.00	533.20	L-17
		Mazdoor(Semi-skilled)	day	18.00	355.00	6390.00	L-19
		Mazdoor(unskilled)	day	25.00	310.00	7750.00	L-18
		ii) For making and fixing anchorages for cables and placement of cables .					
		Mate	day	4.00	310.00	1240.00	L-17
		Blacksmith	day	20.00	418.00	8360.00	L-03
		Mazdoor(unskilled)	day	80.00	310.00	24800.00	L-18
		iii) For prestressing					
		Mate	day	0.30	310.00	93.00	L-17
		Fitter	day	1.50	355.00	532.50	L-13
		Mazdoor(unskilled)	day	6.00	310.00	1860.00	L-18
		iv) For grouting					
		Mate	day	1.00	310.00	310.00	L-17
		Mason(1st class)	day	5.00	440.00	2200.00	L-15
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	L-18
		b) Machinery					
		Stressing jack with pump	hour	10.00	290.00	2900.00	P&M-060
		Grouting pump with agitator	hour	10.00	271.00	2710.00	P&M-032
		c) Material					
		HTS strand including 5 per cent wastage and extra length for jacking	tonne	9.28	80388.00	746000.64	M-115
		HDPE pipes 90 mm dia including 5 per cent wastage	metre	672.00	212.00	142464.00	M-113
		Cement for grouting	tonne	3.04	5800.00	17632.00	M-052
		Tube anchorage set complete with bearing plate, permanent wedges etc	No	12.00	5150.00	61800.00	M-195
		Epoxy	kg	14.00	650.00	9100.00	M-089
		MS plates for deviator (where deviator blocks are not provided)	tonne	20.00	47000.00	940000.00	M-129
		Add 20 per cent cost of material for other materials like lead sheet, sleeves, deviator fixtures etc.				383399.33	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				332461.59	
		e) Contractor's profit @ 15 % on (a+b+c+d)				404810.44	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				31035.47	
		Cost for 9.28 MT = a+b+c+d+e+f				3134582.16	
		Rate per MT = (a+b+c+d+e+f)/9.28				337778.25	
					say	***337778.30***	
16.15	**2808**	Replacement of Bearings complete as per drawing and MoRT&H Technical specifications clause 2808.					
		Unit = No					
		Taking output = 3 No.					
		a) labour					
		Mate	day	0.64	310.00	198.40	L-17
		Mazdoor (Skilled)	day	4.00	395.00	1580.00	L-20
		Mazdoor(unskilled)	day	12.00	310.00	3720.00	L-18
		b) Machinery					
		Jack of 40 tonne lifting capacity.	hour	21.00	193.00	4053.00	P&M-040
		c) Material					
		Cost of bearing					*
		Wooden packing	cum	0.15	20450.00	3067.50	M-233

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				1772.96	
		e) Contractor's profit @ 15 % on (a+b+c+d)				2158.78	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				165.51	
		Cost of repair of 3 bearings = a+b+c+d+e+f				16716.14	
		Rate Per No = (a+b+c+d+e+f)/3				5572.05	
					say	***5572.00***	
		***Note:- This rate is exclusive of the cost of bearing. Actual cost of bearing may be added as per the type and design.**					
		The work entails replacement of all the bearings on one side of the span.					
16.16	**2808**	Rectification of Bearings complete as per drawing and MoRT&H Technical specifications clause 2808.					
		Unit = 1 No					
		Taking output = 3 No.					
		Lifting of superstructure span by jacking up from below i.e. by placing the jacks on pier/abutment caps for span length of 30m.					
		a) labour					
		Mate	day	0.64	310.00	198.40	L-17
		Mazdoor (Skilled)	day	4.00	395.00	1580.00	L-20
		Mazdoor(unskilled)	day	12.00	310.00	3720.00	L-18
		b) Machinery					
		Jack of 40 tonne lifting capacity.	hour	21.00	193.00	4053.00	P&M-040
		c) Material					
		Cost of parts to be replaced for 3 bearings.					*
		Wooden packing	cum	0.15	20450.00	3067.50	M-233
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				1772.96	
		e) Contractor's profit @ 15 % on (a+b+c+d)				2158.78	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				165.51	
		Cost of repair of 3 bearings = a+b+c+d+e+f				16716.14	
		Rate Per No = (a+b+c+d+e+f)/3				5572.05	
					say	***5572.00***	
		***Note:- This rate is exclusive of the cost of the parts of bearing. Actual cost of the parts of bearing may be added as per the type and design.**					
		The rectification of 3 bearings included in this analysis are on the same side of the span.					
16.17		Replacement of expansion joints as per drawing and MoRT&H Technical specifications clause 2808.					
		Unit -1 M					
		Taking output = 12 M					
		a) Labour					
		Removal of old expansion joint including breaking of concrete, cutting of lugs and shifting of broken material etc.					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Mate	day	0.26	310.00	80.60	L-17
		Mazdoor (Skilled)	day	0.50	395.00	197.50	L-20
		Mazdoor (unskilled)	day	6.00	310.00	1860.00	L-18
		b) Material					
		M-30 grade cement concrete excluding OH & CP (Rate as per items 14.1 C (i)	cum	3.60	7610.00	27396.00	Item 14.1(C)
		Epoxy for bonding new concrete to old concrete @ 0.8 kg/sqm	kg	9.60	650.00	6240.00	M-089
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				5026.26	
		d) Contractor's profit @ 15 % on (a+b+c)				6120.05	
		e) Add Cess @ 1.00 % on (a+b+c+d)				469.20	
		Cost for replacement of 12 RM = a+b+c+d+e				47389.62	
		Rate per RM = (a+b+c+d+e)/12				3949.13	
					say	***3949.10***	
		Note:- i.This rate is exclusive of the cost of the expansion joint. ii.The rate for the installation of new expansion joints may be taken from the chapter on superstructure. Broken concrete will have to be replaced which has been included in this analysis.					
16.18		**Replacement of Damaged Concrete Railing.** ***Unit = M*** ***Taking output = 10 M***					
		a) Labour					
		Mate	day	0.20	310.00	62.00	L-17
		Mazdoor(unskilled)	day	5.00	310.00	1550.00	L-18
		b) Machinery					
		Tractor-trolley for disposal of dismantled material	hour	1.00	237.00	237.00	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				259.78	
		d) Contractor's profit @ 15 % on (a+b+c)				316.32	
		e) Add Cess @ 1.00 % on (a+b+c+d)				24.25	
		Cost for 10 m = a+b+c+d+e				2449.35	
		Rate per metre = (a+b+c+d+e)/10				244.94	
					say	***244.90***	
		Note:- The rate for the provision of new railing may be adopted from the chapter on superstructure.					
16.19		**Replacement of Crash Barrier.** ***Unit = M*** ***Taking output = 10 M***					
		a) Labour					
		Mate	day	0.40	310.00	124.00	L-17
		Mazdoor(unskilled)	day	10.00	310.00	3100.00	L-18
		b) Machinery					
		Tractor-trolley for disposal of dismantled material	hour	1.00	237.00	237.00	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				486.27	
		d) Contractor's profit @ 15 % on (a+b+c)				592.09	

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		e) Add Cess @ 1.00 % on (a+b+c+d)				45.39	
		Cost for 10 m = a+b+c+d+e				4584.75	
		Rate per metre = (a+b+c+d+e)/10				458.48	
					say	***458.50***	
		Note:- The rate for the construction of new crash barrier may be adopted from chapter 8 on Traffic and Transportation.					
16.20		**Replacement of Damaged Mild Steel Railing**					
		Unit = RM					
		Taking output = 10 M					
		a) Labour					
		Labour for dismantling old railing and disposal of dismantled material.					
		Mate	day	0.16	310.00	49.60	L-17
		Mazdoor(unskilled)	day	4.00	310.00	1240.00	L-18
		b) Machinery					
		Tractor-trolley for disposal of dismantled material	hour	1.00	237.00	237.00	P&M-076
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				214.49	
		d) Contractor's profit @ 15 % on (a+b+c)				261.16	
		e) Add Cess @ 1.00 % on (a+b+c+d)				20.02	
		Cost for 10 m = a+b+c+d+e				2022.27	
		Rate per metre = (a+b+c+d+e)/10				202.23	
					say	***202.20***	
		Note:- The rate for the construction of new steel railing may be adopted from chapter on superstructure.					
16.21		**Repair of Crash Barrier**					
		Repair of concrete crash barrier with cement concert of M-30 grade by cutting and trimming the damaged portion to a regular shape, cleaning the area to be repaired thoroughly, applying cement concert after erection of proper form work.					
		Unit = Running meter.					
		Taking output = 10 M.					
		a) Labour					
		Mate	day	0.04	310.00	12.40	L-17
		Mazdoor(unskilled)	day	1.00	310.00	310.00	L-18
		b) Material					
		M-30 grade cement concrete excluding OH & CP (Rate as per items 14.1 C (i)	cum	0.30	7610.00	2283.00	Item 14.1(C)
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				366.06	
		d) Contractor's profit @ 15 % on (a+b+c)				445.72	
		e) Add Cess @ 1.00 % on (a+b+c+d)				34.17	
		Cost for 10 m = a+b+c+d+e				3451.35	
		Rate per m = (a+b+c+d+e)/10				345.13	
					say	***345.10***	
		Note:- It is assumed that damage is to the extent of 10 per cent of the volume of concrete .This will require 0.30 cum of concrete.					
16.22		**Repair of RCC Railing**					

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount(₹)	Ref.
		Repair of RCC railing to bring it to the original shape.					
		Unit = meter.					
		Taking output = 10 M.					
		a) Labour					
		Mate	day	0.016	310.00	4.96	L-17
		Mazdoor(unskilled)	day	0.20	310.00	62.00	L-18
		Mazdoor(skilled)	day	0.20	395.00	79.00	L-20
		b) Material					
		M-30 grade cement concrete excluding OH & CP (Rate as per items 14.1 C (i)	cum	0.10	7610.00	761.00	Item 14.1(C)
		TMT bar reinforcement Rate as per item No 14.2(Excluding OH & CP)	tonne	0.013	52586.40	683.62	Item 14.2
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				223.48	
		d) Contractor's profit @ 15 % on (a+b+c)				272.11	
		e) Add Cess @ 1.00 % on (a+b+c+d)				20.86	
		Cost for 10 m = a+b+c+d+e				2107.03	
		Rate per m = (a+b+c+d+e)/10				210.70	
					say	***210.70***	
		Note:- It is assumed that damage is to the extent of 10 per cent of the volume of concrete. This will require 0.10 cum of concrete and 0.013 t of steel.					
16.23		**Repair of Steel Railing**					
		Repair of steel railing to bring it to the original shape.					
		Unit = Running meter.					
		Taking output = 10 M.					
		a) Labour					
		Mate	day	0.016	310.00	4.96	L-17
		Mazdoor(unskilled)	day	0.20	310.00	62.00	L-18
		Mazdoor (Skilled)	day	0.20	395.00	79.00	L-20
		b) Material					
		Mild steel ISMC series	kg	29.00	51.05	1480.55	M-177
		Flat iron	kg	10.00	47.00	470.00	M-133
		MS Bolt and nuts	kg	1.00	82.30	82.30	M-141
		Add 5 .00% of cost of material for painting.				101.64	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				320.40	
		d) Contractor's profit @ 15 % on (a+b+c)				390.13	
		e) Add Cess @ 1.00 % on (a+b+c+d)				29.91	
		Cost of repair for10m = a+b+c+d+e				3020.89	
		Cost of meter = (a+b+c+d+e)/10				302.09	
					say	***302.10***	
		Note:- It is assumed that the damage to the steel railing is to the extent of 10 per cent .					

Chapter 1

LOADING, UNLOADING, CARRIAGE, CRUSHING OF MATERIALS AND SETTING OUT

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
1.1		**Loading and Unloading of Lime, Aggregate, Stone Boulder, Brick Aggregate, Kankar, Building Rubbish, Crushed Slag, Stone for Masonry Work by Manual Means**				
		(i) Loading of Lime, Aggregate, Stone Boulder, Brick Aggregate, Kankar, Building Rubbish, Crushed Slag, Stone for Masonry Work by manual means including a lead upto 30 m Unit = cum Taking output = 5.5 cum				
		a) Labour				
		Mate	day	0.02	310.00	6.20
		Mazdoor (Unskilled)	day	0.50	310.00	155.00
		b) Machinery				
		Truck	hour	0.50	375.00	187.50
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**48.99**
		d) Contractor's profit @ 15 % on (a+b+c)				**59.65**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**4.57**
		Cost for 5.5 cum = a+b+c+d+e				461.92
		Rate per cum = (a+b+c+d+e)/5.5				**83.99**
					say	***84.00***
		(ii) Loading of Earth, Sand, Moorum, Manure, Flyash by manual means including a lead upto 30 m Unit = cum Taking output = 5.5 cum				
		a) Labour				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Machinery				
		Truck	hour	0.25	375.00	93.75
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**24.50**
		d) Contractor's profit @ 15 % on (a+b+c)				**29.83**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**2.29**
		Cost for 5.5 cum = a+b+c+d+e				230.96
		Rate per cum = (a+b+c+d+e)/5.5				**41.99**
					say	***42.00***
		(iii) Unloading of Lime, Aggregate, Stone Boulder, Brick Aggregate, Kankar, Building Rubbish, Crushed Slag, Stone for Masonry Work by manual means including a lead upto 30 m Unit = cum Taking output = 5.5 cum				
		a) Labour				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Machinery				
		Truck	hour	0.25	375.00	93.75
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**24.50**
		d) Contractor's profit @ 15 % on (a+b+c)				**29.83**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**2.29**
		Cost for 5.5 cum = a+b+c+d+e				230.96
		Rate per cum = (a+b+c+d+e)/5.5				**41.99**
					say	***42.00***
		(iv) Unloading of Earth, Sand, Moorum, Manure, Flyash by manual means including a lead upto 30 m Unit = cum Taking output = 5.5 cum				
		a) Labour				
		Mate	day	0.005	310.00	1.55
		Mazdoor (Unskilled)	day	0.125	310.00	38.75
		b) Machinery				
		Truck	hour	0.166	375.00	62.25
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**14.41**
		d) Contractor's profit @ 15 % on (a+b+c)				**17.54**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**1.35**
		Cost for 5.5 cum = a+b+c+d+e				135.85
		Rate per cum = (a+b+c+d+e)/5.5				**24.70**
					say	***24.70***
1.2		**Loading and Unloading of Lime, Aggregate, Stone Boulder, Brick Aggregate, Kankar, Building Rubbish, Crushed Slag, Stone for Masonry Work by Mechanical Means**				
		(i) Loading of Lime, Aggregate, Stone Boulder, Brick Aggregate, Kankar, Building Rubbish, Crushed Slag, Stone for Masonry Work by mechanical means including a lead upto 30 m Placing tipper at loading point, loading with front end loader excluding time for haulage and return trip. Unit = cum Taking output = 5.5 cum				
		Time required for				
		i) Positioning of tipper at loading point	Min	1.00		
		ii) Loading by front end loader 1 cum bucket capacity @ 45 cum per hour	Min	7.33		
		iii) Waiting time, unforeseen contingencies, etc.	Min	2.00		

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Total	**Min**	**10.33**		
		a) Machinery				
		(i) Tipper 10 t capacity	hour	0.172	334.00	57.45
		(ii) Front end-loader 1 cum bucket capacity @ 45 cum per hour	hour	0.122	920.00	112.24
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**23.84**
		c) Contractor's profit @ 15 % on (a+b)				**29.03**
		d) Add Cess @ 1.00 % on (a+b+c)				**2.23**
		Cost for 5.5 cum = a+b+c+d				224.78
		Rate per cum = (a+b+c+d) /5.5				**40.87**
					say	***40.90***
	(ii)	Loading of Earth, Sand, Moorum, Manure, Flyash by mechanical means including a lead upto 30 m. Placing tipper at loading point, loading with front end loader excluding time for haulage and return trip. Unit = cum Taking output = 5.5 cum **Time required for**				
		i) Positioning of tipper at loading point	Min	1.00		
		ii) Loading by front end loader 1 cum bucket capacity @ 100 cum per hour	Min	3.30		
		iii) Waiting time, unforeseen contingencies, etc.	Min	2.00		
		Total	**Min**	**6.30**		
		a) Machinery				
		(i) Tipper 10 t capacity	hour	0.105	334.00	35.07
		(ii) Front end-loader 1 cum bucket capacity @ 100 cum per hour	hour	0.055	920.00	50.60
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**12.04**
		c) Contractor's profit @ 15 % on (a+b)				**14.66**
		d) Add Cess @ 1.00 % on (a+b+c)				**1.12**
		Cost for 5.5 cum = a+b+c+d				113.49
		Rate per cum = (a+b+c+d)/5.5				**20.63**
					say	***20.60***
	(iii)	Unloading of Earth, Sand, Lime, Moorum, Aggregate, Stone Boulder, Brick Aggregate, Kankar, Building Rubbish, Manure, Crushed Slag, Flyash, Stone for Masonry Work by mechanical means. Unit = cum Taking output = 5.5 cum Placing tipper at unloading point excluding time for haulage and return trip **Time required for**				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		i) Positioning of tipper at unloading point	Min	1.00		
		ii) Manoeuvering, reversing, dumping and turning for return	Min	2.00		
		iii) Waiting time, unforeseen contingencies, etc.	Min	2.00		
		Total	**Min**	**5.00**		
		a) Machinery				
		Tipper 10 t capacity	hour	0.08	334.00	26.72
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**3.75**
		c) Contractor's profit @ 15 % on (a+b)				**4.57**
		d) Add Cess @ 1.00 % on (a+b+c)				**0.35**
		Cost for 5.5 cum = a+b+c+d				35.40
		Rate per cum = (a+b+c+d)/5.5				**6.44**
					say	***6.40***
1.3		**Loading, Unloading and Stacking of Bricks by Manual Means**				
		(i) Loading of Bricks by manual means including a lead upto 30 m Unit = 1000 Nos. Taking output = 2000 Nos.				
		a) Labour				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Machinery				
		Truck	hour	0.33	375.00	123.75
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**28.71**
		d) Contractor's profit @ 15 % on (a+b+c)				**34.96**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**2.68**
		Cost for 2000 Nos. = a+b+c+d+e				270.70
		Rate for 1000 bricks = (a+b+c+d+e)/2				**135.35**
					say	***135.40***
		(ii) Unloading and Stacking of Bricks by manual means including a lead upto 30 m Unit = 1000 Nos. Taking output = 2000 Nos.				
		a) Labour				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Machinery				
		Truck	hour	0.33	375.00	123.75
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**28.71**
		d) Contractor's profit @ 15 % on (a+b+c)				**34.96**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		e) Add Cess @ 1.00 % on (a+b+c+d)				**2.68**
		Cost for 2000 Nos. = a+b+c+d+e				270.70
		Rate for 1000 bricks = (a+b+c+d+e)/2				**135.35**
					say	***135.40***
1.4		**Loading and Unloading of Cement by Manual Means**				
		(i) Loading of Cement by manual means including a lead upto 30 m				
		Unit = t				
		Taking output = 10 t				
		a) Labour				
		Mate	day	0.06	310.00	18.60
		Mazdoor (Unskilled)	day	1.50	310.00	465.00
		b) Machinery				
		Truck	hour	1.00	375.00	375.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**120.63**
		d) Contractor's profit @ 15 % on (a+b+c)				**146.88**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**11.26**
		Cost for 10 t = a+b+c+d+e				1,137.38
		Rate per tonnes = (a+b+c+d+e)/10				**113.74**
					say	***113.70***
		(ii) Unloading of Cement by manual means including a lead upto 30 m				
		Unit = t				
		Taking output = 10 t				
		a) Labour				
		Mate	day	0.06	310.00	18.60
		Mazdoor (Unskilled)	day	1.50	310.00	465.00
		b) Machinery				
		Truck	hour	1.00	375.00	375.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**120.63**
		d) Contractor's profit @ 15 % on (a+b+c)				**146.88**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**11.26**
		Cost for 10 t = a+b+c+d+e				1,137.38
		Rate per tonne = (a+b+c+d+e)/10				**113.74**
					say	***113.70***
1.5		**Loading and Unloading of Structural Steel and Steel Bars by manual means**				
		(i) Loading of Structural Steel, Steel Bars by manual means including a lead upto 30 m				
		Unit = t				
		Taking output = 10 t				
		a) Labour				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mate	day	0.07	310.00	21.70
		Mazdoor (Unskilled)	day	1.80	310.00	558.00
		b) Machinery				
		Truck	hour	1.00	375.00	375.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**134.14**
		d) Contractor's profit @ 15 % on (a+b+c)				**163.33**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**12.52**
		Cost for 10 t = a+b+c+d+e				1,264.68
		Rate per tonnes = (a+b+c+d+e)/10				**126.47**
					say	***126.50***
		(ii) Unloading of Structural Steel, Steel Bars by manual means including a lead upto 30 m Unit = t Taking output = 10 t				
		a) Labour				
		Mate	day	0.07	310.00	21.70
		Mazdoor (Unskilled)	day	1.80	310.00	558.00
		b) Machinery				
		Truck	hour	1.00	375.00	375.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**134.14**
		d) Contractor's profit @ 15 % on (a+b+c)				**163.33**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**12.52**
		Cost for 10 t = a+b+c+d+e				1,264.68
		Rate per t = (a+b+c+d+e)/10				**126.47**
					say	***126.50***
1.6		**Loading and Unloading of Bitumen Drums by Manual Means**				
		(i) Loading of Bitumen Drums by manual means including a lead upto 30 m Unit = t Taking output = 10 t				
		a) Labour				
		Mate	day	0.06	310.00	18.60
		Mazdoor (Unskilled)	day	1.60	310.00	496.00
		b) Machinery				
		Truck	hour	1.25	375.00	468.75
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**138.16**
		d) Contractor's profit @ 15 % on (a+b+c)				**168.23**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**12.90**
		Cost for 10 t = a+b+c+d+e				1,302.63
		Rate per tonnes = (a+b+c+d+e)/10				**130.26**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	***130.30***
		(ii) Unloading of Bitumen Drums by Manual Means including a lead upto 30 m Unit = t Taking output = 10 t				
		a) Labour				
		Mate	day	0.05	310.00	15.50
		Mazdoor (Unskilled)	day	1.20	310.00	372.00
		b) Machinery				
		Truck	hour	1.25	375.00	468.75
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**120.30**
		d) Contractor's profit @ 15 % on (a+b+c)				**146.48**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**11.23**
		Cost for 10 t = a+b+c+d+e				1,134.27
		Rate per t = (a+b+c+d+e)/10				**113.43**
					say	***113.40***
	Note:	The rate is inclusive of the self weight of drum				
1.7	**100**	**Loading and Unloading of Timber by Manual Means**				
		(i) Loading of Timber by manual means including a lead upto 30 m Unit = t Taking output = 5 t				
		a) Labour				
		Mate	day	0.04	310.00	12.40
		Mazdoor (Unskilled)	day	1.00	310.00	310.00
		b) Machinery				
		Truck	hour	1.00	375.00	375.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**97.98**
		d) Contractor's profit @ 15 % on (a+b+c)				**119.31**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**9.15**
		Cost for 5 t = a+b+c+d+e				923.84
		Rate per t = (a+b+c+d+e)/5				**184.77**
					say	***184.80***
		(ii) Unloading of Timber by manual means including a lead upto 30 m Unit = t Taking output = 5 t				
		a) Labour				
		Mate	day	0.04	310.00	12.40
		Mazdoor (Unskilled)	day	1.00	310.00	310.00
		b) Machinery				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Truck	hour	1.00	375.00	375.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**97.98**
		d) Contractor's profit @ 15 % on (a+b+c)				**119.31**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**9.15**
		Cost for 5 t = a+b+c+d+e				923.84
		Rate per t = (a+b+c+d+e)/5				**184.77**
					say	***184.80***

Note: *Density of wood has been assumed as 900 kg per cum. If the density is less the output may be reduced proportionately .*

1.8 Loading and Unloading of C.C. Blocks, Kerb, etc.

(i) Loading with care C.C. Blocks, km Stone, 200 m Stone, Boundary Pillar, Kerb, Channel, Bond Stone, etc. by manual means including a lead upto 30 m

Unit = cum

Taking output = 5.5 cum

a) Labour					
Mate	day	0.08	310.00	24.80	
Mazdoor (Unskilled)	day	2.00	310.00	620.00	
b) Machinery					
Truck	hour	1.50	375.00	562.50	
c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**169.63**	
d) Contractor's profit @ 15 % on (a+b+c)				**206.54**	
e) Add Cess @ 1.00 % on (a+b+c+d)				**15.83**	
Cost for 5.5 cum = a+b+c+d+e				1,599.30	
Rate per cum = (a+b+c+d+e)/5.5				**290.78**	
			say	***290.80***	

(ii) Unloading with care C.C. Blocks, km Stone, 200 m Stone, Boundary Pillar, Kerb, Channel, Bond Stone, etc. by manual means including a lead upto 30 m

Unit = cum

Taking output = 5.5 cum

a) Labour					
Mate	day	0.08	310.00	24.80	
Mazdoor (Unskilled)	day	2.00	310.00	620.00	
b) Machinery					
Truck	hour	1.50	375.00	562.50	
c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**169.63**	
d) Contractor's profit @ 15 % on (a+b+c)				**206.54**	
e) Add Cess @ 1.00 % on (a+b+c+d)				**15.83**	

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Cost for 5.5 cum = a+b+c+d+e				1,599.30
		Rate per cum = (a+b+c+d+e)/5.5				**290.78**
					say	***290.80***
1.9		**Loading and Unloading of Hume Pipes**				
		(i) Loading of RCC Hume pipes by mechanical means including a lead upto 30 m				
		A. 1000 / 1200 mm dia Hume pipe				
		Unit = per pipe				
		Taking output = 9 pipes				
		a) Labour				
		Mate	day	0.02	310.00	6.20
		Mazdoor (Unskilled)	day	0.50	310.00	155.00
		b) Machinery				
		Truck	hour	0.33	375.00	123.75
		Crane	hour	0.33	1,150.00	379.50
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**93.36**
		d) Contractor's profit @ 15 % on (a+b+c)				**113.67**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**8.71**
		Cost for 9 pipes = a+b+c+d+e				880.19
		Rate per pipe = (a+b+c+d+e)/9				**97.80**
					say	***97.80***
		B. 900/ 750 mm dia Hume pipe				
		Unit = per pipe				
		Taking output = 15 pipes				
		a) Labour				
		Mate	day	0.02	310.00	6.20
		Mazdoor (Unskilled)	day	0.50	310.00	155.00
		b) Machinery				
		Truck	hour	0.33	375.00	123.75
		Crane	hour	0.33	1,150.00	379.50
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**93.36**
		d) Contractor's profit @ 15 % on (a+b+c)				**113.67**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**8.71**
		Cost for 15 pipes = a+b+c+d+e				880.19
		Rate per pipe = (a+b+c+d+e)/15				**58.68**
					say	***58.70***
		C. 600/450 mm dia Hume pipe				
		Unit = per pipe				
		Taking output = 21 pipe				
		a) Labour				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mate	day	0.02	310.00	6.20
		Mazdoor (Unskilled)	day	0.50	310.00	155.00
		b) Machinery				
		Truck	hour	0.33	375.00	123.75
		Crane	hour	0.33	1,150.00	379.50
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**93.36**
		d) Contractor's profit @ 15 % on (a+b+c)				**113.67**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**8.71**
		Cost for 21 pipes = a+b+c+d+e				880.19
		Rate per pipe = (a+b+c+d+e)/21				**41.91**
					say	***41.90***
		(ii) Unloading of RCC Hume pipe by manual means including a lead upto 30 m				
		A. 1000/1200 mm dia RCC Hume pipes				
		Unit = per pipe				
		Taking output = 5 pipes				
		a) Labour				
		Mate	day	0.04	310.00	12.40
		Mazdoor (Unskilled)	day	1.00	310.00	310.00
		b) Machinery				
		Truck	hour	2.00	375.00	750.00
		c) Material				
		Wooden sleepers 250mm x 250mm x125mm hire charges 3 nos sleeper	hour	2.00	19.25	38.50
		Crow bars 2 nos not less than 40 mm dia (hire-charges)	hour	2.00	10.75	21.50
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**159.10**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**193.73**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**14.85**
		Cost for 5 pipes = a+b+c+d+e+f/5				1,500.08
		Rate per pipe = (a+b+c+d+e+f)				**300.02**
					say	***300.00***
		B. 900/ 750 mm dia Hume pipe				
		Unit = per pipe				
		Taking output = 6 pipes				
		a) Labour				
		Mate	day	0.04	310.00	12.40
		Mazdoor (Unskilled)	day	1.00	310.00	310.00
		b) Machinery				
		Truck	hour	2.00	375.00	750.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		c) Materials				
		Wooden sleepers 250mm x250mm x 125mm hire charges 3 nos. sleeper	hour	2.00	19.25	38.50
		Crow bars 2 nos not less than 40 mm dia	hour	2.00	10.75	21.50
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**159.10**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**193.73**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**14.85**
		Cost for 6 pipes = a+b+c+d+e+f				1,500.08
		Rate per pipe = (a+b+c+d+e+f)/6				**250.01**
					say	***250.00***
		C. 600/450 mm dia Hume pipe				
		Unit = per pipe				
		Taking output = 8 pipes				
		a) Labour				
		Mate	day	0.04	310.00	12.40
		Mazdoor (Unskilled)	day	1.00	310.00	310.00
		b) Machinery				
		Truck	hour	2.00	375.00	750.00
		c) Materials				
		Wooden sleepers 250mm x 250mm x 125mm hire charges 3 nos. sleeper	hour	2.00	19.25	38.50
		Crow bars 2 nos not less than 40 mm dia	hour	2.00	10.75	21.50
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**159.10**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**193.73**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**14.85**
		Cost for 8 pipes = a+b+c+d+e+f				1,500.08
		Rate per pipe = (a+b+c+d+e+f)/8				**187.51**
					say	***187.50***
	(iii)	Unloading of RCC Hume pipes by mechanical means including a lead upto 30 m				
		A. 1000/1200 mm dia Hume pipe				
		Unit = per pipe				
		Taking output = 9 pipes				
		a) Labour				
		Mate	day	0.02	310.00	6.20
		Mazdoor (Unskilled)	day	0.50	310.00	155.00
		b) Machinery				
		Truck	hour	0.33	375.00	123.75
		Crane	hour	0.33	1,150.00	379.50

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**93.36**
		d) Contractor's profit @ 15 % on (a+b+c)				**113.67**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**8.71**
		Cost for 9 pipes = a+b+c+d+e				880.19
		Rate per pipe = (a+b+c+d+e)/9				**97.80**
					say	***97.80***
		B. 900/ 750 mm dia Hume pipe				
		Unit = per pipe				
		Taking output = 15 pipes				
		a) Labour				
		Mate	day	0.02	310.00	6.20
		Mazdoor (Unskilled)	day	0.50	310.00	155.00
		b) Machinery				
		Truck	hour	0.33	375.00	123.75
		Crane	hour	0.33	1,150.00	379.50
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**93.36**
		d) Contractor's profit @ 15 % on (a+b+c)				**113.67**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**8.71**
		Cost for 15 pipes = a+b+c+d+e				880.19
		Rate per pipe = (a+b+c+d+e)/15				**58.68**
					say	***58.70***
		C. 600/450 mm dia Hume pipe				
		Unit = per pipe				
		Taking output = 21 pipes				
		a) Labour				
		Mate	day	0.02	310.00	6.20
		Mazdoor (Unskilled)	day	0.50	310.00	155.00
		b) Machinery				
		Truck	hour	0.33	375.00	123.75
		Crane	hour	0.33	1,150.00	379.50
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**93.36**
		d) Contractor's profit @ 15 % on (a+b+c)				**113.67**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**8.71**
		Cost for 21 pipes = a+b+c+d+e				880.19
		Rate per pipe = (a+b+c+d+e)/21				**41.91**
					say	***41.90***
1.10		**Haulage excluding Loading & Unloading**				
		Haulage of materials by tipper/ truck excluding cost of loading, unloading and stacking.				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Unit = t.km				
		Taking output 10 t load and lead 10 km = 100 t.km				
		Case-I : Surfaced Road				
		Speed with load: 20 km per hour				
		Speed while returning empty: 35 km per hour				
		(Considering hilly roads and the timing of movements in Meghalaya & Tripura on the NH)				
		a) Machinery				
		Tipper 10 t capacity				
		Haulage with load	hour	0.50	334.00	167.00
		Empty return trip	hour	0.29	334.00	96.86
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**37.07**
		c) Contractor's profit @ 15 % on (a+b)				**45.14**
		d) Add Cess @ 1.00 % on (a+b+c)				**3.46**
		Cost for 100 t.km = a+b+c+d				349.53
		Rate per t.km = (a+b+c)+d/100				**3.50**
					say	***3.50***
		Note: *In case of carriage of Hume pipes, output of truck be taken as 8 t and the rate for t is to be divided by number of pipes of different diameters as indicated in item 1.9 to get the rate per pipe.*				
		Case-II: Unsurfaced Gravel Road				
		Speed with load: 15 km/hour				
		Speed for empty return trip: 30 km/hour				
		a) Machinery				
		Tipper 10 t capacity				
		Haulage with load	hour	0.67	334.00	223.78
		Empty return trip	hour	0.33	334.00	110.22
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**46.93**
		c) Contractor's profit @ 15 % on (a+b)				**57.14**
		d) Add Cess @ 1.00 % on (a+b+c)				**4.38**
		Cost for 100 t.km = a+b+c+d				442.45
		Rate per t.km = (a+b+c+d)/100				**4.42**
					say	***4.40***
		Note: *In case of carriage of Hume pipes, output of truck be taken as 8 t and the rate per t is to be divided by number of pipes of different diameters as indicated in item 1.9 to get the rate per pipe.*				
		Case-III: Katcha Track and Track in River Bed/Nallah Bed and Choe Bed				
		Speed with load: 10 km per hour				
		Speed while returning empty: 15 km per hour				
		a) Machinery				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		i) Tipper 10 t capacity				
		Haulage with load	hour	1.00	334.00	334.00
		Empty return trip	hour	0.67	334.00	223.78
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**78.37**
		c) Contractor's profit @ 15 % on (a+b)				**95.42**
		d) Add Cess @ 1.00 % on (a+b+c)				**7.32**
		Cost for 100 t.km = a+b+c+d				738.89
		Rate per t.km = (a+b+c+d)/100				**7.39**
					say	***7.40***
		Note: *In case of carriage of Hume pipes, output of truck be taken as 8 t and the cost for 8 t is to be divided by number of pipes of different diameters as indicated in item 1.9 to get the rate per pipe.*				
1.11		**Supply of Quarried stone and hand breaking**				
		(i) Supply of quarried stone and hand breaking into coarse aggregate to Grading 1 (90 mm to 45 mm) as per Table 400.8 of Technical Specifications.				
		Unit = cum				
		Taking output = 1 cum				
		a) Labour				
		Mate	day	0.048	310.00	14.88
		Mazdoor (Unskilled)	day	1.20	310.00	372.00
		b) Material				
		Supply of quarried stone 150-200 mm size	cum	1.10	3,168.75	3,485.63
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**544.09**
		d) Contractor's profit @ 15 % on (a+b+c)				**662.49**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**50.79**
		Rate per cum = a+b+c+d+e				**5,129.87**
					say	***5129.90***
		(ii) Supply of quarried stone and hand breaking into coarse aggregate to Grading 2 (63 mm to 45 mm) as per Table 400.8 of Technical Specifications.				
		Unit = cum				
		Taking output = 1 cum				
		a) Labour				
		Mate	day	0.06	310.00	18.60
		Mazdoor (Unskilled)	day	1.50	310.00	465.00
		b) Material				
		Supply of quarried stone 150-200 mm size	cum	1.10	3,168.75	3,485.63
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**557.68**
		d) Contractor's profit @ 15 % on (a+b+c)				**679.04**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		e) Add Cess @ 1.00 % on (a+b+c+d)				**52.06**
		Rate per cum = a+b+c+d+e				**5,258.00**
					say	***5258.00***
		(iii) Supply of quarried stone and hand breaking into coarse aggregate to Grading 3 (53 mm to 22.4 mm) as per Table 400.8 of Technical Specifications.				
		Unit = cum				
		Taking output = 1 cum				
		a) Labour				
		Mate	day	0.072	310.00	22.32
		Mazdoor (Unskilled)	day	1.80	310.00	558.00
		b) Material				
		Supply of quarried stone 150-200 mm size	cum	1.10	3,168.75	3,485.63
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**571.27**
		d) Contractor's profit @ 15 % on (a+b+c)				**695.58**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**53.33**
		Rate per cum = a+b+c+d+e				**5,386.12**
					say	***5386.10***
1.12		**Crushing of Stone boulders in to aggregates 100 per cent passing through 53 mm sieve as per Table 500.6 of Technical Specification.**				
		Crushing of Stone boulders of 150 mm size and below in an integrated stone crushing unit of 200 t/ h capacity comprising of primary and secondary crushing units, belt conveyor and vibrating screens to obtain stone aggregates 100 per cent passing through 53 mm sieve as per Table 500.6 of Technical Specification including cost of stones.				
		Unit = cum				
		Taking output = 750 cum at crusher location				
		a) Labour				
		Mate	day	0.76	310.00	235.60
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		Mazdoor (Unskilled)	day	17.00	310.00	5,270.00
		b) Material				
		Stone Boulder of size 150 mm and below	cum	800.00	3,149.00	2,519,200.00
		c) Machinery				
		Integrated stone crusher of 200 t/h including belt conveyor and vibrating screens	hour	6.00	13,910.00	83,460.00
		Front end loader 1 cum bucket capacity	hour	20.00	920.00	18,400.00
		Tipper 5.5 cum capacity	hour	20.00	334.00	6,680.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**370,082.00**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		e) Contractor's profit @ 15 % on (a+b+c+d)				**450,617.64**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**34,547.35**
		Cost for 750 cum = (a+b+c+d+e+f)				3,489,282.59
		Rate per cum =[(a+b+c+d+e+f) x 0.85]/ 750				**3,954.52**
					say	***3954.50***

Note: *1 800 cum of stone boulders are needed to get 750 cum of stone aggregates.*

2 85 per cent of above cost will be attributed to the production of 750 cum of stone aggregates of 40 mm size and balance 15 per cent will be for smaller size aggregates and stone dust which comes out as a by-product.

3 The integrated stone crusher includes primary and secondary crushing units.

1.13 Crushing of Stone boulders in to aggregates 100 per cent passing through 22.4 mm sieve as per Table 500.6 of Technical Specification.

Crushing of Stone boulders of 150 mm size and below in an integrated stone crushing unit of 200 t/ h capacity comprising of primary and secondary crushing units, belt conveyor and vibrating screens to obtain stone aggregates 100 per cent passing through 22.4 mm sieve as per Table 500.6 of Technical Specification including cost of stones.

Unit = cum

Taking output = 670 cum at crusher location

a) Labour					
Mate	day	0.76	310.00	235.60
Mazdoor (Skilled)	day	2.00	395.00	790.00
Mazdoor (Unskilled)	day	17.00	310.00	5,270.00
b) Material				
Stone boulder of size 150 mm and below	cum	800.00	3,149.00	2,519,200.00
c) Machinery				
Integrated stone crusher of 200 t/h including belt conveyor and vibrating screens	hour	6.00	13,910.00	83,460.00
Front end loader 1 cum bucket capacity	hour	10.00	920.00	9,200.00
Tipper 5.5 cum capacity	hour	10.00	334.00	3,340.00
d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**368,320.13**
e) Contractor's profit @ 15 % on (a+b+c+d)				**448,472.36**
f) Add Cess @ 1.00 % on (a+b+c+d+e)				**34,382.88**
Cost for 670 cum = (a+b+c+d++fe)				3,472,670.97
Rate per cum = [(a+b+c+d+e+f) x 0.90]/ 670				**4,664.78**
			say	***4664.80***

Note: *1 800 cum of stone boulders are needed to get 670 cum of stone chips of required size.*

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LOADING, UNLOADING, CARRIAGE, CRUSHING OF MATERIALS AND SETTING OUT

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		2 90 per cent of above cost will be attributed to the production of 670 cum of stone aggregate and balance 10 per cent will be for smaller size aggregates and stone dust which comes out as a by-product.				
		3 The integrated stone crusher includes primary and secondary crushing units.				
1.14		**Crushing of Stone boulders in to aggregates 100 per cent passing through 13.2 mm sieve as per Table 500.9 of Technical Specification.**				
		Crushing of Stone boulders of 150 mm size and below in an integrated stone crushing unit of 200 t/ h capacity comprising of primary and secondary crushing units, belt conveyor and vibrating screens to obtain stone aggregates 100 per cent passing through 13.2 mm sieve as per Table 500.9 of Technical Specification including cost of stones.				
		Unit = cum				
		Taking output = 600 cum at crusher location				
		a) Labour				
		Mate	day	0.76	310.00	235.60
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		Mazdoor (Unskilled)	day	17.00	310.00	5,270.00
		b) Material				
		Stone Boulder of size 150 mm and below	cum	800.00	3,149.00	2,519,200.00
		c) Machinery				
		Integrated stone crusher of 200 t/h including belt conveyor and vibrating screens	hour	6.00	13,910.00	83,460.00
		Front end loader 1 cum bucket capacity	hour	10.00	920.00	9,200.00
		Tipper 5.5 cum capacity	hour	10.00	334.00	3,340.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**368,320.13**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**448,472.36**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**34,382.88**
		Cost for 600 cum = (a+b+c+d+e+f)				3,472,670.97
		Rate per cum = [(a+b+c+d+e+f) x 0.95]/ 600				**5,498.40**
					say	***5498.40***
		Note: *1 800 cum of stone boulders are needed to get 600 cum of stone chips of size 13.2 mm and 125 cum stone dust.*				
		2 95 per cent of above cost will be attributed to the production of 600 cum of stone chips of 13.2 mm size and balance 5 per cent to the production of stone dust which comes out as a by-product.				
		3 The integrated stone crusher includes primary and secondary crushing units.				
		4 The analysis for cursching of stone chips of size 11.2 mm will be same as for 13.2 mm				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
1.15		**Crushing of Stone boulders in to aggregates 100 per cent passing through 9.5 mm sieve as per Table 500.9 of Technical Specification.**				
		Crushing of Stone boulders of 150 mm size and below in an integrated stone crushing unit of 200 t/ h capacity comprising of primary and secondary crushing units, belt conveyor and vibrating screens to obtain stone aggregates 100 per cent passing through 9.5 mm sieve as per Table 500.9 of Technical Specification including cost of stones.				
		Unit = cum				
		Taking output = 600 cum at crusher location				
		a) Labour				
		Mate	day	0.76	310.00	235.60
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		Mazdoor (Unskilled)	day	17.00	310.00	5,270.00
		b) Material				
		Stone Boulder of size 150 mm and below	cum	800.00	3,149.00	2,519,200.00
		c) Machinery				
		Integrated stone crusher of 200 t/h including belt conveyor and vibrating screens	hour	6.00	13,910.00	83,460.00
		Front end loader 1 cum bucket capacity	hour	10.00	920.00	9,200.00
		Tipper 5.5 cum capacity	hour	10.00	334.00	3,340.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**368,320.13**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**448,472.36**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**34,382.88**
		Cost for 600 cum = (a+b+c+d+e+f)				3,472,670.97
		Rate per cum = [(a+b+c+d+e+f) x 0.95]/ 600				**5,498.40**
					say	***5498.40***

Note:

1. *800 cum of stone boulders are needed to get 600 cum of stone chips of size 9.5 mm and 125 cum stone dust.*
2. *95 per cent of above cost will be attributed to the production of 600 cum of stone chips of 9.5 mm size and balance 5 per cent to the production of stone dust which comes out as a by-product.*
3. *The integrated stone crusher includes primary and secondary crushing units.*

1.16 100 Setting Out

Unit = 1 km

The analysis of rate per km shall account for the following:

(i) Reference benchmark 1 (one) no.

(ii) Working benchmark 4 (four) nos per km and near all drainage structure and bridges

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(iii) Reference Pillars/Burjees @ 50 m interval on both sides of the formation width				
		(iv) The marking of centre line setting out curves and recording of levels, etc. by the surveyor will be incidental to the work and no extra payment shall be made for the same				
		(v) The rate analysis for a typical benchmark as per Drawing 200.1				
		1. Excavation for structure earthwork in excavation for foundations as per drawing and technical specification including dressing of sides and bottom and backfilling in ordinary soil.				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.325	341.70	111.05
		2. Plain cement concrete M10 (1:3:6) nominal mix in levelling course below open foundation as per drawing and technical specification.				
		As per item No.11.4.I(i) of Chapter 11	cum	0.10	9,264.40	926.44
		3. Brick masonry work in cement mortar 1:3 in foundation complete excluding pointing and plastering as per drawing and technical specification.				
		As per item No.11.5.I of Chapter 11	cum	0.475	8,737.40	4,150.27
		4. Plastering with cement mortar 1:4, 15 mm thick cement plaster on brick work as per technical specifications.				
		As per item No.12.3 of Chapter 12	sqm	2.63	173.20	455.52
	Note:	*Add 5 per cent cost of items No.1 to 4 for white washing, lettering and painting, etc.*				282.16
		Cost for 1 (one) no Bench Mark =				**5,925.44**
					say	***5925.40***
		(vi) The rate analysis for a typical reference pillar as per Drawing 200.2				
		1. Excavation for structure earthwork in excavation for foundations as per drawing and technical specification including dressing of sides and bottom and backfilling in ordinary soil.				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.192	341.70	65.61
		2. Plain cement concrete M10 (1:3:6) nominal mix in levelling course below open foundation as per drawing and technical specification.				
		As per item No.11.4.I(i) of Chapter 11	cum	0.06	9,264.40	555.86
		3. Brick masonry work in cement mortar 1:3 in foundation complete excluding pointing and plastering as per drawing and technical specification.				
		As per item No.11.5.I of Chapter 11	cum	0.193	8,737.40	1,686.32
		4. Plastering with cement mortar 1:4, 15 mm thick cement plaster on brick work as per technical specifications.				
		As per item No.12.3 of Chapter 12	sqm	1.50	173.20	259.80

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Add 5 per cent cost of items No.1 to 4 for white washing, lettering and painting, etc.				128.38
		Cost for 1 (one) no Bench Mark =				**2,695.97**
					say	***2696.00***
1.17		**Haulage excluding Loading & Unloading for Hume pipes.**				
		Haulage of materials by tipper excluding cost of loading, unloading and stacking.				
		Unit = t.km				
		Taking output 8 t load and lead 10 km = 80 t.km				
		Case-I : Surfaced Road				
		Speed with load: 25 km per hour				
		Speed while returning empty: 35 km per hour				
		a) Machinery				
		Truck 10 t capacity (considering out put of 8 t for hume pipes)				
		Haulage with load	hour	0.40	375.00	150.00
		Empty return trip	hour	0.29	375.00	108.75
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**36.35**
		c) Contractor's profit @ 15 % on (a+b)				**44.27**
		d) Add Cess @ 1.00 % on (a+b+c)				**3.39**
		e) Cost for 80 t.km = a+b+c+d				342.76
		So, Rate per Pipe per Km:-				
		i) For 1000/ 1200 mm dia = (d) / 3 nos / 10 km				
		(considering 2.85 Tonne per pipe of 2.50 mtr length)				**11.43**
					say	***11.40***
		ii) For 900/ 750 mm dia = (d) / 4 nos / 10 km				
		(considering 2.07 Tonne per pipe of 2.50 mtr length)				**8.57**
					say	***8.60***
		iii) For 600/ 450 mm dia = (d) / 6 nos / 10 km				
		(considering 1.40 Tonne per pipe of 2.50 mtr length)				**5.71**
					say	***5.70***
		Case-II: Unsurfaced Gravel Road				
		Speed with load: 15 km/hour				
		Speed for empty return trip: 20 km/hour				
		a) Machinery				
		Truck 10 t capacity (considering out put of 8 t for hume pipes)				
		Haulage with load	hour	0.67	375.00	251.25
		Empty return trip	hour	0.50	375.00	187.50
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**61.64**
		c) Contractor's profit @ 15 % on (a+b)				**75.06**
		d) Add Cess @ 1.00 % on (a+b+c)				**5.75**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		e) Cost for 80 t.km = a+b+c+d				581.21
		i) For 1000/ 1200 mm dia = (d) / 3 nos / 10 km				
		(considering 2.85 Tonne per pipe of 2.50 mtr length)				**19.37**
					say	***19.40***
		ii) For 900/ 750 mm dia = (d) / 4 nos / 10 km				
		(considering 2.07 Tonne per pipe of 2.50 mtr length)				**14.53**
					say	***14.50***
		iii) For 600/ 450 mm dia = (d) / 6 nos / 10 km				
		(considering 1.40 Tonne per pipe of 2.50 mtr length)				**9.69**
					say	***9.70***
		Case-III: Katcha Track and Track in River Bed/Nallah Bed and Choe Bed				
		Speed with load: 10 km per hour				
		Speed while returning empty: 15 km per hour				
		a) Machinery				
		i) Truck 10 t capacity (considering out put of 8 t for hume pipes)				
		Haulage with load	hour	1.00	375.00	375.00
		Empty return trip	hour	0.67	375.00	251.25
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**87.99**
		c) Contractor's profit @ 15 % on (a+b)				**107.14**
		d) Add Cess @ 1.00 % on (a+b+c)				**8.21**
		e) Cost for 80 t.km = a+b+c+d				829.59
		i) For 1000/ 1200 mm dia = (d) / 3 nos / 10 km				
		(considering 2.85 Tonne per pipe of 2.50 mtr length)				**27.65**
					say	***27.70***
		ii) For 900/ 750 mm dia = (d) / 4 nos / 10 km				
		(considering 2.07 Tonne per pipe of 2.50 mtr length)				**20.74**
					say	***20.70***
		iii) For 600/ 450 mm dia = (d) / 6 nos / 10 km				
		(considering 1.40 Tonne per pipe of 2.50 mtr length)				**13.83**
					say	***13.80***

Note:-

1. In case of carriage of Hume pipes, output of truck be taken as 8 t and the cost for 8 t is to be divided by number of pipes of different diameters as indicated in item 1.9 to get the rate per pipe.

2. The length of each pipe is taken as 2.50 mtr.

3. For 1(one) trip of truck following lengths are considered for different dia of pipe.

i. 1000/ 1200 mm of total 7.50 mtr length (3 nos).

ii. 900/ 750 mm of total 10.00 mtr length (4 nos).

iii. 600/ 450 mm of total 15.00 mtr length (6nos).

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)

ADDITIONAL ITEMS BY USING JHAMA BRICK AGGREGATE (i.e. LOCALLY AVAILABLE MATERIALS)

1.18 100 Setting Out (As per drawing 200.1 and 200.2) (using PCC with jhama brick aggregate)

Unit = 1 km

The analysis of rate per km shall account for the following:

(i) Reference benchmark 1 (one) no.

(ii) Working benchmark 4 (four) nos per km and near all drainage structure and bridges

(iii) Reference Pillars/Burjees @ 50 m interval on both sides of the formation width = 40 nos

(iv) The marking of centre line setting out curves and recording of levels, etc. by the surveyor will be incidental to the work and no extra payment shall be made for the same

A. Ordinary Soil

1) Construction of typical benchmark as per drawing 200.1 (considering PCC M10 with jhama brick aggregate in place of brick work)

a. Earthwork in excavation for foundations as per drawing and technical specification.

As per item No.11.1.A.I(i) of Chapter 11	cum	2.925	341.70	999.47

b. Plain cement concrete work in M10 (with jhama brick aggregate)in foundation complete as per drawing and technical specification.

As per item No.11.9.I(ii) of Chapter 11	cum	5.175	7,954.40	41,164.02

c. Plastering with cement mortar 1:4 as per technical specifications.

As per item No.12.3 of Chapter 12	sqm	23.67	173.20	4,099.64

2) Construction of typical refernce pillar as per drawing 200.2 (considering PCC M10 with jhama brick aggregate in place of brick work)

a. Earthwork in excavation for foundations as per drawing and technical specification.

As per item No.11.1.A.I(i) of Chapter 11	cum	7.680	341.70	2,624.26

b. Plain cement concrete work in M10 (with jhama brick aggregate)in foundation complete as per drawing and technical specification.

As per item No.11.9.I(ii) of Chapter 11	cum	10.12	7,954.40	80,498.53

c. Plastering with cement mortar 1:4 as per technical specifications.

As per item No.12.3 of Chapter 12	sqm	60.00	173.20	10,392.00
Note: *Add 5 per cent cost of items No.(1) & (2) for white washing, lettering and painting, etc.*				6,988.90
Rate Per KM				**146,766.82**
			say	***146766.80***

B. In Ordinary Rock (not requiring blasting)

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		1) Construction of typical benchmark as per drawing 200.1 (considering PCC M10 with jhama brick aggregate in place of brick work)				
		a. Earthwork in excavation for foundations as per drawing and technical specification.				
		As per item No.11.1.A.II(i) of Chapter 11	cum	2.925	427.10	1,249.27
		b. Plain cement concrete work in M10 (with jhama brick aggregate)in foundation complete as per drawing and technical specification.				
		As per item No.11.9.I(ii) of Chapter 11	cum	5.175	7,954.40	41,164.02
		c. Plastering with cement mortar 1:4 as per technical specifications.				
		As per item No.12.3 of Chapter 12	sqm	23.67	173.20	4,099.64
		2) Construction of typical refernce pillar as per drawing 200.2 (considering PCC M10 with jhama brick aggregate in place of brick work)				
		a. Earthwork in excavation for foundations as per drawing and technical specification.				
		As per item No.11.1.A.II(i) of Chapter 11	cum	7.680	427.10	3,280.13
		b. Plain cement concrete work in M10 (with jhama brick aggregate)in foundation complete as per drawing and technical specification.				
		As per item No.11.9.I(ii) of Chapter 11	cum	10.12	7,954.40	80,498.53
		c. Plastering with cement mortar 1:4 as per technical specifications.				
		As per item No.12.3 of Chapter 12	sqm	60.00	173.20	10,392.00
	Note:	*Add 5 per cent cost of items No.(1) & (2) for white washing, lettering and painting, etc.*				7,034.18
		Rate Per KM				**147,717.77**
					say	***147717.80***
		C. In Hard Rock (blasting prohibited)				
		1) Construction of typical benchmark as per drawing 200.1 (considering PCC M10 with jhama brick aggregate in place of brick work)				
		a. Earthwork in excavation for foundations as per drawing and technical specification.				
		As per item No.11.1.A.III of Chapter 11	cum	2.925	491.70	1,438.22
		b. Plain cement concrete work in M10 (with jhama brick aggregate)in foundation complete as per drawing and technical specification.				
		As per item No.11.9.I(ii) of Chapter 11	cum	5.175	7,954.40	41,164.02
		c. Plastering with cement mortar 1:4 as per technical specifications.				
		As per item No.12.3 of Chapter 12	sqm	23.67	173.20	4,099.64
		2) Construction of typical refernce pillar as per drawing 200.2 (considering PCC M10 with jhama brick aggregate in place of brick work)				
		a. Earthwork in excavation for foundations as per drawing and technical specification.				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		As per item No.11.1.A.III of Chapter 11	cum	7.680	491.70	3,776.26
		b. Plain cement concrete work in M10 (with jhama brick aggregate)in foundation complete as per drawing and technical specification.				
		As per item No.11.9.I(ii) of Chapter 11	cum	10.12	7,954.40	80,498.53
		c. Plastering with cement mortar 1:4 as per technical specifications.				
		As per item No.12.3 of Chapter 12	sqm	60.00	173.20	10,392.00
	Note:	*Add 5 per cent cost of items No.(1) & (2) for white washing, lettering and painting, etc.*				7,068.43
		Rate Per KM				**148,437.10**
					say	***148437.10***

1.19 100 Setting Out (As per drawing enclosed) (using PCC with jhama brick aggregate)

Unit = 1 km

The analysis of rate per km shall account for the following:

(i) Reference benchmark 1 (one) no.

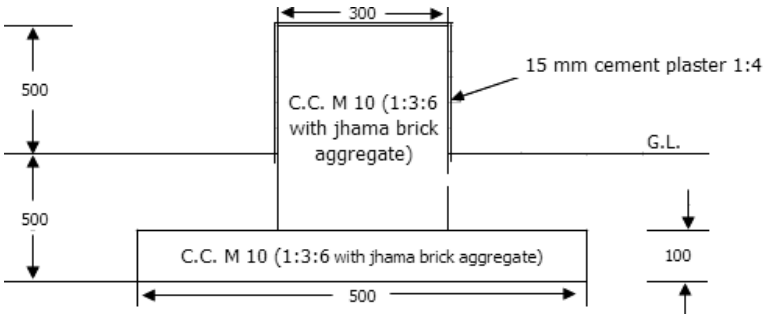
(ii) Working benchmark 4 (four) nos per km and near all drainage structure and bridges (4 nos assumed),

Total - 9 nos.

(iii) Reference Pillars/Burjees @ 50 m interval on both sides of the formation width **40 nos**.

(iv) The marking of centre line setting out curves and recording of levels, etc. by the surveyor will be incidental to the work and no extra payment shall be made for the same

(v) The rate analysis for a typical benchmark as per Drawing enclosed.



For all calss of soil

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LOADING, UNLOADING, CARRIAGE, CRUSHING OF MATERIALS AND SETTING OUT

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		1. Excavation for structure earthwork in excavation for foundations as per drawing and technical specification including dressing of sides and bottom and backfilling in ordinary soil.				
		0.50 x 0.50 x 0.50				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.130	341.66	44.42
		2. Plain cement concrete M10 (1:3:6) nominal mix in levelling course below open foundation as per drawing and technical specification.				
		As per item No.11.9.I(ii) of Chapter 11	cum	0.11	7,954.40	874.98
		3. Plastering with cement mortar 1:4 as per technical specifications.				
		As per item No.12.3 of Chapter 12	sqm	0.81	173.20	140.29
		Add 5 per cent for white washing, lettering and painting, etc.				52.98
		Cost for 1 (one) no Bench Mark/ refernce pillar =				**1,112.68**
		Rate per Km =	49 x	1,112.68	**=**	**54521.17**
					say	***54521.20***

Chapter 2
SITE CLEARANCE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
2.1	**201**	**Clearing Grass and Removal of Rubbish**				
		Clearing grass and removal of rubbish up to a distance of 30 m outside the periphery of the area as per MoRD Technical Specification Clause 201.				
		By Manual Means				
		Unit = hectare				
		Taking output = 1 hectare				
		a) Labour				
		Mate	day	1.60	310.00	496.00
		Mazdoor (Unskilled)	day	40.00	310.00	12,400.00
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**1,811.89**
		c) Contractor's profit @ 15 % on (a+b)				**2,206.18**
		d) Add Cess @ 1.00 % on (a+b+c)				**169.14**
		Rate per hectare = a+b+c+d				**17,083.21**
					say	***17083.20***
2.2	**201**	**Clearing and Grubbing Road Land**				
		Clearing and grubbing road land including uprooting wild vegetation , grass, bushes, shrubs,saplings and trees of girth upto 300 mm , removal of stumps of such trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned, upto a lead of 1000 m including removal and disposal of top organic soil not exceeding 150 mm in thickness as per MoRD Technical Specification clause 201.				
		Unit = hectare				
		Taking output = 1 hectare				
		(I) By Manual Means				
		(A) In area of non-thorny jungle				
		a) Labour				
		Mate	day	6.00	310.00	1,860.00
		Mazdoor (Unskilled)	day	150.00	310.00	46,500.00
		b) Machinery				
		Tractor with trolley	hour	1.00	237.00	237.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**6,827.88**
		d) Contractor's profit @ 15 % on (a+b+c)				**8,313.73**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**637.39**
		Rate per hectare = a+b+c+d+e				**64,376.00**
					say	***64376.00***
		(B) In area of thorny jungle				
		a) Labour				
		Mate	day	8.00	310.00	2,480.00
		Mazdoor (Unskilled)	day	200.00	310.00	62,000.00

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SITE CLEARANCE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) Machinery				
		Tractor with trolley	hour	2.00	237.00	474.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**9,126.04**
		d) Contractor's profit @ 15 % on (a+b+c)				**11,112.01**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**851.92**
		Rate per hectare = a+b+c+d+e				**86,043.96**
					say	***86044.00***
		(II) By Mechanical Means				
		(A) In area of non-thorny jungle				
		a) Labour				
		Mate	day	0.16	310.00	49.60
		Mazdoor (Unskilled)	day	4.00	310.00	1,240.00
		b) Machinery				
		Dozer D 50 with attachment or suitable machinery for removal of trees & stumps	hour	10.00	2,370.00	23,700.00
		Tractor with Trolley	hour	1.00	237.00	237.00
		c) Overheads @ 10 % on (a+b)				**3,544.34**
		d) Contractor's profit @ 15 % on (a+b+c)				**4,315.64**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**330.87**
		Rate per hectare = a+b+c+d+e				**33,417.44**
					say	***33417.40***
		(B) In area of thorny jungle				
		a) Labour				
		Mate	day	0.24	310.00	74.40
		Mazdoor (Unskilled)	day	6.00	310.00	1,860.00
		b) Machinery				
		Dozer D 50 with attachment for removal of trees & stumps	hour	12.00	2,370.00	28,440.00
		Tractor with trolley	hour	1.50	237.00	355.50
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**4,317.55**
		d) Contractor's profit @ 15 % on (a+b+c)				**5,257.12**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**403.05**
		Rate per hectare = a+b+c+d+e				**40,707.61**
					say	***40707.60***

Note: *The top soil removed during clearing and grubbing of site, if suitable for re-use shall be transported, conserved and stacked as directed by the Engineer and shall be incidental to the work.*

2.3 201 Cutting of Trees including Cutting of Trunks, Branches and Removal of Stumps

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SITE CLEARANCE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Cutting of trees, including cutting of trunks , branches and removal of stumps & roots, refilling, compaction of backfilling and stacking of serviceable material by manual means with all lifts as per MoRD Technical Specification Clause 201.				
		A. Lead upto 100 m				
		Unit = each				
		(i) Girth above 300 mm to 600 mm				
		a) Labour				
		Mate	day	0.024	310.00	7.44
		Mazdoor (Unskilled)	day	0.60	310.00	186.00
		b) Machinery				
		Tractor with trolley	hour	0.07	237.00	16.59
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**29.51**
		d) Contractor's profit @ 15 % on (a+b+c)				**35.93**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**2.75**
		Rate for each tree = a+b+c+d+e				**278.22**
					say	***278.20***
		(ii) Girth above 600 mm to 900 mm				
		a) Labour				
		Mate	day	0.036	310.00	11.16
		Mazdoor (Unskilled)	day	0.90	310.00	279.00
		b) Machinery				
		Tractor with trolley	hour	0.21	237.00	49.77
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**47.76**
		d) Contractor's profit @ 15 % on (a+b+c)				**58.15**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**4.46**
		Rate for each tree = a+b+c+d+e				**450.30**
					say	***450.30***
		(iii) Girth above 900 mm to 1800 mm				
		a) Labour				
		Mate	day	0.08	310.00	24.80
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		b) Machinery				
		Tractor with trolley	hour	0.28	237.00	66.36
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**99.92**
		d) Contractor's profit @ 15 % on (a+b+c)				**121.66**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**9.33**
		Rate for each tree = a+b+c+d+e				**942.07**
					say	***942.10***

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SITE CLEARANCE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(iv) Girth above 1800 mm to 2700 mm				
		a) Labour				
		Mate	day	0.16	310.00	49.60
		Mazdoor (Unskilled)	day	4.00	310.00	1,240.00
		b) Machinery				
		Tractor with trolley	hour	0.42	237.00	99.54
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**195.17**
		d) Contractor's profit @ 15 % on (a+b+c)				**237.65**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**18.22**
		Rate for each tree = a+b+c+d +e				**1,840.18**
					say	***1840.20***
		(v) Girth above 2700 mm to 4500 mm				
		a) Labour				
		Mate	day	0.32	310.00	99.20
		Mazdoor (Unskilled)	day	8.00	310.00	2,480.00
		b) Machinery				
		Tractor with trolley	hour	1.00	237.00	237.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**395.68**
		d) Contractor's profit @ 15 % on (a+b+c)				**481.78**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**36.94**
		Rate for each tree = a+b+c+d+e				**3,730.59**
					say	***3730.60***
		(vi) Girth above 4500 mm				
		a) Labour				
		Mate	day	1.00	310.00	310.00
		Mazdoor (Unskilled)	day	25.00	310.00	7,750.00
		b) Machinery				
		Tractor with trolley	hour	2.00	237.00	474.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**1,199.03**
		d) Contractor's profit @ 15 % on (a+b+c)				**1,459.95**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**111.93**
		Rate for each tree = a+b+c+d+e				**11,304.91**
					say	***11304.90***
		B. Lead upto 1000 m				
		Unit = each				
		(i) Girth above 300 mm to 600 mm				
		a) Labour				
		Mate	day	0.024	310.00	7.44
		Mazdoor (Unskilled)	day	0.60	310.00	186.00

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SITE CLEARANCE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) Machinery				
		Tractor with trolley	hour	0.10	237.00	23.70
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**30.51**
		d) Contractor's profit @ 15 % on (a+b+c)				**37.15**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**2.85**
		Rate for each tree = a+b+c+d+e				**287.64**
					say	***287.60***
		(ii) Girth above 600 mm to 900 mm				
		a) Labour				
		Mate	day	0.036	310.00	11.16
		Mazdoor (Unskilled)	day	0.90	310.00	279.00
		b) Machinery				
		Tractor with trolley	hour	0.30	237.00	71.10
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**50.76**
		d) Contractor's profit @ 15 % on (a+b+c)				**61.80**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**4.74**
		Rate for each tree = a+b+c+d+e				**478.56**
					say	***478.60***
		(iii) Girth above 900 mm to 1800 mm				
		a) Labour				
		Mate	day	0.08	310.00	24.80
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		b) Machinery				
		Tractor with trolley	hour	0.40	237.00	94.80
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**103.91**
		d) Contractor's profit @ 15 % on (a+b+c)				**126.53**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**9.70**
		Rate for each tree = a+b+c+d+e				**979.74**
					say	***979.70***
		(iv) Girth above 1800 mm to 2700 mm				
		a) Labour				
		Mate	day	0.16	310.00	49.60
		Mazdoor (Unskilled)	day	4.00	310.00	1,240.00
		b) Machinery				
		Tractor with trolley	hour	0.60	237.00	142.20
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**201.17**
		d) Contractor's profit @ 15 % on (a+b+c)				**244.95**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**18.78**
		Rate for each tree = a+b+c+d+e				**1,896.69**

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SITE CLEARANCE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	***1896.70***
		(v) Girth above 2700 mm to 4500 mm				
		a) Labour				
		Mate	day	0.32	310.00	99.20
		Mazdoor (Unskilled)	day	8.00	310.00	2,480.00
		b) Machinery				
		Tractor with trolley	hour	1.20	237.00	284.40
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**402.34**
		d) Contractor's profit @ 15 % on (a+b+c)				**489.89**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**37.56**
		Rate for each tree = a+b+c+d+e				**3,793.38**
					say	***3793.40***

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SITE CLEARANCE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(vi) Girth above 4500 mm				
		a) Labour				
		Mate	day	1.00	310.00	310.00
		Mazdoor (Unskilled)	day	25.00	310.00	7,750.00
		b) Machinery				
		Tractor with trolley	hour	2.40	237.00	568.80
		Note:- The unit quantity of the Tractor with Trolley has been considered by comparing item 2.3.A.V & VI and 2.3.B.V & VI.				
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**1,212.35**
		d) Contractor's profit @ 15 % on (a+b+c)				**1,476.17**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**113.17**
		Rate for each tree = a+b+c+d+e				**11,430.49**
					say	***11430.50***
2.4	**201**	**Uprooting and Removing Stumps & Roots**				
		Uprooting and Removing Stumps & roots, compaction of backfilling and stacking of servicable material by manual means as per MoRD Technical Specification Clause 201.				
		A. Lead upto 100 m				
		Unit = each				
		(i) Girth above 300 mm to 600 mm				
		a) Labour				
		Mate		0.016	310.00	4.96
		Mazdoor (Unskilled)		0.40	310.00	124.00
		b) Machinery				
		Tractor with trolley		0.018	237.00	4.27
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**18.72**
		d) Contractor's profit @ 15 % on (a+b+c)				**22.79**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**1.75**
		Rate for each stump & root = a+b+c+d+e				**176.48**
					say	***176.50***
		(ii) Girth above 600 mm to 900 mm				
		a) Labour				
		Mate		0.024	310.00	7.44
		Mazdoor (Unskilled)		0.60	310.00	186.00
		b) Machinery				
		Tractor with trolley		0.05	237.00	11.85
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**28.84**
		d) Contractor's profit @ 15 % on (a+b+c)				**35.12**

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SITE CLEARANCE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		e) Add Cess @ 1.00 % on (a+b+c+d)				**2.69**
		Rate for each stump & root = a+b+c+d+e				**271.95**
					say	***271.90***

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SITE CLEARANCE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(iii) Girth above 900 mm to 1800 mm				
		a) Labour				
		Mate		0.053	310.00	16.43
		Mazdoor (Unskilled)		1.33	310.00	412.30
		b) Machinery				
		Tractor with trolley		0.07	237.00	16.59
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**62.57**
		d) Contractor's profit @ 15 % on (a+b+c)				**76.18**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**5.84**
		Rate for each stump & root = a+b+c+d+e				**589.91**
					say	***589.90***
		(iv) Girth above 1800 mm to 2700 mm				
		a) Labour				
		Mate		0.11	310.00	34.10
		Mazdoor (Unskilled)		2.66	310.00	824.60
		b) Machinery				
		Tractor with trolley		0.11	237.00	26.07
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**124.31**
		d) Contractor's profit @ 15 % on (a+b+c)				**151.36**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**11.60**
		Rate for each stump & root = a+b+c+d+e				**1,172.05**
					say	***1172.00***
		(v) Girth above 2700 mm to 4500 mm				
		a) Labour				
		Mate		0.21	310.00	65.10
		Mazdoor (Unskilled)		5.33	310.00	1,652.30
		b) Machinery				
		Tractor with trolley		0.25	237.00	59.25
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**249.62**
		d) Contractor's profit @ 15 % on (a+b+c)				**303.94**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**23.30**
		Rate for each stump & root = a+b+c+d+e				**2,353.51**
					say	***2353.50***
		(vi) Girth above 4500 mm				
		a) Labour				
		Mate		0.60	310.00	186.00
		Mazdoor (Unskilled)		15.00	310.00	4,650.00
		b) Machinery				

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SITE CLEARANCE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Tractor with trolley		0.75	237.00	177.75
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**704.43**
		d) Contractor's profit @ 15 % on (a+b+c)				**857.73**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**65.76**
		Rate for each stump & root = a+b+c+d+e				**6,641.67**
					say	***6641.70***
		B. Lead upto 1000 m				
		Unit = each				
		(i) Girth above 300 mm to 600 mm				
		a) Labour				
		Mate		0.016	310.00	4.96
		Mazdoor (Unskilled)		0.40	310.00	124.00
		b) Machinery				
		Tractor with trolley		0.025	237.00	5.93
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**18.95**
		d) Contractor's profit @ 15 % on (a+b+c)				**23.08**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**1.77**
		Rate for each stump & root = a+b+c+d+e				**178.68**
					say	***178.70***
		(ii) Girth above 600 mm to 900 mm				
		a) Labour				
		Mate		0.024	310.00	7.44
		Mazdoor (Unskilled)		0.60	310.00	186.00
		b) Machinery				
		Tractor with trolley		0.075	237.00	17.78
		c) Overheads @ 10 % on (a+b)				**29.68**
		d) Contractor's profit @ 15 % on (a+b+c)				**36.13**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**2.77**
		Rate for each stump & root = a+b+c+d+e				**279.79**
					say	***279.80***
		(iii) Girth above 900 mm to 1800 mm				
		a) Labour				
		Mate		0.053	310.00	16.43
		Mazdoor (Unskilled)		1.33	310.00	412.30
		b) Machinery				
		Tractor with trolley		0.10	237.00	23.70
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**63.57**
		d) Contractor's profit @ 15 % on (a+b+c)				**77.40**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		e) Add Cess @ 1.00 % on (a+b+c+d)				**5.93**
		Rate for each stump & root = a+b+c+d+e				**599.33**
					say	***599.30***
		(iv) Girth above 1800 mm to 2700 mm				
		a) Labour				
		Mate		0.11	310.00	34.10
		Mazdoor (Unskilled)		2.66	310.00	824.60
		b) Machinery				
		Tractor with trolley		0.15	237.00	35.55
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**125.64**
		d) Contractor's profit @ 15 % on (a+b+c)				**152.98**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**11.73**
		Rate for each stump & root = a+b+c+d+e				**1,184.60**
					say	***1184.60***
		(v) Girth above 2700 mm to 4500 mm				
		a) Labour				
		Mate		0.21	310.00	65.10
		Mazdoor (Unskilled)		5.33	310.00	1,652.30
		b) Machinery				
		Tractor with trolley		0.30	237.00	71.10
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**251.28**
		d) Contractor's profit @ 15 % on (a+b+c)				**305.97**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**23.46**
		Rate for each stump & root = a+b+c+d+e				**2,369.21**
					say	***2369.20***
		(vi) Girth above 4500 mm				
		a) Labour				
		Mate		0.60	310.00	186.00
		Mazdoor (Unskilled)		15.00	310.00	4,650.00
		b) Machinery				
		Tractor with trolley		1.00	237.00	237.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**712.76**
		d) Contractor's profit @ 15 % on (a+b+c)				**867.86**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**66.54**
		Rate for each stump & root = a+b+c+d+e				**6,720.16**
					say	***6720.20***

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
2.5	**202**	**Dismantling of Structures**				
		Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding whenever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and upto a lead of 1000 m as per MoRD Technical Specification Clause 202.				
		Unit = cum				
		Taking output = 1.25 cum				
		(I) By Manual Means				
		(A) Lime Concrete				
		a) Labour				
		Mate	day	0.04	310.00	12.40
		Mazdoor (Unskilled)	day	1.00	310.00	310.00
		b) Machinery				
		Tractor with trolley	hour	0.27	237.00	63.99
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**54.29**
		d) Contractor's profit @ 15 % on (a+b+c)				**66.10**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**5.07**
		Cost for 1.25 cum = a+b+c+d				511.85
		Rate per cum = (a+b+c+d+e)/1.25				**409.48**
					say	***409.50***
		(B) Cement Concrete				
		a) Labour				
		Mate	day	0.05	310.00	15.50
		Mazdoor (Unskilled)	day	1.25	310.00	387.50
		b) Machinery				
		Tractor with trolley	hour	0.27	237.00	63.99
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**65.61**
		d) Contractor's profit @ 15 % on (a+b+c)				**79.89**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**6.12**
		Cost for 1.25 cum = a+b+c+d				618.62
		Rate per cum = (a+b+c+d+e)/1.25				**494.89**
					say	***494.90***
		(C) Reinforced Cement Concrete				
		a) Labour				
		Mate	day	0.15	310.00	46.50
		Blacksmith	day	0.25	418.00	104.50
		Mazdoor (Unskilled)	day	3.50	310.00	1,085.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) Machinery				
		Tractor with trolley	hour	0.27	237.00	63.99
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**182.65**
		d) Contractor's profit @ 15 % on (a+b+c)				**222.40**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**17.05**
		Cost for 1.25 cum = a+b+c+d+e				1,722.08
		Rate per cum = (a+b+c+d+e)/1.25				**1,377.67**
					say	***1377.70***
		(II) By Mechanical Means				
		(A) Cement Concrete				
		a) Labour				
		Mate	day	0.02	310.00	6.20
		Mazdoor (Unskilled)	day	0.50	310.00	155.00
		b) Machinery				
		Air compressor 210 cfm with 2 leads of pneumatic breaker @1.5 cum per hour	hour	0.83	210.00	174.30
		Tractor with trolley	hour	0.83	237.00	**196.71**
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**74.78**
		d) Contractor's profit @ 15 % on (a+b+c)				**91.05**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**6.98**
		Cost for 1.25 cum = a+b+c+d+e				705.01
		Rate per cum = (a+b+c+d+e)/1.25				**564.01**
					say	***564.00***
		(B) Reinforced Cement Concrete				
		a) Labour				
		Mate	day	0.05	310.00	15.50
		Mazdoor (Unskilled)	day	0.91	310.00	282.10
		Blacksmith	day	0.25	418.00	104.50
		b) Machinery				
		Air compressor 170-210 cfm working with 2 Jack Hammers simultaneously @1.00 cum per hour	hour	1.25	210.00	262.50
		Tractor with trolley	hour	1.25	237.00	296.25
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**135.00**
		d) Contractor's profit @ 15 % on (a+b+c)				**164.38**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**12.60**
		Cost for 1.25 cum = a+b+c+d+e				**1,272.83**
		Rate per cum = (a+b+c+d+e)/1.25				**1,018.26**
					say	***1018.30***
2.6	**202**	**Dismantling Brick/Tile Work as per MoRD Technical Specification No. 202.**				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Dismantling of existing structures like culverts, bridges, retaining walls and other structures comprising of brick masonry including disposal of unserviceable material and stacking the serviceable material with all lift and upto a lead of 1000 m as per MoRD Technical Specification Clause 202.				
		Unit = cum				
		Taking output = 1.25				
		(A) Lime mortar				
		a) Labour				
		Mate	day	0.02	310.00	6.20
		Mazdoor (Unskilled)	day	0.50	310.00	155.00
		b) Machinery				
		Tractor with trolley	hour	0.27	237.00	63.99
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**31.64**
		d) Contractor's profit @ 15 % on (a+b+c)				**38.52**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**2.95**
		Cost for 1.25 cum = a+b+c+d+e				298.31
		Rate per cum = (a+b+c+d+e) /1.25				**238.65**
					say	***238.60***
		(B) Cement mortar				
		a) Labour				
		Mate	day	0.03	310.00	9.30
		Mazdoor (Unskilled)	day	0.75	310.00	232.50
		b) Machinery				
		Tractor with trolley	hour	0.27	237.00	63.99
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**42.96**
		d) Contractor's profit @ 15 % on (a+b+c)				**52.31**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**4.01**
		Cost for 1.25 cum = a+b+c+d+e				405.08
		Rate per cum = (a+b+c+d+e)/1.25				**324.06**
					say	***324.10***
		(C) Mud Mortar				
		a) Labour				
		Mate	day	0.016	310.00	4.96
		Mazdoor (Unskilled)	day	0.40	310.00	124.00
		b) Machinery				
		Tractor with trolley	hour	0.27	237.00	63.99
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**27.11**
		d) Contractor's profit @ 15 % on (a+b+c)				**33.01**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		e) Add Cess @ 1.00 % on (a+b+c+d)				**2.53**
		Cost for 1.25 cum = a+b+c+d+e				255.60
		Rate per cum = (a+b+c+d+e)/1.25				**204.48**
					say	***204.50***
		(D) Dry Brick Pitching or Brick Soling				
		a) Labour				
		Mate	day	0.014	310.00	4.34
		Mazdoor (Unskilled)	day	0.35	310.00	108.50
		b) Machinery				
		Tractor with trolley	hour	0.27	237.00	63.99
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**24.84**
		d) Contractor's profit @ 15 % on (a+b+c)				**30.25**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**2.32**
		Cost for 1.25 cum = a+b+c+d+e				234.25
		Rate per cum = (a+b+c+d+e)/1.25				**187.40**
					say	***187.40***
2.7	**202**	**Dismantling Stone Masonry as per MoRD Technical Specification Clause 202.**				
		Dismantling of existing structures like culverts, bridges, retaining walls and other structures comprising of stone masonry including disposal of unserviceable material and stacking the serviceable material with all lift and upto a lead of 1000 m as per MoRD Technical Specification Clause 202.				
		Unit = cum				
		Taking ouput = 1.25 cum				
		(A) Rubble Stone Masonry in Lime Mortar				
		a) Labour				
		Mate	day	0.024	310.00	7.44
		Mazdoor (Unskilled)	day	0.60	310.00	186.00
		b) Machinery				
		Tractor with trolley	hour	0.27	237.00	63.99
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**36.17**
		d) Contractor's profit @ 15 % on (a+b+c)				**44.04**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**3.38**
		Cost for 1.25 cum = a+b+c+d+e				341.02
		Rate per cum = (a+b+c+d+e)/1.25				**272.81**
					say	***272.80***
		(B) Rubble Stone Masonry in Cement Mortar				
		a) Labour				
		Mate	day	0.03	310.00	9.30

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mazdoor (Unskilled)	day	0.75	310.00	232.50
		b) Machinery				
		Tractor with trolley	hour	0.27	237.00	63.99
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**42.96**
		d) Contractor's profit @ 15 % on (a+b+c)				**52.31**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**4.01**
		Cost for 1.25 cum = a+b+c+d+e				405.08
		Rate per cum = (a+b+c+d+e)/1.25				**324.06**
					say	***324.10***
		(C) Rubble Stone Masonry in Mud Mortar				
		a) Labour				
		Mate	day	0.02	310.00	6.20
		Mazdoor (Unskilled)	day	0.50	310.00	155.00
		b) Machinery				
		Tractor with trolley	hour	0.27	237.00	63.99
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**31.64**
		d) Contractor's profit @ 15 % on (a+b+c)				**38.52**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**2.95**
		Cost for 1.25 cum = a+b+c+d+e				298.31
		Rate per cum = (a+b+c+d+e)/1.25				**238.65**
					say	***238.60***
		(D) Dry Rubble Masonry				
		a) Labour				
		Mate	day	0.018	310.00	5.58
		Mazdoor (Unskilled)	day	0.45	310.00	139.50
		b) Machinery				
		Tractor with trolley	hour	0.27	237.00	63.99
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**29.37**
		d) Contractor's profit @ 15 % on (a+b+c)				**35.77**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**2.74**
		Cost for 1.25 cum = a+b+c+d+e				276.95
		Rate per cum = (a+b+c+d+e)/1.25				**221.56**
					say	***221.60***
		(E) Dismantling Stone Pitching / Dry Stone Spalls				
		a) Labour				
		Mate	day	0.016	310.00	4.96
		Mazdoor (Unskilled)	day	0.40	310.00	124.00
		b) Machinery				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Tractor with trolley	hour	0.27	237.00	63.99
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**27.11**
		d) Contractor's profit @ 15 % on (a+b+c)				**33.01**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**2.53**
		Cost for 1.25 cum = a+b+c+d+e				255.60
		Rate per cum = (a+b+c+d+e)/1.25				**204.48**
					say	***204.50***
		(F) Dismantling boulders laid in wire crates including opening of crates and stacking dismantled materials				
		a) Labour				
		Mate	day	0.02	310.00	6.20
		Mazdoor (Unskilled)	day	0.50	310.00	155.00
		b) Machinery				
		Tractor with trolley	hour	0.27	237.00	63.99
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**31.64**
		d) Contractor's profit @ 15 % on (a+b+c)				**38.52**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**2.95**
		Cost for 1.25 cum = a+b+c+d+e				298.31
		Rate per cum = (a+b+c+d+e)/1.25				**238.65**
					say	***238.60***
2.8	**202**	**Dismantling Wood Work Wrought and Planed Fixed in Frames of Trusses upto a height of 5 m above Plinth Level as per MoRD Technical Specification Clause 202.**				
		Dismantling of existing Wood work, including T&P and scaffolding whenever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and upto a lead of 1000 m as per MoRD Technical Specification Clause 202.				
		Unit = cum				
		Taking output = 1.25 cum				
		a) Labour				
		Mate	day	0.06	310.00	18.60
		Carpenter 1st Class	day	0.50	440.00	220.00
		Mazdoor (Unskilled)	day	1.00	310.00	310.00
		b) Machinery				
		Tractor with trolley	hour	0.27	237.00	63.99
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**86.07**
		d) Contractor's profit @ 15 % on (a+b+c)				**104.80**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**8.03**
		Cost for 1.25 cum = a+b+c+d+e				811.49

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Rate per cum = (a+b+c+d+e)/1.25				**649.19**
					say	***649.20***
2.9	**202**	**Dismantling Steel Work in all Types of Sections upto a height of 5 m above Plinth Level excluding Cutting of rivet as per MoRD Technical Specification Clause 202.** Dismantling of existing Steel work, including T&P and scaffolding whenever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and upto a lead of 1000 m as per MoRD Technical Specification Clause 202. Unit = t Taking output = 1				
		(A) Including dismembering				
		a) Labour				
		Mate	day	0.14	310.00	43.40
		Blacksmith	day	1.00	418.00	418.00
		Mazdoor (Unskilled)	day	2.50	310.00	775.00
		Add 2.50 per cent of cost of labour for gas cutting, ropes, pulleys, etc.				30.91
		b) Machinery				
		Tractor with trolley	hour	0.17	237.00	40.29
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**183.72**
		d) Contractor's profit @ 15 % on (a+b+c)				**223.70**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**17.15**
		Rate per t = a+b+c+d+e				**1,732.17**
					say	***1732.20***
		(B) Excluding dismembering				
		a) Labour				
		Mate	day	0.10	310.00	31.00
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		Blacksmith	day	0.50	418.00	209.00
		Add 2.50 per cent of cost of labour for gas cutting, ropes, pulleys, etc.				21.50
		b) Machinery				
		Tractor with trolley	hour	0.17	237.00	40.29
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**129.51**
		d) Contractor's profit @ 15 % on (a+b+c)				**157.70**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**12.09**
		Rate per t = a+b+c+d+e				**1,221.09**
					say	***1221.10***
		(C) Extra over Items (A) and (B) for cutting rivets Unit = each				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Taking output = 10 rivets				
		a) Labour				
		Mate	day	0.01	310.00	3.10
		Blacksmith	day	0.13	418.00	54.34
		Mazdoor (Unskilled)	day	0.13	310.00	40.30
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**13.73**
		c) Contractor's profit @ 15 % on (a+b)				**16.72**
		d) Add Cess @ 1.00 % on (a+b+c)				**1.28**
		Cost for 10 rivets = a+b+c+d				129.48
		Rate for each rivet = (a+b+c+d) /10				**12.95**
					say	***12.90***
2.10	**202**	**Scraping of bricks dismantled from brick work including stacking as per MoRD Technical Specification Clause 202.** Scraping of bricks from dismantled brick work, including T & P and scaffolding whenever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and upto a lead of 1000 m as per MoRD Technical Specification Clause 202.				
		Unit = Nos.				
		Taking output = 1000 Nos.				
		In Lime/ Cement Mortar				
		a) Labour				
		Mate	day	0.14	310.00	43.40
		Mazdoor (Unskilled)	day	3.50	310.00	1,085.00
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**158.54**
		c) Contractor's profit @ 15 % on (a+b)				**193.04**
		d) Add Cess @ 1.00 % on (a+b+c)				**14.80**
		Rate per 1000 Nos. = a+b+c+d				**1,494.78**
					say	***1494.80***
2.11	**202**	**Scraping of Stone from Dismantled Stone Masonry as per MoRD Technical Specification Clause 202.** Scraping of stone from dismantled stone masonry, including T&P and scaffolding whenever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and upto a lead of 1000 m as per MoRD Technical Specification Clause 202.				
		Unit = cum				
		Taking output = 1 cum				
		In Cement or Lime Mortar				
		a) Labour				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mate	day	0.06	310.00	18.60
		Mazdoor (Unskilled)	day	1.40	310.00	434.00
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**63.59**
		c) Contractor's profit @ 15 % on (a+b)				**77.43**
		d) Add Cess @ 1.00 % on (a+b+c)				**5.94**
		Rate per cum = a+b+c+d				**599.56**
					say	***599.60***
2.12	**202**	**Scraping Plaster in Lime or Cement Mortar from Brick / Stone Masonry as per MoRD Technical Specification Clause 202.**				
		Scraping plaster in Lime or Cement Mortar from Brick / stone masonry, including T&P and scaffolding whenever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and upto a lead of 1000 m as per MoRD Technical Specification Clause 202.				
		Unit = sqm				
		Taking ouput = 100 sqm				
		a) Labour				
		Mate	day	0.16	310.00	49.60
		Mazdoor (Unskilled)	day	4.00	310.00	1,240.00
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**181.19**
		c) Contractor's profit @ 15 % on (a+b)				**220.62**
		d) Add Cess @ 1.00 % on (a+b+c)				**16.91**
		Cost for 100 sqm = a+b+c+d				1,708.32
		Rate per sqm = (a+b+c+d)/100				**17.08**
					say	***17.10***
2.13	**202**	**Removing all types of Hume pipes.**				
		Removing all types of Hume pipes and stacking within a lead of 1000 m excluding Earthwork and Dismantling of Masonry Works as per MoRD Technical Specification Clause 202 .				
		Unit = m				
		Taking output = 1 m				
		(A) Upto 600 mm dia Hume pipe				
		a) Labour				
		Mate	day	0.02	310.00	6.20
		Mazdoor (Unskilled)	day	0.52	310.00	161.20
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**23.52**
		c) Contractor's profit @ 15 % on (a+b)				**28.64**
		d) Add Cess @ 1.00 % on (a+b+c)				**2.20**
		Rate per m = a+b+c+d				**221.75**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	***221.80***
		(B) Above 600 mm to 900 mm dia Hume pipe				
		a) Labour				
		Mate	day	0.03	310.00	9.30
		Mazdoor (Unskilled)	day	0.70	310.00	217.00
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**31.80**
		c) Contractor's profit @ 15 % on (a+b)				**38.71**
		d) Add Cess @ 1.00 % on (a+b+c)				**2.97**
		Rate per m = a+b+c+d				**299.78**
					say	***299.80***
		(C) Above 900 mm dia Hume pipe				
		a) Labour				
		Mate	day	0.05	310.00	15.50
		Mazdoor (Unskilled)	day	1.20	310.00	372.00
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**54.44**
		c) Contractor's profit @ 15 % on (a+b)				**66.29**
		d) Add Cess @ 1.00 % on (a+b+c)				**5.08**
		Rate per m = a+b+c+d				**513.32**
					say	***513.30***
		Note: *1 The excavation of earth, dismantling of stone masonry work in head walls and protection works is not included which is to be measured and paid separately.*				
		2 Credit for retrieved stone from masonry work may be taken as per actual availability.				
2.14	**202**	**Dismantling of Flexible Pavements**				
		Dismantling of flexible pavements and disposal of dismantled materials with all lifts and upto a lead of 100 m, stacking serviceable materials and unserviceable materials separately as per MoRD Technical Specification Clause 202.				
		Unit = cum				
		Taking output = 1 cum				
		(I) By Manual Means				
		(A) Bituminous Courses				
		a) Labour				
		Mate	day	0.06	310.00	18.60
		Mazdoor (Unskilled)	day	1.50	310.00	465.00
		b) Machinery				
		Tractor with trolley	hour	0.38	237.00	90.06
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**80.60**
		d) Contractor's profit @ 15 % on (a+b+c)				**98.14**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		e) Add Cess @ 1.00 % on (a+b+c+d)				**7.52**
		Rate per cum = a+b+c+d+e				**759.92**
					say	***759.90***
		(B) Granular Courses				
		a) Labour				
		Mate	day	0.04	310.00	12.40
		Mazdoor (Unskilled)	day	1.00	310.00	310.00
		b) Machinery				
		Tractor with trolley	hour	0.33	237.00	78.21
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**56.29**
		d) Contractor's profit @ 15 % on (a+b+c)				**68.53**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**5.25**
		Rate per cum = a+b+c+d+e				**530.68**
					say	***530.70***
		(II) By Mechanical Means				
		(A) Bituminous Courses				
		a) Labour				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.30	310.00	93.00
		b) Machinery				
		Tractor with trolley	hour	0.38	237.00	90.06
		Tractor with ripper @ 60 cum per hour	hour	0.016	223.00	3.57
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**26.66**
		d) Contractor's profit @ 15 % on (a+b+c)				**32.46**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**2.49**
		Rate per cum = a+b+c+d+e				**251.33**
					say	***251.30***
2.15	**202**	**Dismantling of Cement Concrete Pavements as per MoRD Technical Specification Clause 202.**				
		Dismantling of cement concrete pavements by mechanical means using pneumatic tools breaking to pieces not exceeding 0.02 cum in volume and stock piling at designated locations and disposal of dismantled materials with all lifts and upto a lead of 1000 m, stacking serviceable materials and unserviceable materials separately as per MoRD Technical Specification Clause 202.				
		Unit = cum				
		Taking output = 1 cum				
		a) Labour				
		Mate	day	0.03	310.00	9.30

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mazdoor (Semi-skilled)	day	0.50	355.00	177.50
		Mazdoor (Unskilled)	day	0.50	310.00	155.00
		b) Machinery				
		Air compressor 210 cfm with two leads for pneumatic cutters / hammers @ 1 cum per hour	hour	1.00	210.00	210.00
		Tractor with trolley	hour	0.40	237.00	94.80
		Joint Cutting Machine with 2-3 blades	hour	1.00	166.00	166.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**114.17**
		d) Contractor's profit @ 15 % on (a+b+c)				**139.02**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**10.66**
		Rate per cum = a+b+c+d				**1,076.44**
					say	***1076.40***
	Note:	*The above analysis is for removal of complete pavement. In case full depth repair work is required to be done after dismantling, provision of a concrete saw cutter may be added for 0.25h.*				
2.16	**202**	**Dismantling Guard Rails**				
		Dismantling of Guard rails by manual means and disposal of dismantled material with all lifts and upto a lead of 1000 m, stacking serviceable materials and unserviceable materials separately as per MoRD Technical Specification Clause 202.				
		Unit = running m				
		Taking Output = 1 m				
		a) Labour				
		Mate	day	0.006	310.00	1.86
		Mazdoor (Unskilled)	day	0.15	310.00	46.50
		b) Machinery				
		Tractor with trolley	hour	0.05	237.00	11.85
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**8.46**
		d) Contractor's profit @ 15 % on (a+b+c)				**10.30**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**0.79**
		Rate per m = a+b+c+d+e				**79.76**
					say	***79.80***
2.17	**202**	**Dismantling Kerb Stones**				
		Dismantling of Kerb Stones by manual means and disposal of dismantled material with all lifts and upto a lead of 1000 m as per MoRD Technical Specification Clause 202.				
		Unit = running m				
		Taking output = 10 m				
		a) Labour				
		Mate	day	0.006	310.00	1.86

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mazdoor (Unskilled)	day	0.15	310.00	46.50
		b) Machinery				
		Tractor with trolley	hour	0.20	237.00	47.40
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**13.45**
		d) Contractor's profit @ 15 % on (a+b+c)				**16.38**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**1.26**
		Cost of 10 m = a+b+c+d+e				126.85
		Rate per m = (a+b+c+d+e)/10				**12.69**
					say	***12.70***
2.18	**202**	**Dismantling Kerb Stone Channels**				
		Dismantling of Kerb Stone channels by manual means and disposal of dismantled material with all lifts and upto a lead of 1000 m as per MoRD Technical Specification Clause 202. Unit = running m Taking output = 10 m				
		a) Labour				
		Mate	day	0.015	310.00	4.65
		Mazdoor (Unskilled)	day	0.225	310.00	69.75
		b) Machinery				
		Tractor with trolley	hour	0.30	237.00	71.10
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**20.44**
		d) Contractor's profit @ 15 % on (a+b+c)				**24.89**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**1.91**
		Cost of 10 m = a+b+c+d+e				192.74
		Rate per m = (a+b+c+d+e)/10				**19.27**
					say	***19.30***
2.19	**202**	**Dismantling Kilometre Stones**				
		Dismantling of Kilometre Stones including cutting of earth, and disposal of dismantled material with all lifts and upto a lead of 1000 m and backfilling of pit as per MoRD Technical Specification Clause 202. Unit = each Taking output = 1 km stone				
		(A) 5th km Stone				
		Quantity of cement concrete = 0.392 cum				
		a) Labour				
		Mate	day	0.03	310.00	9.30
		Mazdoor (Unskilled)	day	0.75	310.00	232.50
		b) Machinery				
		Tractor with trolley	hour	0.15	237.00	35.55

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**38.97**
		d) Contractor's profit @ 15 % on (a+b+c)				**47.45**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**3.64**
		Rate for one 5th km stone = a+b+c+d+e				**367.40**
					say	***367.40***
		(B) Ordinary km Stones				
		Quantity of cement concrete = 0.269 cum				
		a) Labour				
		Mate	day	0.02	310.00	6.20
		Mazdoor (Unskilled)	day	0.50	310.00	155.00
		b) Machinery				
		Tractor with trolley	hour	0.08	237.00	17.78
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**25.15**
		d) Contractor's profit @ 15 % on (a+b+c)				**30.62**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**2.35**
		Rate for one ordinary km stone = a+b+c+d+e				**237.09**
					say	***237.10***
		(C) 200 m Stones				
		Quantity of cement concrete = 0.048 cum				
		a) Labour				
		Mate	day	0.004	310.00	1.24
		Mazdoor (Unskilled)	day	0.10	310.00	31.00
		b) Machinery				
		Tractor with trolley	hour	0.02	237.00	4.74
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**5.20**
		d) Contractor's profit @ 15 % on (a+b+c)				**6.33**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**0.49**
		Rate for one 200 m stone = a+b+c+d+e				**48.99**
					say	***49.00***
2.20	**202**	**Dismantling of Fencing**				
		Dismantling of barbed wire fencing / wire mesh fencing including posts, foundation concrete, backfilling of pit by manual means including disposal of dismantled material with all lifts and upto a lead of 1000 m and stacking the serviceable and unserviceable material separately as per MoRD Technical Specification Clause 202.				
		Unit = running m				
		Taking output = 30 m				
		a) Labour				
		Mate	day	0.15	310.00	46.50

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mazdoor (Unskilled)	day	3.00	310.00	930.00
		Blacksmith	day	0.75	418.00	313.50
		b) Machinery				
		Tractor with trolley	hour	0.15	237.00	35.55
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**186.24**
		d) Contractor's profit @ 15 % on (a+b+c)				**226.77**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**17.39**
		Cost of 30 m = a+b+c+d+e				1,755.94
		Rate per m = (a+b+c+d+e)/30				**58.53**
					say	***58.50***
2.21	**202**	**Dismantling of CI Water Pipe Line**				
		Dismantling of CI water pipe line 600 mm dia including disposal with all lifts and upto a lead of 1000 m and stacking the serviceable and unserviceable material separately under supervision of the concerned department but excluding earth excavation and dismantling of masonry works as per MoRD Technical Specification Clause 202.				
		Unit = running m				
		Taking output = 10 m				
		a) Labour				
		Mate	day	0.09	310.00	27.90
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		Plumber	day	0.25	395.00	98.75
		b) Machinery				
		Truck 10 t capacity	hour	0.25	375.00	93.75
		Crane with 3 t capacity	hour	0.50	500.00	250.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**153.20**
		d) Contractor's profit @ 15 % on (a+b+c)				**186.54**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**14.30**
		Cost for 10 m = a+b+c+d+e				1,444.44
		Rate per m = (a+b+c+d+e)/10				**144.44**
					say	***144.40***
	Note:	*The rate analysis does not include any excavation in earth or dismantling of masonry works which are to be measured and paid separately.*				
2.22	**202**	**Removal of Cement Concrete Pipe of Sewer Gutter**				
		Removal of Cement Concrete Pipe of Sewer Gutter 1500 mm dia under the supervision of the concerned department including disposal with all lifts and upto a lead of 1000 m and stacking the serviceable and unserviceable material separately but excluding earth excavation and dismantling of masonry works as per MoRD Technical Specification Clause 202.				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Unit = running m				
		Taking output = 10 m				
		a) Labour				
		Mate	day	0.10	310.00	31.00
		Mazdoor (Unskilled)	day	2.50	310.00	775.00
		b) Machinery				
		Crane upto 8 t capacity	hour	0.30	1,150.00	345.00
		Truck 10 t capacity flat body	hour	1.00	375.00	375.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**214.40**
		d) Contractor's profit @ 15 % on (a+b+c)				**261.06**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**20.01**
		Cost for 10 m = a+b+c+d+e				2,021.48
		Rate per m = (a+b+c+d+e)/10				**202.15**
					say	***202.10***
	Note:	*The rate analysis does not include any excavation in earth or dismantling of masonry works which are to be measured and paid separately.*				
2.23	**202**	**Removal of Telephone/Electric Poles and Lines**				
		Removal of telephone / electric poles with wires including excavation and dismantling of foundation concrete and lines under the supervision of concerned department, disposal with all lifts and upto a lead of 1000 m and stacking the serviceable and unserviceable material separately as per MoRD Technical Specification Clause 202.				
		Unit = each				
		Taking output = 30 Nos.				
		a) Labour				
		Mate	day	0.48	310.00	148.80
		Mazdoor (Unskilled)	day	10.00	310.00	3,100.00
		Electrician/Lineman	day	2.00	395.00	790.00
		b) Machinery				
		Tractor with trolley	hour	1.50	237.00	355.50
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**617.40**
		d) Contractor's profit @ 15 % on (a+b+c)				**751.75**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**57.63**
		Cost for 30 poles = a+b+c+d+e				5,821.09
		Rate per pole = (a+b+c+d+e)/30				**194.04**
					say	***194.00***

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
3.1		**Preparation of Foundation for Embankment**				
	301.4	**Scarifying Existing Granular Surface to a Depth of 50 mm by Manual Means** Scarifying Existing Granular Surface by manual means to a depth of 50 mm and disposal of scarified material with a lift upto 3 m and leads upto 1000 m as per MoRD Technical Specification Clause 301.4. Unit = sqm Taking output = 100 sqm				
		a) Labour				
		Mate	day	0.16	310.00	49.60
		Mazdoor (Unskilled)	day	4.00	310.00	1,240.00
		b) Machinery				
		Tractor with trolley	hour	1.50	237.00	355.50
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**231.14**
		d) Contractor's profit @ 15 % on (a+b+c)				**281.44**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**21.58**
		Cost for 100 sqm = a+b+c+d+e				2,179.25
		Rate per sqm = (a+b+c+d+e)/100				**21.79**
					say	***21.80***
3.2		**Preparation of Foundation for Embankment**				
	301.4	**Scarifying Existing Bituminous Surface to a depth of 150 mm by Mechanical Means** Scarifying Existing bituminous Road Surface by mechanical means to a Depth of 150 mm and disposal of scarified material with a lift upto 3 m and leads upto 1000 m as per MoRD Technical Specification Clause 301.4. Unit = sqm Taking output = 100 sqm				
		a) Labour				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Machinery				
		Tractor with ripper attachment @ 60 cum per hour	hour	0.25	223.00	55.75
		Front end loader 1 cum bucket capacity @ 50 cum per hour	hour	0.30	920.00	276.00
		Tipper 5.5 cum capacity, 4 trips per hour	hour	0.68	334.00	227.12
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**89.85**
		d) Contractor's profit @ 15 % on (a+b+c)				**109.40**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**8.39**
		Cost for 100 sqm = a+b+c+d+e				847.10
		Rate per sqm = (a+b+c+d+e)/100				**8.47**
					say	***8.50***

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
3.3	301.5	**Construction of Embankment with Material Obtained from Roadway Cutting** Construction of Embankment with approved materials deposited at site from roadway cutting and excavation from drain and foundation of other structures graded and compacted to meet requirement of Tables 300.1 and 300.2 as per MoRD Technical Specification Clause 301.5. Unit = cum Taking output = 100 cum				
		A For Spreading beyond 100 m				
		a) Labour				
		Mate	day	0.04	310.00	12.40
		Mazdoor (Unskilled)	day	1.00	310.00	310.00
		b) Machinery				
		Dozer D-50 for spreading @ 200 cum per hour	hour	0.50	2,370.00	1,185.00
		Tractor with attachment for grading @ 25 cum per hour	hour	4.00	320.00	1,280.00
		Water tanker 6 kl capacity	hour	2.00	200.00	400.00
		Three wheel 80-100 kN Static Roller	hour	1.25	392.00	490.00
		c) Material				
		Water	kl	12.00	133.00	1,596.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**740.91**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**902.15**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**69.16**
		Rate for 100 cum = a+b+c+d+e+e				**6,985.62**
		Rate per cum = (a+b+c+d+e+e)/100				**69.86**
					say	***69.90***
		B For Spreading within 100 m				
		a) Labour				
		Mate	day	0.02	310.00	6.20
		Mazdoor (Unskilled)	day	0.50	310.00	155.00
		b) Machinery				
		Tractor with attachment for grading @ 25 cum per hour	hour	4.00	320.00	1,280.00
		Water tanker 6 kl capacity	hour	2.00	200.00	400.00
		Three wheel 80-100 kN Static Roller	hour	1.25	392.00	490.00
		c) Material				
		Water	kl	12.00	133.00	1,596.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**551.77**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**671.85**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**51.51**
		Rate for 100 cum = a+b+c+d+e+f				**5,202.33**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Rate per cum = (a+b+c+d+e+f)/100				**52.02**
					say	***52.00***

Note: *In case the earth cutting is done by dozer and pushed for filling in the embankment, the input of dozer in the cost of embankment shall be deleted as the same is already provided in the cost of excavation. However, if the earth is dumped by tippers from roadway cutting, the input of dozer for spreading is required to be provided.*

3.4 301.5 Construction of Embankment with Material Obtained from Borrow Pits

Construction of embankment with approved material obtained from borrow pits with a lift upto 1.5 m, transporting to site, spreading, grading to required slope and compacting to meet requirement of Tables 300.1 and 300.2 with a lead upto 1000 m as per MoRD Technical Specification Clause 301.5.

Unit = cum

Taking output = 100 cum

a)	**Labour**				
	Mate	day	0.04	310.00	12.40
	Mazdoor (Unskilled)	day	1.00	310.00	310.00
b)	**Machinery**				
	Hydraulic Excavator 0.9 cum bucket capacity @ 60 cum per hour	hour	1.67	1,200.00	2,004.00
	Tipper 5.5 cum with 10 t capacity	hour	4.50	334.00	1,503.00
	Loading of earth as per item 1.1 (ii)	*cum*	*100.00*	*42.00*	*4,200.00*
	Unloading of earth as per item 1.1 (iv)	*cum*	*100.00*	*24.70*	*2,470.00*
	Dozer D-50 for spreading @ 200 cum per hour	hour	0.50	2,370.00	1,185.00
	Tractor with attachment for grading @ 25 cum per hour	hour	4.00	320.00	1,280.00
	Water tanker 6 kl capacity	hour	2.00	200.00	400.00
	Three wheel 80-100 kN Static Roller @ 80 cum per hour	hour	1.25	392.00	490.00
c)	**Material**				
	Water	kl	12.00	133.00	1,596.00
	Compensation for earth taken from private land	cum	100.00	17.05	1,705.00
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**1,473.20**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**1,793.79**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**137.52**
	Cost for 100 cum = a+b+c+d+e+f				20,559.91
	Rate per cum = (a+b+c+d+e+f)/100				**205.60**
				say	***205.60***

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Note: *Compensation for earth will vary from place to place and will have to be assessed realistically as per particular ground situation. In case earth is available from Govt. land, compensation for earth will not be required. The position is required to be clearly stated in the cost estimate.*				
3.5	**302.3**	**(i) Excavation in Cutting in Soil by manual means with lead upto 50 m** Excavation in Roadway cutting in soil by using manual means for carrying of cut earth to embankment site with all lifts and lead upto 50 m as per MoRD Technical Specification Clause 302.3. Unit = cum Taking output = 120 cum				
		a) Labour				
		Mate	day	1.80	310.00	558.00
		Mazdoor (Unskilled)	day	45.00	310.00	13,950.00
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**2,038.37**
		c) Contractor's profit @ 15 % on (a+b)				**2,481.96**
		d) Add Cess @ 1.00 % on (a+b+c)				**190.28**
		Cost of 120 cum = a+b+c+d				19,218.61
		Rate per cum = (a+b+c+d)/120				**160.16**
					say	***160.20***
		(ii) Excavation in Soil with Dozer with lead upto 100 m Excavation for roadway in soil by mechanical means with Dozer including cutting and pushing the earth to site of embankment upto a distance of 100 m, including trimming bottom and side slopes in accordance with requirements of lines, grades and cross-sections as per MoRD Technical Specification Clause 302.3. Unit = cum Taking output = 180 cum				
		a) Labour				
		Mate	day	0.08	310.00	24.80
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		b) Machinery				
		Dozer D-50 @ 50 cum per hour (cutting with pushing)	hour	3.60	2,370.00	8,532.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**1,289.34**
		d) Contractor's profit @ 15 % on (a+b+c)				**1,569.92**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**120.36**
		Cost for 180 cum = a+b+c+d+d				12,156.42
		Rate per cum = (a+b+c+d+d)/180				**67.54**
					say	***67.50***

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(iii) Excavation in Soil using Hydraulic Excavator and Tippers with disposal upto 1000 m				
		Excavation for roadwork in soil with hydraulic excavator of 0.9 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes in accordance with requirements of lines, grades and cross-sections and transporting to the embankment location with all lifts and lead upto 1000 m as per MoRD Technical Specification Clause 302.3.				
		Unit = cum				
		Taking output = 360 cum				
		a) Labour				
		Mate	day	0.08	310.00	24.80
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		b) Machinery				
		Hydraulic excavator 0.9 cum bucket capacity @ 100 cum per hour	hour	3.60	1,200.00	4,320.00
		Tipper 5.5 cum capacity, 4 trips per hour	hour	15.00	334.00	5,010.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**1,401.46**
		d) Contractor's profit @ 15 % on (a+b+c)				**1,706.44**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**130.83**
		Cost for 360 cum = a+b+c+d+e				13,213.53
		Rate per cum = (a+b+c+d+e)/360				**36.70**
					say	***36.70***
3.6	**302.3.6**	**Excavation in Marshy Soil**				
		Excavation for roadway in marshy soil with hydraulic excavator 0.9 cum bucket capacity including cutting and loading in tippers and disposal with all lifts and lead upto 1000 m trimming of bottom and side slopes in accordance with requirements of lines, grades and cross-sections as per MoRD Technical Specification Clause 302.3.6.				
		Unit = cum				
		Taking output = 300 cum				
		a) Labour				
		Mate	day	0.08	310.00	24.80
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		b) Machinery				
		Hydraulic excavator 0.90 cum bucket capacity @ 50 cum per hour	hour	6.00	1,200.00	7,200.00
		Tipper 5.5 cum capacity, 4 trips per hour.	hour	12.50	334.00	4,175.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**1,688.78**
		d) Contractor's profit @ 15 % on (a+b+c)				**2,056.29**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**157.65**
		Cost for 300 cum = a+b+c+d+e				15,922.52

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Rate per cum = (a+b+c+d+e)/300				**53.08**
					say	***53.10***
3.7	**302.3.11**	**Removal of Unsuitable Soil with Disposal upto 1000 m**				
		Removal of unsuitable soil including excavation, loading and disposal upto 1000 m lead but excluding compaction ground supporting embankment / subgrade, replacement by suitable soil, which shall be paid separately as per MoRD Technical Specification Clause 303.5.2 and as per MoRD Technical Specification Clause 302.3.11.				
		Unit = cum				
		Taking output = 360 cum				
		a) Labour				
		Mate	day	0.08	310.00	24.80
		Mazdoor	day	2.00	310.00	620.00
		b) Machinery				
		Excavator 0.90 cum bucket capacity @ 100 cum per hour	hour	3.60	1,200.00	4,320.00
		Tipper 5.5 cum capacity, 4 trips per hour	hour	15.00	334.00	5,010.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**1,401.46**
		d) Contractor's profit @ 15 % on (a+b+c)				**1,706.44**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**130.83**
		Cost for 360 cum = a+b+c+d+e				13,213.53
		Rate per cum = (a+b+c+d+e)/360				**36.70**
					say	***36.70***
		Note: *This item does not include replacement of unsuitable soil by suitable soil. Replacement, where required, is to be provided and paid separately under Clause 303.5.2.*				
3.8	**302.3.5**	**(i) Excavation in ordinary Rock by manual means**				
		Excavation in ordinary rock using manual means including carrying of excavated material to embankment site with all lifts and lead upto 50 m as per MoRD Technical Specification Clause 302.3.5.				
		Unit = cum				
		Taking output = 120 cum				
		a) Labour				
		Mate	day	2.80	310.00	868.00
		Mazdoor (Unskilled)	day	70.00	310.00	21,700.00
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**3,170.80**
		c) Contractor's profit @ 15 % on (a+b)				**3,860.82**
		d) Add Cess @ 1.00 % on (a+b+c)				**296.00**
		Cost for 120 cum = a+b+c+d				29,895.62

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Rate per cum = (a+b+c+d)/120				**249.13**
					say	***249.10***
		(ii) Excavation in Ordinary Rock with Dozer with lead upto 100 m Excavation for roadway in ordinary rock by mechanical means with dozer including cutting and pushing the cut earth to site of embankment upto a distance of 100 m, including trimming bottom and side slopes in accordance with the requirements of lines, grades and cross-sections as per MoRD Technical Specification Clause 302.3.5. Unit = cum Taking output = 108 cum				
		a) Labour				
		Mate	day	0.12	310.00	37.20
		Mazdoor (Unskilled)	day	3.00	310.00	930.00
		b) Machinery				
		Dozer D-50 @ 50% of 50 cum per hour	hour	2.16	2,370.00	5,119.20
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**855.14**
		d) Contractor's profit @ 15 % on (a+b)				**1,041.23**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**79.83**
		Cost for 108 cum = a+b+c+d+d				8,062.60
		Rate per cum = (a+b+c+d+d)/108				**74.65**
					say	***74.70***
		(iii) Excavation in Ordinary Rock using Hydraulic Excavator and Tippers with disposal upto 1000 m Excavation for roadwork in ordinary rock with hydraulic excavator of 0.9 cum bucket capacity including cutting and loading in tippers, transporting to embankment site with all lifts and lead upto 1000 m, trimming bottom and side slopes in accordance with requirements of lines, grades and cross-sections and as per MoRD Technical Specification Clause 302.3.5. Unit = cum Taking output = 240 cum				
		a) Labour				
		Mate	day	0.08	310.00	24.80
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		b) Machinery				
		Hydraulic Excavator 0.90 cum bucket capacity @ 40 cum per hour	hour	6.00	1,200.00	7,200.00
		Tipper 5.5 cum with 10t capacity, 4 trips per hour.	hour	11.00	334.00	3,674.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**1,618.39**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		d) Contractor's profit @ 15 % on (a+b+c)				**1,970.58**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**151.08**
		Cost for 240 cum = a+b+c+d+d				15,258.85
		Rate per cum = (a+b+c+d+d)/240				**63.58**
					say	***63.60***
3.9	**302.3.2**	**Stripping, Storing and Relaying Top Soil from Right-of-Way (R.O.W)**				
		Stripping, storing and preservation of top soil by keeping it damp in stock piles and keep wet till it is used by road side at 15 m interval and re-application on embankment slopes, cut slopes and other areas in localities where the available embankment material is not conducive to plant growth as per MoRD Technical Specification Clause 302.3.2.				
		Unit = cum				
		Taking output = 10 cum				
		a) Labour				
		Mate	day	0.20	310.00	62.00
		Mazdoor (Unskilled)	day	5.00	310.00	1,550.00
		b) Machinery				
		Dozer D-50 @ 100 cum per hour	hour	0.10	2,370.00	237.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**259.78**
		d) Contractor's profit @ 15 % on (a+b+c)				**316.32**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**24.25**
		Cost for 10 cum = (a+b+c+d+d)				2,449.35
		Rate per cum = (a+b+c+d+d)/10				**244.94**
					say	***244.90***
3.10	**302.3.2**	**Stripping, Storing and Relaying Top Soil from Borrow Areas in Agricultural Fields**				
		Stripping of top soil from borrow areas located in agriculture fields, storing at a suitable place, spreading and relaying after taking the borrow earth to maintain fertility of the agricultural field, finishing it to the required levels to the satisfaction of the farmer/land owners as per MoRD Technical Specification Clause 302.3.2.				
		Unit = cum				
		Taking output = 300 cum				
		a) Labour				
		Mate	day	4.00	310.00	1,240.00
		Mazdoor (Unskilled)	day	100.00	310.00	31,000.00
		b) Machinery				
		Dozer D-50 with 100 cum per hour output (Initially stacking and relaying)	hour	6.00	2,370.00	14,220.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**6,527.63**
		d) Contractor's profit @ 15 % on (a+b+c)				**7,948.14**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		e) Add Cess @ 1.00 % on (a+b+c+d)				**609.36**
		Cost for 300 cum = a+b+c+d+d				61,545.13
		Rate per sqm = (a+b+c+d+d)/300				**205.15**
					say	***205.20***
3.11	**309**	**Turfing with Sods**				
		Furnishing and laying of the live sods of perennial turf forming grass on embankment slope , verges or other locations shown on the drawing or as directed by the Engineer including preparation of ground, fetching of sods and watering as per MoRD Technical Specification Clause 309.				
		Unit = sqm				
		Talking output = 300 sqm				
		a) Labour				
		Mate	day	0.12	310.00	37.20
		Mazdoor (Unskilled)	day	3.00	310.00	930.00
		b) Machinery				
		Water tanker including watering for 3 months	hour	6.00	200.00	1,200.00
		Tractor with Trolley	hour	1.00	237.00	237.00
		c) Material				
		Farmyard manure @ 0.18 cum per 100 sqm at site of work	cum	0.18	510.00	91.80
		Water	kl	36.00	133.00	4,788.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**1,023.40**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**1,246.11**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**95.54**
		Cost for 300 sqm = a+b+c+d+e+f				9,649.05
		Rate per sqm = (a+b+c+d+e+f)/300				**32.16**
					say	***32.20***
3.12	**303.1**	**Construction of Subgrade and Earthen Shoulders**				
		Construction of subgrade and earthen shoulders with approved material obtained from borrow pits with all lifts and leads, transporting to site , spreading, grading to required slope and compacted to meet requirement of Table 300.2 as per MoRD Technical Specification Clause 303.1.				
		Unit = cum				
		Taking output = 100 cum				
		a) Labour				
		Mate	day	0.04	310.00	12.40
		Mazdoor (Unskilled)	day	1.00	310.00	310.00
		b) Machinery				
		i. Hydraulic excavator 0.9 cum bucket capacity @ 100 cum per hour	hour	1.00	1,200.00	1,200.00
		ii. Tipper 5.5 cum capacity, 4 trips per hour	hour	4.50	334.00	1,503.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		iii. Add rate for loading as per item 1.1 (ii)	cum	100.00	42.00	4,200.00
		iv. Add rate for unloading as per item 1.1 (iv)	cum	100.00	24.70	2,470.00
		v. Dozer D-50 for spreading @ 200 cum per hour	hour	0.50	2,370.00	1,185.00
		vi. Tractor with attachment for grading @ 25 cum per hour	hour	4.00	320.00	1,280.00
		vii. Water tanker with 6 kl capacity	hour	2.00	200.00	400.00
		viii. Three wheel 80-100 kN Static Roller @ 70 cum per hou	hour	1.43	392.00	560.56
		c) Material				
		Water	kl	12.00	133.00	1,596.00
		Compensation for earth taken from private land	cum	100.00	17.05	1,705.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c) ex/c (b.iii) & (b.iv)				**1,370.15**
		e) Contractor's profit @ 15 % , ex/c (b.iii) & (b.iv)				**1,668.32**
		f) Add Cess @ 1.00 % on (a+b+c+d+e), , ex/c (b.iii) & (b.iv)				**127.90**
		Cost for 100 cum = a+b+c+d+e+f				19,588.33
		Rate per cum = (a+b+c+d+e+f)/100				**195.88**
					say	***195.90***
3.13	**301.4**	**Compacting Original Ground**				
		(i) Compacting original ground supporting embankment				
		Loosening, Levelling and Compacting original ground supporting embankment to facilitate placement of first layer of embankment,scarified to a depth of 150 mm, mixed with water at OMC and then compacted by rolling so as to achieve minimum dry density as given in Tables 300.1 and 300.2 for embankment construction as per MoRD Technical Specification Clause 301.4.1.				
		Unit = cum				
		Taking output = 600 cum				
		a) Labour				
		Mate	day	0.08	310.00	24.80
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		b) Machinery				
		Tractor with ripper attachment	hour	6.00	237.00	1,422.00
		Three wheel 80-100 kN Static Roller	hour	7.50	392.00	2,940.00
		Water tanker 6 kl capacity	hour	4.00	200.00	800.00
		c) Material				
		Water	kl	24.00	133.00	3,192.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**1,264.33**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**1,539.47**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**118.03**
		Cost for 600 cum = a+b+c+d+e+f				11,920.63
		Rate per cum = (a+b+c+d+e+f)/600				**19.87**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	***19.90***
303	**(ii)**	**Compacting original ground supporting subgrade**				
		Loosening of the ground upto a level of 300 mm below the subgrade level, watered, graded and compacted in layers to meet requirement of Tables 300.1 and 300.2 for subgrade construction as per MoRD Technical Specification Clause 303.5.2.				
		Unit = cum				
		Taking output = 600 cum				
		a) Labour				
		Mate	day	0.24	310.00	74.40
		Mazdoor (Unskilled)	day	6.00	310.00	1,860.00
		b) Machinery				
		Tractor with ripper attachment	hour	10.00	237.00	2,370.00
		Water tanker 6 kl capacity	hour	4.00	200.00	800.00
		Three wheel 80-100 kN Static Roller @ 70 cum per hour	hour	8.60	392.00	3,371.20
		c) Material				
		Water	kl	24.00	133.00	3,192.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**1,639.30**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**1,996.03**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**153.03**
		Cost for 600 cum = a+b+c+d+e+f				15,455.96
		Rate per cum = (a+b+c+d+e+f)/600				**25.76**
					say	***25.80***
3.14	**301.5.5.1**	**Repairs of damages caused by rain/spillage of water**				
		Preparation and surface treatment of formation by removing mud and slurry, watering to the extent needed to maintain the desired moisture content, trimming to the required line, grade, profile and rolling with three wheel 80-100 kN static roller, complete as per Technical Specification Clause 301.5.5.1.				
		Unit = sqm				
		Taking output = 3500 sqm				
		a) Labour				
		Mate	day	0.28	310.00	86.80
		Mazdoor (Unskilled)	day	6.00	310.00	1,860.00
		Mazdoor skilled	day	1.00	395.00	395.00
		b) Machinery				
		Three wheel static roller 80-100 kN	hour	3.00	392.00	1,176.00
		Water tanker 6 kl, one trip per hour	hour	2.00	200.00	400.00
		c) Material				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Water	kl	12.00	133.00	1,596.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**774.69**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**943.27**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**72.32**
		Cost for 3500 sqm = a+b+c+d+e+f				7,304.08
		Rate per sqm = (a+b+c+d+e+f)/3500				**2.09**
					say	***2.10***
3.15	**307**	**(i) Surface Drains in Soil**				
		Construction of unlined surface drains of average cross-sectional area 0.40 sqm in ordinary soil to specified lines, grades, levels and dimensions. Excavated material to be used in embankment with a lift upto 3 m and lead of 50 m (average lead 25 m) as per MoRD Technical Specification Clause 307.				
		Unit = m				
		Taking output = 10 m				
		(A) Manual Means				
		a) Labour				
		Mate	day	0.08	310.00	24.80
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**90.59**
		c) Contractor's profit @ 15 % on (a+b)				**110.31**
		d) Add Cess @ 1.00 % on (a+b+c)				**8.46**
		Cost for 10 m = a+b+c+d				854.16
		Rate per m = (a+b+c+d)/10				**85.42**
					say	***85.40***
		Note: *Where lining of drain is provided, quantity shall be worked out based on approved design and drawing and priced on rate of cement concrete of approved grade or stone/brick masonary as the case may be.*				
		(B) Mechanical Means				
		a) Labour				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Machinery				
		Hydraulic excavator 0.9 cum bucket capacity @ 100 cum per hour	hour	0.04	1,200.00	48.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**18.07**
		d) Contractor's profit @ 15 % on (a+b+c)				**22.00**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**1.69**
		Cost for 10 m = a+b+c+d+e				170.36
		Rate per m = (a+b+c+d+e)/10				**17.04**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	***17.00***

(ii) Surface Drains in Ordinary Rock

Construction of unlined surface drain of average cross-sectional area 0.40 sqm in ordinary rock to specified lines, grades, levels and dimensions as per approved design and MoRD Technical Specification Clause 307. Excavated material to be used in embankment at site.

Unit = m

Taking output = 10 m

(A) Manual Means

a) Labour

Mate	day	0.12	310.00	37.20
Mazdoor (Unskilled)	day	3.00	310.00	930.00
b) Add GST (multiplying factor) @ 0.1405 on (a)				**135.89**
c) Contractor's profit @ 15 % on (a+b)				**165.46**
d) Add Cess @ 1.00 % on (a+b+c)				**12.69**
Cost for 10 m = a+b+c+e				1,281.24
Rate per m = (a+b+c+e)/10				**128.12**
			say	***128.10***

(B) Mechanical Means

a) Labour

Mate	day	0.02	310.00	6.20
Mazdoor (Unskilled)	day	0.50	310.00	155.00

b) Machinery

Hydraulic excavator 0.9 cum bucket capacity @ 40 m per hour	hour	0.10	1,200.00	120.00
c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**39.51**
d) Contractor's profit @ 15 % on (a+b+c)				**48.11**
e) Add Cess @ 1.00 % on (a+b+c+e)				**3.69**
Cost for 10 m = a+b+c+d+e				372.50
Rate per m = (a+b+c+d+e)/10				**37.25**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	***37.30***

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)

ADDITIONAL ITEMS BY USING JHAMA BRICK AGGREGATE (i.e. LOCALLY AVAILABLE MATERIALS)

3.16 **307 & 1606** **(i)** **Road side Pucca Drains**

Construction of road side pucca drain with M10 (1:3:6 with jhama brick aggregate) to specified lines, grades, levels and dimensions as per approved design and MoRD Technical Specification Clause 307, 1606. Excavated material to be used in embankment at site. (including centering, shuttering, etc. but excluding reinforcement)

(A) Kerb & Channel drain (top clear width 600 mm, bottom clear width 150 mm and clear depth of 200 mm)

I. In Ordinary Soil

Unit = per metre

Taking output = 1.00 m

1	Excavation for structure earth work in excavation for foundations as per drawing and technical specification including dressing of sides and bottom and backfilling in ordinary soil.				
	(As per item No.11.1.A.I(i) of Chapter 11)	cum	0.26	341.70	88.84
2	Plain cement concrete M10 (1:3:6) nominal mix concrete mixture as per techinical specification.				
	(As per item No.11.9.I(i) of Chapter 11)	cum	0.19	7,897.90	1,500.60
	Cost per m = (1+2)				**1,589.44**
				say	***1589.40***

II. In Ordinary rock (not requiring blasting)

Unit = per metre

Taking output = 1.00 m

1	Excavation for structure earth work in excavation for foundations as per drawing and technical specification including dressing of sides and bottom and backfilling in ordinary soil.				
	(As per item No.11.1.A.II(i) of Chapter 11)	cum	0.26	427.10	111.05
2	Plain cement concrete M10 (1:3:6) nominal mix concrete mixture as per techinical specification.				
	(As per item No.11.9.I(i) of Chapter 11)	cum	0.19	7,897.90	1,500.60
	Cost per m = (1+2)				**1,611.65**
				say	***1611.60***

III. In Hard rock (blasting prohibited)

Unit = per metre

Taking output = 1.00 m

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		1 Excavation for structure earth work in excavation for foundations as per drawing and technical specification including dressing of sides and bottom and backfilling in ordinary soil.				
		(As per item No.11.1.A.III of Chapter 11)	cum	0.26	491.70	127.84
		2 Plain cement concrete M10 (1:3:6) nominal mix concrete mixture as per techinical specification.				
		(As per item No.11.9.I(i) of Chapter 11)	cum	0.19	7,897.90	1,500.60
		Cost per m = (1+2)				**1,628.44**
					say	***1628.40***
		(B) Trapezoidal drain (top clear width 600 mm, bottom clear width 300 mm and clear depth of 400 mm)				
		I. In Ordinary Soil				
		Unit = per metre				
		Taking output = 1.00 m				
		1 Excavation for structure earth work in excavation for foundations as per drawing and technical specification including dressing of sides and bottom and backfilling in ordinary soil.				
		(As per item No.11.1.A.I(i) of Chapter 11)	cum	0.52	341.70	177.68
		2 Plain cement concrete M10 (1:3:6) nominal mix concrete mixture as per techinical specification.				
		(As per item No.11.9.I(i) of Chapter 11)	cum	0.31	7,897.90	2,448.35
		1.00 x {(2 x 0.427m x 0.20m) + (0.68 x 0.20m)}				
		3 12 mm cement plaster 1:4 with neat cement punning				
		(Rate as per item no. 12.16 of chapter 12)	sqm	1.564	175.00	273.70
		(0.205 m + 0.427 m + 0.3 m + 0.427 m +0.205 m)				
		Cost per m = (1+2+3)				**2,899.73**
					say	***2899.70***
		II. In Ordinary rock (not requiring blasting)				
		Unit = per metre				
		Taking output = 1.00 m				
		1 Excavation for structure earth work in excavation for foundations as per drawing and technical specification including dressing of sides and bottom and backfilling in ordinary soil.				
		(As per item No.11.1.A.II(i) of Chapter 11)	cum	0.52	427.10	222.09
		2 Plain cement concrete M10 (1:3:6) nominal mix concrete mixture as per techinical specification.				
		(As per item No.11.9.I(i) of Chapter 11)	cum	0.31	7,897.90	2,448.35
		1.00 x {(2 x 0.427m x 0.20m) + (0.68 x 0.20m)}				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		3 12 mm cement plaster 1:4 with neat cement punning				
		(Rate as per item no. 12.16 of chapter 12)	sqm	1.564	175.00	273.70
		(0.205 m + 0.427 m + 0.3 m + 0.427 m +0.205 m)				
		Cost per m = (1+2+3)				**2,944.14**
					say	***2944.10***
		III. In Hard rock (blasting prohibited)				
		Unit = per metre				
		Taking output = 1.00 m				
		1 Excavation for structure earth work in excavation for foundations as per drawing and technical specification including dressing of sides and bottom and backfilling in ordinary soil.				
		(As per item No.11.1.A.III of Chapter 11)	cum	0.52	491.70	255.68
		2 Plain cement concrete M10 (1:3:6) nominal mix concrete mixture as per techinical specification.				
		(As per item No.11.9.I(i) of Chapter 11)	cum	0.31	7,897.90	2,448.35
		1.00 x {(2 x 0.427m x 0.20m) + (0.68 x 0.20m)}				
		3 12 mm cement plaster 1:4 with neat cement punning				
		(Rate as per item no. 12.16 of chapter 12)	sqm	1.564	175.00	273.70
		(0.205 m + 0.427 m + 0.3 m + 0.427 m +0.205 m)				
		Cost per m = (1+2+3)				**2,977.73**
					say	***2977.70***
		(C) Trapezoidal drain (top clear width 600 mm, bottom clear width 300 mm and clear depth of 600 mm)				
		I. In Ordinary Soil				
		Unit = per metre				
		Taking output = 1.00 m				
		1 Excavation for structure earth work in excavation for foundations as per drawing and technical specification including dressing of sides and bottom and backfilling in ordinary soil.				
		(As per item No.11.1.A.I(i) of Chapter 11)	cum	0.69	341.70	235.77
		2 Plain cement concrete M10 (1:3:6) nominal mix concrete mixture as per techinical specification.				
		(As per item No.11.9.I(i) of Chapter 11)	cum	0.38	7,897.90	3,001.20
		1.00 x {(2 x 0.618m x 0.20m) + (0.68 x 0.20m)}				
		3 12 mm cement plaster 1:4 with neat cement punning				
		(Rate as per item no. 12.16 of chapter 12)	sqm	1.964	175.00	343.70
		(0.205 m + 0.618 m + 0.3 m + 0.618 m +0.205 m)				
		Cost per m = (1+2+3)				**3,580.68**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	***3580.70***
		II. In Ordinary rock (not requiring blasting)				
		Unit = per metre				
		Taking output = 1.00 m				
		1 Excavation for structure earth work in excavation for foundations as per drawing and technical specification including dressing of sides and bottom and backfilling in ordinary soil.				
		(As per item No.11.1.A.II(i) of Chapter 11)	cum	0.69	427.10	294.70
		2 Plain cement concrete M10 (1:3:6) nominal mix concrete mixture as per techinical specification.				
		(As per item No.11.9.I(i) of Chapter 11)	cum	0.38	7,897.90	3,001.20
		1.00 x {(2 x 0.618m x 0.20m) + (0.68 x 0.20m)}				
		3 12 mm cement plaster 1:4 with neat cement punning				
		(Rate as per item no. 12.16 of chapter 12)	sqm	1.964	175.00	343.70
		(0.205 m + 0.618 m + 0.3 m + 0.618 m +0.205 m)				
		Cost per m = (1+2+3)				**3,639.60**
					say	***3639.60***
		III. In Hard rock (blasting prohibited)				
		Unit = per metre				
		Taking output = 1.00 m				
		1 Excavation for structure earth work in excavation for foundations as per drawing and technical specification including dressing of sides and bottom and backfilling in ordinary soil.				
		(As per item No.11.1.A.III of Chapter 11)	cum	0.69	491.70	339.27
		2 Plain cement concrete M10 (1:3:6) nominal mix concrete mixture as per techinical specification.				
		(As per item No.11.9.I(i) of Chapter 11)	cum	0.38	7,897.90	3,001.20
		1.00 x {(2 x 0.618m x 0.20m) + (0.68 x 0.20m)}				
		3 12 mm cement plaster 1:4 with neat cement punning				
		(Rate as per item no. 12.16 of chapter 12)	sqm	1.964	175.00	343.70
		(0.205 m + 0.618 m + 0.3 m + 0.618 m +0.205 m)				
		Cost per m = (1+2+3)				**3,684.18**
					say	***3684.20***
		(D) U shaped drain (top clear width 600 mm, bottom clear width 600 mm and clear depth of 600 mm)				
		I. In Ordinary Soil				
		Unit = per metre				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Taking output = 1.00 m				
		1 Excavation for structure earth work in excavation for foundations as per drawing and technical specification including dressing of sides and bottom and backfilling in ordinary soil.				
		(As per item No.11.1.A.I(i) of Chapter 11)	cum	0.80	341.70	273.36
		2 Plain cement concrete M10 (1:3:6) nominal mix concrete mixture as per techinical specification.				
		(As per item No.11.9.I(i) of Chapter 11)	cum	0.44	7,897.90	3,475.08
		1.00x[(2 x 0.60m x 0.20m)+{(0.20m+0.60m+ 0.20m)x0.20}]				
		3 12 mm cement plaster 1:4 with neat cement punning				
		(Rate as per item no. 12.16 of chapter 12)	sqm	2.210	175.00	386.75
		(0.205 m + 0.600 m + 0.3 m + 0.600 m +0.205 m)				
		Cost per m = (1+2+3)				**4,135.19**
					say	***4135.20***
		II. In Ordinary rock (not requiring blasting)				
		Unit = per metre				
		Taking output = 1.00 m				
		1 Excavation for structure earth work in excavation for foundations as per drawing and technical specification including dressing of sides and bottom and backfilling in ordinary soil.				
		(As per item No.11.1.A.II(i) of Chapter 11)	cum	0.80	427.10	341.68
		2 Plain cement concrete M10 (1:3:6) nominal mix concrete mixture as per techinical specification.				
		(As per item No.11.9.I(i) of Chapter 11)	cum	0.44	7,897.90	3,475.08
		1.00x[(2 x 0.60m x 0.20m)+{(0.20m+0.60m+ 0.20m)x0.20}]				
		3 12 mm cement plaster 1:4 with neat cement punning				
		(Rate as per item no. 12.16 of chapter 12)	sqm	2.210	175.00	386.75
		(0.205 m + 0.600 m + 0.3 m + 0.600 m +0.205 m)				
		Cost per m = (1+2+3)				**4,203.51**
					say	***4203.50***
		III. In Hard rock (blasting prohibited)				
		Unit = per metre				
		Taking output = 1.00 m				
		1 Excavation for structure earth work in excavation for foundations as per drawing and technical specification including dressing of sides and bottom and backfilling in ordinary soil.				
		(As per item No.11.1.A.III of Chapter 11)	cum	0.80	491.70	393.36

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		2 Plain cement concrete M10 (1:3:6) nominal mix concrete mixture as per techinical specification.				
		(As per item No.11.9.I(i) of Chapter 11)	cum	0.44	7,897.90	3,475.08
		1.00x[(2 x 0.60m x 0.20m)+{(0.20m+0.60m+ 0.20m)x0.20}]				
		3 12 mm cement plaster 1:4 with neat cement punning				
		(Rate as per item no. 12.16 of chapter 12)	sqm	2.210	175.00	386.75
		(0.205 m + 0.600 m + 0.3 m + 0.600 m +0.205 m)				
		Cost per m = (1+2+3)				**4,255.19**
					say	***4255.20***
3.17	**307**	**Chute Drains**				
		A. Providing chute drains across embankment slopes in approches of bridges and on horizontal curves as per drawings.				
		Unit = 1 m				
		(a) Earthwork in excavation for foundation of structures as per drawings and MoRD Technical Specifications Clause 307 including setting out construction of shoring and bracing deleterious matter, dressings of sides and bottom and backfilling with approved material (By manual means).				
		Rate as per item No.11.1 of Chapter 11.	cum			
		(b) Providing and laying plain cement concrete M15 grade.				
		Rate as per item No.12.14.I of Chapter 12.	cum			
		(c) Brick Masonry in cement mortar 1:5.				
		Rate as per item No. 12.1(III) of Chapter 12.	cum			
		(d) Plastering with cement mortar 1:4.				
		Rate as per item No. 12.3 of Chapter 12.	sqm			
		(e) Providing P.C.C. M.20 coping on the top of chute walls.				
		As per item No. 12.15 of Chapter 12.	m			
		Rate per m = a+b+c+d+e				

Note: Quantities are to be taken as per the designs and drawings.

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
3.18	**307 & 1606**	**Road side 'V' shaped Pucca Drains**				
		Construction of 'V' shaped road side pucca drain with 1st class brick work in cement Mortar 1 : 4 (1 cement : 4 river sand) laid brick on edge to specified lines, grades, levels and dimensions as per approved design and MoRD Technical Specification Clause 307, 1606. (Excluding the cost of excavation which would be paid separately)				
		Unit = sqm				
		Taking output = 8.00 sqm				
		a) Material				
		Brick	Nos.	413.00	12.45	5,141.85
		Cement mortar (1:4), Rates as per sub-analysis	cum	0.24	3,108.20	745.97
		b) Labour				
		Mate	day	0.07	310.00	21.70
		Mason (1st Class)	day	0.80	440.00	352.00
		Mazdoor (Unskilled)	day	1.60	310.00	496.00
		Bhisti	day	0.20	310.00	**62.00**
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**958.14**
		d) Contractor's profit @ 15 % on (a+b+c)				**1,166.65**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**89.44**
		Cost for 8 sqm = a+b+c+d				9,033.75
		Rate per cum = (a+b+c+d)/ 8				**1,129.22**
					say	***1129.20***
		Sub-analysis				
		Cement mortar 1:4 (1 cement : 4 sand)				
		Unit = cum				
		a) Material				
		Cement	*t*	*0.38*	*5,800.00*	*2,204.00*
		Sand	*cum*	*1.05*	*560.00*	*588.00*
		b) Labour				
		Mate	*day*	*0.04*	*310.00*	*12.40*
		Mazdoor (Unskilled)	*day*	*0.90*	*310.00*	*279.00*
		Bhisti	*day*	*0.08*	*310.00*	*24.80*
		Total material and labour = (a+b)				***3,108.20***
3.19	**307 & 1606**	**Dry brick pitching in road side drains**				
		Providing dry brick pitching in road side drain with 1st class brick laid on edge to specified lines, grades, levels and dimensions as per approved design and MoRD Technical Specification Clause 307, 1606. (Excluding the cost of excavation which would be paid separately)				
		Unit = sqm				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Taking output = 80.00 sqm				
		a) Material				
		Brick	Nos.	4,128.00	12.45	51,393.60
		b) Labour				
		Mate	day	0.24	310.00	74.40
		Mazdoor (Unskilled)	day	6.00	310.00	1,860.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**7,492.58**
		d) Contractor's profit @ 15 % on (a+b+c)				**9,123.09**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**699.44**
		Cost for 80 sqm = a+b+c+d+e				70,643.11
		Rate per cum = (a+b+c+d+e)/ 80				**883.04**
					say	***883.00***

Chapter 4

GRANULAR SUB-BASES, BASES (NON-BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
4.1	**401**	**Granular Sub-base with Well Graded Material (Table 400.1)**				
		(A) By Mix in Place Method				
		Construction of granular sub-base by providing well graded material spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with smooth wheel roller to achieve the desired density, complete as per MoRD Technical Specification Clause 401.				
		(i) For Grading I Material				
		Unit = cum				
		Taking output = 300 cum				
		a) Labour				
		Mate	day	0.48	310.00	148.80
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		Mazdoor (Unskilled)	day	10.00	310.00	3,100.00
		b) Machinery				
		Tractor mount grader @ 25 cum per hour	hour	12.00	320.00	3,840.00
		Three wheel 80-100 KN static roller @ 10 cum per hour	hour	30.00	392.00	11,760.00
		Tractor with Rotavator 25 cum per hour	hour	12.00	320.00	3,840.00
		Water tanker 6 kl capacity	hour	5.00	200.00	1,000.00
		c) Material				
		Well graded granular sub-base material as per Table 400.1				
		53 mm to 9.5 mm @ 50 per cent	cum	192.00	4,230.00	812,160.00
		9.5 mm to 2.36 mm @ 20 per cent	cum	77.00	4,920.00	378,840.00
		2.36 mm below @ 30 per cent	cum	115.00	2,536.00	291,640.00
		Water	kl	30.00	133.00	3,990.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**212,310.79**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**258,512.94**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**19,819.33**
		Cost for 300 cum = a+b+c+d+e+f				**2,001,751.85**
		Rate per cum = (a+b+c+d+e+f)/300				**6,672.51**
					say	***6672.50***
		(ii) For Grading II Material				
		Unit = cum				
		Taking output = 300 cum				
		a) Labour				
		Mate	day	0.48	310.00	148.80
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		Mazdoor (Unskilled)	day	10.00	310.00	3,100.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) Machinery				
		Tractor mount grader @ 25 cum per hour	hour	12.00	320.00	3,840.00
		Three wheel 80-100 KN static roller @ 10 cum per hour	hour	30.00	392.00	11,760.00
		Tractor with Rotavator 25 cum per hour	hour	12.00	320.00	3,840.00
		Water tanker 6 kl capacity	hour	5.00	200.00	1,000.00
		c) Material				
		Well graded granular sub-base material as per Table 400.1				
		26.5 mm to 9.5 mm @ 35 per cent	cum	134.00	4,425.00	592,950.00
		9.5 mm to 2.36 mm @ 25 per cent	cum	96.00	4,920.00	472,320.00
		2.36 mm below @ 40 per cent	cum	153.00	2,535.00	387,855.00
		Water	kl	30.00	133.00	3,990.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**208,163.93**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**253,463.66**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**19,432.21**
		Cost for 300 cum = a+b+c+d+e+f				**1,962,653.60**
		Rate per cum = (a+b+c+d+e+f)/300				**6,542.18**
					say	***6542.20***
		(iii) For Grading III Material				
		Unit = cum				
		Taking output = 300 cum				
		a) Labour				
		Mate	day	0.48	310.00	148.80
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		Mazdoor (Unskilled)	day	10.00	310.00	3,100.00
		b) Machinery				
		Tractor mount grader @ 25 cum per hour	hour	12.00	320.00	3,840.00
		Three wheel 80-100 KN static roller @ 10 cum per hour	hour	30.00	392.00	11,760.00
		Tractor with Rotavator 25 cum per hour	hour	12.00	320.00	3,840.00
		Water tanker 6 kl capacity	hour	5.00	200.00	1,000.00
		c) Material				
		Well graded granular sub-base material as per Table 400.1				
		9.5 mm to 4.75 mm @ 35 per cent	cum	134.00	4,920.00	659,280.00
		4.75 mm to 2.36 mm @ 12.5 per cent	cum	48.00	5,015.00	240,720.00
		2.36 mm below @ 52.5 per cent	cum	201.60	2,535.00	511,056.00
		Water	kl	30.00	133.00	3,990.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**202,253.23**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**246,266.71**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**18,880.45**
		Cost for 300 cum = a+b+c+d+e+f				**1,906,925.19**
		Rate per cum = (a+b+c+d+e+f)/300				**6,356.42**
					say	***6356.40***
401	**(B)**	**Plant Mix Method**				
		Construction of granular sub-base by providing well graded material, mixing in a mechanical mix plant at OMC, carraige of mixed material to work site upto lead of 1000 m spreading in uniform layers with motor grader on prepared surface and compacting with smooth wheel roller to achieve the desired density, complete as per MoRD Technical Specification Clause 401.				
		(i) For Grading I Material				
		Unit = cum				
		Taking output = 225 cum (450 t)				
		a) Labour				
		Mate	day	0.40	310.00	124.00
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		Mazdoor (Unskilled)	day	8.00	310.00	2,480.00
		b) Machinery				
		Wet mix plant @ 60 t capacity per hour	hour	7.50	3,365.00	25,237.50
		Water tanker 6 kl capacity 5 km lead with one trip per hour	hour	4.00	200.00	800.00
		Front end loader 0.9 cum bucket capacity 25 cum per hour	hour	9.00	920.00	8,280.00
		Tipper 5.5 cum @ 3 trips per hour	hour	13.60	334.00	4,542.40
		Tractor with Rotavator	hour	9.00	320.00	2,880.00
		Three wheel 80-100 KN static roller 10 cum per hour	hour	22.50	392.00	8,820.00
		c) Material				
		Well graded granular sub-base material as per Table 400.1				
		53 mm to 9.5 mm @ 50 per cent	cum	144.00	4,230.00	609,120.00
		9.5 mm to 2.36 mm @ 20 per cent	cum	57.00	4,920.00	280,440.00
		2.36 mm below @ 30 per cent	cum	86.40	2,536.00	219,110.40
		Water	kl	24.00	133.00	3,192.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**163,797.19**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**199,442.02**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**15,290.56**
		Cost for 225 cum = a+b+c+d+e+f				1,544,346.07
		Rate per cum = (a+b+c+d+e+f)/225				**6,863.76**
					say	***6863.80***
		(ii) For Grading II Material				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Unit = cum				
		Taking output = 225 cum (450 t)				
		a) Labour				
		Mate	day	0.40	310.00	124.00
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		Mazdoor (Unskilled)	day	8.00	310.00	2,480.00
		b) Machinery				
		Wet mix plant @ 60 t capacity per hour	hour	7.50	3,365.00	25,237.50
		Water tanker 6 kl capacity 5 km lead with one trip per hour	hour	4.00	200.00	800.00
		Front end loader 0.9 cum bucket capacity 25 cum per hour	hour	9.00	920.00	8,280.00
		Tipper 5.5 cum, 3 trips per hour	hour	13.60	334.00	4,542.40
		Tractor with Rotavator	hour	9.00	320.00	2,880.00
		Three wheel 80-100 KN static roller 10 cum per hour	hour	22.50	392.00	8,820.00
		c) Material				
		Well graded granular sub-base material as per Table 400.1				
		26.5 mm to 9.5 mm @ 35 per cent	cum	100.80	4,425.00	446,040.00
		9.5 mm to 2.36 mm @ 25 per cent	cum	72.00	4,920.00	354,240.00
		2.36 mm below @ 40 per cent	cum	115.20	2,535.00	292,032.00
		Water	kl	24.00	133.00	3,192.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**161,498.83**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**196,643.51**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**15,076.00**
		Cost for 225 cum = a+b+c+d+e+f				1,522,676.25
		Rate per cum = (a+b+c+d+e+f)/225				**6,767.45**
					say	***6767.40***
	(iii)	**For Grading III Material**				
		Unit = cum				
		Taking output = 225 cum (450 t)				
		a) Labour				
		Mate	day	0.40	310.00	124.00
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		Mazdoor (Unskilled)	day	8.00	310.00	2,480.00
		b) Machinery				
		Wet mix plant @ 60 t capacity per hour	hour	7.50	3,365.00	25,237.50
		Water tanker 6 kl capacity 5 km lead with one trip per hour	hour	4.00	200.00	800.00
		Front end loader 0.9 cum bucket capacity 25 cum per hour	hour	9.00	920.00	8,280.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Tipper 5.5 cum, 3 trips per hour	hour	13.60	334.00	4,542.40
		Tractor with Rotavator	hour	9.00	320.00	2,880.00
		Three wheel 80-100 KN static roller 10 cum per hour	hour	22.50	392.00	8,820.00
		c) Material				
		Well graded granular sub-base material as per Table 400.1				
		9.5 mm to 4.75 mm @ 35 per cent	cum	100.80	4,920.00	495,936.00
		4.75 mm to 2.36 mm @ 12.5 per cent	cum	36.00	5,015.00	180,540.00
		2.36 mm below @ 52.5 per cent	cum	151.20	2,535.00	383,292.00
		Water	kl	24.00	133.00	3,192.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**156,926.40**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**191,076.05**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**14,649.16**
		Cost for 225 cum = a+b+c+d+e+f				1,479,565.51
		Rate per cum = (a+b+c+d+e+f)/225				**6,575.85**
					say	***6575.80***
4.2	**405**	**Water Bound Macadam Sub-base/base**				
		1) WBM Grading 1				
		Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thicKNess, hand packing, rolling with three wheel 80-100 KN static roller in stages to proper grade and camber, applying and brooming, stone screening / binding materials to fill up the interstices of coarse aggregate, watering and compacting to the required density 'Grading 1' as per MoRD Technical Specification Clause 404.				
		(A) By Manual Means				
		Unit = cum				
		Taking output = 360 cum				
		a) Labour				
		Mate	day	10.08	310.00	3,124.80
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		Mazdoor (Unskilled)	day	250.00	310.00	77,500.00
		b) Machinery				
		Three wheel 80-100 KN static roller @ 10 cum per hour	hour	36.00	392.00	14,112.00
		Water tanker 6 kl capacity	hour	24.00	200.00	4,800.00
		c) Material (Refer Tables 400.7, 8, 9 and 10)				
		Aggregate				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Grading 1 90 mm to 45 mm @ 1.21 cum per 10 sqm for compacted thicKNess of 100 mm	cum	435.60	3,739.00	1,628,708.40
		Stone Screenings				
		Type A 13.2 mm for **Grading-1** @ 0.27 cum per 10 sqm	cum	97.20	4,525.00	439,830.00
		Binding Material				
		Binding Material @ 0.08 cum per 10 sqm for **grading 1** material	cum	28.80	17.05	491.04
		Water	kl	144.00	133.00	19,152.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**307,485.41**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**374,399.05**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**28,703.93**
		Cost for 360 cum = a+b+c+d+e+f				2,899,096.62
		Rate per cum = (a+b+c+d+e+f)/360				**8,053.05**
					say	***8053.00***
		(B) By Mechanical Means				
		Unit = cum				
		Taking output = 360 cum				
		a) Labour				
		Mate	day	0.68	310.00	210.80
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		Mazdoor (Unskilled)	day	15.00	310.00	4,650.00
		b) Machinery				
		Tractor with Rotavator	hour	14.40	320.00	4,608.00
		Three wheel 80-100 KN static roller @ 10 cum per hour	hour	36.00	392.00	14,112.00
		Water tanker 6 kl capacity	hour	24.00	200.00	4,800.00
		c) Material (Refer Tables 400.7, 8, 9 and 10)				
		Aggregate				
		Grading 1 90 mm to 45 mm @ 1.21 cum per 10 sqm for compacted thicKNess of 100 mm	cum	435.60	3,739.00	1,628,708.40
		Stone Screening				
		Type A 13.2 mm for **Grading-1** @ 0.27 cum per 10 sqm	cum	97.20	4,525.00	439,830.00
		Binding Material				
		Binding Material @ 0.08 cum per 10 sqm for **Grading 2** material	cum	28.80	17.05	491.04
		Water	kl	144.00	133.00	19,152.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**297,487.99**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**362,226.03**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**27,770.66**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Cost for 360 cum = a+b+c+d+e+f				2,804,836.93
		Rate per cum = (a+b+c+d+e+f)/360				**7,791.21**
					say	***7791.20***
		2) WBM Grading 2				
		Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thicKNess, hand packing, rolling with smooth wheel roller 80-100 KN in stages to proper grade and camber, applying and brooming, stone screening / binding materials to fill up the interstices of coarse aggregate, watering and compacting to the required density 'Grading 2' as per MoRD Technical Specification Clause 405.				
		(A) By Manual Means				
		Unit = cum				
		Taking output = 360 cum				
		a) Labour				
		Mate	day	10.08	310.00	3,124.80
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		Mazdoor (Unskilled)	day	250.00	310.00	77,500.00
		b) Machinery				
		Three wheel 80-100 KN static roller @ 8 cum per hour	hour	45.00	392.00	17,640.00
		Water tanker 6 kl capacity	hour	24.00	200.00	4,800.00
		c) Material (Refer Tables 400.7, 8, 9 and 10)				
		Aggregate				
		Grading 2 63 mm to 45 mm @ 0.91 cum per 10 sqm for compacted thicKNess of 75 mm	cum	435.60	3,986.00	1,736,301.60
		Stone Screening				
		Type B 11.2 mm for **Grading 2** @ 0.20 cum per 10 sqm	cum	96.01	4,890.00	469,488.90
		Binding Material				
		Binding Material @ 0.06 cum per 10 sqm for **Grading 2** material	cum	28.80	17.05	491.04
		Water	kl	144.00	133.00	19,152.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**327,265.01**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**398,483.00**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**30,550.36**
		Cost for 360 cum = a+b+c+d+e+f				3,085,586.72
		Rate per cum = (a+b+c+d+e+f)/360				**8,571.07**
					say	***8571.10***
		(B) By Mechanical Means				
		Unit = cum				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Taking output = 360 cum				
		a) Labour				
		Mate	day	0.68	310.00	210.80
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		Mazdoor (Unskilled)	day	15.00	310.00	4,650.00
		b) Machinery				
		Tractor with Rotavator	hour	14.40	320.00	4,608.00
		Three wheel 80-100 KN static roller @ 8 cum per hour	hour	45.00	392.00	17,640.00
		Water tanker 6 kl capacity	hour	24.00	200.00	4,800.00
		c) Material (Refer Tables 400.7, 8, 9 and 10)				
		Aggregate				
		Grading 2 63 mm to 45 mm @ 0.91 cum per 10 sqm for compacted thicKNess of 75 mm	cum	435.60	3,986.00	1,736,301.60
		Stone Screening				
		Type B 11.2 mm for **Grading 2** @ 0.20 cum per 10 sqm	cum	96.01	4,890.00	469,488.90
		Binding Material				
		Binding Material @ 0.06 cum per 10 sqm for **Grading 2** material	cum	28.80	17.05	491.04
		Water	kl	144.00	133.00	19,152.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**317,267.59**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**386,309.99**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**29,617.10**
		Cost for 360 cum = a+b+c+d+e+f				2,991,327.02
		Rate per cum = (a+b+c+d+e+f)/360				**8,309.24**
					say	***8309.20***

Note: *Type A Screening can be used in Grading 2*

3) WBM Grading 3

Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thicKNess, hand packing, rolling with smooth wheel roller 80-100 KN in stages to proper grade and camber, applying and brooming, stone screening to fill up the interstices of coarse aggregate, watering and compacting to the required density 'Grading 3' as per MoRD Technical Specification Clause 405.

(A) By Manual Means

Unit = cum

Taking output = 360 cum

a) Labour					
Mate	day	10.08	310.00	3,124.80	

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		Mazdoor (Unskilled)	day	250.00	310.00	77,500.00
		b) Machinery				
		Three wheel 80-100 KN static roller @ 8 cum per hour	hour	45.00	392.00	17,640.00
		Water tanker 6 kl capacity	hour	24.00	200.00	4,800.00
		c) Material (Refer Tables 400.7, 8, 9 and 10)				
		Aggregate				
		Grading 3 53 mm to 22.4 mm @ 0.91 cum per 10 sqm for compacted thicKNess of 75 mm	cum	435.60	4,180.00	1,820,808.00
		Stone Screening				
		Type B 11.2 mm for **Grading 3** @ 0.18 cum per 10 sqm	cum	86.40	4,890.00	422,496.00
		Water	kl	144.00	133.00	19,152.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**332,466.67**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**404,816.62**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**31,035.94**
		Cost for 360 cum = a+b+c+d+e+f				3,134,630.03
		Rate per cum = (a+b+c+d+e+f)/360				**8,707.31**
					say	***8707.30***
		(B) By Mechanical Means				
		Unit = cum				
		Taking output = 360 cum				
		a) Labour				
		Mate	day	0.68	310.00	210.80
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		Mazdoor (Unskilled)	day	15.00	310.00	4,650.00
		b) Machinery				
		Tractor with Rotavator	hour	14.40	320.00	4,608.00
		Three wheel 80-100 KN static roller @ 8 cum per hour	hour	45.00	392.00	17,640.00
		Water tanker 6 kl capacity	hour	24.00	200.00	4,800.00
		c) Material (Refer Tables 400.7, 8, 9 and 10)				
		Aggregate				
		Grading 3 53 mm to 22.4 mm @ 0.91 cum per 10 sqm for compacted thicKNess of 75 mm	cum	435.60	4,180.00	1,820,808.00
		Stone Screening				
		Type B 11.2 mm for **Grading 3** @ 0.18 cum per 10 sqm	cum	86.40	4,890.00	422,496.00
		Water	kl	144.00	133.00	19,152.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**322,469.25**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		e) Contractor's profit @ 15 % on (a+b+c+d)				**392,643.61**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**30,102.68**
		Cost for 360 cum = a+b+c+d+e+f				3,040,370.33
		Rate per cum = (a+b+c+d+e+f)/360				**8,445.47**
					say	***8445.50***
4.3	**406**	**Wet Mix Macadam**				
		Providing, laying, spreading and compacting stone aggregates to wet mix macadam specification including premixing the material with water at OMC in mechanical mixer (Pug Mill), carriage of mixed materials by tipper to site, laying in uniform layers in sub-base / base course on a well prepared sub-base and compacting with smooth wheel roller of three wheel 80-100 KN static roller to proper grade and camber, achieve the desired density including lighting, barricading and maintenance of diversion, etc as per Tables 400.11 & 400.12 and as per MoRD Technical Specification Clause 406.				
		By Mechanical Means with 1.00 km lead				
		Unit = cum				
		Taking output = 100 cum				
		a) Labour				
		Mate	day	0.40	310.00	124.00
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		Mazdoor (Unskilled)	day	8.00	310.00	2,480.00
		b) Machinery				
		Front end loader 1 cum capacity	hour	4.00	920.00	3,680.00
		Wet mix plant (Pug Mill)	hour	4.00	3,365.00	13,460.00
		Tipper/Dumper (10 t) capacity	hour	5.00	334.00	1,670.00
		Tractor with Rotavator	hour	6.00	320.00	1,920.00
		Three wheel 80-100 KN static roller @ 16 cum per hour	hour	6.25	392.00	2,450.00
		Water tanker 6 kl capacity	hour	1.33	200.00	266.00
		c) Material				
		Coarse aggregate 45 mm to 22.4 mm @ 30.00 %	cum	39.90	4,485.00	178,951.50
		Aggregates 22.4 mm to 2.36 mm @ 40.00 %	cum	53.20	4,435.00	235,942.00
		Fine aggregate/Crushed stones 2.36 mm to 75 micron @ 30.00 %	cum	39.90	2,510.00	100,149.00
		Water	kl	8.00	133.00	1,064.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**76,283.98**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**92,884.57**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**7,121.15**
		Cost for 100 cum = a+b+c+d+e+f				719,236.21
		Rate per cum = (a+b+c+d+e+f)/100				**7,192.36**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	***7192.40***
4.4	**407**	**Construction of Shoulders as per Technical Specification Clause 407.**				
		A. Earthen Shoulders				
		The rate as applicable for Sub-grade construction may be adopted.				
		B. Hard Shoulders				
		Rate as applicable for Sub-base and/or Base may be adopted as per approved design.				
		C. Paved Shoulders				
		The rates may be adopted as applicable for different layers of pavement depending upon approved design of paved shoulders.				
4.5	**412**	**Brick Soling**				
		i) Brick on edge soling				
		Providing and laying brick on edge soling layer on prepared subgrade according to lines, grades and cross-section shown on the drawing, filling joints with sand, watering and rolling the same with three wheeled road roller 80-100 KN as per MoRD Technical Specification Clause 412.				
		Unit = sqm				
		Taking ouput = 150 sqm				
		(a) Labour				
		Mate	day	0.52	310.00	161.20
		Mazdoor (Unskilled)	day	10.00	310.00	3,100.00
		Mason 1st Class	day	3.00	440.00	1,320.00
		(b) Machinery				
		Three wheel 80-100 KN static roller @ 150 sqm per hour	hour	1.00	392.00	392.00
		Water tanker 6 kl capacity	hour	1.00	200.00	200.00
		(c) Material				
		Brick 1st Class	No.	7,800.00	12.45	97,110.00
		Fine Sand (local)	cum	5.66	460.00	2,603.60
		Water	kl	6.00	133.00	798.00
		(d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**14,848.71**
		(e) Contractor's profit @ 15 % on (a+b+c+d)				**18,080.03**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**1,386.14**
		Cost for 150 sqm = a+b+c+d+e+f				139,999.68
		Rate per sqm = (a+b+c+d+e+f)/150				**933.33**
					say	***933.30***
		ii) Flat Brick soling				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Providing and laying flat brick soling layer on prepared subgrade according to lines, grades and cross-section shown on the drawing, filling joints with Earth, free from clay with a Plasticity Index not exceeding 6, watering and rolling the same with three wheeled road roller 80-100 KN as per MoRD Technical Specification Clause 412.				
		Unit = sqm				
		Taking ouput = 198.75 sqm				
		(a) Labour				
		Mate	day	0.44	310.00	136.40
		Mazdoor (Unskilled)	day	8.00	310.00	2,480.00
		Mason 1st Class	day	3.00	440.00	1,320.00
		(b) Machinery				
		Three wheel 80-100 KN static roller @ 150 sqm per hour	hour	1.00	392.00	392.00
		Water tanker 6 kl capacity	hour	1.00	200.00	200.00
		(c) Material				
		Brick 1st Class	No.	6,161.00	12.45	76,704.45
		Earth, free from clay with a plasticity index not exceeding 6	cum	3.396	166.50	565.43
		Water	kl	3.60	133.00	478.80
		(d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**11,559.93**
		(e) Contractor's profit @ 15 % on (a+b+c+d)				**14,075.55**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**1,079.13**
		Cost for 198.75 sqm = a+b+c+d+e+f				108,991.69
		Rate per sqm = (a+b+c+d+e+f)/198.75				**548.39**
					say	***548.40***
		iii) Brick edging laid in full brick width				
		Providing and laying brick edging on prepared subgrade according to lines, grades and cross-section shown on the drawing, filling joints with Earth, free from clay with a Plasticity Index not exceeding 6, watering and rolling the same with three wheeled road roller 80-100 KN as per MoRD Technical Specification Clause 412.				
		Unit = m				
		Taking ouput = 10 m				
		(a) Labour				
		Mate	day	0.02	310.00	6.20
		Mazdoor (Unskilled)	day	0.30	310.00	93.00
		Mason 1st Class	day	0.24	440.00	105.60
		(b) Machinery				
		Three wheel 80-100 KN static roller @ 150 sqm per hour	hour	0.01	392.00	3.92
		Water tanker 6 kl capacity	hour	0.01	200.00	2.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(c) Material				
		Brick 1st Class	No.	125.00	12.45	1,556.25
		Earth, free from clay with a plasticity index not exceeding 6	cum	0.04	166.50	6.66
		Water	kl	0.04	133.00	5.32
		(d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**249.94**
		(e) Contractor's profit @ 15 % on (a+b+c+d)				**304.33**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**23.33**
		Cost for 10 m = a+b+c+d+e+f				2,356.56
		Rate per m = (a+b+c+d+e+f)/10				**235.66**
					say	***235.70***
		iv) Brick edging laid length wise				
		Providing and laying brick edging laid lengthwise on prepared subgrade according to lines, grades and cross-section shown on the drawing, filling joints with Earth, free from clay with a Plasticity Index not exceeding 6, watering and rolling the same with three wheeled road roller 80-100 KN as per MoRD Technical Specification Clause 412.				
		Unit = m				
		Taking ouput = 10 m				
		(a) Labour				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.15	310.00	46.50
		Mason 1st Class	day	0.10	440.00	44.00
		(b) Machinery				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Three wheel 80-100 KN static roller @ 150 sqm per hour	hour	0.005	392.00	1.96
		Water tanker 6 kl capacity	hour	0.005	200.00	1.00
		(c) Material				
		Brick 1st Class	No.	40.00	12.45	498.00
		Earth, free from clay with a plasticity index not exceeding 6	cum	0.02	166.50	3.33
		Water	kl	0.02	133.00	2.66
		(d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**84.38**
		(e) Contractor's profit @ 15 % on (a+b+c+d)				**102.74**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**7.88**
		Cost for 10 m = a+b+c+d+e+f				795.54
		Rate per m = (a+b+c+d+e+f)/10				**79.55**
					say	***79.60***

ADDITIONAL ITEMS BY USING JHAMA BRICK AGGREGATE (i.e. LOCALLY AVAILABLE MATERIALS)

4.6	**401**	**Granular Sub-base with Well Graded Material (Table 400.1) using Jhama Brick Aggregate**				
		(A) By Mix in Place Method				
		Construction of granular sub-base by providing well graded material (Jhama Brick Aggregate, Grading-I, as per Table 400.1 , spreading in uniform layers with tractor with attachments on prepared surface, mixing by mix in place method with rotavator at OMC, applying and brooming sand to fill up the interstices of coarse aggregate, watering and compacting with smooth wheel roller to achieve the desired density, complete as per MoRD Technical Specification Clause 401.				
		(i) For Grading I Material				
		Unit = cum				
		Taking output = 300 cum				
		a) Labour				
		Mate	day	0.48	310.00	148.80
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		Mazdoor (Unskilled)	day	10.00	310.00	3,100.00
		b) Machinery				
		Tractor mount grader @ 25 cum per hour	hour	12.00	320.00	3,840.00
		Three wheel 80-100 KN static roller @ 10 cum per hour	hour	30.00	392.00	11,760.00
		Tractor with Rotavator 25 cum per hour	hour	12.00	320.00	3,840.00
		Water tanker 6 kl capacity	hour	5.00	200.00	1,000.00
		c) Material				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Well graded granular sub-base material as per Table 400.1				
		53 mm to 0.075 mm @ 70 %	cum	268.80	3,403.69	914,910.54
		Fine Sand(local) @ 30 %	cum	115.00	460.00	52,900.00
		Water	kl	30.00	133.00	3,990.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**139,977.25**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**170,438.49**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**13,066.95**
		Cost for 300 cum = a+b+c+d+e+f				**1,319,762.03**
		Rate per cum = (a+b+c+d+e+f)/300				**4,399.21**
					say	***4399.20***
4.7	**405**	**Water Bound Macadam Sub-Base / Base using Jhama Brick Aggragate**				
		1) WBM Grading 2				
		Providing, laying, spreading and compacting jhama brick aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing rolling with three wheel roller 80-100 KN in stages to proper grade and camber, applying and brooming binding materials to fill up the interstices of coarse aggregate, watering and compacting to the required density Grading- 2 as per MoRD Technical Specification Clause 405.				
		(A) By Manual Means				
		Unit = cum				
		Taking output = 360 cum				
		a) Labour				
		Mate	day	10.08	310.00	3,124.80
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		Mazdoor (Unskilled)	day	250.00	310.00	77,500.00
		b) Machinery				
		Three wheel 80-100 KN static roller @ 8 cum per hour	hour	45.00	392.00	17,640.00
		Water tanker 6 kl capacity	hour	24.00	200.00	4,800.00
		c) Material (Refer Tables 400.7, 8, 9 and 10)				
		Aggregate				
		Grading 2, 63 mm to 22.4 mm @ 1.11 cum per 10 sqm for compacted thickness of 75 mm	cum	532.80	3,325.00	1,771,560.00
		Binding Material				
		Binding Material (earth) @ 0.06 cum per 10 sqm for **Grading 2** material	cum	28.80	17.05	491.04
		Water	kl	144.00	133.00	19,152.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**266,255.63**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		e) Contractor's profit @ 15 % on (a+b+c+d)				**324,197.02**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**24,855.10**
		Cost for 360 cum = a+b+c+d+e+f				2,510,365.59
		Rate per cum = (a+b+c+d+e+f)/360				**6,973.24**
					say	***6973.20***
		(B) By Mechanical Means				
		Unit = cum Taking output = 360 cum				
		a) Labour				
		Mate	day	0.68	310.00	210.80
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		Mazdoor (Unskilled)	day	15.00	310.00	4,650.00
		b) Machinery				
		Tractor with Rotavator	hour	14.40	320.00	4,608.00
		Three wheel 80-100 KN static roller @ 8 cum per hour	hour	45.00	392.00	17,640.00
		Water tanker 6 kl capacity	hour	24.00	200.00	4,800.00
		c) Material (Refer Tables 400.7, 8, 9 and 10)				
		Aggregate				
		Grading 2, 63 mm to 22.4 mm @ 1.11 cum per 10 sqm for compacted thickness of 75 mm	cum	532.80	3,325.00	1,771,560.00
		Binding Material				
		Binding Material(earth) @ 0.06 cum per 10 sqm for **Grading 2** material	cum	28.80	17.05	491.04
		Water	kl	144.00	133.00	19,152.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**256,258.21**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**312,024.01**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**23,921.84**
		Cost for 360 cum = a+b+c+d+e+f				2,416,105.90
		Rate per cum = (a+b+c+d+e+f)/360				**6,711.41**
					say	***6711.40***

Note: *Type A Screening can be used in Grading 2*

2) WBM Grading 3

Providing, laying, spreading and compacting jhama brick aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing rolling with three wheel roller 80-100 KN in stages to proper grade and camber, applying and brooming binding materials to fill up the interstices of coarse aggregate, watering and compacting to the required density Grading- 3 as per MoRD Technical Specification Clause 405.

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(A) By Manual Means				
		Unit = cum				
		Taking output = 360 cum				
		a) Labour				
		Mate	day	10.08	310.00	3,124.80
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		Mazdoor (Unskilled)	day	250.00	310.00	77,500.00
		b) Machinery				
		Three wheel 80-100 KN static roller @ 8 cum per hour	hour	45.00	392.00	17,640.00
		Water tanker 6 kl capacity	hour	24.00	200.00	4,800.00
		c) Material (Refer Tables 400.7, 8, 9 and 10)				
		Aggregate				
		Grading 3, 53 mm to 11.2 mm @ 1.09 cum per 10 sqm for compacted thickness of 75 mm	cum	523.20	3,403.69	1,780,808.01
		Binding Material				
		Binding Material(earth) @ 0.06 cum per 10 sqm for **Grading 3** material	cum	28.80	17.05	491.04
		Water	kl	144.00	133.00	19,152.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**267,554.97**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**325,779.12**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**24,976.40**
		Cost for 360 cum = a+b+c+d+e+f				2,522,616.35
		Rate per cum = (a+b+c+d+e+f)/360				**7,007.27**
					say	***7007.30***
		(B) By Mechanical Means				
		Unit = cum				
		Taking output = 360 cum				
		a) Labour				
		Mate	day	0.68	310.00	210.80
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		Mazdoor (Unskilled)	day	15.00	310.00	4,650.00
		b) Machinery				
		Tractor with Rotavator	hour	14.40	320.00	4,608.00
		Three wheel 80-100 KN static roller @ 8 cum per hour	hour	45.00	392.00	17,640.00
		Water tanker 6 kl capacity	hour	24.00	200.00	4,800.00
		c) Material (Refer Tables 400.7, 8, 9 and 10)				
		Aggregate				
		Grading 3, 53 mm to 11.2 mm @ 1.09 cum per 10 sqm for compacted thickness of 75 mm	cum	523.20	3,403.69	1,780,808.01

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Binding Material				
		Binding Material(earth) @ 0.06 cum per 10 sqm for **Grading 3** material	cum	28.80	17.05	491.04
		Water	kl	144.00	133.00	19,152.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**257,557.55**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**313,606.11**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**24,043.14**
		Cost for 360 cum = a+b+c+d+e+f				2,428,356.65
		Rate per cum = (a+b+c+d+e+f)/360				**6,745.44**
					say	***6745.40***
4.8	**406**	**Wet Mix Macadam**				
		Providing, laying, spreading and compacting 53 mm to 0.075 mm jhama brick aggregates to wet mix macadam specification including premixing the material with water at OMC in mechanical mixer (Pug Mill), carriage of mixed materials by tipper to site, laying in uniform layers in sub-base / base course on a well prepared sub-base and compacting with smooth wheel roller of three wheel 80-100 KN static roller to proper grade and camber, achieve the desired density including lighting, barricading and maintenance of diversion, etc as per Tables 400.11 & 400.12 and as per MoRD Technical Specification Clause 406.				
		By Mechanical Means with 1.00 km lead				
		Unit = cum				
		Taking output = 100 cum				
		a) Labour				
		Mate	day	0.40	310.00	124.00
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		Mazdoor (Unskilled)	day	8.00	310.00	2,480.00
		b) Machinery				
		Front end loader 1 cum capacity	hour	4.00	920.00	3,680.00
		Wet mix plant (Pug Mill)	hour	4.00	3,365.00	13,460.00
		Tipper/Dumper (10 t) capacity	hour	5.00	334.00	1,670.00
		Tractor with Rotavator	hour	6.00	320.00	1,920.00
		Three wheel 80-100 KN static roller @ 16 cum per hour	hour	6.25	392.00	2,450.00
		Water tanker 6 kl capacity	hour	1.33	200.00	266.00
		c) Material				
		Jhama brick aggregates 45 mm to 22.4 mm @ 30 per cent	cum	39.90	3,365.00	134,263.50
		Jhama brick aggregates 22.4 mm to 2.36 mm @ 40 per cent	cum	53.20	3,445.00	183,274.00
		Fine aggregate/Crushed brick 2.36 mm to 75 micron @ 30 per cent	cum	39.90	2,570.00	102,543.00
		Water	kl	8.00	133.00	1,064.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**62,941.82**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**76,638.95**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**5,875.65**
		Cost for 100 cum = a+b+c+d+e+f				593,440.92
		Rate per cum = (a+b+c+d+e+f)/100				**5,934.41**
					say	***5934.40***
4.9	**403**	**Lime Stabilisation for Improving Subgrade** Laying and spreading available soil in the subgrade on a prepared surface, pulverising, mixing the spread soil in place with rotavator with 2 per cent slaked lime having minimum 70 per cent of contents of CaO, grading with motor grader and compacting with the smooth wheel road roller at OMC to the desired density to form a layer of improved Sub-grade as per MoRD Technical Specification Cluase 403.				
		(A) By Manual Means				
		Unit = cum				
		Taking output = 150 cum (263 t)				
		a) Labour				
		Mate	day	1.44	310.00	446.40
		Mazdoor (Skilled)	day	1.00	395.00	395.00
		Mazdoor (Unskilled)	day	35.00	310.00	10,850.00
		b) Machinery				
		Three wheel 80-100 kN Static roller @ 70 cum per hour	hour	2.15	392.00	842.80
		Water tanker 6 kl capacity	hour	3.00	200.00	600.00
		c) Material				
		Lime	t	5.26	3,900.00	20,514.00
		Water	kl	18.00	133.00	2,394.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**5,063.93**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**6,165.92**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**472.72**
		Cost for 150 cum = a+b+c+d+e+f				47,744.77
		Rate per cum = (a+b+c+d+e+f)/150				**318.30**
					say	***318.30***
		(B) By Mechanical Means				
		Unit = cum				
		Taking output = 300 cum (525 t)				
		a) Labour				
		Mate	day	0.36	310.00	111.60
		Mazdoor (Skilled)	day	1.00	395.00	395.00
		Mazdoor (Unskilled)	day	8.00	310.00	2,480.00
		b) Machinery				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Tractor with ripper and rotavator attachments @ 60 cum per hour for ripping and 25 cum per hour for mixing	hour	12.00	223.00	2,676.00
		Motor grader 110 HP @ 50 cum per hour	hour	6.00	2,625.00	15,750.00
		Three wheel 80-100 kN static roller @ 70 cum per hour	hour	4.30	392.00	1,685.60
		Water tanker 6 kl capacity	hour	5.00	200.00	1,000.00
		c) Material				
		Lime	t	10.50	3,900.00	40,950.00
		Water	kl	30.00	133.00	3,990.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**9,699.87**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**11,810.71**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**905.49**
		Cost for 300 cum = a+b+c+d+e+f				91,454.26
		Rate per cum = (a+b+c+d+e+f)/300				**304.85**
					say	***304.80***

Note: *The exact quantity of lime shall be as per design.*

4.10	**403**	**Lime Treated Soil for Sub-Base** Providing, laying and spreading soil on a prepared sub-grade, pulverising, mixing the spread soil in place with rotavator with 4 per cent slaked lime with minimum content of 70 per cent of CaO, grading with motor grader and compacting with the road roller at OMC to achieve atleast 98 per cent of the max dry density to form a layer of sub-base as per MoRD Technical Specification Clause 403. Unit = cum Taking output = 300 cum (525 t)				
		a) Labour				
		Mate	day	0.48	310.00	148.80
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		Mazdoor (Unskilled)	day	10.00	310.00	3,100.00
		b) Machinery				
		Hydraulic Excavator 0.90 cum bucket capacity	hour	5.00	1,200.00	6,000.00
		Tipper 5.5 cum 4 trips per hour	hour	14.00	334.00	4,676.00
		Motor grader 110 HP @ 50 cum per hour	hour	6.00	2,625.00	15,750.00
		Three wheel 80-100 kN Static roller @ 70 cum per h	hour	4.30	392.00	1,685.60
		Tractor with rotavator and blade @ 25 cum per hour	hour	12.00	320.00	3,840.00
		Water tanker 6 kl capacity	hour	5.00	200.00	1,000.00
		c) Material				
		Lime	t	21.00	3,900.00	81,900.00
		Water	kl	30.00	133.00	3,990.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**17,264.70**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**21,021.76**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**1,611.67**
		Cost for 300 cum = a+b+c+d+e+f				162,778.53
		Rate per cum = (a+b+c+d+e+f)/300				**542.60**
					say	***542.60***
		Note: *The exact quantity of lime shall be as per design.*				
4.11	**404**	**Cement Treated Soil Sub-Base/Base** Providing, laying and spreading soil on a prepared sub-grade, pulverising, adding the designed quantity of cement to the spread soil, mixing in place with rotavator, grading with the motor grader and compacting with the road roller at OMC to achieve the desired unconfined compressive strength and to form a layer of sub-base/base as per MoRD Technical Specification Clause 404. Unit = cum Taking output = 300 cum (525 t)				
		For 4 per cent quantity of cement by weight of soil				
		a) Labour				
		Mate	day	0.48	310.00	148.80
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		Mazdoor (Unskilled)	day	10.00	310.00	3,100.00
		b) Machinery				
		Hydraulic Excavator 0.90 cum bucket capacity	hour	5.00	1,200.00	6,000.00
		Tipper 5.5 cum	hour	14.00	334.00	4,676.00
		Motor grader 110 HP @ 50 cum per hour	hour	6.00	2,625.00	15,750.00
		Three wheel 80-100 kN static roller @ 70 cum per hc	hour	4.30	392.00	1,685.60
		Tractor with rotavator and blade @ 25 cum per hour	hour	12.00	320.00	3,840.00
		Water tanker 6 kl capacity	hour	5.00	200.00	1,000.00
		c) Material				
		Cement at site @ 4% (of 525 t)	t	21.00	5,800.00	121,800.00
		Water	kl	30.00	133.00	3,990.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**22,870.65**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**27,847.66**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**2,134.99**
		Cost for 300 cum = a+b+c+d+e+f				215,633.69
		Rate per cum =(a+b+c+d+e+f)/300				**718.78**
					say	***718.80***
		Note: *The exact quantity of cement shall be as per design.*				
4.12	**405**	**Water Bound Macadam Sub-Base / Base using Jhama Brick Aggragate**				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		1) WBM Grading 1				
		Providing, laying, spreading and compacting jhama brick aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing rolling with three wheel roller 80-100 KN in stages to proper grade and camber, applying and brooming binding materials to fill up the interstices of coarse aggregate, watering and compacting to the required density Grading- 1 as per MoRD Technical Specification Clause 405.				
		(A) By Manual Means				
		Unit = cum				
		Taking output = 360 cum				
		a) Labour				
		Mate	day	10.08	310.00	3,124.80
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		Mazdoor (Unskilled)	day	250.00	310.00	77,500.00
		b) Machinery				
		Three wheel 80-100 KN static roller @ 8 cum per hour	hour	45.00	392.00	17,640.00
		Water tanker 6 kl capacity	hour	24.00	200.00	4,800.00
		c) Material (Refer Tables 400.7, 8, 9 and 10)				
		Aggregate				
		Grading 1, 90 mm to 22.4 mm @ 1.48 cum per 10 sqm for compacted thickness of 100 mm	cum	532.80	3,224.00	1,717,747.20
		Binding Material				
		Binding Material (earth) @ 0.06 cum per 10 sqm for **Grading 1** material	cum	28.80	17.05	491.04
		Water	kl	144.00	133.00	19,152.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**258,694.93**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**314,991.00**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**24,149.31**
		Cost for 360 cum = a+b+c+d+e+f				2,439,080.27
		Rate per cum = (a+b+c+d+e+f)/360				**6,775.22**
					say	***6775.20***
		(B) By Mechanical Means				
		Unit = cum				
		Taking output = 360 cum				
		a) Labour				
		Mate	day	0.68	310.00	210.80
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		Mazdoor (Unskilled)	day	15.00	310.00	4,650.00
		b) Machinery				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Tractor with Rotavator	hour	14.40	320.00	4,608.00
		Three wheel 80-100 KN static roller @ 8 cum per hour	hour	45.00	392.00	17,640.00
		Water tanker 6 kl capacity	hour	24.00	200.00	4,800.00
		c) Material (Refer Tables 400.7, 8, 9 and 10)				
		Aggregate				
		Grading 1, 90 mm to 22.4 mm @ 1.48 cum per 10 sqm for compacted thickness of 100 mm	cum	532.80	3,224.00	1,717,747.20
		Binding Material				
		Binding Material(earth) @ 0.06 cum per 10 sqm for **Grading 1** material	cum	28.80	17.05	491.04
		Water	kl	144.00	133.00	19,152.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**248,697.51**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**302,817.98**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**23,216.05**
		Cost for 360 cum = a+b+c+d+e+f				2,344,820.58
		Rate per cum = (a+b+c+d+e+f)/360				**6,513.39**
					say	***6513.40***

Chapter 5
BASES AND SURFACE COURSES (BITUMINOUS)

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
5.1	**502**	**Prime Coat**				
		(i) Low porosity				
		Providing and applying primer coat with bitumen emulsion (SS-1) on prepared surface of granular base including cleaning of road surface and spraying primer at the rate of 0.70- 1.00 kg/sqm using mechanical means as per MoRD Technical Specification Clause 502.				
		Unit = sqm				
		Taking output = 1750 sqm				
		a) Labour				
		Mate	day	0.04	310.00	12.40
		Mazdoor (Unskilled)	day	1.00	310.00	310.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	1.40	345.00	483.00
		Air compressor 210 cfm	hour	1.40	210.00	294.00
		Bitumen emulsion pressure distributor @ 1750 sqm per hour	hour	1.00	202.00	202.00
		Water tanker 6 kl capacity 1 trip per hour	hour	0.50	200.00	100.00
		c) Material				
		Bitumen emulsion (SS-1) @ 0.85 kg per sqm	t	1.48	38,830.00	57,468.40
		Water	kl	3.00	133.00	399.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**8,327.27**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**10,139.41**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**777.35**
		Cost of 1750 sqm = a+b+c+d+e+f				78,512.83
		Rate per sqm = (a+b+c+d+e+f)/1750				**44.86**
					say	***44.90***
		(ii) Medium porosity				
		Providing and applying primer coat with bitumen emulsion (SS-1) on prepared surface of granular base including cleaning of road surface and spraying primer at the rate of 0.90- 1.20 kg/sqm using mechanical means as per MoRD Technical Specification Clause 502.				
		Unit = sqm				
		Taking output = 1750 sqm				
		a) Labour				
		Mate	day	0.10	310.00	31.00
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	1.40	345.00	483.00
		Air compressor 210 cfm	hour	1.40	210.00	294.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Bitumen emulsion pressure distributor @ 1750 sqm per hour	hour	1.00	202.00	202.00
		Water tanker 6 kl capacity 1 trip per hour	hour	0.50	200.00	100.00
		c) Material				
		Bitumen emulsion (SS-1) @ 1.05 kg per sqm	t	1.83	38,830.00	71,058.90
		Water	kl	3.00	133.00	399.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**10,282.90**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**12,520.62**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**959.91**
		Cost of 1750 sqm = a+b+c+d+e+f				96,951.33
		Rate per sqm = (a+b+c+d+e+f)/1750				**55.40**
					say	***55.40***
		(iii) High porosity				
		Providing and applying primer coat with bitumen emulsion (SS-1) on prepared surface of granular base including cleaning of road surface and spraying primer at the rate of 1.20- 1.50 kg/sqm using mechanical means as per MoRD Technical Specification Clause 502. Unit = sqm				
		Taking output = 1750 sqm				
		a) Labour				
		Mate	day	0.12	310.00	37.20
		Mazdoor (Unskilled)	day	3.00	310.00	930.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	1.40	345.00	483.00
		Air compressor 210 cfm	hour	1.40	210.00	294.00
		Bitumen emulsion pressure distributor @ 1750 sqm per hour	hour	1.00	202.00	202.00
		Water tanker 6 kl capacity 1 trip per hour	hour	0.50	200.00	100.00
		c) Material				
		Bitumen emulsion (SS-1) @ 1.35 kg per sqm	t	2.36	38,830.00	91,638.80
		Water	kl	3.00	133.00	399.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**13,218.80**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**16,095.42**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**1,233.98**
		Cost of 1750 sqm = (a+b+c+d+e+f)				124,632.20
		Rate per sqm = a+b+c+d+e+f/1750				**71.22**
					say	***71.20***
5.2	**503**	**Tack Coat**				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(i) Providing and applying tack coat with bitumen emulsion (RS-1) using emulsion distributor at the rate of 0.20 to 0.25 kg per sqm on the prepared bituminous surface cleaned with Hydraulic broom as per MoRD Technical Specification Clause 503.				
		Unit = sqm				
		Taking output = 1750 sqm				
		a) Labour				
		Mate	day	0.04	310.00	12.40
		Mazdoor (Unskilled)	day	1.00	310.00	310.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	1.40	345.00	483.00
		Air compressor 210 cfm	hour	1.40	210.00	294.00
		Emulsion pressure distributor @1750 sqm per hour	hour	1.00	202.00	202.00
		c) Material				
		Bitumen emulsion (RS-1) @ 0.225 kg per sqm	t	0.39	37,082.00	14,461.98
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**2,214.75**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**2,696.72**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**206.75**
		Cost of 1750 sqm = a+b+c+d+e+f				20,881.60
		Rate per sqm = (a+b+c+d+e+f)/1750				**11.93**
					say	***11.90***
		(ii) Providing and applying tack coat with bitumen emulsion (RS-1) using emulsion distributor at the rate of 0.25 to 0.30 kg per sqm on the prepared dry and hungry bituminous surface cleaned with Hydraulic broom as per MoRD Technical Specification Clause 503.				
		Unit = sqm				
		Taking output = 1750 sqm				
		a) Labour				
		Mate	day	0.04	310.00	12.40
		Mazdoor (Unskilled)	day	1.00	310.00	310.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	1.40	345.00	483.00
		Air compressor 210 cfm	hour	1.40	210.00	294.00
		Emulsion pressure distributor @1750 sqm per hour	hour	1.00	202.00	202.00
		c) Material				
		Bitumen emulsion (RS-1) @ 0.275 kg per sqm	t	0.48	37,082.00	17,799.36
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**2,683.66**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**3,267.66**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**250.52**
		Cost of 1750 sqm = a+b+c+d+e+f				25,302.60
		Rate per sqm = (a+b+c+d+e+f)/1750				**14.46**
					say	***14.50***
	(iii)	Providing and applying tack coat with bitumen emulsion (RS-1) using emulsion distributor at the rate of 0.25 to 0.30 kg per sqm on the prepared granular surface treated with primer & cleaned with Hydraulic broom as per MoRD Technical Specification Clause 503.				
		Unit = sqm				
		Taking output = 1750 sqm				
		a) Labour				
		Mate	day	0.04	310.00	12.40
		Mazdoor (Unskilled)	day	1.00	310.00	310.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	1.40	345.00	483.00
		Air compressor 210 cfm	hour	1.40	210.00	294.00
		Emulsion pressure distributor @1750 sqm per hour	hour	1.00	202.00	202.00
		c) Material				
		Bitumen emulsion (RS-1) @ 0.275 kg per sqm	t	0.48	37,082.00	17,799.36
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**2,683.66**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**3,267.66**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**250.52**
		Cost of 1750 sqm = a+b+c+d+e+f				25,302.60
		Rate per sqm = (a+b+c+d+e+f)/1750				**14.46**
					say	***14.50***
	(iv)	Providing and applying tack coat with bitumen emulsion (RS-1) using emulsion distributor at the rate of 0.30 to 0.35 kg per sqm on the prepared non-bituminous surfaces (cement concrete pavement) cleaned with Hydraulic broom as per MoRD Technical Specification Clause 503.				
		Unit = sqm				
		Taking output = 1750 sqm				
		a) Labour				
		Mate	day	0.04	310.00	12.40
		Mazdoor (Unskilled)	day	1.00	310.00	310.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	1.40	345.00	483.00
		Air compressor 210 cfm	hour	1.40	210.00	294.00
		Emulsion pressure distributor @1750 sqm per hour	hour	1.00	202.00	202.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		c) Material				
		Bitumen emulsion (RS-1) @ 0.325 kg per sqm	t	0.57	37,082.00	21,136.74
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**3,152.56**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**3,838.60**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**294.29**
		Cost of 1750 sqm = a+b+c+d+e+f				29,723.60
		Rate per sqm = (a+b+c+d+e+f) / 1750				**16.98**
					say	***17.00***

Note: *(i) An output of 1750 sqm has been considered in case of tack coat which can be covered by bituminous courses on the same day.*

(ii) The use of cutback bitumen (Medium Curing grade) as per IS:217 shall be restricted only for sites at sub-zero temperature or for emergency applications as directed by the Engineer.

5.3 504 Bituminous Macadam

Providing and laying bituminous macadam with hot mix plant using crushed aggregates of grading as per Table 500.4 premixed with bituminous binder, transported to site upto a lead of 1000 m laid over a previously prepared surface with paver finisher to the required grade, level and alignment and rolled to achieve the desired compaction as per MoRD Technical Specification Clause 504.

i. With Viscocity Graded Bitumen of VG-30.

Unit = cum

Taking output = 102.5 cum (225 t)

a) Labour					
Mate	day	0.52	310.00	161.20
Mazdoor (Unskilled)	day	10.00	310.00	3,100.00
Mazdoor (Skilled)	day	3.00	395.00	1,185.00
b) Machinery				
Batch mix HMP 40-60 THP @ 40 t per hour actual output	hour	6.00	12,100.00	72,600.00
Hydraulic broom @ 1250 sqm per hour	hour	1.10	345.00	379.50
Air compressor 210 cfm	hour	1.10	210.00	231.00
Paver finisher	hour	6.00	1,050.00	6,300.00
Generator 125 KVA	hour	6.00	445.00	2,670.00
Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00
Tipper 5.5 cum, 10 t capacity	hour	6.21	334.00	2,074.14
Three wheel 80-100 kN static roller for intial break down rolling, final and finishing rolling	hour	12.00	392.00	4,704.00
Vibratory roller 80-100 kN for intermediate rolling	hour	6.00	1,395.00	8,370.00
c) Material				
i) Bitumen (VG-30) @ 3.3 per cent of mix (Weight of mix = 102.5 x 2.2 = 225 t)	t	7.425	40,138.00	298,024.65

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		ii) Aggregate				
		Total weight of mix = 225 t				
		Weight of bitumen = 7.425 t				
		Weight of aggregate = 225 – 7.425 = 217.575 t				
		Taking density of aggregate = 1.5 t/cum				
		Volume of aggregate = 145.05 cum				
		(19 mm nominal size) as per Table 500.4	cum	145.05	4,720.00	684,636.00
		25 -10 mm - 40.00 % 58.02	cum			
		10– 5 mm - 40.00% 58.02	cum			
		5 mm and below - 20.00 % 29.01	cum			
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**153,138.75**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**186,464.14**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**14,295.58**
		Cost of 102.5 cum = a+b+c+d+e+f				1,443,853.96
		Rate per cum = a+b+c+d+e+f/102.5				**14,086.38**
					say	***14086.40***
		ii. With Viscocity Graded Bitumen of VG-20.				
		Unit = cum				
		Taking output = 102.5 cum (225 t)				
		a) Labour				
		Mate	day	0.52	310.00	161.20
		Mazdoor (Unskilled)	day	10.00	310.00	3,100.00
		Mazdoor (Skilled)	day	3.00	395.00	1,185.00
		b) Machinery				
		Batch mix HMP 40-60 THP @ 40 t per hour actual output	hour	6.00	12,100.00	72,600.00
		Hydraulic broom @ 1250 sqm per hour	hour	1.10	345.00	379.50
		Air compressor 210 cfm	hour	1.10	210.00	231.00
		Paver finisher	hour	6.00	1,050.00	6,300.00
		Generator 125 KVA	hour	6.00	445.00	2,670.00
		Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00
		Tipper 5.5 cum, 10 t capacity	hour	6.21	334.00	2,074.14
		Three wheel 80-100 kN static roller for intial break down rolling, final and finishing rolling	hour	12.00	392.00	4,704.00
		Vibratory roller 80-100 kN for intermediate rolling	hour	6.00	1,395.00	8,370.00
		c) Material				
		i) Bitumen (VG-20) @ 3.3 per cent of mix (Weight of mix = 102.5 x 2.2 = 225 t)	t	7.425	39,335.00	292,062.38
		ii) Aggregate				
		Total weight of mix = 225 t				
		Weight of bitumen = 7.425 t				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Weight of aggregate = 225 – 7.425 = 217.575 t				
		Taking density of aggregate = 1.5 t/cum				
		Volume of aggregate = 145.05 cum				
		(19 mm nominal size) as per Table 500.4	cum	145.05	4,720.00	684,636.00
		25 -10 mm - 40.00 % 58.02	cum			
		10– 5 mm - 40.00% 58.02	cum			
		5 mm and below - 20.00 % 29.01	cum			
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**152,301.05**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**185,444.14**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**14,217.38**
		Cost of 102.5 cum = a+b+c+d+e+f				1,435,955.78
		Rate per cum = a+b+c+d+e+f/102.5				**14,009.32**
					say	***14009.30***

Note:
1. *Although the rollers are required only for 3 hours as per norms of output, but the same have to be available at site for six hours as the hot mix plant and paver will take six hours for mixing and paving the output of 225 t considered in these analysis. To cater for the idle period of these rollers, their usage rates may be multiplied by a factor of 0.65.*
2. *Quantity of bitumen has been taken for analysis purpose. The actual quantity will depend upon job mix formula.*
3. *Labour for traffic control, watch and ward and other miscellaneous duties at site, including sundries have been included in administrative overheads of the contractor.*
4. *In case BM is laid over freshly laid tack coat, provision of Hydraulic broom and 2 mazdoor for the same shall be detected as the same has been included in the cost of tack coat.*
5. *Analysis is based on 1000 m lead of mixed material. Cost of additional cartage may be added as per site requirements.*

5.4 505 Built-Up Spray Grout

Providing, laying and rolling of built-up spray grout layer over prepared base consisting of a two layer composite construction of crushed coarse aggregates using motor grader for aggregates. Key stone chips spreader may be used with application of bituminous binder (Bitumen of VG-30) after each layer. and with key aggregates placed on top of the second layer to serve as a base, conforming to line, grades and cross section specified, the compacted layer thickness being 75 mm as per MoRD Technical Specification Clause 505.

(A) By Manual Means

Unit = sqm

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Taking output = 800 sqm (60 cum)				
		a) Labour				
		Mate	day	5.50	310.00	1,705.00
		Mazdoor (Unskilled)	day	100.50	310.00	31,155.00
		Chips spreader	day	10.00	310.00	3,100.00
		Bitumen Sprayer	day	2.50	355.00	887.50
		Mazdoor (Semi-Skilled)	day	25.50	355.00	9,052.50
		b) Machinery				
		Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	6.00	198.00	1,188.00
		Three wheel 80-100 kN static Roller	hour	6.00	392.00	2,352.00
		c) Material				
		Bitumen of VG-30 @ 30 kg per 10 sqm @ 15 kg per 10 sqm for each layer	t	2.40	40,138.00	96,331.20
		Crushed stone coarse aggregate passing 53 mm and retained on 2.8 mm sieve @ 1.00 cum per 10 sqm for each layer	cum	80.00	4,135.00	330,800.00
		Key aggregates passing 22.4 mm and retained on 2.8 mm sieve @ 0.13 cum per 10 sqm	cum	10.40	4,440.00	46,176.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**73,445.98**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**89,428.98**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**6,856.22**
		Cost of 800 sqm = a+b+c+d+e+f				692,478.38
		Rate per sqm = (a+b+c+d+e+f)/800				**865.60**
					say	***865.60***
	(B)	**By Mechanical Means**				
		Unit = sqm				
		Taking output = 3000 sqm (225 cum)				
		a) Labour				
		Mate	day	0.40	310.00	124.00
		Mazdoor (Unskilled)	day	8.00	310.00	2,480.00
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		b) Machinery				
		Hydraulic self propelled chip spreader both for aggregates and key aggregates @ 1500 sqm per hour for 3000 x 3 sqm	hour	6.00	3,629.00	21,774.00
		Bitumen presssure distributor for 3000x 2 sqm @ 1750 sqm per hour	hour	3.43	202.00	692.86
		Tipper 5.5 cum capacity	hour	10.00	334.00	3,340.00
		Three wheel 80-100 kN Static Roller @ 10 cum per hour	hour	22.50	392.00	8,820.00
		Front end loader 1 cum bucket capacity	hour	5.00	920.00	4,600.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		c) Material				
		Bitumen (VG-30) @ 30 kg per 10 sqm @ 15 kg per 10 sqm for each layer	t	9.00	40,138.00	361,242.00
		Crushed stone coarse aggregate passing 53 mm and retained on 2.8 mm sieve @ 1.00 cum per 10 sqm for each layer	cum	300.00	4,135.00	1,240,500.00
		Key aggregates passing 22.4 mm and retained on 2.8 mm sieve @ 0.13 cum per 10 sqm	cum	39.00	4,440.00	173,160.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**255,361.96**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**310,932.72**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**23,838.18**
		Cost of 3000 sqm = a+b+c+d+e+f				2,407,655.72
		Rate per sqm = (a+b+c+d+e+f)/3000				**802.55**
					say	***802.60***
5.5	**507**	**Surface Dressing using Bituminous (viscocity grade) Binder** Providing and laying surface dressing as wearing course consisting of a layer of bituminous binder laid on the prepared surface, followed by a cover of crushed stone aggregates of specified size and rolling with three wheel 80-100 kN static roller including cleaning the road surface as per MoRD Technical Specification Clause 507.				
		(A) By Manual Means				
		Case – I: Nominal chipping size 13.2 mm				
		(I) Bitumen of VG-30				
		Unit = sqm				
		Taking output = 900 sqm				
		a) Labour				
		Mate	day	2.60	310.00	806.00
		Bitumen Sprayer	day	1.00	355.00	355.00
		Mazdoor (Unskilled)	day	58.00	310.00	17,980.00
		Mazdoor (Semi-Skilled)	day	6.00	355.00	2,130.00
		Add: 0.50 % of (a) Labour for sundries				106.36
		b) Machinery				
		Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	2.25	198.00	445.50
		Three wheel 80-100 kN static roller	hour	2.25	392.00	882.00
		c) Material				
		Bitumen (VG-30) @ 1.00 kg per sqm	t	0.90	40,138.00	36,124.20
		Crushed stone chipping, 13.2 mm nominal size @ 0.010 cum per sqm	cum	9.00	4,825.00	43,425.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**14,366.69**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**17,493.11**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**1,341.14**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Cost of 900 sqm = a+b+c+d+e+f				135,455.00
		Rate per sqm = (a+b+c+d+e+f)/900				**150.51**
					say	***150.50***
		(II) Bitumen of VG-20				
		Unit = sqm				
		Taking output = 900 sqm				
		a) Labour				
		Mate	day	2.60	310.00	806.00
		Bitumen Sprayer	day	1.00	355.00	355.00
		Mazdoor (Unskilled)	day	58.00	310.00	17,980.00
		Mazdoor (Semi-Skilled)	day	6.00	355.00	2,130.00
		Add: 0.50 % of (a) Labour for sundries				106.36
		b) Machinery				
		Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	2.25	198.00	445.50
		Three wheel 80-100 kN static roller	hour	2.25	392.00	882.00
		c) Material				
		Bitumen (VG-20) @ 1.00 kg per sqm	t	0.90	39,335.00	35,401.50
		Crushed stone chipping, 13.2 mm nominal size @ 0.010 cum per sqm	cum	9.00	4,825.00	43,425.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**14,265.16**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**17,369.48**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**1,331.66**
		Cost of 900 sqm = a+b+c+d+e+f				134,497.65
		Rate per sqm = (a+b+c+d+e+f)/900				**149.44**
					say	***149.40***
		Case – II: Nominal chipping size 9.5 mm				
		(I) Bitumen of VG-30				
		Unit = sqm				
		Taking output = 1000 sqm				
		a) Labour				
		Mate	day	2.60	310.00	806.00
		Bitumen Sprayer	day	1.00	355.00	355.00
		Mazdoor (Unskilled)	day	58.00	310.00	17,980.00
		Mazdoor (Semi-Skilled)	day	6.00	355.00	2,130.00
		Add: 0.50 % of (a) Labour for sundries				106.36
		b) Machinery				
		Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	2.00	198.00	396.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Three wheel 80-100 kN static roller	hour	2.00	392.00	784.00
		c) Material				
		Bitumen (VG-30) @ 0.90 kg per sqm	t	0.90	40,138.00	36,124.20
		Crushed stone chipping, 9.5 mm nominal size @ 0.008 cum per sqm	cum	8.00	4,720.00	37,760.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**13,550.04**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**16,498.74**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**1,264.90**
		Cost of 1000 sqm = a+b+c+d+e+f				127,755.24
		Rate per sqm = (a+b+c+d+e+f)/1000				**127.76**
					say	***127.80***
		(II) Bitumen of VG-20				
		Unit = sqm				
		Taking output = 1000 sqm				
		a) Labour				
		Mate	day	2.60	310.00	806.00
		Bitumen Sprayer	day	1.00	355.00	355.00
		Mazdoor (Unskilled)	day	58.00	310.00	17,980.00
		Mazdoor (Semi-Skilled)	day	6.00	355.00	2,130.00
		Add: 0.50 % of (a) Labour for sundries				106.36
		b) Machinery				
		Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	2.00	198.00	396.00
		Three wheel 80-100 kN static roller	hour	2.00	392.00	784.00
		c) Material				
		Bitumen (VG-20) @ 0.90 kg per sqm	t	0.90	39,335.00	35,401.50
		Crushed stone chipping, 9.5 mm nominal size @ 0.008 cum per sqm	cum	8.00	4,720.00	37,760.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**13,448.50**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**16,375.10**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**1,255.42**
		Cost of 1000 sqm = a+b+c+d+e+f				126,797.88
		Rate per sqm = (a+b+c+d+e+f)/1000				**126.80**
					say	***126.80***
		(B) By Mechanical Means				
		Case – I: Nominal chipping size 13.2 mm				
		(I) Bitumen of VG-30				
		Unit = sqm				
		Taking output = 7500 sqm				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Labour				
		Mate	day	0.44	310.00	136.40
		Mazdoor (Unskilled)	day	9.00	310.00	2,790.00
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	6.00	345.00	2,070.00
		Air compressor 210 cfm	hour	6.00	210.00	1,260.00
		Hydraulic self propelled chip spreader @ 1500 sqm per hour	hour	6.00	3,629.00	21,774.00
		Tipper 5.5 10 t capacity for carriage of stone chips from stockpile on road side to chip spreader	hour	6.00	334.00	2,004.00
		Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00
		Bitumen pressure distributor	hour	6.00	202.00	1,212.00
		Three wheel 80-100 kN static roller weight	hour	18.75	392.00	7,350.00
		c) Material				
		Bitumen (VG-30) @ 1.00 kg per sqm	t	7.50	40,138.00	301,035.00
		Crushed stone chipping, 13.2 mm nominal size @ 0.010 cum per sqm	cum	75.00	4,825.00	361,875.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**99,448.20**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**121,089.69**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**9,283.54**
		Cost of 7500 sqm = a+b+c+d+e+f				937,637.84
		Rate per sqm = (a+b+c+d+e+f)/7500				**125.02**
					say	***125.00***
		(II) Bitumen of VG-20				
		Unit = sqm				
		Taking output = 7500 sqm				
		a) Labour				
		Mate	day	0.44	310.00	136.40
		Mazdoor (Unskilled)	day	9.00	310.00	2,790.00
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	6.00	345.00	2,070.00
		Air compressor 210 cfm	hour	6.00	210.00	1,260.00
		Hydraulic self propelled chip spreader @ 1500 sqm per hour	hour	6.00	3,629.00	21,774.00
		Tipper 5.5 10 t capacity for carriage of stone chips from stockpile on road side to chip spreader	hour	6.00	334.00	2,004.00
		Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00
		Bitumen pressure distributor	hour	6.00	202.00	1,212.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Three wheel 80-100 kN static roller weight	hour	18.75	392.00	7,350.00
		c) Material				
		Bitumen (VG-20) @ 1.00 kg per sqm	t	7.50	39,335.00	295,012.50
		Crushed stone chipping, 13.2 mm nominal size @ 0.010 cum per sqm	cum	75.00	4,825.00	361,875.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**98,602.04**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**120,059.39**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**9,204.55**
		Cost of 7500 sqm = a+b+c+d+e+f				929,659.89
		Rate per sqm = (a+b+c+d+e+f)/7500				**123.95**
					say	***124.00***
		Case – II: Nominal chipping size 9.5 mm				
		(I) Bitumen of VG-30				
		Unit = sqm				
		Taking output = 7500 sqm				
		a) Labour				
		Mate	day	0.44	310.00	136.40
		Mazdoor (Unskilled)	day	9.00	310.00	2,790.00
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	6.00	345.00	2,070.00
		Air compressor 210 cfm	hour	6.00	210.00	1,260.00
		Hydraulic self propelled chips spreader @ 1500 sqm per hour	hour	6.00	3,629.00	21,774.00
		Tipper 5.5 10 t capacity for carriage of stone chips from stockpile on road side to chips spreader	hour	6.00	334.00	2,004.00
		Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00
		Bitumen pressure distributor @ 1750 sqm per hour	hour	6.00	202.00	1,212.00
		Three wheel 80-100 kN static roller weight	hour	15.00	392.00	5,880.00
		c) Material				
		Bitumen (VG-30) @ 0.90 kg per sqm	t	6.75	40,138.00	270,931.50
		Crushed stone chipping, 9.5 mm nominal size @ 0.008 cum per sqm	cum	60.00	4,720.00	283,200.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**83,958.29**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**102,228.93**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**7,837.55**
		Cost of 7500 sqm = a+b+c+d+e+f				791,592.67
		Rate per sqm = (a+b+c+d+e+f)/7500				**105.55**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	***105.50***
		(II) Bitumen of VG-20				
		Unit = sqm				
		Taking output = 7500 sqm				
		a) Labour				
		Mate	day	0.44	310.00	136.40
		Mazdoor (Unskilled)	day	9.00	310.00	2,790.00
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	6.00	345.00	2,070.00
		Air compressor 210 cfm	hour	6.00	210.00	1,260.00
		Hydraulic self propelled chips spreader @ 1500 sqm per hour	hour	6.00	3,629.00	21,774.00
		Tipper 5.5 10 t capacity for carriage of stone chips from stockpile on road side to chips spreader	hour	6.00	334.00	2,004.00
		Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00
		Bitumen pressure distributor @ 1750 sqm per hour	hour	6.00	202.00	1,212.00
		Three wheel 80-100 kN static roller weight	hour	15.00	392.00	5,880.00
		c) Material				
		Bitumen (VG-20) @ 0.90 kg per sqm	t	6.75	39,335.00	265,511.25
		Crushed stone chipping, 9.5 mm nominal size @ 0.008 cum per sqm	cum	60.00	4,720.00	283,200.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**83,196.74**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**101,301.66**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**7,765.10**
		Cost of 7500 sqm = a+b+c+d+e+f				784,411.15
		Rate per sqm = (a+b+c+d+e+f)/7500				**104.59**
					say	***104.60***
5.6	**507**	**Surface Dressing using Bitumen Emulsion**				
		Providing and laying surface dressing as wearing course consisting of a layer of bitumen emulsion laid on the prepared surface, followed by a cover of crushed stone chippings of specified size and rolling with three wheel 80-100 kN static roller including cleaning the road surface as per MoRD Technical Specification Clause 507.				
		(A) By Manual Means				
		Case – I: Nominal aggregate size 13.2 mm				
		Unit = sqm				
		Taking output = 900 sqm				
		a) Labour				
		Mate	day	2.36	310.00	731.60

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Bitumen Emulsion Sprayer	day	1.00	355.00	355.00
		Mazdoor (Unskilled)	day	58.00	310.00	17,980.00
		Add: 0.50 % of (a) Labour for sundries				95.33
		b) Machinery				
		Bitumen emulsion sprayer, capacity 1000 litre fitted with spray set	hour	2.25	202.00	454.50
		Three wheel 80-100 kN static roller	hour	2.25	392.00	882.00
		c) Material				
		Bitumen Emulsion (RS-1) @ 1.50 kg per sqm	t	1.35	37,082.00	50,060.70
		Crushed stone chipping, 13.2 mm nominal size @ 0.010 cum per sqm	cum	9.00	4,825.00	43,425.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**16,014.77**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**19,499.84**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**1,494.99**
		Cost of 900 sqm = a+b+c+d+e+f				150,993.73
		Rate per sqm = (a+b+c+d+e+f)/900				**167.77**
					say	***167.80***
		Case – II: Nominal chipping size 9.5 mm				
		Unit = sqm				
		Taking output = 1000 sqm				
		a) Labour				
		Mate	day	2.36	310.00	731.60
		Bitumen Sprayer	day	1.00	355.00	355.00
		Mazdoor (Unskilled)	day	58.00	310.00	17,980.00
		Add: 0.50 % of (a) Labour for sundries				95.33
		b) Machinery				
		Emulsion sprayer, capacity 1000 litre fitted with spray set	hour	2.00	202.00	404.00
		Three wheel 80-100 kN static roller	hour	2.00	392.00	784.00
		c) Material				
		Bitumen Emulsion (RS-1) @ 1.40 kg per sqm	t	1.40	37,082.00	51,914.80
		Crushed stone chipping, 9.5 mm nominal size @ 0.008 cum per sqm	cum	8.00	4,720.00	37,760.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**15,458.47**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**18,822.48**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**1,443.06**
		Cost of 1000 sqm = a+b+c+d+e+f				145,748.75
		Rate per sqm = (a+b+c+d+e+f)/1000				**145.75**
					say	***145.70***

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(B) By Mechanical Means				
		Case – I: Nominal chipping size 13.2 mm				
		Unit = sqm				
		Taking output = 7500 sqm				
		a) Labour				
		Mate	day	0.44	310.00	136.40
		Mazdoor (Unskilled)	day	9.00	310.00	2,790.00
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	6.00	345.00	2,070.00
		Air compressor 210 cfm	hour	6.00	210.00	1,260.00
		Hydraulic self propelled chip spreader @ 1500 sqm per hour	hour	6.00	3,629.00	21,774.00
		Tipper 5.5 10 t capacity for carriage of stone chips from stockpile on road side to chip spreader	hour	6.00	334.00	2,004.00
		Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00
		Bitumen Emulsion pressure distributor	hour	6.00	202.00	1,212.00
		Three wheel 80-100 kN static roller	hour	18.75	392.00	7,350.00
		c) Material				
		Bitumen Emulsion (RS-1) @ 1.50 kg per sqm	t	11.25	37,082.00	417,172.50
		Crushed stone chipping, 13.2 mm nominal size @ 0.010 cum per sqm	cum	75.00	4,720.00	354,000.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**114,659.09**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**139,610.70**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**10,703.49**
		Cost of 7500 sqm = a+b+c+d+e+f				1,081,052.17
		Rate per sqm = (a+b+c+d+e+f)/7500				**144.14**
					say	***144.10***
		Case – II: Nominal chipping size 9.5 mm				
		Unit = sqm				
		Taking output = 7500 sqm				
		a) Labour				
		Mate	day	0.44	310.00	136.40
		Mazdoor (Unskilled)	day	9.00	310.00	2,790.00
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	6.00	345.00	2,070.00
		Air compressor 210 cfm	hour	6.00	210.00	1,260.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Hydraulic self propelled chip spreader @ 1500 sqm per hour	hour	6.00	3,629.00	21,774.00
		Tipper 5.5 10 t capacity for carriage of stone chips from stockpile on road side to chip spreader	hour	6.00	334.00	2,004.00
		Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00
		Bitumen emulsion pressure distributor @ 1750 sqm per hour	hour	6.00	202.00	1,212.00
		Three wheel 80-100 kN static roller	hour	15.00	392.00	5,880.00
		c) Material				
		Bitumen Emulsion (RS-1) @ 1.40 kg per sqm	t	10.50	37,082.00	389,361.00
		Crushed stone chipping, 9.5 mm nominal size @ 0.008 cum per sqm	cum	60.00	4,720.00	283,200.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**100,597.63**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**122,489.26**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**9,390.84**
		Cost of 7500 sqm = a+b+c+d+e+f				948,475.13
		Rate per sqm = (a+b+c+d+e+f)/7500				**126.46**
					say	***126.50***

5.7 507.2.5 Pre-coating Chips

Pre-coating chips with 1 percent of paving bitumen by weight of chips in a suitable mixer duly heated to 160° C as per Technical Specification Clause 507.2.5.

Unit = cum

Taking output = 30 cum

a) Labour					
Mate	day	0.60	310.00	186.00
Mazdoor (Unskilled)	day	15.00	310.00	4,650.00
b) Machinery				
Bitumen boiler oil fired, capacity 1000 litre itre	hour	6.00	198.00	1,188.00
Mixall 6-10 t capacity	hour	6.00	765.00	4,590.00
c) Material				
Bitumen (VG-30) @1.00% by weight of chips (30x1.6)/100	t	0.48	40,138.00	19,266.24
d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**4,198.17**
e) Contractor's profit @ 15 % on (a+b+c+d)				**5,111.76**
f) Add Cess @ 1.00 % on (a+b+c+d+e)				**391.90**
Cost of 30 cum = a+b+c+d+e+f				39,582.08
Rate per cum = (a+b+c+d+e+f)/30				**1,319.40**
			say	***1319.40***

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
5.8	508	**20 mm thick Open-Graded Premix Carpet using Bituminous (viscocity grade/ modified bitumen) Binder** Providing, laying and rolling of open-graded premix carpet of 20 mm thickness composed of 13.2 mm to 5.6 mm aggregates either using viscocity grade bitumen or emulsion to required line, grade and level to serve as wearing course on a previously prepared base, including mixing in a suitable plant, laying and rolling with a three wheel 80 - 100 kN static roller capacity, finished to required level and grades to be followed by seal coat of either Type A or Type B or Type C or Type D as per MoRD Technical Specification Clause 508.				
		Case - I: By Manual Means				
		(I) Bitumen of VG-30				
		Unit = sqm				
		Taking output = 500 sqm (10 cum)				
		a) Labour				
		Mate	day	1.08	310.00	334.80
		Mazdoor (Unskilled)	day	21.00	310.00	6,510.00
		Mazdoor (Semi-Skilled)	day	6.00	355.00	2,130.00
		b) Machinery				
		Mixall 6/10 t capacity	hour	4.00	765.00	3,060.00
		Bitumen boiler oil fired1000 litre capacity fitted with spray set	hour	4.00	198.00	792.00
		Three wheel 80-100 kN static roller	hour	2.00	392.00	784.00
		c) Material				
		Bitumen (VG-30) @ 14.60 kg per 10 sqm	t	0.73	40,138.00	29,300.74
		Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.27 cum per 10 sqm	cum	13.50	4,825.00	65,137.50
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**15,180.89**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**18,484.49**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**1,417.14**
		Cost of 500 sqm = a+b+c+d+e+f				143,131.56
		Rate per sqm = (a+b+c+d+e+f)/500				**286.26**
					say	***286.30***
		(II) Bitumen of VG-20				
		Unit = sqm				
		Taking output = 500 sqm (10 cum)				
		a) Labour				
		Mate	day	1.08	310.00	334.80
		Mazdoor (Unskilled)	day	21.00	310.00	6,510.00
		Mazdoor (Semi-Skilled)	day	6.00	355.00	2,130.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) Machinery				
		Mixall 6/10 t capacity	hour	4.00	765.00	3,060.00
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	4.00	198.00	792.00
		Three wheel 80-100 kN static roller	hour	2.00	392.00	784.00
		c) Material				
		Bitumen (VG-20) @ 14.60 kg per 10 sqm	t	0.73	39,335.00	28,714.55
		Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.27 cum per 10 sqm	cum	13.50	4,825.00	65,137.50
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**15,098.53**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**18,384.21**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**1,409.46**
		Cost of 500 sqm = a+b+c+d+e+f				142,355.04
		Rate per sqm = (a+b+c+d+e+f)/500				**284.71**
					say	***284.70***
		Case - II: By Mechanical Means				
		(I) Bitumen of VG-30				
		Unit = sqm				
		Taking output = 4000 sqm (80 cum)				
		a) Labour				
		Mate	day	0.52	310.00	161.20
		Mazdoor (Unskilled)	day	10.00	310.00	3,100.00
		Mazdoor (Skilled)	day	3.00	395.00	1,185.00
		b) Machinery				
		HMP 30/40 t per hour	hour	6.00	8,900.00	53,400.00
		Electric generator set 125 KVA	hour	6.00	445.00	2,670.00
		Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00
		Tipper 5.5 10 t capacity	hour	3.64	334.00	1,215.76
		Paver finisher	hour	6.00	1,050.00	6,300.00
		Three wheel 80-100 kN static roller	hour	16.00	392.00	6,272.00
		c) Material				
		Bitumen (VG-30) @ 14.60 kg per 10 sqm	t	5.84	40,138.00	234,405.92
		Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.27 cum per 10 sqm	cum	108.00	4,825.00	521,100.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**117,363.85**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**142,904.06**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**10,955.98**
		Cost of 4000 sqm = a+b+c+d+e+f				1,106,553.77
		Rate per sqm = (a+b+c+d+e+f)/4000				**276.64**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	***276.60***
		(II) Bitumen of VG-20				
		Unit = sqm				
		Taking output = 4000 sqm (80 cum)				
		a) Labour				
		Mate	day	0.52	310.00	161.20
		Mazdoor (Unskilled)	day	10.00	310.00	3,100.00
		Mazdoor (Skilled)	day	3.00	395.00	1,185.00
		b) Machinery				
		HMP 30/40 t per hour	hour	6.00	8,900.00	53,400.00
		Electric generator set 125 KVA	hour	6.00	445.00	2,670.00
		Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00
		Tipper 5.5 10 t capacity	hour	3.64	334.00	1,215.76
		Paver finisher	hour	6.00	1,050.00	6,300.00
		Three wheel 80-100 kN static roller	hour	16.00	392.00	6,272.00
		c) Material				
		Bitumen (VG-20) @ 14.60 kg per 10 sqm	t	5.84	39,335.00	229,716.40
		Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.27 cum per 10 sqm	cum	108.00	4,825.00	521,100.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**116,704.97**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**142,101.80**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**10,894.47**
		Cost of 4000 sqm = a+b+c+d+e+f				1,100,341.60
		Rate per sqm = (a+b+c+d+e+f)/4000				**275.09**
					say	***275.10***
5.9	**508.2**	**20 mm thick Open Graded Premix Carpet using Bitumen Emulsion as per MoRD Technical Specification Clause 508.2.**				
		Providing , laying and rolling of open-graded premix carpet of 20 mm thickness composed of 13.2 mm to 5.6 mm aggregates using bitumen emulsion to required line, grade and level to serve as wearing course on a previously prepared base , including mixing in a suitable plant, laying and rolling with a three wheel 80 - 100 kN static roller capacity, finished to required level and grades to be followed by seal coat of either Type A or Type B or Type C or Type D as per MoRD Technical Specification Clause 508.2.				
		Unit = sqm				
		Taking output = 900 sqm (24.3 cum)				
		a) Labour				
		Mate	day	0.80	310.00	248.00
		Mazdoor (Unskilled)	day	18.00	310.00	5,580.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mazdoor (Skilled)	day	2.00	395.00	790.00
		b) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	6.00	192.00	1,152.00
		Three wheel 80-100 kN static roller	hour	3.60	392.00	1,411.20
		c) Material				
		Bitumen emulsion (RS-1) @ 21.50 kg per 10 sqm	t	1.94	37,082.00	71,939.08
		Crushed stone aggregates 13.2 mm to 5.6 mm @ 0.27 cum per 10 sqm	cum	24.30	4,825.00	117,247.50
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**27,870.67**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**33,935.77**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**2,601.74**
		Cost of 900 sqm = a+b+c+d+e+f				262,775.96
		Rate per sqm = (a+b+c+d+e+f)/900				**291.97**
					say	***292.00***
5.10	**509**	**Mix Seal Surfacing**				
		Providing , laying and rolling of close-graded premix surfacing material of 20 mm thickness composed of 11.2 mm to 0.9 mm (Type-A) or 13.2 mm to 0.9 mm (Type-B) aggregates using viscocity grade bitumen to required line, grade and level to serve as wearing course on a previously prepared base , including mixing in a suitable plant, laying and rolling with a three wheel 80 - 100 kN static roller , finishing to required level and grades as per MoRD Technical Specification Clause 509.				
		(A) By Manual Means				
		i) Type A				
		(I) Bitumen of VG-30				
		Unit = sqm				
		Taking output = 500 sqm				
		a) Labour				
		Mate	day	1.40	310.00	434.00
		Mazdoor (Unskilled)	day	21.00	310.00	6,510.00
		Mazdoor (Semi-Skilled)	day	7.00	355.00	2,485.00
		b) Machinery				
		Mixall 6-10 t capacity	hour	6.00	765.00	4,590.00
		Oil fired bitumen boiler 1000 litre capacity fitted with spray set	hour	6.00	198.00	1,188.00
		Three wheel 80-100 kN static roller	hour	6.00	392.00	2,352.00
		c) Material				
		Bitumen (VG-30) @ 22.00 kg per 10 sqm	t	1.10	40,138.00	44,151.80
		Stone crushed aggregates 11.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	cum	13.50	5,015.00	67,702.50

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**18,182.57**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**22,139.38**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**1,697.35**
		Cost of 500 sqm = a+b+c+d+e+f				171,432.60
		Rate per sqm = (a+b+c+d+e+f)/500				**342.87**
					say	***342.90***
		(II) Bitumen of VG-20				
		Unit = sqm				
		Taking output = 500 sqm				
		a) Labour				
		Mate	day	1.40	310.00	434.00
		Mazdoor (Unskilled)	day	21.00	310.00	6,510.00
		Mazdoor (Semi-Skilled)	day	7.00	355.00	2,485.00
		b) Machinery				
		Mixall 6-10 t capacity	hour	6.00	765.00	4,590.00
		Oil fired bitumen boiler 1000 litre capacity fitted with spray set	hour	6.00	198.00	1,188.00
		Three wheel 80-100 kN static roller	hour	6.00	392.00	2,352.00
		c) Material				
		Bitumen (VG-20) @ 22.00 kg per 10 sqm	t	1.10	39,335.00	43,268.50
		Stone crushed aggregates 11.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	cum	13.50	5,015.00	67,702.50
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**18,058.47**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**21,988.27**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**1,685.77**
		Cost of 500 sqm = a+b+c+d+e+f				170,262.50
		Rate per sqm = (a+b+c+d+e+f)/500				**340.53**
					say	***340.50***
		ii) Type B				
		(I) Bitumen of VG-30				
		Unit = sqm				
		Taking output = 500 sqm				
		a) Labour				
		Mate	day	1.40	310.00	434.00
		Mazdoor (Unskilled)	day	21.00	310.00	6,510.00
		Mazdoor (Semi-Skilled)	day	7.00	355.00	2,485.00
		b) Machinery				
		Mixall 6-10 t capacity	hour	6.00	765.00	4,590.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Oil fired bitumen boiler 1000 litre capacity fitted with spray set	hour	6.00	198.00	1,188.00
		Three wheel 80-100 kN static roller	hour	6.00	392.00	2,352.00
		c) Material				
		Bitumen (VG-30) @ 19.00 kg per 10 sqm	t	0.95	40,138.00	38,131.10
		Stone crushed aggregates 13.2 mm to 0.09 mm @ 0.27cum per 10 sqm	cum	13.50	5,015.00	67,702.50
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**17,336.66**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**21,109.39**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**1,618.39**
		Cost of 500 sqm = a+b+c+d+e+f				163,457.04
		Rate per sqm = (a+b+c+d+e+f)/500				**326.91**
					say	***326.90***
		(II) Bitumen of VG-20				
		Unit = sqm				
		Taking output = 500 sqm				
		a) Labour				
		Mate	day	1.40	310.00	434.00
		Mazdoor (Unskilled)	day	21.00	310.00	6,510.00
		Mazdoor (Semi-Skilled)	day	7.00	355.00	2,485.00
		b) Machinery				
		Mixall 6-10 t capacity	hour	6.00	765.00	4,590.00
		Oil fired bitumen boiler 1000 litre capacity fitted with spray set	hour	6.00	198.00	1,188.00
		Three wheel 80-100 kN static roller	hour	6.00	392.00	2,352.00
		c) Material				
		Bitumen (VG-20) @ 19.00 kg per 10 sqm	t	0.95	39,335.00	37,368.25
		Stone crushed aggregates 13.2 mm to 0.09 mm @ 0.27cum per 10 sqm	cum	13.50	5,015.00	67,702.50
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**17,229.48**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**20,978.88**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**1,608.38**
		Cost of 500 sqm = a+b+c+d+e+f				162,446.50
		Rate per sqm = (a+b+c+d+e+f)/500				**324.89**
					say	***324.90***
		B. By Mechanical Means				
		i) Type A				
		(I) Bitumen of VG-30				
		Unit = sqm				
		Taking output = 4000 sqm (80 cum)				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Labour				
		Mate	day	0.52	310.00	161.20
		Mazdoor (Unskilled)	day	10.00	310.00	3,100.00
		Mazdoor (Skilled)	day	3.00	395.00	1,185.00
		b) Machinery				
		HMP of appropriate capacity	hour	6.00	8,900.00	53,400.00
		Electric generator set 125 KVA	hour	6.00	445.00	2,670.00
		Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00
		Tipper 5.5 10 t capacity	hour	3.60	334.00	1,202.40
		Paver finisher	hour	6.00	1,050.00	6,300.00
		Three wheel 80-100 kN static roller	hour	18.00	392.00	7,056.00
		c) Material				
		Bitumen (VG-30) @ 22.00 kg per 10 sqm	t	8.80	40,138.00	353,214.40
		Stone crushed aggregates 11.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	cum	108.00	5,015.00	541,620.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**137,047.77**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**166,871.52**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**12,793.48**
		Cost of 4000 sqm = a+b+c+d+e+f				1,292,141.77
		Rate per sqm = (a+b+c+d+e+f)/4000				**323.04**
					say	***323.00***
	(II)	**Bitumen of VG-20**				
		Unit = sqm				
		Taking output = 4000 sqm (80 cum)				
		a) Labour				
		Mate	day	0.52	310.00	161.20
		Mazdoor (Unskilled)	day	10.00	310.00	3,100.00
		Mazdoor (Skilled)	day	3.00	395.00	1,185.00
		b) Machinery				
		HMP of appropriate capacity	hour	6.00	8,900.00	53,400.00
		Electric generator set 125 KVA	hour	6.00	445.00	2,670.00
		Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00
		Tipper 5.5 10 t capacity	hour	3.60	334.00	1,202.40
		Paver finisher	hour	6.00	1,050.00	6,300.00
		Three wheel 80-100 kN static roller	hour	18.00	392.00	7,056.00
		c) Material				
		Bitumen (VG-20) @ 22.00 kg per 10 sqm	t	8.80	39,335.00	346,148.00
		Stone crushed aggregates 11.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	cum	108.00	5,015.00	541,620.00

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BASES AND SURFACE COURSES (BITUMINOUS)

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**136,054.95**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**165,662.63**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**12,700.80**
		Cost of 4000 sqm = a+b+c+d+e+f				1,282,780.98
		Rate per sqm = (a+b+c+d+e+f)/4000				**320.70**
					say	***320.70***
		ii) Type B				
		(I) Bitumen of VG-30				
		Unit = sqm				
		Taking output = 4000 sqm (80 cum)				
		a) Labour				
		Mate	day	0.52	310.00	161.20
		Mazdoor (Unskilled)	day	10.00	310.00	3,100.00
		Mazdoor (Skilled)	day	3.00	395.00	1,185.00
		b) Machinery				
		HMP 30/40 t per hour	hour	6.00	8,900.00	53,400.00
		Electric generator set 125 KVA	hour	6.00	445.00	2,670.00
		Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00
		Tipper 5.5 10 t capacity	hour	3.60	334.00	1,202.40
		Paver finisher	hour	6.00	1,050.00	6,300.00
		Three wheel 80-100 kN static roller	hour	18.00	392.00	7,056.00
		c) Material				
		Bitumen (VG-30) @ 19.00 kg per 10 sqm	t	7.60	40,138.00	305,048.80
		Stone crushed aggregates 13.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	cum	108.00	5,015.00	541,620.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**130,280.51**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**158,631.59**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**12,161.75**
		Cost of 4000 sqm = a+b+c+d+e+f				1,228,337.25
		Rate per sqm = (a+b+c+d+e+f)/4000				**307.08**
					say	***307.10***
		(II) Bitumen of VG-20				
		Unit = sqm				
		Taking output = 4000 sqm (80 cum)				
		a) Labour				
		Mate	day	0.52	310.00	161.20
		Mazdoor (Unskilled)	day	10.00	310.00	3,100.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mazdoor (Skilled)	day	3.00	395.00	1,185.00
		b) Machinery				
		HMP 30/40 t per hour	hour	6.00	8,900.00	53,400.00
		Electric generator set 125 KVA	hour	6.00	445.00	2,670.00
		Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00
		Tipper 5.5 10 t capacity	hour	3.60	334.00	1,202.40
		Paver finisher	hour	6.00	1,050.00	6,300.00
		Three wheel 80-100 kN static roller	hour	18.00	392.00	7,056.00
		c) Material				
		Bitumen (VG-20) @ 19.00 kg per 10 sqm	t	7.60	39,335.00	298,946.00
		Stone crushed aggregates 13.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	cum	108.00	5,015.00	541,620.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**129,423.06**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**157,587.55**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**12,081.71**
		Cost of 4000 sqm = a+b+c+d+e+f				1,220,252.93
		Rate per sqm = (a+b+c+d+e+f)/4000				**305.06**
					say	***305.10***
5.11	**510**	**Seal Coat**				
		Providing and laying seal coat sealing the voids in a bituminous surface laid to the specified levels, grade and cross fall using Type A or Type B or Type C or Type D as per MoRD Technical Specification Clause 510.				
		A. By Manual Means				
		Case - I : Type A				
		(I) Bitumen of VG-30				
		Unit = sqm				
		Taking output = 1100 sqm				
		a) Labour				
		Mate	day	1.15	310.00	356.50
		Bitumen Sprayer	day	1.00	355.00	355.00
		Mazdoor (Unskilled)	day	22.00	310.00	6,820.00
		Mazdoor (Semi-Skilled)	day	6.00	355.00	2,130.00
		b) Machinery				
		Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	2.20	202.00	444.40
		Three wheel 80-100 kN static roller	hour	2.20	392.00	862.40
		c) Material				
		Bitumen (VG-30) @ 9.80 kg per 10 sqm	t	1.078	40,138.00	43,268.76

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Crushed stone chipping of 6.7 mm size 100 per cent passing 11.2 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum per 10 sqm	cum	9.90	4,430.00	43,857.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**13,782.22**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**16,781.44**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**1,286.58**
		Cost of 1100 sqm = a+b+c+d+e+f				129,944.30
		Rate per sqm = (a+b+c+d+e+f)/1100				**118.13**
					say	***118.10***
		(II) Bitumen of VG-20				
		Unit = sqm				
		Taking output = 1100 sqm				
		a) Labour				
		Mate	day	1.15	310.00	356.50
		Bitumen Sprayer	day	1.00	355.00	355.00
		Mazdoor (Unskilled)	day	22.00	310.00	6,820.00
		Mazdoor (Semi-Skilled)	day	6.00	355.00	2,130.00
		b) Machinery				
		Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	2.20	202.00	444.40
		Three wheel 80-100 kN static roller	hour	2.20	392.00	862.40
		c) Material				
		Bitumen (VG-20) @ 9.80 kg per 10 sqm	t	1.078	39,335.00	42,403.13
		Crushed stone chipping of 6.7 mm size 100 per cent passing 11.2 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum per 10 sqm	cum	9.90	4,430.00	43,857.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**13,660.59**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**16,633.35**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**1,275.22**
		Cost of 1100 sqm = a+b+c+d+e+f				128,797.60
		Rate per sqm = (a+b+c+d+e+f)/1100				**117.09**
					say	***117.10***
		Case - II : Type B				
		(I) Bitumen of VG-30				
		Unit = sqm				
		Taking output = 1250 sqm				
		a) Labour				
		Mate	day	0.85	310.00	263.50
		Mazdoor (Unskilled)	day	15.00	310.00	4,650.00
		Mazdoor (Semi-Skilled)	day	2.00	355.00	710.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) Machinery				
		Mixall 6/10 t capacity	hour	2.50	765.00	1,912.50
		Three wheel 80-100 kN static roller	hour	2.50	392.00	980.00
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	2.50	198.00	495.00
		c) Material				
		Bitumen (VG-30) @ 6.80 kg per 10 sqm	t	0.85	40,138.00	34,117.30
		Crushed stone or grit as passing 2.36 mm sieve and retained on 180 micron sieve applied @ 0.06 cum per 10 sqm	cum	7.50	2,510.00	18,825.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**8,704.44**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**10,598.66**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**812.56**
		Cost of 1250 sqm = a+b+c+d+e+f				82,068.96
		Rate per sqm = (a+b+c+d+e+f)/1250				**65.66**
					say	***65.70***
		(II) Bitumen of VG-20				
		Unit = sqm				
		Taking output = 1250 sqm				
		a) Labour				
		Mate	day	0.85	310.00	263.50
		Mazdoor (Unskilled)	day	15.00	310.00	4,650.00
		Mazdoor (Semi-Skilled)	day	2.00	355.00	710.00
		b) Machinery				
		Mixall 6/10 t capacity	hour	2.50	765.00	1,912.50
		Three wheel 80-100 kN static roller	hour	2.50	392.00	980.00
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	2.50	198.00	495.00
		c) Material				
		Bitumen (VG-20) @ 6.80 kg per 10 sqm	t	0.85	39,335.00	33,434.75
		Crushed stone or grit as passing 2.36 mm sieve and retained on 180 micron sieve applied @ 0.06 cum per 10 sqm	cum	7.50	2,510.00	18,825.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**8,608.54**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**10,481.89**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**803.61**
		Cost of 1250 sqm = a+b+c+d+e+f				81,164.80
		Rate per sqm = (a+b+c+d+e+f)/1250				**64.93**
					say	***64.90***
		Case - III : Type C				
		(I) Bitumen of VG-30				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Unit = sqm				
		Taking output = 1100 sqm				
		a) Labour				
		Mate	day	1.15	310.00	356.50
		Bitumen Sprayer	day	1.00	355.00	355.00
		Mazdoor (Unskilled)	day	22.00	310.00	6,820.00
		Mazdoor (Semi-Skilled)	day	5.00	355.00	1,775.00
		b) Machinery				
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	2.20	198.00	435.60
		Three wheel 80-100 kN static roller	hour	2.20	392.00	862.40
		c) Material				
		Bitumen (VG-30) @ 6.50 kg per 10 sqm	t	0.715	40,138.00	28,698.67
		Crushed stone chipping of 6.7 mm size defined as 100% passing 9.5 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum per 10 sqm.	cum	9.90	4,430.00	43,857.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**11,684.00**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**14,226.63**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**1,090.71**
		Cost of 1100 sqm = a+b+c+d+e+f				110,161.51
		Rate per sqm = (a+b+c+d+e+f)/1100				**100.15**
					say	***100.10***
	(II)	**Bitumen of VG-20**				
		Unit = sqm				
		Taking output = 1100 sqm				
		a) Labour				
		Mate	day	1.15	310.00	356.50
		Bitumen Sprayer	day	1.00	355.00	355.00
		Mazdoor (Unskilled) for carrying of chips & spraying	day	22.00	310.00	6,820.00
		Mazdoor (Semi-Skilled)	day	5.00	355.00	1,775.00
		b) Machinery				
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	2.20	198.00	435.60
		Three wheel 80-100 kN static roller	hour	2.20	392.00	862.40
		c) Material				
		Bitumen (VG-20) @ 6.50 kg per 10 sqm	t	0.715	39,335.00	28,124.53
		Crushed stone chipping of 6.7 mm size defined as 100% passing 9.5 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum per 10 sqm.	cum	9.90	4,430.00	43,857.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**11,603.34**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		e) Contractor's profit @ 15 % on (a+b+c+d)				**14,128.40**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**1,083.18**
		Cost of 1100 sqm = a+b+c+d+e+f				109,400.94
		Rate per sqm = (a+b+c+d+e+f)/1100				**99.46**
					say	***99.50***
		Case - IV : Type D (premix with fine sand)				
		(I) Bitumen of VG-30				
		Unit = sqm				
		Taking output = 1250 sqm				
		a) Labour				
		Mate	day	0.85	310.00	263.50
		Mazdoor (Unskilled)	day	15.00	310.00	4,650.00
		Mazdoor (Semi-Skilled)	day	2.00	355.00	710.00
		b) Machinery				
		Mixall 6/10 t capacity	hour	2.50	765.00	1,912.50
		Three wheel 80-100 kN static roller	hour	2.50	392.00	980.00
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	2.50	198.00	495.00
		c) Material				
		Bitumen (VG-30) @ 6.80 kg per 10 sqm	t	0.850	40,138.00	34,117.30
		Sand (fine) applied @ 0.06 cum per 10 sqm	cum	7.50	560.00	4,200.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**6,649.63**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**8,096.69**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**620.75**
		Cost of 1250 sqm = a+b+c+d+e+f				62,695.36
		Rate per sqm = (a+b+c+d+e+f)/1250				**50.16**
					say	***50.20***
		(II) Bitumen of VG-20				
		Unit = sqm				
		Taking output = 1250 sqm				
		a) Labour				
		Mate	day	0.85	310.00	263.50
		Mazdoor (Unskilled)	day	15.00	310.00	4,650.00
		Mazdoor (Semi-Skilled)	day	2.00	355.00	710.00
		b) Machinery				
		Mixall 6/10 t capacity	hour	2.50	765.00	1,912.50
		Three wheel 80-100 kN static roller	hour	2.50	392.00	980.00
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	2.50	198.00	495.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		c) Material				
		Bitumen (VG-20) @ 6.80 kg per 10 sqm	t	0.850	39,335.00	33,434.75
		Sand (fine) applied @ 0.06 cum per 10 sqm	cum	7.50	560.00	4,200.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**6,553.73**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**7,979.92**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**611.79**
		Cost of 1250 sqm = a+b+c+d+e+f				61,791.19
		Rate per sqm = (a+b+c+d+e+)/1250				**49.43**
					say	***49.40***
		B. By Mechanical Means				
		Case - I : Type A				
		(I) Bitumen of VG-30				
		Unit = sqm				
		Taking output = 7500 sqm (67.5 cum)				
		a) Labour				
		Mate	day	0.24	310.00	74.40
		Mazdoor (Unskilled)	day	6.00	310.00	1,860.00
		b) Machinery				
		Hydraulic self propelled chips spreader	hour	6.00	3,629.00	21,774.00
		Tipper 5.5 / 10 t capacity for carriage of stone chips from stockpile on the road to chip spreader	hour	6.00	334.00	2,004.00
		Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00
		Bitumen pressure distributor	hour	6.00	202.00	1,212.00
		Three wheel 80-100 kN static roller	hour	15.00	392.00	5,880.00
		c) Material				
		Bitumen (VG-30) @ 9.80 kg per 10 sqm	t	7.35	40,138.00	295,014.30
		Crushed stone chipping of 6.7 mm size 100 per cent passing 11.2 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum per 10 sqm	cum	67.50	4,430.00	299,025.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**88,847.10**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**108,181.62**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**8,293.92**
		Cost of 7500 sqm = a+b+c+d+e+f				837,686.34
		Rate per sqm = (a+b+c+d+e+f)/7500				**111.69**
					say	***111.70***
		(II) Bitumen of VG-20				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Unit = sqm				
		Taking output = 7500 sqm (67.5 cum)				
		a) Labour				
		Mate	day	0.24	310.00	74.40
		Mazdoor (Unskilled)	day	6.00	310.00	1,860.00
		b) Machinery				
		Hydraulic self propelled chips spreader	hour	6.00	3,629.00	21,774.00
		Tipper 5.5 / 10 t capacity for carriage of stone chips from stockpile on the road to chip spreader	hour	6.00	334.00	2,004.00
		Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00
		Bitumen pressure distributor	hour	6.00	202.00	1,212.00
		Three wheel 80-100 kN static roller	hour	15.00	392.00	5,880.00
		c) Material				
		Bitumen (VG-20) @ 9.80 kg per 10 sqm	t	7.35	39,335.00	289,112.25
		Crushed stone chipping of 6.7 mm size 100 per cent passing 11.2 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum per 10 sqm	cum	67.50	4,430.00	299,025.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**88,017.86**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**107,171.93**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**8,216.51**
		Cost of 7500 sqm = a+b+c+d+e+f				829,867.95
		Rate per sqm = (a+b+c+d+e+f)/7500				**110.65**
					say	***110.60***

Note: *Since seal coat is provided immediately over the bituminous layers, Hydraulic broom for cleaning has not been catered.*

510 Case - II : Type B

(I) Bitumen of VG-30

		Unit = sqm				
		Taking output = 5000 sqm (30 cum)				
		a) Labour				
		Mate	day	0.16	310.00	49.60
		Mazdoor (Unskilled)	day	4.00	310.00	1,240.00
		b) Machinery				
		HMP of 30/40 t per hour	hour	2.00	8,900.00	17,800.00
		Electric generator set 125 KVA	hour	2.00	445.00	890.00
		Front end loader 1 cum bucket capacity	hour	2.00	920.00	1,840.00
		Tipper 5.5 /10 t capacity	hour	1.36	334.00	454.24
		Paver finisher	hour	2.00	1,050.00	2,100.00

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BASES AND SURFACE COURSES (BITUMINOUS)

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Three wheel 80-100 kN static roller	hour	10.00	392.00	3,920.00
		c) Material				
		Bitumen (VG-30) @ 6.80 kg per 10 sqm	t	3.40	40,138.00	136,469.20
		Crushed stone or grit passing 2.36 mm sieve and retained on 180 micron sieve applied @ 0.06 cum per 10 sqm	cum	30.00	2,510.00	75,300.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**33,728.86**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**41,068.78**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**3,148.61**
		Cost of 5000 sqm = a+b+c+d+e+f				318,009.29
		Rate per sqm = (a+b+c+d+e+f)/5000				**63.60**
					say	***63.60***
		(II) Bitumen of VG-20				
		Unit = sqm				
		Taking output = 5000 sqm (30 cum)				
		a) Labour				
		Mate	day	0.16	310.00	49.60
		Mazdoor (Unskilled)	day	4.00	310.00	1,240.00
		b) Machinery				
		HMP of 30/40 t per hour	hour	2.00	8,900.00	17,800.00
		Electric generator set 125 KVA	hour	2.00	445.00	890.00
		Front end loader 1 cum bucket capacity	hour	2.00	920.00	1,840.00
		Tipper 5.5/ 10 t capacity	hour	1.36	334.00	454.24
		Paver finisher	hour	2.00	1,050.00	2,100.00
		Three wheel 80-100 kN static roller	hour	10.00	392.00	3,920.00
		c) Material				
		Bitumen (VG-20) @ 6.80 kg per 10 sqm	t	3.40	39,335.00	133,739.00
		Crushed stone or grit passing 2.36 mm sieve and retained on 180 micron sieve applied @ 0.06 cum per 10 sqm	cum	30.00	2,510.00	75,300.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**33,345.26**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**40,601.72**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**3,112.80**
		Cost of 5000 sqm = a+b+c+d+e+f				314,392.62
		Rate per sqm = (a+b+c+d+e+f)/5000				**62.88**
					say	***62.90***

Note: *Since seal coat is required to be provided over the premix carpet on the same day, out of the 6 working hours of the HMP, 4.00 hours are proposed to be utilised for the premix carpet and the balance 2.00 hours have been considered for this case.*

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BASES AND SURFACE COURSES (BITUMINOUS)

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Case - III : Type C				
		(I) Bitumen of VG-30				
		Unit = sqm				
		Taking output = 7500 sqm (67.5 cum)				
		a) Labour				
		Mate	day	0.20	310.00	62.00
		Mazdoor (Unskilled)	day	5.00	310.00	1,550.00
		b) Machinery				
		Hydraulic self propelled chips spreader	hour	6.00	3,629.00	21,774.00
		Tipper 5.5/ 10 t capacity	hour	6.00	334.00	2,004.00
		Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00
		Bitumen pressure distributor	hour	6.00	202.00	1,212.00
		Three wheel 80-100 kN static roller	hour	15.00	392.00	5,880.00
		c) Material				
		Bitumen (VG-30) @ 6.50 kg per 10 sqm	t	4.88	40,138.00	195,873.44
		Crushed stone chipping of 6.7 mm size 100 per cent passing 9.5 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum per 10 sqm	cum	67.50	4,430.00	299,025.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**74,872.51**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**91,165.94**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**6,989.39**
		Cost of 7500 sqm = a+b+c+d+e+f				705,928.28
		Rate per sqm = (a+b+c+d+e+f)/7500				**94.12**
					say	***94.10***
		(II) Bitumen of VG-20				
		Unit = sqm				
		Taking output = 7500 sqm (67.5 cum)				
		a) Labour				
		Mate	day	0.20	310.00	62.00
		Mazdoor (Unskilled)	day	5.00	310.00	1,550.00
		b) Machinery				
		Hydraulic self propelled chips spreader	hour	6.00	3,629.00	21,774.00
		Tipper 5.5/ 10 t capacity	hour	6.00	334.00	2,004.00
		Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00
		Bitumen pressure distributor	hour	6.00	202.00	1,212.00
		Three wheel 80-100 kN static roller	hour	15.00	392.00	5,880.00
		c) Material				
		Bitumen (VG-20) @ 6.50 kg per 10 sqm	t	4.88	39,335.00	191,954.80

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Crushed stone chipping of 6.7 mm size 100 per cent passing 9.5 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum per 10 sqm	cum	67.50	4,430.00	299,025.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**74,321.94**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**90,495.56**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**6,937.99**
		Cost of 7500 sqm = a+b+c+d+e+f				700,737.30
		Rate per sqm = (a+b+c+d+e+f)/7500				**93.43**
					say	***93.40***
5.12	**508**	**25 mm thick Open-Graded Premix Carpet using Bituminous (viscocity grade/ modified bitumen) Binder** Providing, laying and rolling of open-graded premix carpet of 25 mm thickness composed of 13.2 mm to 5.6 mm aggregates either using viscocity grade bitumen or emulsion to required line, grade and level to serve as wearing course on a previously prepared base, including mixing in a suitable plant, laying and rolling with a three wheel 80 - 100 kN static roller capacity, finished to required level and grades to be followed by seal coat of either Type A or Type B or Type C or Type D as per MoRD Technical Specification Clause 508.				
		Case - I: By Manual Means				
		(I) Bitumen of VG-30				
		Unit = sqm				
		Taking output = 400 sqm (10 cum)				
		a) Labour				
		Mate	day	1.08	310.00	334.80
		Mazdoor (Unskilled)	day	21.00	310.00	6,510.00
		Mazdoor (Semi-Skilled)	day	6.00	355.00	2,130.00
		b) Machinery				
		Mixall 6/10 t capacity	hour	4.00	765.00	3,060.00
		Bitumen boiler oil fired1000 litre capacity fitted with spray set	hour	4.00	198.00	792.00
		Three wheel 80-100 kN static roller	hour	2.00	392.00	784.00
		c) Material				
		Bitumen (VG-30) @ 18.25 kg per 10 sqm	t	0.73	40,138.00	29,300.74
		Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.34 cum per 10 sqm	cum	13.60	4,825.00	65,620.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**15,248.68**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**18,567.03**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**1,423.47**
		Cost of 400 sqm = a+b+c+d+e+f				143,770.73
		Rate per sqm = (a+b+c+d+e+f)/400				**359.43**

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BASES AND SURFACE COURSES (BITUMINOUS)

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	***359.40***
		(II) Bitumen of VG-20				
		Unit = sqm				
		Taking output = 400 sqm (10 cum)				
		a) Labour				
		Mate	day	1.08	310.00	334.80
		Mazdoor (Unskilled)	day	21.00	310.00	6,510.00
		Mazdoor (Semi-Skilled)	day	6.00	355.00	2,130.00
		b) Machinery				
		Mixall 6/10 t capacity	hour	4.00	765.00	3,060.00
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	4.00	198.00	792.00
		Three wheel 80-100 kN static roller	hour	2.00	392.00	784.00
		c) Material				
		Bitumen (VG-20) @ 18.25 kg per 10 sqm	t	0.73	39,335.00	28,714.55
		Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.34 cum per 10 sqm	cum	13.60	4,825.00	65,620.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**15,166.32**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**18,466.75**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**1,415.78**
		Cost of 400 sqm = a+b+c+d+e+f				142,994.21
		Rate per sqm = (a+b+c+d+e+f)/400				**357.49**
					say	***357.50***
		Case - II: By Mechanical Means				
		(I) Bitumen of VG-30				
		Unit = sqm				
		Taking output = 3200 sqm (80 cum)				
		a) Labour				
		Mate	day	0.52	310.00	161.20
		Mazdoor (Unskilled)	day	10.00	310.00	3,100.00
		Mazdoor (Skilled)	day	3.00	395.00	1,185.00
		b) Machinery				
		HMP 30/40 t per hour	hour	6.00	8,900.00	53,400.00
		Electric generator set 125 KVA	hour	6.00	445.00	2,670.00
		Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00
		Tipper 5.5/ 10 t capacity	hour	3.64	334.00	1,215.76
		Paver finisher	hour	6.00	1,050.00	6,300.00
		Three wheel 80-100 kN static roller	hour	16.00	392.00	6,272.00
		c) Material				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Bitumen (VG-30) @ 18.25 kg per 10 sqm	t	5.84	40,138.00	234,405.92
		Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.34 cum per 10 sqm	cum	108.80	4,825.00	524,960.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**117,906.18**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**143,564.41**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**11,006.60**
		Cost of 3200 sqm = a+b+c+d+e+f				1,111,667.07
		Rate per sqm = (a+b+c+d+e+f)/3200				**347.40**
					say	***347.40***
		(II) Bitumen of VG-20				
		Unit = sqm				
		Taking output = 3200 sqm (80 cum)				
		a) Labour				
		Mate	day	0.52	310.00	161.20
		Mazdoor (Unskilled)	day	10.00	310.00	3,100.00
		Mazdoor (Skilled)	day	3.00	395.00	1,185.00
		b) Machinery				
		HMP 30/40 t per hour	hour	6.00	8,900.00	53,400.00
		Electric generator set 125 KVA	hour	6.00	445.00	2,670.00
		Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00
		Tipper 5.5/ 10 t capacity	hour	3.64	334.00	1,215.76
		Paver finisher	hour	6.00	1,050.00	6,300.00
		Three wheel 80-100 kN static roller	hour	16.00	392.00	6,272.00
		c) Material				
		Bitumen (VG-20) @ 18.25 kg per 10 sqm	t	5.84	39,335.00	229,716.40
		Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.34 cum per 10 sqm	cum	108.80	4,825.00	524,960.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**117,247.30**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**142,762.15**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**10,945.10**
		Cost of 3200 sqm = a+b+c+d+e+f				1,105,454.91
		Rate per sqm = (a+b+c+d+e+f)/3200				**345.45**
					say	***345.50***

Chapter 6
CEMENT CONCRETE PAVEMENT

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
6.1	**400**	**Granual Sub-base**				
		Rate as per item No.4.1 of Chapter 4				
6.2	**1500 & 400**	**Water Bound Macadam (WBM) - Sub-base**				
		(A) By Manual Means				
		As per item No.4.2 of Chapter 4				
		(B) By Mechnical Means				
		As per item No.4.2 of Chapter 4				
6.3	**1500**	**Cement Concrete Pavement**				
		Construction of un-reinforced, dowel jointed at expansion and construction joint only, plain cement concrete pavement, thickness as per design, over a prepared sub base, with 43 grade cement or any other type as per Clause 1501.2.2 M30 (Grade), coarse and fine aggregates conforming to IS:383, maximum size of coarse aggregate not exceeding 25 mm, mixed in a concrete mixer of not less than 0.2 cum capacity and appropriate weigh batcher using approved mix design, laid in approved fixed side formwork (steel channel, laying and fixing of 125 micron thick polythene film, wedges, steel plates including levelling the formwork as per drawing), spreading the concrete with shovels, rakes, compacted using needle, screed and plate vibrators and finished in continuous operation including provision of contraction and expansion, construction joints, applying debonding strips, primer, sealant, dowel bars, near approaches to bridge/culvert and construction joints, admixtures as approved, curing of concrete slabs for 14-days,using curing compound (where specified) and water finishing to lines and grade as per drawing and MoRD Technical Specification Clause 1501.				
		Unit = cum				
		Taking output = 75 cum (172.50 t)				
		(100 m x 3.75 m x 0.200 m)				
		a) Labour				
		Mate	day	7.00	310.00	2,170.00
		Mason (1st class)	day	5.00	440.00	2,200.00
		Mason (2nd class)	day	5.00	395.00	1,975.00
		Mazdoor (Unskilled)	day	129.00	310.00	39,990.00
		Mazdoor (Skilled)	day	6.00	395.00	2,370.00
		Surveyor	day	2.00	550.00	1,100.00
		Mazdoor (Semi-Skilled)	day	6.00	355.00	2,130.00
		Bhisti	day	14.00	310.00	4,340.00
		Blacksmith for cutting of dowel bars including removal of burrs, fabrications & fixing of dowel bars.	day	1.00	418.00	418.00
		b) Machinery				
		Concrete mixer 0.28 / 0.4 cum capacity (6 mixers) with weigh batcher and suitable capacity calibrated water tank	hour	36.00	192.00	6,912.00
		Needle vibrator	hour	9.00	66.00	594.00
		Screed vibrator	hour	9.00	95.00	855.00
		Plate vibrator	hour	9.00	75.00	675.00
		Concrete joint cutting machine for initial & final cuts	hour	4.00	166.00	664.00

Chapter 6
CEMENT CONCRETE PAVEMENT

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Water tanker 6 kl capacity	hour	5.00	200.00	1,000.00
		Air Compressor (1 hour initial + 1 hour final)	hour	2.00	210.00	420.00
		c) Material				
		(i) Crushed stone coarse aggregates, grading will be as per Clause 1501.2.4.1 (Table 1500.1) of specifications @ 0.90 cum/cum of concrete	cum	67.50	4,825.00	325,687.50
		(ii) Sand as per IS:383 and conforming to Clause 1500.2.4.2 @ 0.45 cum/cum of concrete	cum	33.75	560.00	18,900.00
		(iii) Cement @ 310 kg/cum of concrete	t	26.25	5,800.00	152,250.00
		(iv) Polythene sheet 125 micron	sqm	412.50	21.50	8,868.75
		(v) Mild steel dowel bar 25 mm dia of grade S 240. 500 mm long 20 Nos. at culvert/bridge slab and at construction joint including 5 per cent wastage.				
		(4 x 20 x 0.500) + 5 per cent wastage = 42 m @ 2.80 kg per m = 117.6 kg.	kg	117.60	45.00	5,292.00
		Bitumen primer @ 200 ml per joint for 23 joints	t	0.005	50.00	0.25
		Bituminous sealant 800 ml per joint for 23 joints	litre	19.00	105.00	1,995.00
		Jute rope 12 mm dia including 5 per cent wastage	m	90.00	5.25	472.50
		Debonding strips 3.75 m (length) x 10 mm (width) x 5 mm (thick) cut-out of rubber filler board or similar material including 5 per cent wastage	m	90.00	22.25	2,002.50
		Polythene sheathing, covering 2/3rd dowel bars (25 mm x 1.0 m) and tight fit including 5 per cent wastage	No.	483.00	11.65	5,626.95
		Plasticizer 0.5 per cent by weight of cement	litre	122.00	39.00	4,758.00
		Curing compound (if used) @ 0.33 litre per sqm	litre	131.25	57.80	7,586.25
		Water for curing	kl	18.00	133.00	2,394.00
		Joint filler board 20 mm thick as per IS:1838 (4 x 3.75 x 0.200 = 3 sqm)	sqm	3.00	875.00	2,625.00
		d) Formwork @ 3% of (a+b+c)				**18,188.15**
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				**87,736.61**
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				**106,829.47**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**8,190.26**
		Cost for 75 cum = a+b+c+d+e+f+g				827,216.19
		Rate per cum = (a+b+c+d+e+f+g)/75				**11,029.55**
					say	***11029.50***

6.4 1500 Roller Compacted Concrete Pavement

Construction of Roller Compacted Concrete Pavement (RCCP) with coarse and fine aggregates conforming to IS:383, the size of coarse aggregate not exceeding 25 mm with minimum aggregate cement ratio of 5:1 and with minimum cement content of 310 kg per cum, aggregate gradation to be as per Table 602.2 after blending, mixing in concrete mixer at optimum moisture content, transporting to site, laying with wheel barrows or steel pans or with mechanical paver , compacting with 80 - 100 kN smooth wheel, tandem vibratory roller, to achieve, the designed flexural strength, finishing and curing as per drawing and MoRD technical specification Clause 1502.

Unit = cum

Taking output = 75 cum

Chapter 6
CEMENT CONCRETE PAVEMENT

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Labour				
		(i) Mate	day	6.00	310.00	1,860.00
		(ii) Mazdoor (Unskilled)	day	132.00	310.00	40,920.00
		(iii) Mason (1st class)	day	4.00	440.00	1,760.00
		(iv) Mason (2nd class)	day	4.00	395.00	1,580.00
		(v) Surveyor	day	2.00	550.00	1,100.00
		(vi) Bhisti	day	14.00	310.00	4,340.00
		b) Machinery				
		(i) Concrete mixer 0.28 / 0.4 cum capacity (6 mixers) with weigh batcher and suitable capacity calibrated water tank	hour	36.00	192.00	6,912.00
		(ii) Vibratory/80-100 kN Static Roller	hour	6.00	1,395.00	8,370.00
		(iii) Concrete joint cutting machine for day's end work and regular joint cutting.	hour	6.00	166.00	996.00
		(iv) Water tanker 6 kl capacity	hour	6.00	200.00	1,200.00
		(v) Air compressor (1 hour initial + 1 hour final)	hour	2.00	210.00	420.00
		c) Material				
		(i) Crushed stone coarse aggregates grading as per Clause 1501.2.4.1 (Table 1500.3) @ 0.90 cum/cum of concrete conforming to Clause 600.4.4	cum	67.50	4,825.00	325,687.50
		(ii) Sand as per IS:383 and conforming to Clause 1501.2.4.2 @ 0.45 cum/cum of concrete	cum	33.75	560.00	18,900.00
		(iii) Cement @ 310 kg/cum of concrete	t	23.25	5,800.00	134,850.00
		(iv) Bitminous primer @ 200 ml per joint for 21 joints	t	0.004	50.00	0.20
		(v) Jute rope 10 mm dia including 5 per cent wastage	m	90.00	5.25	472.50
		(vi) Bituminous sealant @ 800 ml per joint for 21 joints	kg	16.80	105.00	1,764.00
		(vii) Curing compound @ 0.33 litre per sqm	l	131.25	57.80	7,586.25
		(viii) Water for mixing and curing for 14-days	day	18.00	133.00	2,394.00
		d) Formwork @ 2% of (a+b+c)				**11,222.25**
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				**80,413.03**
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				**97,912.16**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**7,506.60**
		Cost for 75 cum = a+b+c+d+e+f+g				758,166.48
		Rate per cum = (a+b+c+d+e+f+g)/75				**10,108.89**
					say	***10108.90***

Note: *When curing compound is used 4-days water curing will be done*

6.5 1500 Rectangular Concrete Block Pavement

Manufacturing, laying of cement concrete blocks of size 0.450 m x 0.300 m x 0.150 m of Cement Concrete (C.C) M30 grade and spreading 25 mm thick sand under neath and filling joints with sand on existing W.B.M. base as per MoRD Technical Specification Clause 1503.

Unit = sqm

Chapter 6
CEMENT CONCRETE PAVEMENT

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Taking output = 112.5 sqm				
		Concrete M30 grade for block, 784 x (0.45 x 0.30 x 0.15)	cum	15.88	7,855.70	124,748.52
		Concrete M30 for edge block, 2 x 98 x (0.30 x 0.30 x 0.15)	cum	2.65	7,855.70	20,817.61
		TOTAL:-	**cum**	**18.53**		
		a) Labour				
		Labour for Manufacturing the Cement Concrete Block :				
		(i) Mate	day	3.00	310.00	930.00
		(ii) Mazdoor (Unskilled)	day	80.00	310.00	24,800.00
		(iii) Mason (2nd class)	day	12.00	395.00	4,740.00
		(iv) Bhisti	day	3.00	310.00	930.00
		b) Machinery				
		Concrete mixer 0.28 / 0.4 cum	hour	12.00	192.00	2,304.00
		Plate vibrator	hour	23.00	75.00	1,725.00
		Water tanker 6 kl capacity	hour	4.00	200.00	800.00
		c) Material				
		(i) Coarse aggregates 26.5mm to 75 micron as per Table 1500.1 (18.53 x 0.89)	cum	16.49	4,825.00	79,564.25
		(ii) Fine Sand (18.53 x .42) (considering 20% void)	cum	9.73	560.00	5,448.80
		(iii) Cement	t	7.41	5,800.00	42,978.00
		(iv) Sand as per Table 1500.5	cum	5.760	460.00	2,649.60
		Bed = 30 m x 3.75 x 0.025 = 2.81 cum				
		Joints = (240x4mm + 367.5 x 4mm)x 0.15 = 1.80 cum				
		Total = 4.61 cum (considering 20% void)				
		(v) Cost of water	kl	12.00	133.00	1,596.00
		d) Formwork @ 3% of (a+b+c)				**5,053.97**
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				**24,379.51**
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				**29,684.87**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**2,275.84**
		Cost for 112.5 sqm = a+b+c+d+e+f+g				229,859.83
		Rate per sqm = (a+b+c+d+e+f+g)/112.5				**2,043.20**
					say	***2043.20***

Note: *i. In case curing compound is used in places where there is scarcity of water, the water curing will be used for 4-days and rate analysis will be amended accordingly*

ii. Carriage of C.C. block to site of is payable seperately as per Chapter of carriage of material from manufacturing site to the site of work.

Chapter 7
CAUSEWAY AND SUBMERSIBLE BRIDGES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
7.1	1400, 300,	**Construction of Cut-off Walls/Head Walls**				
		(i) Earthwork in excavation for structures as per drawing and technical specification Clause 305.				
		Rate as per item No.11.1 of Chapter 11	cum			
		(ii) Plain cement concrete M15 grade				
		Rate as per item No.11.4 (ii) of Chapter 11	cum			
		(iii) Brick masonry in cement mortar 1:4				
		Rate as per item No.11.5 (ii) of Chapter 11	cum			
		(iv) Providing P.C.C M20 architectural coping on top of wall				
		Rate as per item No.12.11 of Chapter 12	m			
		Note: *Rate as appropriate for the type of soil/rock are to be taken in (i)*				
7.2	300	**Preparation of Subgrade**				
		Rate as per item No.3.13 of Chapter 3	cum			
7.3	400	**Granular Sub-base**				
		Rate as per item No.4.1 of Chapter 4	cum			
7.4	1500	**Cement Concrete Slab**				
		Rate as per item No.6.3 of Chapter 6	cum			
7.5	1400 & 1300	**(i) Providing and Laying of Apron with Cement Concrete Blocks as per Drawing and Technical Specification Clause 1301**				
		Rate as per item No.14.3 of Chapter 14	cum			
7.6	1400 & 1600	**Guide Posts**				
		Construction of R.C.C. guide posts of 250 mm dia, M25 grade as per drawing and technical specification Clause 1401.6				
		Rate as per item No.8.8 of Chapter 8	cum			
7.7	1400, 1100 &	**Bedding for Causeway**				
		(i) Type A (concrete cradle) Bedding Clause 1402.5				
		As per item No.9.2 of Chapter 9	cum			
		(ii) Type B (first class) Bedding Clause 1402.5				
		As per item No.9.2 of Chapter 9	cum			
7.8	1400 & 1100	**Laying Reinforced Cement Concrete Pipe NP3 as per drawing and technical specification Clause 1402.6**				
		As per item No.9.3 of Chapter 9	m			
		Note : 1 Rate as appropriate for the type of soil/rock are to be taken in (i) .				
		2 Appropriate items may also be taken from the relevant item of the relevant Chapters in case of usimg jhama brick aggregate.				

CHAPTER-16
Pile Foundation & Well Foundation for Bridge

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
16.1	1100, 1200, 1500, 1700	Bored Cast-in-Situ piles 1200 mm dia , M-25 grade RCC pile excluding reinforcement complete as per drawing and technical specification and removal of excavated earth with all lifts and lead upto 1000 m as per MoRT&H specification clause 1100, 1200, 1500, 1700.				
		Unit = meter				
		Sub-Analysis for R.C.C grade M 25				
		Unit = cum				
		Taking output = 15 cum				
		a) Material				
		Cement	*tonne*	*5.99*	*5800.00*	*34742.00*
		Fine sand	*cum*	*6.75*	*560.00*	*3780.00*
		40 mm Aggregate	*cum*	*5.40*	*4692.00*	*25336.80*
		20 mm Aggregate	*cum*	*5.40*	*4875.00*	*26325.00*
		10 mm Aggregate	*cum*	*2.70*	*4730.00*	*12771.00*
		Admixture	*kg*	*21.60*	*39.00*	*842.40*
		b) Labour				
		Mate	*day*	*1.20*	*310.00*	*372.00*
		Mason(1st class)	*day*	*1.80*	*440.00*	*792.00*
		Mazdoor (unskilled)	*day*	*25.95*	*310.00*	*8044.50*
		Bhisti	*day*	*4.05*	*310.00*	*1255.50*
		c) Machinery				
		Concrete mixer 0.40/0.28 cum capacity	*hour*	*6.00*	*192.00*	*1152.00*
		Generator 33 KVA	*hour*	*6.00*	*225.00*	*1350.00*
		Light crane 3 t capacity for lohandling tremie pipe	*hour*	*6.00*	*500.00*	*3000.00*
		Cost for 15.00 cum =		***119763.20***		
		Per Cum Basic Cost of Labour, Material & Machinery = (a+b+c)/ 15		***7984.30***		
		Analysis for PILING				
		Unit = Metre				
		Taking output = 9 Metre of Pile				
		a) Materials				
		Concrete Grade M25	cum	10.17	7984.30	81200.33
		Rate for concrete adopted same as for sub-analysis of item no. 16.1 above				
		Bentonite	kg	385.00	3.20	1232.00
		b) Labour				
		Mate	day	0.18	310.00	55.80
		Mazdoor(unskilled)	day	4.50	310.00	1395.00
		c) Machinery(for boring and construction)				
		Hydraulic piling Rig with bentonite pump.	hour	6.00	5417.00	32502.00
		Light crane 3 t capacity for lowering reinforcement cage	hour	0.50	500.00	250.00
		Front loader 1 cum bucket capacity.	hour	0.50	920.00	460.00
		Tipper 5.5 cum capacity for disposal of muck	hour	0.50	334.00	167.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				16475.33
		e) Contractor's profit @ 15 % on (a+b+c+d)				20060.62
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**1,537.98**

CHAPTER-16
Pile Foundation & Well Foundation for Bridge

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Cost for 9 m = a+b+c+d+d+e+f				155336.06
		Rate per metre (a+b+c+d+e+f)/9				17259.56
					say	***17259.60***
16.2	**1100, 1200, 1500, 1700**	**Bored Cast-in-Situ piles 1000 mm dia , M-25 grade RCC pile excluding reinforcement complete as per drawing and technical specification and removal of excavated earth with all lifts and lead upto 1000 m as per MoRT&H specification clause 1100, 1200, 1500, 1700.**				
		Unit = meter				
		Taking output = 10 m of pile				
		a) Materials				
		Concrete Grade M25	cum	7.85	7984.30	62676.76
		Rate for concrete adopted same as for sub-analysis of item no. 16.1 above				
		Bentonite	kg	350.00	3.20	1120.00
		b) Labour				
		Mate	day	0.16	310.00	49.60
		Mazdoor(unskilled)	day	4.00	310.00	1240.00
		c) Machinery(for boring and construction)				
		Hydraulic piling Rig with bentonite pump.	hour	6.00	5417.00	32502.00
		Light crane 3 t capacity for lowering reinforcement cage	hour	0.50	500.00	250.00
		Front loader 1 cum bucket capacity.	hour	0.40	920.00	368.00
		Tipper 5.5 cum capacity for disposal of muck from pile bore hole	hour	0.40	334.00	133.60
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				13816.76
		e) Contractor's profit @ 15 % on (a+b+c+d)				16823.51
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**1,289.80**
		Cost for 10 m = a+b+c+d+d+e+f				130270.03
		Rate per metre (a+b+c+d+e+f)/10				13027.00
					say	***13027.00***
16.3	**1100, 1200, 1500, 1700**	**Bored Cast-in-Situ piles 750 mm dia , M-25 grade RCC pile excluding reinforcement complete as per drawing and technical specification and removal of excavated earth with all lifts and lead upto 1000 m as per MoRT&H specification clause 1100, 1200, 1500, 1700.**				
		Unit = meter				
		Taking output = 15 m of pile				
		a) Materials				
		Concrete Grade M25	cum	6.62	7984.30	52856.07
		Rate for concrete adopted same as for sub-analysis of item no. 16.1 above				
		Bentonite	kg	300.00	3.20	960.00
		b) Labour				
		Mate	day	0.14	310.00	43.40
		Mazdoor(unskilled)	day	3.50	310.00	1085.00
		c) Machinery(for boring and construction)				
		Hydraulic piling Rig with bentonite pump.	hour	6.00	5417.00	32502.00

CHAPTER-16
Pile Foundation & Well Foundation for Bridge

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Light crane 3 t capacity for lowering reinforcement cage	hour	0.50	500.00	250.00
		Front loader 1 cum bucket capacity.	hour	0.30	920.00	276.00
		Tipper 5.5 cum capacity for disposal of muck from pile bore hole	hour	0.30	334.00	100.20
		d) Add GST (multiplying factor) @ 0.1405 on				12374.21
		e) Contractor's profit @ 15 % on (a+b+c+d)				15067.03
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**1,155.14**
		Cost for 15 m = a+b+c+d+d+e+f				116669.05
		Rate per metre (a+b+c+d+e+f)/15				7777.94
					say	***7777.90***
16.4	**1100, 1200, 1500, 1700**	**Bored Cast-in-Situ piles 600 mm dia , M-25 grade RCC pile excluding reinforcement complete as per drawing and technical specification and removal of excavated earth with all lifts and lead upto 1000 m as per MoRT&H specification clause 1100, 1200, 1500, 1700.**				
		Unit = meter				
		Taking output = 17 m of pile				
		a) Materials				
		Concrete Grade M25	cum	4.80	7984.30	38324.64
		Rate for concrete adopted same as for sub-analysis of item no. 16.1 above				
		Bentonite	kg	275.00	3.20	880.00
		b) Labour				
		Mate	day	0.12	310.00	37.20
		Mazdoor(unskilled)	day	3.50	310.00	1085.00
		c) Machinery(for boring and construction)				
		Hydraulic piling Rig with bentonite pump.	hour	6.00	5417.00	32502.00
		Light crane 3 t capacity for lowering reinforcement cage	hour	0.50	500.00	250.00
		Front loader 1 cum bucket capacity.	hour	0.30	920.00	276.00
		Tipper 5.5 cum capacity for disposal of muck from pile bore hole	hour	0.30	334.00	100.20
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				10320.43
		e) Contractor's profit @ 15 % on (a+b+c+d)				12566.32
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**963.42**
		Cost for 17 m = a+b+c+d+d+e+f				97305.21
		Rate per metre (a+b+c+d+e+f)/17				5723.84
					say	***5723.80***
16.5	**1100, 1200, 1500, 1700**	**Bored Cast-in-Situ piles 500 mm dia , M-25 grade RCC pile excluding reinforcement complete as per drawing and technical specification and removal of excavated earth with all lifts and lead upto 1000 m as per MoRT&H specification clause 1100, 1200, 1500, 1700.**				
		Unit = meter				
		Taking output = 22 m of pile				
		a) Materials				

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Pile Foundation & Well Foundation for Bridge

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Concrete Grade M25	cum	4.32	7984.30	34492.18
		Rate for concrete adopted same as for sub-analysis of item no. 16.1 above				
		Bentonite	kg	250.00	3.20	800.00
		b) Labour				
		Mate	day	0.10	310.00	31.00
		Mazdoor(unskilled)	day	3.25	310.00	1007.50
		c) Machinery(for boring and construction)				
		Hydraulic piling Rig with bentonite pump.	hour	6.00	5417.00	32502.00
		Light crane 3 t capacity for lowering reinforcement cage	hour	0.50	500.00	250.00
		Front loader 1 cum bucket capacity.	hour	0.30	920.00	276.00
		Tipper 5.5 cum capacity for disposal of muck from pile bore hole	hour	0.30	334.00	100.20
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				9758.97
		e) Contractor's profit @ 15 % on (a+b+c+d)				11882.68
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**911.01**
		Cost for 22 m = a+b+c+d+d+e+f				92011.53
		Rate per metre (a+b+c+d+e+f)/22				4182.34
					say	***4182.30***
16.6	**1200, 1500, 1700**	**Providing and laying RCC with M-25 grade concrete in Well Curb including cost of centering & shuttering, but excluding cost of reinforcement complete as per drawing and technical specification with all lifts and lead upto 1000 m as per MoRT&H specification clause 1200, 1500, 1700.**				
		Unit = cum				
		Taking output = 15 cum				
		a) Material				
		Cement	tonne	6.05	5800.00	35090.00
		Fine sand	cum	6.75	560.00	3780.00
		20 mm Aggregate	cum	8.10	4875.00	39487.50
		10 mm Aggregate	cum	5.40	4730.00	25542.00
		b) Labour				
		Mate	day	1.20	310.00	372.00
		Mason (1st calss)	day	1.80	440.00	792.00
		Mazdoor(unskilled)	day	25.95	310.00	8044.50
		Bhisti	day	4.05	310.00	1255.50
		c) Machinery				
		Concrete mixer (0.40/0.28 cum)	hour	6.00	192.00	1152.00
		Electric generator 33 KVA	hour	6.00	225.00	1350.00
		d) Formwork for Well Curb @ 20.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				23373.10
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				19703.52
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				23991.32
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**1,839.33**

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Pile Foundation & Well Foundation for Bridge

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Cost for 15 cum = a+b+c+d+e+f+g				185772.78
		Rate per cum = (a+b+c+d+e+f+g)/15				12384.85
					say	***12384.90***
16.7	**1200, 1500, 1700**	**Providing and laying RCC with M-20 grade concrete in Well Steining including cost of centering & shuttering, but excluding cost of reinforcement complete as per drawing and technical specification with all lifts and lead upto 1000 m as per MoRT&H specification clause 1200, 1500, 1700.** ***Unit : cum*** ***Taking Output = 15 cum***				
		a) Material				
		Cement	tonne	5.16	5800.00	29928.00
		Fine sand	cum	6.75	560.00	3780.00
		40 mm Aggregate	cum	5.40	4692.00	25336.80
		20 mm Aggregate	cum	5.40	4875.00	26325.00
		10 mm Aggregate	cum	2.70	4730.00	12771.00
		b) Labour				
		Mate	day	1.20	310.00	372.00
		Mason (1st calss)	day	1.80	440.00	792.00
		Mazdoor(unskilled)	day	29.95	310.00	9284.50
		Bhisti	day	4.05	310.00	1255.50
		c) Machinery				
		Concrete mixer (0.40/0.28 cum)	hour	6.00	192.00	1152.00
		Electric generator 33 KVA	hour	6.00	225.00	1350.00
		d) Formwork for Well Steining @ 10.00 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				11234.68
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				17363.20
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				21141.70
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**1,620.86**
		cost of 15 cum = a+b+c+d+e+f+g				163707.24
		Rate per cum (a+b+c+d+e+f+g)/15				10913.82
					say	***10913.80***
16.8	**1200, 1500, 1700**	**Providing and laying cast-in-situ PCC with M-20 grade concrete with 10% extra cement in bottom plug of well with minimum cement content 363 Kg/m3 as per drawing and technical specification with all lifts and lead upto 1000 m as per MoRT&H specification clause 1200, 1500, 1700.** ***Unit = cum*** ***Taking output = 15 cum***				
		a) Material				
		Cement including 10 % extra	tonne	5.45	5800.00	31610.00

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Pile Foundation & Well Foundation for Bridge

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Fine sand	cum	6.75	560.00	3780.00
		40 mm Aggregate	cum	5.40	4692.00	25336.80
		20 mm Aggregate	cum	5.40	4875.00	26325.00
		10 mm Aggregate	cum	2.70	4730.00	12771.00
		Admixture	Kg	18.60	39.00	725.40
		b) Labour				
		Mate	day	1.20	310.00	372.00
		Mason(1st class)	day	1.80	440.00	792.00
		Mazdoor (unskilled)	day	25.95	310.00	8044.50
		Bhisti	day	4.05	310.00	1255.50
		c) Machinery				
		Concrete mixer (capacity 0.40/0.28 cum)	hour	6.00	192.00	1152.00
		Generator 33 KVA	hour	6.00	225.00	1350.00
		Light Crane 3 tonnes capacity for handling tremie pipe	hour	6.00	500.00	3000.00
		Add extra for false steining required at the time of bottom plugging @ 5.00 % .				5825.71
		d) Add GST (multiplying factor) @ 0.1405 on				17188.76
		e) Contractor's profit @ 15 % on (a+b+c+d)				20929.30
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**1,604.58**
		cost of 15 cum = a+b+c+d+e+f				162062.55
		Rate per cum = (a+b+c+d+e+f)/15				10804.17
					say	***10804.20***
16.9	**1200, 1500, 1700**	**Providing and laying cast-in-situ PCC with M-20 grade concrete in top plug of well as per drawing and technical specification with all lifts and lead upto 1000 m as per MoRT&H specification clause 1200, 1500, 1700.**				
		Unit = cum				
		Taking output = 15 cum				
		a) Material				
		Cement including 10 % extra	tonne	5.16	5800.00	29928.00
		Fine sand	cum	6.75	560.00	3780.00
		40 mm Aggregate	cum	5.40	4692.00	25336.80
		20 mm Aggregate	cum	5.40	4875.00	26325.00
		10 mm Aggregate	cum	2.70	4730.00	12771.00
		b) Labour				
		Mate	day	1.20	310.00	372.00
		Mason(1st class)	day	1.80	440.00	792.00
		Mazdoor (unskilled)	day	25.95	310.00	8044.50
		Bhisti	day	4.05	310.00	1255.50
		c) Machinery				
		Concrete mixer (capacity 0.40/0.28 cum)	hour	6.00	192.00	1152.00

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Pile Foundation & Well Foundation for Bridge

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Generator 33 KVA	hour	6.00	225.00	1350.00
		d) Add GST (multiplying factor) @ 0.1405 on				15610.51
		e) Contractor's profit @ 15 % on (a+b+c+d)				19007.60
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**1,457.25**
		cost of 15 cum = a+b+c+d+e+f				147182.15
		Rate per cum = (a+b+c+d+e+f)/15				9812.14
					say	***9812.10***
16.10	**1200, 1500, 1700**	**Providing and laying RCC with M-25 grade concrete in well cap including the cost of centering & shuttering but excluding the cost of reinforcement as per drawing and technical specification with all lifts and lead upto 1000 m as per MoRT&H specification clause 1200, 1500, 1700.**				
		Unit : cum				
		Taking Output = 15 cum				
		a) Material				
		Cement	tonne	6.05	5800.00	35090.00
		Fine sand	cum	6.75	560.00	3780.00
		20 mm Aggregate	cum	8.10	4875.00	39487.50
		10 mm Aggregate	cum	5.40	4730.00	25542.00
		b) Labour				
		Mate	day	1.20	310.00	372.00
		Mason (1st calss)	day	1.80	440.00	792.00
		Mazdoor(unskilled)	day	25.95	310.00	8044.50
		Bhisti	day	4.05	310.00	1255.50
		c) Machinery				
		Concrete mixer (0.40/0.28 cum)	hour	6.00	192.00	1152.00
		Electric generator 33 KVA	hour	6.00	225.00	1350.00
		d) Formwork for Well Cap @ 3.75 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				4382.46
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				17035.34
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				20742.49
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**1,590.26**
		cost of 15 cum = a+b+c+d+e+f+g				160616.05
		Rate per cum (a+b+c+d+e+f+g)/15				10707.74
					say	***10707.70***

CHAPTER-16
Pile Foundation & Well Foundation for Bridge

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
16.11	**1200**	Sinking of wells of circular shape in all kinds of soil with or without water by all methods, other than pneumatic sinking including construction of cofferdams, wherever necessary including dressing for laying the well curbs, removal of underground snags, if any, such as logs, isolated boulders etc. encountered during sinking including use of Kentledge including supports, loading and unloading of weight etc.as per drawing and technical specification and removal of earths etc. with all lifts and lead upto 1000 m as per MoRT&H specification clause 1200. **Rates may be taken from the relevant items of chapter - 12 for Highways and MDRs. Rates given in item no. 16.11 is for analysis purpose only.**				
16.12	**1200, 1600, 1700 & 1900**	**Supplying, fabricating and placing in position MS cutting edge of well curbs consisting of MS flats, plates, angles etc. complete including the cost of nuts and bolts as per drawing and technical specification with all lifts and lead upto 1000 m as per MoRT&H specification clause 1200, 1600, 1700, 1900.** ***Unit = 1 MT*** ***Taking output = 1 Tonne*** **a) Material**				
		Structural steel in plates, angles, etc including 5 per cent wastage	tonne	1.05	47000.00	49350.00
		Nuts & bolts	Kg	20.00	82.30	1646.00
		Electrodes, cutting gas and other consumables for fabrication @ 10 per cent of cost of (a)				5099.60
		b) Labour				
		Mate	day	1.32	310.00	409.20
		Fitter	day	5.50	355.00	1952.50
		Blacksmith	day	5.50	418.00	2299.00
		Welder	day	5.50	440.00	2420.00
		Mazdoor(unskilled)	day	16.50	310.00	5115.00
		c) Add GST (multiplying factor) @ 0.1405 on				9594.93
		d) Contractor's profit @ 15 % on (a+b+c)				11682.93
		e) Add Cess @ 1.00 % on (a+b+c+d)				**895.69**
		Cost per Tonne (a+b+c+d+e)				90464.85
					say	***90464.90***
16.13	**2600**	**Supplying and installing strip seal type Elastomeric expansion joint of approved design and make as per drawing and technical specification clause 2600 of MoRT&H with all lifts and lead upto 1000 m.** Unit = Metre Taking ourtput = 1 Metre **a) Material**				
		Strip seal joint	m	1.00	9,430.00	9,430.00

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Pile Foundation & Well Foundation for Bridge

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Add 5 per cent for supervision by manufacturer				471.50
		b) Labour				
		Mate	day	0.10	310.00	31.00
		Mazdoor (Skilled)	day	1.00	395.00	395.00
		Mazdoor (Unskilled)	day	0.50	310.00	155.00
		Mason (1st calss)	day	0.50	440.00	220.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				1503.70
		d) Contractor's profit @ 15 % on (a+b+c)				1830.93
		e) Add Cess @ 1.00 % on (a+b+c+d)				**140.37**
		Cost for 1.00 m = a+b+c+d+e				14,177.50
		Rate per m = (a+b+c+d+e)/1				**14,177.50**
					say	***14177.50***
16.14	**2000**	**Supplying, fitting & fixing in position true to line & level elastomeric bearing conforming to IRC : 83 (Part-II) Section IX complete including all accessories with additional steel fixtures as per drawings & MoRT&H technical specification clause 2000 with all lifts and lead upto 1000 m.**				
		Unit: one cubic centimetre				
		Taking out put = 11400 cu.cm				
		Considering an elastomeric bearing of size 47.50 x 30.00 x 8.00 Cm for this analysis.				
		a) Material				
		Sub-Analysis of rate				
		Steel	*kg*	*1.00*	*47.00*	*47.00*
		Add for machine charges including drilling holes @ 20.00 %				*9.40*
				Total cost	***56.40***	
		Steel fixtures	*kg*	*68.00*	*56.40*	*3835.20*
		Add for 8 nos studs (4 short & 4 long) @ 10.00 %				*383.52*
		b) Add GST (multiplying factor) @ 0.1405 on (a)				592.73
		c) Contractor's profit @ 15 % on (a+b)				721.72
		d) Add Cess @ 1.00 % on (a+b+c)				55.33
		cost for 11400 cu.cm of elastomeric bearing = a+b+c+d				5588.50
		Rate per cu.cum of elastomeric bearing = (a+b+c+d)/11400				0.49
					say	***0.50***
		i. Cost of elestomeric bearing including fitting fixing				
		(Rate as per item no. 12.10 of Chapter 12	cu.cm	1.00	1.40	1.40
		ii. Cost for providing additional steel fixtures	cu.cm	1.000	0.50	0.50
		Cost per cu.cum including fixtures = (i+ii)				1.90
					say	***1.90***

Chapter 8
HILL ROADS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
8.1	**200**	**Site Clearance**				
		As per Chapter 2				
8.2	**1600 & 300**	**Earthwork in Hill Road**				
		(i) Excavation in Hilly Areas in Ordinary Soil by manual means.				
		A) Excavation in ordinary soil in Hilly Areas by manual means including cutting and trimming of side slopes and disposing of excavated earth with a lift upto 1.50 m and a lead upto 20 m as per drawing and MoRD Technical Specification Clause 1603.1.				
		Unit = cum				
		Taking output = 120 cum				
		a) Labour				
		Mate	day	2.40	310.00	744.00
		Mazdoor (Unskilled)	day	60.00	310.00	18,600.00
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**2,717.83**
		c) Contractor's profit @ 15 % on (a+b)				**3,309.27**
		d) Add Cess @ 1.00 % on (a+b+c)				**253.71**
		Cost for 120 cum = (a+b+c+d)				25,624.82
		Rate per cum = (a+b+c+d)/120				**213.54**
					say	***213.50***
		B) Extra for Every Additional Lift of 1.5 m or Part thereof				
		Excavation in Soil				
		Unit = cum				
		Taking output = 10 cum				
		a) Labour				
		Mazdoor (Unskilled)	day	0.55	310.00	170.50
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**23.96**
		c) Contractor's profit @ 15 % on (a+b)				**29.17**
		d) Add Cess @ 1.00 % on (a+b+c)				**2.24**
		Cost for 10 cum = (a+b+c+d)				225.86
		Rate per cum = (a+b+c+d)/10				**22.59**
					say	***22.60***
		(ii) Excavation in Hilly Areas in Ordinary Soil by mechanical means.				
		A) Excavation in ordinary soil in Hilly Areas by mechanical means including cutting and trimming of side slopes and disposing of excavated earth with a lift upto 1.50 m and a lead upto 20 m as per drawing and MoRD Technical Specification Clause 1603.1.				
		Unit = cum				
		Taking output = 260 cum				

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HILL ROADS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Labour				
		Mate	day	0.80	310.00	248.00
		Mazdoor (Unskilled) for trimming slopes and helping in excavation, etc.	day	20.00	310.00	6,200.00
		b) Machinery				
		Dozer D-50 @ 43.28 cum per hour	hour	6.00	2,370.00	14,220.00
		c) Overheads @ 10% on (a+b)				**2,903.85**
		d) Contractor's profit @ 10% on (a+b+c)				**3,535.78**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**271.08**
		Cost for 260 cum = a+b+c+d+e				27,378.71
		Rate per cum = (a+b+c+d+e)/260				**105.30**
					say	***105.30***
		B) Extra for Every Additional Lift of 1.5 m or Part thereof Excavation in Soil Unit = cum Taking output = 10 cum				
		a) Labour				
		Mazdoor (Unskilled)	day	0.55	310.00	170.50
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**23.96**
		c) Contractor's profit @ 15 % on (a+b)				**29.17**
		d) Add Cess @ 1.00 % on (a+b+c)				**2.24**
		Cost for 10 cum = (a+b+c+d)				225.86
		Rate per cum = (a+b+c+d)/10				**22.59**
					say	***22.60***

Note: *(i) In case the land on the valley side is barren and there is no objection for disposing of excavated earth on the valley side, the provision of front end loader and tipper shall be deleted as excavated earth shall be disposed off on the valley side.*

(ii) For disposal of excavated surplus earth beyond 20 m, the relevant items of carriage be followed.

(iii) In case, alternative machine like hydraulic excavator 0.9 cum bucket capacity is necessited because of site conditions, the same can be used.

(iii) Excavation in Hilly Area in Ordinary Rock by manual means

A) Excavation in ordinary rock using manual means including loading in a truck and carrying of excavated material to embankment site with a lift upto 1.50 m and lead upto 20 m as per MoRD Clause 1603.2.

Unit = cum

Taking output = 120 cum

a) Labour

Chapter 8
HILL ROADS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mate	day	5.28	310.00	1,636.80
		Mazdoor (Unskilled)	day	132.00	310.00	40,920.00
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**5,979.23**
		c) Contractor's profit @ 15 % on (a+b)				**7,280.40**
		d) Add Cess @ 1.00 % on (a+b+c)				**558.16**
		Cost for 120 cum = a+b+c+d				56,374.60
		Rate per cum = (a+b+c+d)/120				**469.79**
					say	***469.80***
		B) Extra for Every Additional Lift of 1.5 m or Part thereof For Ordinary Rock				
		Unit = cum				
		Taking output = 10 cum				
		a) Labour				
		Mazdoor (Unskilled)	day	0.86	310.00	266.60
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**37.46**
		c) Contractor's profit @ 15 % on (a+b)				**45.61**
		d) Add Cess @ 1.00 % on (a+b+c)				**3.50**
		Cost for 10 cum = a+b+c+d				353.16
		Rate per cum = (a+b+c+d)/10				**35.32**
					say	***35.30***
		(iv) Excavation in Hilly Areas in Ordinary Rock by mechanical means not requiring blasting Excavation in hilly area in ordinary rock not requiring blasting by mechanical means including cutting and trimming of slopes and disposal of cut material with a lift upto 1.50 m and lead upto 20 m as per MoRD Technical specification Clause 1603.2.				
		Unit = cum				
		Taking output = 170 cum				
		a) Labour				
		Mate	day	0.68	310.00	210.80
		Mazdoor (Unskilled)	day	17.00	310.00	5,270.00
		Mazdoor for disposing of earth upto 20 m	day	9.00	310.00	2,790.00
		b) Machinery				
		Dozer D-50 @ 28.32 cum per hour	hour	6.00	2,370.00	14,220.00
		Hydraulic Excavator 0.9 cum bucket capacity @ 40 cum per hour	hour	4.25	1,200.00	5,100.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**3,876.51**
		d) Contractor's profit @ 15 % on (a+b+c)				**4,720.10**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**361.87**
		Cost for 170 cum = a+b+c+d+e				36,549.28
		Rate per cum = (a+b+c+d)/170				**215.00**
					say	***215.00***

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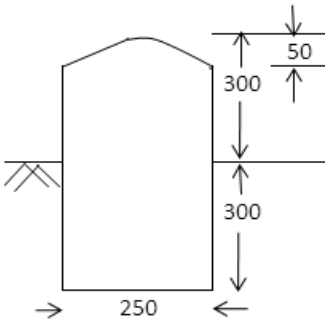
HILL ROADS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Note: *(i) In case the land on the valley side is barren and there is no objection for disposing of excavated earth on the valley side, the provision of front end loader and tipper shall be deleted as excavated earth shall be disposed off on the valley side.*				
		(ii) In case, alternative machine like hydraulic excavator 0.9 cum bucket capacity is necessited because of site conditions, the same can be used.				
8.3	**1400, 1700 & 800**	Construction of RCC guide posts of 250 mm dia and total 600 mm long,(300 mm below GL) M15 grade cast-in-situ with 20 mm nominal size aggregate, true to line and grade, tolerance of vertical RCC posts not to exceed 1 in 500 as per drawing and MoRD Technical Specification Clause 1401.6.				
		Unit = Each				
		Taking Output = 1 No.				
		A. In Ordinary Soil				
		(i) Earth work in excavation for structures				
		Unit = cum				
		Rates as per item No.11.1.A.I(i) of Chapter 11	cum	0.08	341.70	27.34
		(ii) RCC M15 grade				
		Unit = cum				
		As per item No. 11.4.II(i) of Chapter 11	cum	0.03	9,466.20	283.99
		(iii) Steel bars				
		Unit = t				
		Steel @ 80 kg/ cum				
		As per item No. 11.6 of Chapter 11	t	0.002	68,131.50	136.26
		(iv) Painting two coats including prime coat on new concrete surface				
		Unit = sqm				
		As per item No.10.5 of Chapter 10	sqm	0.25	104.70	26.18
		Cost for 1 No. of RCC Guide Post = (i + ii + iii + iv)				**473.76**
					say	***473.80***
		Note: Quantities are to be taken as per drawing.				
		B. In Ordinary Rock (not requiring blasting)				
		(i) Earth work in excavation for structures				
		Unit = cum				
		As per item No.11.1.A.II(i) of Chapter 11	cum	0.08	427.10	34.17
		(ii) RCC M15 grade				
		Unit = cum				
		As per item No. 11.4.II(i) of Chapter 11	cum	0.03	9,466.20	283.99
		(iii) Steel bars				
		Unit = t				
		Steel @ 80 kg/ cum				
		As per item No. 11.6 of Chapter 11	t	0.002	68,131.50	136.26



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HILL ROADS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(iv) Painting two coats including prime coat on new concrete surface				
		Unit = sqm				
		As per item No.10.5 of Chapter 10	sqm	0.25	104.70	26.18
		Cost for 1 No. of RCC Guide Post = (i + ii + iii + iv)				**480.59**
					say	***480.60***
	Note:	*Quantities are to be taken as per drawing.*				
		C. In Hard Rock (blasting prohibited)				
		(i) Earth work in excavation for structures				
		Unit = cum				
		Rates as per item No.11.1.A.III of Chapter 11	cum	0.08	491.70	39.34
		(ii) RCC M15 grade				
		Unit = cum				
		As per item No. 11.4.II(i) of Chapter 11	cum	0.03	9,466.20	283.99
		(iii) Steel bars				
		Unit = t				
		Steel @ 80 kg/ cum				
		As per item No. 11.6 of Chapter 11	t	0.002	68,131.50	136.26
		(iv) Painting two coats including prime coat on new concrete surface				
		Unit = sqm				
		As per item No.10.5 of Chapter 10	sqm	0.25	104.70	26.18
		Cost for 1 No. of RCC Guide Post = (i + ii + iii + iv)				**485.76**
					say	***485.80***
	Note:	*Quantities are to be taken as per drawing.*				
8.4	**1600**	Providing edge stones on valley side of formation as per drawing and Technical Specification Clause 1608.2.6.				
		Unit = 1 m				
		Same as Item No. 8.3 of this chapter.				
8.5	**1600 & 309**	**Turfing with Sods in hilly areas**				
		Furnishing and laying of the live sods of perennial turf forming grass on embankment slope of hill roads, verges or other locations shown on the drawing or as directed by the Engineer including preparation of ground, stacking the sods and watering as per MoRD Technical specification Clause 309.				
		Unit = sqm				
		Taking output = 100 sqm				
		a) Labour				
		Mate	day	0.16	310.00	49.60
		Mazdoor (Unskilled)	day	4.00	310.00	1,240.00
		b) Machinery				
		Water tanker including watering for 3 months	hour	4.00	200.00	800.00

Chapter 8
HILL ROADS

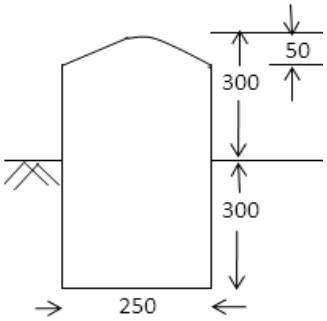
Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Tractor with Trolley	hour	1.00	237.00	237.00
		c) Materials				
		Farmyard manure @ 0.18 cum per 100 sqm at site of work	cum	0.18	510.00	91.80
		Water	kl	24.00	133.00	3,192.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**788.26**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**959.80**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**73.58**
		Cost for 100 sqm = a+b+c+d+e				7,432.04
		Rate per sqm = (a+b+c+d+e)/100				**74.32**
					say	***74.30***

ADDITIONAL ITEMS BY USING JHAMA BRICK AGGREGATE (i.e. LOCALLY AVAILABLE MATERIALS)

8.6	**1600, 600 & 700**	**Retaining Walls / Breast Walls**	
		Construction of retaining walls/breast walls in Plain cement concrete with M10 (with jhama brick aggregate) as per drawing and MoRD technical specifications Clause 1604 (including centering, shuttering, staging etc. but excluding reinforcement).	
		(i) Earthwork in excavation for structures	
		Rate as per item No.11.1 of Chapter 11	cum
		(ii) Plain cement concrete M 10 grade	
		Rate as per item No.11.9.I.(i) of Chapter 11	cum
		(iii) Providing P.C.C. M 20 architectural coping on top of retaining wall/breast wall	
		Rate as per item No.12.15 of Chapter 12	m
		(iv) Filter material behind retaining wall / breast wall as per Specification 1204.3.8 in a width of 600 m	
		Rate as per item No. 12.13 of Chapter 12	cum
		(v) Back filling behind retaining wall/breast wall	
		Rate as per item No. 12.8.I of Chapter 12	cum
		Note: *1 Quantities of material/work shall be as per design and drawings.*	
		2 Earth work in excavation may be taken as per site conditions. It may comprise of a number of sub-items depending upon the type of soil/rock encountered.	
8.7	**1600, 700, 300 & 800**	**Construction of Hill Side Drain**	
		Construction of hill side drain in accordance with the requirment of specifications true to lines and grades. Dimensions and other particulars as per drawing and MoRD Technical Specification Clause 1606.1.	
		Unit = 1 m	
		As per item No.3.16 of Chapter 3	

Chapter 8
HILL ROADS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Note: *1 Quantities of material/work shall be as per design and drawings.*				
		2 Earth work in excavation may be taken as per site conditions. It may comprise of a number of sub-items depending upon the type of soil/rock encountered.				
8.8	**1400, 1700 & 800**	Construction of RCC guide posts of 250 mm dia and total 600 mm long,(300 mm below GL) M15 grade (with jhama brick aggregate) cast-in-situ with 20 mm nominal size aggregate, true to line and grade, tolerance of vertical RCC posts not to exceed 1 in 500 as per drawing and MoRD Technical Specification Clause 1401.6.				
		Unit = Each				
		Taking Output = 1 No.				
		A. In Ordinary Soil				
		(i) Earth work in excavation for structures				
		Unit = cum				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.08	341.70	27.34
		(ii) RCC M15 grade				
		Unit = cum				
		As per item No. 11.9.II(i) of Chapter 11	cum	0.03	8,155.20	244.66
		(iii) Steel bars				
		Steel @ 80 kg/ cum				
		As per item No. 11.6 of Chapter 11	t	0.002	68,131.50	136.26
		(iv) Painting two coats including prime coat on new concrete surface				
		Unit = sqm				
		As per item No.10.5 of Chapter 10	sqm	0.25	104.70	26.18
		Cost for 1 No. of RCC Guide Post = (i + ii + iii + iv)				**434.43**
					say	***434.40***
		Note: Quantities are to be taken as per drawing.				
		B. In Ordinary Rock (not requiring blasting)				
		(i) Earth work in excavation for structures				
		Unit = cum				
		As per item No.11.1.A.II(i) of Chapter 11	cum	0.08	427.10	34.17
		(ii) RCC M15 grade				
		Unit = cum				
		As per item No. 11.9.II(i) of Chapter 11	cum	0.03	8,155.20	244.66
		(iii) Steel bars				
		Unit = t				
		Steel @ 80 kg/ cum				
		As per item No. 11.6 of Chapter 11	t	0.002	68,131.50	136.26
		(iv) Painting two coats including prime coat on new concrete surface				
		Unit = sqm				
		As per item No.10.5 of Chapter 10	sqm	0.25	104.70	26.18



Chapter 8
HILL ROADS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Cost for 1 No. of RCC Guide Post = (i + ii + iii + iv)				**441.26**
					say	***441.30***
	Note:	*Quantities are to be taken as per drawing.*				
		C. In Hard Rock (blasting prohibited)				
		(i) Earth work in excavation for structures				
		Unit = cum				
		Rates as per item No.11.1.A.III of Chapter 11	cum	0.08	491.70	39.34
		(ii) RCC M15 grade Unit = cum				
		As per item No. 11.9.II(i) of Chapter 11	cum	0.03	8,155.20	244.66
		(iii) Steel bars				
		Steel @ 80 kg/ cum				
		As per item No. 11.6 of Chapter 11	t	0.002	68,131.50	136.26
		(iv) Painting two coats including prime coat on new concrete surface Unit = sqm				
		As per item No.10.5 of Chapter 10	sqm	0.25	104.70	26.18
		Cost for 1 No. of RCC Guide Post = (i + ii + iii + iv)				**446.43**
					say	***446.40***
	Note:	*Quantities are to be taken as per drawing.*				
8.9	**1600**	Providing edge stones with PCC using jhama brick aggregate on valley side of formation as per drawing and MoRD Technical Specification Clause 1608.2.6. Unit = 1 m				
		Same as Item No. 8.8 of this chapter.				
8.10	**1600**	**Setting Out (using PCC with jhama brick aggregate)**				
		Unit = Each				
		The analysis of rate per km shall account for the following:				
		(1) Construction of reference pillars (burjee) @ 20 m on both sides as per Fig. 1600.1 (b) and @ 8.33 m interval on curves				
		(2) Construction of back pillars in front of each reference pillar as per Fig. 1600.1 (c)				
		(3) Construction of job pillars as per Fig. 1600.1 (d)				
		A. In Ordinary Soil				
		(1) Construction of reference pillars as per Fig. 1600.1 (b) as per drawing and MoRD Technical Specification Clause 1602.1.				
		(a) Earthwork in excavation for foundation as per drawing and MoRD Technical Specifications. As per item No.11.1.A.I(i) of Chapter 11	cum	0.014	341.70	4.78
		(b) Plain cement concrete work in M10 (with jhama brick aggregate) in foundation complete as per drawing and MoRD Technical Specifications				

Chapter 8
HILL ROADS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		As per item No.11.9.I.(ii) of Chapter 11	cum	0.012	7,954.40	95.45
		(c) Plaster with cement mortar 1:4 as per MoRD Technical Specifications				
		As per item No.12.3 of Chapter 12	sqm	0.28	173.20	48.50
		Add 5% on (a+b+c) for white washing, lettering and painting, etc.				7.44
		Total Cost for each Reference Pillar				**156.17**
					say	***156.20***
		(2) Construction of back pillar as per Fig. 1600.1 (c) as per drawing and MoRD Technical Specification Clause 1602.3.				
		(a) Earthwork in excavation for foundation as per drawing and MoRD Technical Specifications.				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.043	341.70	14.69
		(b) Plain cement concrete work in M10 (with jhama brick aggregate) in foundation complete as per drawing and MoRD Technical Specifications				
		As per item No.11.9.I.(ii) of Chapter 11	cum	0.036	7,954.40	286.36
		(c) Plaster with cement mortar 1:4 as per MoRD Technical Specifications				
		As per item No.12.3 of Chapter 12	sqm	0.57	173.20	98.72
		Add 5% on (a+b+c) for white washing, lettering and painting, etc.				19.99
		Total Cost for Back Pillar				**399.78**
					say	***399.80***
		(3) Construction of job pillars as per Fig. 1600.1(d) and MoRD Technical Specification Clause 1602.4.				
		(a) Earthwork in excavation for foundation as per drawing and MoRD Technical Specifications.				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.115	341.70	39.30
		(b) Plain cement concrete work in M10 (with jhama brick aggregate) in foundation complete as per drawing and MoRD Technical Specifications				
		As per item No.11.9.I.(ii) of Chapter 11	cum	0.096	7,954.40	763.62
		(c) Plaster with cement mortar 1:4 as per MoRD Technical Specifications				
		As per item No.12.3 of Chapter 12	sqm	1.12	173.20	193.98
		Add 5% on (a+b+c) for white washing, lettering and painting, etc.				49.85
		Total Cost for each Job Pillar				**1,046.75**
					say	***1046.70***

B. In Ordinary Rock (not requiring blasting)

Chapter 8
HILL ROADS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(1) Construction of reference pillars as per Fig. 1600.1 (b) as per drawing and MoRD Technical Specification Clause 1602.1.				
		(a) Earthwork in excavation for foundation as per drawing and MoRD Technical Specifications.				
		As per item No.11.1.A.II(i) of Chapter 11	cum	0.014	427.10	5.98
		(b) Plain cement concrete work in M10 (with jhama brick aggregate) in foundation complete as per drawing and MoRD Technical Specifications				
		As per item No.11.9.I.(ii) of Chapter 11	cum	0.012	7,954.40	95.45
		(c) Plaster with cement mortar 1:4 as per MoRD Technical Specifications				
		As per item No.12.3 of Chapter 12	sqm	0.28	173.20	48.50
		Add 5% on (a+b+c) for white washing, lettering and painting, etc.				7.50
		Total Cost for each Reference Pillar				**157.42**
					say	***157.40***
		(2) Construction of back pillar as per Fig. 1600.1 (c) as per drawing and MoRD Technical Specification Clause 1602.3.				
		(a) Earthwork in excavation for foundation as per drawing and MoRD Technical Specifications.				
		As per item No.11.1.A.II(i) of Chapter 11	cum	0.043	427.10	18.37
		(b) Plain cement concrete work in M10 (with jhama brick aggregate) in foundation complete as per drawing and MoRD Technical Specifications				
		As per item No.11.9.I.(ii) of Chapter 11	cum	0.036	7,954.40	286.36
		(c) Plaster with cement mortar 1:4 as per MoRD Technical Specifications				
		As per item No.12.3 of Chapter 12	sqm	0.57	173.20	98.72
		Add 5% on (a+b+c) for white washing, lettering and painting, etc.				20.17
		Total Cost for Back Pillar				**403.45**
					say	***403.40***
		(3) Construction of job pillars as per Fig. 1600.1(d) and MoRD Technical Specification Clause 1602.4.				
		(a) Earthwork in excavation for foundation as per drawing and MoRD Technical Specifications.				
		As per item No.11.1.A.II(i) of Chapter 11	cum	0.115	427.10	49.12
		(b) Plain cement concrete work in M10 (with jhama brick aggregate) in foundation complete as per drawing and MoRD Technical Specifications				
		As per item No.11.9.I.(ii) of Chapter 11	cum	0.096	7,954.40	763.62

Chapter 8
HILL ROADS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(c) Plaster with cement mortar 1:4 as per MoRD Technical Specifications				
		As per item No.12.3 of Chapter 12	sqm	1.12	173.20	193.98
		Add 5% on (a+b+c) for white washing, lettering and painting, etc.				50.34
		Total Cost for each Job Pillar				**1,057.06**
					say	***1057.10***
		C. In Hard Rock (blasting prohibited)				
		(1) Construction of reference pillars as per Fig. 1600.1 (b) as per drawing and MoRD Technical Specification Clause 1602.1.				
		(a) Earthwork in excavation for foundation as per drawing and MoRD Technical Specifications.				
		Rates as per item No.11.1.A.III of Chapter 1	cum	0.014	491.70	6.88
		(b) Plain cement concrete work in M10 (with jhama brick aggregate) in foundation complete as per drawing and MoRD Technical Specifications				
		As per item No.11.9.I.(ii) of Chapter 11	cum	0.012	7,954.40	95.45
		(c) Plaster with cement mortar 1:4 as per MoRD Technical Specifications				
		As per item No.12.3 of Chapter 12	sqm	0.28	173.20	48.50
		Add 5% on (a+b+c) for white washing, lettering and painting, etc.				7.54
		Total Cost for each Reference Pillar				**158.37**
					say	***158.40***
		(2) Construction of back pillar as per Fig. 1600.1 (c) as per drawing and MoRD Technical Specification Clause 1602.3.				
		(a) Earthwork in excavation for foundation as per drawing and MoRD Technical Specifications.				
		Rates as per item No.11.1.A.III of Chapter 1	cum	0.043	491.70	21.14
		(b) Plain cement concrete work in M10 (with jhama brick aggregate) in foundation complete as per drawing and MoRD				
		As per item No.11.9.I.(ii) of Chapter 11	cum	0.036	7,954.40	286.36
		(c) Plaster with cement mortar 1:4 as per MoRD Technical Specifications				
		As per item No.12.3 of Chapter 12	sqm	0.57	173.20	98.72
		Add 5% on (a+b+c) for white washing, lettering and painting, etc.				20.31
		Total Cost for Back Pillar				**406.23**
					say	***406.20***
		(3) Construction of job pillars as per Fig. 1600.1(d) and MoRD Technical Specification Clause 1602.4.				
		(a) Earthwork in excavation for foundation as per drawing and MoRD Technical Specifications.				

Chapter 8
HILL ROADS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Rates as per item No.11.1.A.III of Chapter 1	cum	0.115	491.70	56.55
		(b) Plain cement concrete work in M10 (with jhama brick aggregate) in foundation complete as per drawing and MoRD As per item No.11.9.I.(ii) of Chapter 11	cum	0.096	7,954.40	763.62
		(c) Plaster with cement mortar 1:4 as per MoRD Technical Specifications As per item No.12.3 of Chapter 12	sqm	1.12	173.20	193.98
		Add 5% on (a+b+c) for white washing, lettering and painting, etc.				50.71
		Total Cost for each Job Pillar				**1,064.86**
					say	***1064.90***

Note: *(i) The dimensions of reference pillars, back pillars and job pillars are as per figure/site conditions. The above items are covered under different Chapters of MORD Specifications for payment.*

(ii) The marking of centre line, setting out, curves, recording of levels, etc. by the surveyor will be incidental to work and no extra payment shall be made for the same.

Chapter 9
PIPE CULVERTS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
9.1	**1100 & 300**	**Excavation for Structures** Earthwork in excavation for foundation of structures upto 3 m depth as per drawing and MoRD technical specification Clause 1104, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material. Unit = cum				
		A. Ordinary Soil				
		Rate as per item No.11.1.A(i) of Chapter 11	cum		341.70	
		B. Ordinary Rock (not requiring blasting)				
		Rate as per item No.11.II of Chapter 11	cum		427.10	
		C. Hard Rock (blasting prohobited)				
		Rate as per item No.11.1.III of Chapter 11	cum		491.70	
		D. Marshy Soil				
		Rate as per item No.11.1.IV of Chapter 11	cum		640.60	
		Note: Rate as applicable for the type of soil / rock are to be taken from Chapter 11				
9.2	**1100 & 800**	**Bedding for Pipe**				
		(i) Type A (Concrete Cradle) Bedding Laying concrete cradle bedding with M15 Grade Cement Concrete as per MoRD Technical specification Clause 1105(i). Unit = cum				
		Rate as per Item No.11.4 of Chapter 11	cum		9,264.40	
		Note: Rate as applicable for the type mixing are taken from Chapter 11				
		(ii) Type B (First Class) Bedding Laying (First Class) bedding on well compacted sand, moorum or approved granular material as per MoRD Technical specification Clause 1105(i). Unit = cum				
		Rate as per Item No.11.2.I of Chapter 11	cum		858.50	
9.3	**1100**	**Providing and Laying Reinforced Cement Concrete Pipe NP3 as per design in Single Row** Providing and Laying reinforced cement concrete pipe NP3 with collar for culverts on first class bedding of granular material in single row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets as per MoRD Technical specification Clause 1106. Unit = m Taking output = 7.5 m (3 pipes of 2.5 m length each)				

Chapter 9
PIPE CULVERTS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(A) 1200 mm dia				
		a) Labour				
		Mate	day	0.14	310.00	43.40
		Mason (1st Class)	day	0.50	440.00	220.00
		Mazdoor (Unskilled)	day	3.00	310.00	930.00
		b) Material				
		Sand	cum	0.05	560.00	28.00
		Cement	t	0.07	5,800.00	406.00
		RCC pipe NP3 pipe including collar	m	7.50	12,200.00	91,500.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**13,084.40**
		d) Contractor's profit @ 15 % on (a+b+c)				**15,931.77**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**1,221.44**
		Cost for 7.5 m = a+b+c+d+e				123,365.01
		Rate per m = (a+b+c+d+e)/7.5				**16,448.67**
					say	***16448.70***
		(B) 1000 mm dia				
		a) Labour				
		Mate	day	0.09	310.00	27.90
		Mason (1st Class)	day	0.25	440.00	110.00
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		b) Material				
		Sand	cum	0.04	560.00	22.40
		Cement	t	0.03	5,800.00	174.00
		RCC pipe NP3 pipe including collar	m	7.50	9,380.00	70,350.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**10,018.25**
		d) Contractor's profit @ 15 % on (a+b+c)				**12,198.38**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**935.21**
		Cost for 7.5 m = a+b+c+d+e				94,456.15
		Rate per m = (a+b+c+d+e)/7.5				**12,594.15**
					say	***12594.20***
		(C) 750 mm dia				
		a) Labour				
		Mate	day	0.05	310.00	15.50
		Mason (1st Class)	day	0.15	440.00	66.00
		Mazdoor (Unskilled)	day	1.20	310.00	372.00
		b) Material				
		Sand	cum	0.024	560.00	13.44
		Cement	t	0.018	5,800.00	104.40
		RCC pipe NP3 pipe including collar	m	7.50	6,250.00	46,875.00

Chapter 9
PIPE CULVERTS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**6,666.21**
		d) Contractor's profit @ 15 % on (a+b+c)				**8,116.88**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**622.29**
		Cost for 7.5 m = a+b+c+d+e				62,851.73
		Rate per m = (a+b+c+d+e)/7.5				**8,380.23**
					say	***8380.20***
		(D) 600 mm dia				
		a) Labour				
		Mate	day	0.04	310.00	12.40
		Mason (1st Class)	day	0.12	440.00	52.80
		Mazdoor (Unskilled)	day	0.96	310.00	297.60
		b) Material				
		Sand	cum	0.0192	560.00	10.75
		Cement	t	0.014	5,800.00	81.20
		RCC pipe NP3 pipe including collar	m	7.50	4,490.00	33,675.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**4,795.23**
		d) Contractor's profit @ 15 % on (a+b+c)				**5,838.75**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**447.64**
		Cost for 7.5 m = a+b+c+d+e				45,211.37
		Rate per m = (a+b+c+d+e)/7.5				**6,028.18**
					say	***6028.20***
9.4	**1100**	**Providing and Laying Reinforced Cement Concrete Pipe NP3 as per Design in Double Row**				
		Providing and Laying reinforced cement concrete pipe NP3 with collar for culverts on first class bedding of granular material in Double row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets as per MoRD Technical specification Clause 1106.				
		Unit = m				
		Taking output = 7.5 m				
		(6 pipes of 2.5 m length each in two rows)				
		(A) 1200 mm dia				
		a) Labour				
		Mate	day	0.34	310.00	105.40
		Mason (1st Class)	day	1.20	440.00	528.00
		Mazdoor (Unskilled)	day	7.20	310.00	2,232.00
		b) Material				
		Sand	cum	0.11	560.00	61.60
		Cement	t	0.14	5,800.00	812.00
		RCC pipe NP3 pipe including collar	m	15.00	12,200.00	183,000.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**26,236.83**

Chapter 9
PIPE CULVERTS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		d) Contractor's profit @ 15 % on (a+b+c)				**31,946.37**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**2,449.22**
		Cost for 7.5 m = a+b+c+d+e				247,371.43
		Rate per m = (a+b+c+d+e)/7.5				**32,982.86**
					say	***32982.90***
		(B) 1000 mm dia				
		a) Labour				
		Mate	day	0.22	310.00	68.20
		Mason 1st Class	day	0.60	440.00	264.00
		Mazdoor (Unskilled)	day	4.80	310.00	1,488.00
		b) Material				
		Sand	cum	0.08	560.00	44.80
		Cement	t	0.06	5,800.00	348.00
		RCC pipe NP3 pipe including collar	m	15.00	9,380.00	140,700.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**20,079.28**
		d) Contractor's profit @ 15 % on (a+b+c)				**24,448.84**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**1,874.41**
		Cost for 7.5 m = a+b+c+d+e				189,315.53
		Rate per m = (a+b+c+d+e)/7.5				**25,242.07**
					say	***25242.10***
		(C) 750 mm dia				
		a) Labour				
		Mate	day	0.11	310.00	34.10
		Mason 1st Class	day	0.30	440.00	132.00
		Mazdoor (Unskilled)	day	4.80	310.00	1,488.00
		b) Material				
		Sand	cum	0.08	560.00	44.80
		Cement	t	0.060	5,800.00	348.00
		RCC pipe NP3 pipe including collar	m	15.00	6,250.00	93,750.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**13,459.46**
		d) Contractor's profit @ 15 % on (a+b+c)				**16,388.45**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**1,256.45**
		Cost for 7.5 m = a+b+c+d+e				126,901.27
		Rate per m = (a+b+c+d+e)/7.5				**16,920.17**
					say	***16920.20***
		(D) 600 mm dia				
		a) Labour				
		Mate	day	0.09	310.00	27.90
		Mason 1st Class	day	0.24	440.00	105.60
		Mazdoor (Unskilled)	day	3.84	310.00	1,190.40

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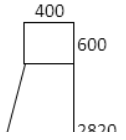
Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) Material				
		Sand	cum	0.06	560.00	33.60
		Cement	t	0.050	5,800.00	290.00
		RCC pipe NP3 pipe including collar	m	12.00	4,490.00	53,880.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**7,801.61**
		d) Contractor's profit @ 15 % on (a+b+c)				**9,499.37**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**728.28**
		Cost for 7.5 m = a+b+c+d+e				73,556.77
		Rate per m = (a+b+c+d+e)/7.5				**9,807.57**
					say	***9807.60***
9.5	**1100 & 800**	**Plain Cement Concrete M10(1:3:6 nominal mix) in levelling course below open foundation of Head walls as per drawings & MoRD Technical Specification Clause 800 & 1109.**				
		Rate as per item No.11.4.I.(i) of Chapter 11	cum			9,264.40
9.6	**1100 & 600**	**Brick Masonry Work in cement mortar in foundation of Head walls complete excluding pointing and plastering as per drawing and MoRD technical specification Clause 1109.**				
		(A) Brick Masonry in 1:4 cement mortar				
		Rate as per item No.11.5 (ii) Chapter 11	cum			8,497.70
9.7	**1100 & 600**	**Pointing with Cement Mortar (1 : 3) on brickwork as per MoRD Technical Specification Clause 613.3.**				
		Rate as per item No.12.2 of Chapter 12	sqm			74.90
9.8	**1100 & 600**	**Plastering with Cement Mortar (1 : 4), 15 mm thick on brickwork in substructure as per MoRD technical specification Clause 613.4.**				
		Rate as per item No.12.3 of Chapter 12	sqm			173.20
9.9	**1100 & 300**	**Backfilling in Foundation Trenches as per drawing and MoRD technical specification Clause 1108.**				
		i) Sand Filling				
		Rate as per Item No.11.2.I of Chapter 11	cum			858.50
		i) Earth Filling (for Masrshy Soil)				
		Rate as per Item No.11.2.II of Chapter 11	cum			219.00
9.10	**1100, 600, 700 & 1200**	**Providing PCC M20 Architecture Coping on the top of wing wall, return wall etc. complete as per drawing and MoRD Technical Specification Clause 615.**				
		Rate as per Item No.12.11 of Chapter 12	m			680.50
9.11	**1109 & 800**	**Cement Concrete M10 (1:3:6 nominal mix) in Head Walls with skin reinforcement (8 mm dia @ 200 mm c/c on exposed surface as per drawings & MoRD Technical Specification 1109 (including centering, shuttering, staging etc.)**				
		 Unit = cum Taking output = 2.60 cum Area of skin reinforcement = 13.16 cum				

Chapter 9
PIPE CULVERTS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		500 mm dia				
		a) For concrete				
		Rate as per Item No.11.4.I(ii) of Chapter 11	Cum	2.57	9,320.90	23,954.71
		b) Steel for skin reinforcement @ 4.50 kg/sqm (Twisted steel/ deformed bars)	t	0.059	46,000.00	2,714.00
		c) Add GST (multiplying factor) @ 0.1405 on (b)				**381.32**
		d) Contractor's profit @ 15 % on (b+c)				**464.30**
		e) Add Cess @ 1.00 % on (b+c+d)				**35.60**
		Cost for 2.57 cum = a+b+c+d+e				27,549.92
		Rate per cum = (a+b+c+d+e)/2.57				**10,719.81**
					say	***10719.80***

ADDITIONAL ITEMS BY USING JHAMA BRICK AGGREGATE (i.e. LOCALLY AVAILABLE MATERIALS)

9.12	**1100 & 800**	**Bedding for Pipe**				
		(i) Type A (Concrete Cradle) Bedding				
		Laying concrete cradle bedding with M15 Grade Cement Concrete(with jhama brick aggregate as per MoRD Technical soecification Clause 1105(i). Unit = cum				
		Rate as per Item No.11.9.II(i) of Chapter 11	cum			8,098.70
9.13	**1100 & 800**	Plain Cement Concrete M10(1:3:6 nominal mix with jhama brick aggregate) in levelling course below open foundation of Head walls as per drawings & MoRD Technical Specification Clause 1109 (including centering, shuttering, staging etc. but excluding reinforcement).				
		Rate as per item No. 11.11.I.(i) of Chapter 11.	cum			7,897.90
9.14	**1100, 600, 700 & 1200**	Providing PCC M20 (jhama brick aggregate) Architecture Coping on the top of wing wall, return wall etc. complete as per drawing and MoRD Technical Specification Clause 615 (including centering, shuttering, staging etc. but excluding reinforcement).				
		Rate as per Item No.12.15 of Chapter 12	m			592.60
9.15	**1109 & 800**	Cement Concrete M10 (1:3:6 nominal mix with jhama brick aggregate) in Head Walls with skin reinforcement (8 mm dia @ 200 mm c/c on exposed surface as per drawings & MoRD Technical Specification 1109 (including centering, shuttering, staging etc.)				
		Unit = cum				
		Taking output = 2.60 cum				
		Area of skin reinforcement = 13.02 cum				
		a) For concrete				

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PIPE CULVERTS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
1250		Rate as per Item No.11.11.I(i) of Chapter 11	Cum	2.57	7,897.90	20,297.60
		b) Steel for skin reinforcement @ 4.50 kg/sqm (Twisted steel/ deformed bars)	t	0.059	46,000.00	2,714.00
		c) Add GST (multiplying factor) @ 0.1405 on (b)				**381.32**
		d) Contractor's profit @ 15 % on (b+c)				**464.30**
		e) Add Cess @ 1.00 % on (b+c+d)				**35.60**
		Cost for 2.57 cum = a+b+c+d+e				23,892.81
		Rate per cum = (a+b+c+d+e)/2.57				**9,296.81**
					say	***9296.80***
9.16	**1100**	**Providing and laying Reinforced Cement Concrete Pipe NP2 as per design in single Row**				
		Providing and Laying reinforced cement concrete pipe NP2 for culverts on first class bedding of granular material in single row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling , concrete and masonry works in head walls and parapets as per MoRD Technical specification Clause 1106.				
		Unit = m				
		Taking output = 7.5 m				
		(3 pipes of 2.5 m length each)				
		(A) 1200 mm dia				
		a) Labour				
		Mate	day	0.14	310.00	43.40
		Mason (1st Class)	day	0.50	440.00	220.00
		Mazdoor (Unskilled)	day	3.00	310.00	930.00
		b) Material				
		Sand	cum	0.05	560.00	28.00
		Cement	t	0.07	5,800.00	406.00
		RCC pipe NP2 pipe of 1200 mm dia	m	7.50	6,660.00	49,950.00
		Collar of 1200 mm dia	no	2	1,450.00	2,900.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**7,654.07**
		d) Contractor's profit @ 15 % on (a+b+c)				**9,319.72**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**714.08**
		Cost for 7.5 m = a+b+c+d+e				72,165.27
		Rate per m = (a+b+c+d+e)/7.5				**9,622.04**
					say	***9622.00***
		(B) 900 mm dia				
		a) Labour				
		Mate	day	0.09	310.00	27.90
		Mason (1st Class)	day	0.25	440.00	110.00
		Mazdoor (Unskilled)	day	2.00	310.00	620.00

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PIPE CULVERTS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) Material				
		Sand	cum	0.04	560.00	22.40
		Cement	t	0.03	5,800.00	174.00
		RCC pipe NP2 pipe of 900 mm dia	m	7.50	4,220.00	31,650.00
		Collar of 900 mm dia	no	2	1,050.00	2,100.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**4,875.95**
		d) Contractor's profit @ 15 % on (a+b+c)				**5,937.04**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**454.89**
		Cost for 7.5 m = a+b+c+d+e				45,972.19
		Rate per m = (a+b+c+d+e)/7.5				**6,129.62**
					say	***6129.60***
		(C) 600 mm dia				
		a) Labour				
		Mate	day	0.05	310.00	15.50
		Mason (1st Class)	day	0.15	440.00	66.00
		Mazdoor (Unskilled)	day	1.20	310.00	372.00
		b) Material				
		Sand	cum	0.02	560.00	11.20
		Cement	t	0.02	5,800.00	116.00
		RCC pipe NP2 pipe of 600 mm dia	m	7.50	2,600.00	19,500.00
		Collar of 600 mm dia	no	2	600.00	1,200.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**2,989.94**
		d) Contractor's profit @ 15 % on (a+b+c)				**3,640.60**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**278.96**
		Cost for 7.5 m = a+b+c+d+e				28,190.19
		Rate per m = (a+b+c+d+e)/7.5				**3,758.69**
					say	***3758.70***
		(D) 450 mm dia				
		a) Labour				
		Mate	day	0.04	310.00	12.40
		Mason (1st Class)	day	0.12	440.00	52.80
		Mazdoor (Unskilled)	day	0.96	310.00	297.60
		b) Material				
		Sand	cum	0.0192	560.00	10.75
		Cement	t	0.014	5,800.00	81.20
		RCC pipe NP2 pipe of 450 mm dia	m	7.50	1,680.00	12,600.00
		Collar of 450 mm dia	no	2	400.00	800.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**1,946.59**
		d) Contractor's profit @ 15 % on (a+b+c)				**2,370.20**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		e) Add Cess @ 1.00 % on (a+b+c+d)				**181.59**
		Cost for 7.5 m = a+b+c+d+e				18,353.14
		Rate per m = (a+b+c+d+e)/7.5				**2,447.09**
					say	***2447.10***
		(E) 300 mm dia				
		a) Labour				
		Mate	day	0.03	310.00	9.30
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	0.77	310.00	238.70
		b) Material				
		Sand	cum	0.0154	560.00	8.62
		Cement	t	0.012	5,800.00	69.60
		RCC pipe NP2 pipe of 300 mm dia	m	7.50	800.00	6,000.00
		Collar of 300 mm dia	no	2	160.00	320.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**939.98**
		d) Contractor's profit @ 15 % on (a+b+c)				**1,144.53**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**87.65**
		Cost for 7.5 m = a+b+c+d+e				8,862.38
		Rate per m = (a+b+c+d+e)/7.5				**1,181.65**
					say	***1181.70***
9.17	**1100**	**Providing and laying Reinforced Cement Concrete Pipe NP2 as per design in Double Row**				
		Providing and Laying reinforced cement concrete pipe NP2 for culverts on first class bedding of granular material in Double row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling , concrete and masonry works in head walls and parapets as per MoRD Technical specification Clause 1106.				
		Unit = m				
		Taking output = 7.5 m				
		(6 pipes of 2.5 m length each in two rows)				
		(A) 1200 mm dia				
		a) Labour				
		Mate	day	0.34	310.00	105.40
		Mason (1st Class)	day	1.20	440.00	528.00
		Mazdoor (Unskilled)	day	7.20	310.00	2,232.00
		b) Material				
		Sand	cum	0.11	560.00	61.60
		Cement	t	0.14	5,800.00	812.00
		RCC pipe NP2 pipe of 1200 mm dia	m	15.00	6,660.00	99,900.00
		Collar of 1200 mm dia	no	4	1,450.00	5,800.00

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PIPE CULVERTS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**15,376.18**
		d) Contractor's profit @ 15 % on (a+b+c)				**18,722.28**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**1,434.32**
		Cost for 7.5 m = a+b+c+d+e				144,971.78
		Rate per m = (a+b+c+d+e)/7.5				**19,329.57**
					say	***19329.60***
		(B) 900 mm dia				
		a) Labour				
		Mate	day	0.22	310.00	68.20
		Mason (1st Class)	day	0.60	440.00	264.00
		Mazdoor (Unskilled)	day	4.80	310.00	1,488.00
		b) Material				
		Sand	cum	0.08	560.00	44.80
		Cement	t	0.06	5,800.00	348.00
		RCC pipe NP2 pipe of 900 mm dia	m	15.00	4,220.00	63,300.00
		Collar of 900 mm dia	no	4	1,050.00	4,200.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**9,794.68**
		d) Contractor's profit @ 15 % on (a+b+c)				**11,926.15**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**914.34**
		Cost for 7.5 m = a+b+c+d+e				92,348.17
		Rate per m = (a+b+c+d+e)/7.5				**12,313.09**
					say	***12313.10***
		(C) 600 mm dia				
		a) Labour				
		Mate	day	0.11	310.00	34.10
		Mason (1st Class)	day	0.30	440.00	132.00
		Mazdoor (Unskilled)	day	4.80	310.00	1,488.00
		b) Material				
		Sand	cum	0.08	560.00	44.80
		Cement	t	0.06	5,800.00	348.00
		RCC pipe NP2 pipe of 600 mm dia	m	15.00	2,600.00	39,000.00
		Collar of 600 mm dia	no	4	600.00	2,400.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**6,104.29**
		d) Contractor's profit @ 15 % on (a+b+c)				**7,432.68**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**569.50**
		Cost for 7.5 m = a+b+c+d+e				57,553.37
		Rate per m = (a+b+c+d+e)/7.5				**7,673.78**
					say	***7673.80***

Chapter 9
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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(D) 450 mm dia				
		a) Labour				
		Mate	day	0.09	310.00	27.90
		Mason (1st Class)	day	0.24	440.00	105.60
		Mazdoor (Unskilled)	day	3.84	310.00	1,190.40
		b) Material				
		Sand	cum	0.06	560.00	33.60
		Cement	t	0.05	5,800.00	290.00
		RCC pipe NP2 pipe of 450 mm dia	m	15.00	1,680.00	25,200.00
		Collar of 450 mm dia	no	4	400.00	1,600.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**3,996.87**
		d) Contractor's profit @ 15 % on (a+b+c)				**4,866.66**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**372.83**
		Cost for 7.5 m = a+b+c+d+e				37,683.86
		Rate per m = (a+b+c+d+e)/7.5				**5,024.51**
					say	***5024.50***
		(E) 300 mm dia				
		a) Labour				
		Mate	day	0.07	310.00	21.70
		Mason (1st Class)	day	0.19	440.00	83.60
		Mazdoor (Unskilled)	day	3.07	310.00	951.70
		b) Material				
		Sand	cum	0.05	560.00	28.00
		Cement	t	0.04	5,800.00	232.00
		RCC pipe NP2 pipe of 300 mm dia	m	15.00	800.00	12,000.00
		Collar of 300 mm dia	no	4	160.00	640.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**1,960.96**
		d) Contractor's profit @ 15 % on (a+b+c)				**2,387.69**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**182.84**
		Cost for 7.5 m = a+b+c+d+e				18,488.49
		Rate per m = (a+b+c+d+e)/7.5				**2,465.13**
					say	***2465.10***

Chapter 10
TRAFFIC SIGNS, MARKINGS AND OTHER ROAD APPURTENANCES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
10.1	**1700**	**Printing New Letters and Figures of any Shade**				
		Printing new letter and figures of any shade with synthetic enamel paint black or any other approved colour to give an even shade as per drawings and MoRD Technical Specification Clause 1701.				
		i) Hindi (Matras commas and the like not to be measured and paid for. Half letters shall be counted as half only)				
		Details for 100 letters of 160 mm height, i.e., 1600 cm				
		Unit = per cm height per letter				
		a) Labour				
		Mate	day	0.12	310.00	37.20
		Painter 1st Class	day	2.00	395.00	790.00
		Mazdoor (Unskilled)	day	1.00	310.00	310.00
		b) Material				
		Paint	litre	0.70	170.00	119.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**176.50**
		d) Contractor's profit @ 15 % on (a+b+c)				**214.90**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**16.48**
		Cost for 1600 cm = a+b+c+d+e				1,664.08
		Rate per cm height per letter = (a+b+c+d+e)/1600				**1.04**
					say	***1.00***
		ii) English and Roman				
		Hyphens, commas and the like not to be measured and paid for. Detail for 100 letters of 160 mm height, i.e., 1.6 m				
		Unit = per cm height per letter				
		a) Labour				
		Mate	day	0.07	310.00	21.70
		Painter lst class	day	1.25	395.00	493.75
		Mazdoor	day	0.50	310.00	155.00
		b) Material				
		Paint	litre	0.50	170.00	85.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**106.14**
		d) Contractor's profit @ 15 % on (a+b+c)				**129.24**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**9.91**
		Cost for 1600 cm = a+b+c+d+e				1,000.74
		Rate per cm height per letter = (a+b+c +d+e)/1600				**0.63**
					say	***0.60***
10.2	**1700, 300, 800**	**Traffic Signs**				
		A. Retro-reflectorised Traffic Signs				

Chapter 10
TRAFFIC SIGNS, MARKINGS AND OTHER ROAD APPURTENANCES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(1) Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm below ground level as per drawings and MoRD Technical Specification Clause 801.				
		i) with 900 mm equilateral triangle aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86
		iii) Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per				
		As per item No.10.7 of this Chapter	sqm	0.887	112.70	99.96
		a) labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	47.00	940.00
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				28.20
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		900 mm equilateral triangle	sqm	0.35	785.40	274.89
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**188.64**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**229.69**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**17.61**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**3,121.48**
					say	***3121.50***
		ii) with 600 mm equilateral triangle aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86
		iii) Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per				
		As per item No.10.7 of this Chapter	sqm	0.887	112.70	99.96
		a) labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	47.00	940.00
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				28.20
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 mm equilateral triangle	sqm	0.156	785.40	122.52
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**167.23**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**203.63**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**15.61**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,919.64**
					say	***2919.60***
		iii) with 600 mm circular aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86
		iii) Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per				
		As per item No.10.7 of this Chapter	sqm	0.887	112.70	99.96
		a) labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	47.00	940.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				28.20
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 mm circular	sqm	0.283	785.40	222.27
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**181.25**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**220.69**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**16.92**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**3,051.77**
					say	***3051.80***
		iv) with 800 x 600 mm rectangular aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86
		iii) Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per				
		As per item No.10.7 of this Chapter	sqm	0.887	112.70	99.96
		a) labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	47.00	940.00
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				28.20
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 800 x 600 mm rectangular	sqm	0.48	785.40	376.99
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**202.99**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**247.16**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**18.95**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**3,256.73**
					say	***3256.70***
		v) with 600 x 450 mm rectangular aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86
		iii) Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per				
		As per item No.10.7 of this Chapter	sqm	0.887	112.70	99.96
		a) labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	47.00	940.00
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				28.20
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 x 450 mm rectangular	sqm	0.27	785.40	212.06
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**179.81**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**218.94**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**16.79**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**3,038.24**
					say	***3038.20***
		vi) with 600 x 600 mm square aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86
		iii) Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per				
		As per item No.10.7 of this Chapter	sqm	0.887	112.70	99.96
		a) labour (For fixing at site)				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	47.00	940.00
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				28.20
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 x 600 mm square	sqm	0.36	785.40	282.74
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**189.75**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**231.04**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**17.71**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**3,131.88**
					say	***3131.90***
		vii) with 900 mm side octagon aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86
		iii) Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per				
		As per item No.10.7 of this Chapter	sqm	0.887	112.70	99.96
		a) labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	47.00	940.00
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				28.20
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 900 mm side octagon	sqm	0.672	785.40	527.79
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**224.17**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**272.96**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**20.93**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**3,456.49**
					say	***3456.50***
		(2) Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 1.5 mm thick supported on GI pipe 50 mm dia firmly fixed to the ground by means of properly designed foundation with M-15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm below ground level as per drawings and MoRD Technical Specification Clause 1701.				
		Unit = each				
		Taking output = one traffic sign				
		i) with 900 mm equilateral triangle aluminium sheeting				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	310.00	930.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				27.90
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		900 mm equilateral triangle	sqm	0.35	785.40	274.89
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**187.20**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**227.93**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**17.47**
		Rate per traffic sign = (i+ii+a+b+c+d+e+f)				**3,007.87**
					say	***3007.90***
		ii) with 600 mm equilateral triangle aluminium sheeting				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	310.00	930.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				27.90
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		600 mm equilateral triangle	sqm	0.156	785.40	122.52
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**165.79**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**201.87**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**15.48**
		Rate per traffic sign = (i+ii+a+b+c+d+e+f)				**2,806.03**
					say	***2806.00***
		iii) with 600 mm circular aluminium sheeting				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	310.00	930.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				27.90
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		600 mm circular	sqm	0.283	785.40	222.27

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**179.80**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**218.93**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**16.78**
		Rate per traffic sign = (i+ii+a+b+c+d+e+f)				**2,938.16**
					say	***2938.20***
		iv) with 800 x 600 mm rectangular aluminium sheeting				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	310.00	930.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				27.90
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		800 mm x 600 mm rectangular	sqm	0.48	785.40	376.99
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**201.54**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**245.40**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**18.81**
		Rate per traffic sign = (i+ii+a+b+c+d+e+f)				**3,143.12**
					say	***3143.10***
		v) with 600 x 450 mm rectangular aluminium sheeting				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) Material				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	310.00	930.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				27.90
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		600 mm x 450 mm rectangular	sqm	0.27	785.40	212.06
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**178.37**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**217.18**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**16.65**
		Rate per traffic sign = (i+ii+a+b+c+d+e+f)				**2,924.63**
					say	***2924.60***
		vi) with 600 mm x 600 mm square aluminium sheeting				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	310.00	930.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				27.90
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		600 mm x 600 mm square	sqm	0.36	785.40	282.74
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**188.30**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**229.28**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**17.58**
		Rate per traffic sign = (i+ii+a+b+c+d+e+f)				**3,018.27**
					say	***3018.30***

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		vii) with 900 mm side octagon aluminium sheeting				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	310.00	930.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				27.90
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		900 mm sides octagon	sqm	0.672	785.40	527.79
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**222.73**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**271.20**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**20.79**
		Rate per traffic sign = (i+ii+a+b+c+d+e+f)				**3,342.88**
					say	***3342.90***
	(3)	Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 1.5 mm thick supported on RCC post 100 mm x 100 mm firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm below ground level as per drawings and MoRD Technical Specification Clause 1701.				
		i) with 900 mm equilateral triangle aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86
		iii) Painting two coats including Prime coat on concrete surface with Epoxy Paint as per specifications				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		As per item No.10.7 of this Chapter	sqm	0.90	112.70	101.43
		a) labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		i. RCC M15 Grade in Sub-structure				
		As per item No.12.4.II of Chapter 12	cum	0.0285	10,072.10	287.05
		ii. Steel reinforcement Twisted steel/ deformed bar				
		As per item No.12.5 of Chapter 12	t	0.0077	68,312.20	526.00
		iii. Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				24.39
		iv. Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		900 mm equilateral triangle	sqm	0.35	785.40	274.89
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b.iii.iv+c)				**56.04**
		e) Contractor's profit @ 15 % on (a+b.iii.iv+c+d)				**68.23**
		f) Add Cess @ 1.00 % on (a+b.iii.iv+c+d+e)				**5.23**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,685.75**
					say	***2685.70***
		ii) with 600 mm equilateral triangle aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86
		iii) Painting two coats including Prime coat on concrete surface with Epoxy Paint as per specifications				
		As per item No.10.7 of this Chapter	sqm	0.90	112.70	101.43
		a) labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		i. RCC M15 Grade in Sub-structure				
		As per item No.12.4.II of Chapter 12	cum	0.0285	10,072.10	287.05
		ii. Steel reinforcement Twisted steel/ deformed bars				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		As per item No.12.5 of Chapter 12	t	0.0077	68,312.20	526.00
		iii. Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				24.39
		iv. Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 mm equilateral triangle	sqm	0.156	785.40	122.52
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ on (a+b.iii.iv+c)				**34.63**
		e) Contractor's profit @ 15 % on (a+b.iii.iv+c+d)				**42.17**
		f) Add Cess @ 1.00 % on (a+b.iii.iv+c+d+e)				**3.23**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,483.91**
					say	***2483.90***
		iii) with 600 mm circular aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86
		iii) Painting two coats including Prime coat on concrete surface with Epoxy Paint as per specifications				
		As per item No.10.7 of this Chapter	sqm	0.90	112.70	101.43
		a) labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		i. RCC M15 Grade in Sub-structure				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.0285	10,072.10	287.05
		ii. Steel reinforcement Twisted steel/ deformed bars				
		As per item No.12.5 of Chapter 12	t	0.0077	68,312.20	526.00
		iii. Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				24.39
		iv. Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 mm circular	sqm	0.283	785.40	222.27
		c) Machinery				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b.iii.iv+c)				**48.64**
		e) Contractor's profit @ 15 % on (a+b.iii.iv+c+d)				**59.23**
		f) Add Cess @ 1.00 % on (a+b.iii.iv+c+d+e)				**4.54**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,616.04**
					say	***2616.00***
		iv) with 800 x 600 mm rectangular aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86
		iii) Painting two coats including Prime coat on concrete surface with Epoxy Paint as per specifications				
		As per item No.10.7 of this Chapter	sqm	0.90	112.70	101.43
		a) labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		i. RCC M15 Grade in Sub-structure				
		As per item No.12.4.II of Chapter 12	cum	0.0285	10,072.10	287.05
		ii. Steel reinforcement Twisted steel/ deformed bars				
		As per item No.12.5 of Chapter 12	t	0.0077	68,312.20	526.00
		iii. Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				24.39
		iv. Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 800 x 600 mm rectangular	sqm	0.48	785.40	376.99
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b.iii.iv+c)				**70.38**
		e) Contractor's profit @ 15 % on (a+b.iii.iv+c+d)				**85.70**
		f) Add Cess @ 1.00 % on (a+b.iii.iv+c+d+e)				**6.57**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,821.00**
					say	***2821.00***
		v) with 600 x 450 mm rectangular aluminium sheeting				
		Unit = each				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86
		iii) Painting two coats including Prime coat on concrete surface with Epoxy Paint as per specifications				
		As per item No.10.7 of this Chapter	sqm	0.90	112.70	101.43
		a) labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		i. RCC M15 Grade in Sub-structure				
		As per item No.12.4.II of Chapter 12	cum	0.0285	10,072.10	287.05
		ii. Steel reinforcement Twisted steel/ deformed bars				
		As per item No.12.5 of Chapter 12	t	0.0077	68,312.20	526.00
		iii. Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				24.39
		iv. Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 x 450 mm rectangular	sqm	0.27	785.40	212.06
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b.iii.iv+c+d)				**47.21**
		e) Contractor's profit @ 15 % on (a+b.iii.iv+c+d)				**57.48**
		f) Add Cess @ 1.00 % on (a+b.iii.iv+c+d+e)				**4.41**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,602.51**
					say	***2602.50***
		vi) with 600 x 600 mm square aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86
		iii) Painting two coats including Prime coat on concrete surface with Epoxy Paint as per specifications				
		As per item No.10.7 of this Chapter	sqm	0.90	112.70	101.43

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		i. RCC M15 Grade in Sub-structure				
		As per item No.12.4.II of Chapter 12	cum	0.0285	10,072.10	287.05
		ii. Steel reinforcement Twisted steel/ deformed bars				
		As per item No.12.5 of Chapter 12	t	0.0077	68,312.20	526.00
		iii. Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				24.39
		iv. Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 x 600 mm square	sqm	0.35	785.40	274.89
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b.iii.iv+c+d)				**56.04**
		e) Contractor's profit @ 15 % on (a+b.iii.iv+c+d)				**68.23**
		f) Add Cess @ 1.00 % on (a+b.iii.iv+c+d+e)				**5.23**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,685.75**
					say	***2685.70***
		vii) with 900 mm side octagon aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86
		iii) Painting two coats including Prime coat on concrete surface with Epoxy Paint as per specifications				
		As per item No.10.7 of this Chapter	sqm	0.90	112.70	101.43
		a) labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		i. RCC M15 Grade in Sub-structure				
		As per item No.12.4.II of Chapter 12	cum	0.0285	10,072.10	287.05
		ii. Steel reinforcement Twisted steel/ deformed bars				
		As per item No.12.5 of Chapter 12	t	0.0077	68,312.20	526.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		iii. Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				24.39
		iv. Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 900 mm side octagon	sqm	0.672	785.40	527.79
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b.iii.iv+c+d)				**91.57**
		e) Contractor's profit @ 15 % on (a+b.iii.iv+c+d)				**111.50**
		f) Add Cess @ 1.00 % on (a+b.iii.iv+c+d+e)				**8.55**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**3,020.76**
					say	***3020.80***

Note: *1 Any one area of aluminium sheeting given at (i) to (vii) may be adopted as per site requirement and in accordance with IRC:67.*

2 The rate for excavation, cement concrete M-15, RCC M-15 in Sub-structure, steel re-inforcement and painting may be taken from respective Chapters.

3 The depth of foundation and quantity of cement concrete in the foundation are indicative. These may be increased for areas having higher wind velocities like in coastal areas. This is applicable to all road signs and directions boards.

B. Semi Reflective Traffic Signs

Providing and fixing of semi reflective cautionary, mandatory and informatory sign board as per IRC:67 made of 1.5 mm thick MS sheet duly stove white colour in front and gray colour on back with red reflective border of 65 mm width and required letters and figures with reflective tape engineering grade as per Clause 1701.3.9 of MORD for Rural Roads of required shade and colour supported and welded on 47 mm x 47 mm x 12 SWG sheet tube firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm bellow ground level as per approved drawings and as per MoRD Technical specification Clause 1701.2.2.

Unit = Each

Taking output = one traffic sign

i) with 900 mm equilateral triangle MS sheeting					
(i) Excavation foundations					
As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	341.70	43.05
(ii) Cement concrete M-15 Grade					
As per item no. 11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(iii) Painting steel tube posts with primer and two coats of epoxy paint as per specifications				
		As per item no 10.7 of Chapter 11	sqm	0.46	112.70	51.84
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		Support of M.S. Sheet tube				
		(I) 47 mm x 47 mm x 12 SWG Sheet	kg	12.40	58.20	721.68
		3050 mm long				
		(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	47.00	49.82
		Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				23.15
		(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications				
		900 mm equilateral & triangle	sqm	0.35	565.44	197.90
		c) Machinery				
		Tractor with Trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**153.44**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**186.83**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**14.32**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,741.46**
					say	***2741.50***
		ii) with 600 mm equilateral triangle MS sheeting				
		(i) Excavation foundations				
		As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	341.70	43.05
		(ii) Cement concrete M-15 Grade				
		As per item no. 11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86
		(iii) Painting steel tube posts with primer and two coats of epoxy paint as per specifications				
		As per item no 10.7 of Chapter 11	sqm	0.46	112.70	51.84
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		Support of M.S. Sheet tube				
		(I) 47 mm x 47 mm x 12 SWG Sheet	kg	12.40	58.20	721.68
		3050 mm long				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	47.00	49.82
		Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				23.15
		(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications	sqm			
		600 mm equilateral & triangle	sqm	0.156	565.44	0.00
		c) Machinery				
		Tractor with Trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**125.64**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**152.98**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**11.73**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,479.30**
					say	***2479.30***
		iii) with 600 mm circular MS sheeting				
		(i) Excavation foundations				
		As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	341.70	43.05
		(ii) Cement concrete M-15 Grade				
		As per item no. 11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86
		(iii) Painting steel tube posts with primer and two coats of epoxy paint as per specifications				
		As per item no 10.7 of Chapter 11	sqm	0.46	112.70	51.84
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		Support of M.S. Sheet tube				
		(I) 47 mm x 47 mm x 12 SWG Sheet	kg	12.40	58.20	721.68
		3050 mm long				
		(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	47.00	49.82
		Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				23.15
		(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications	sqm			
		600 mm circular	sqm	0.283	565.44	160.02
		c) Machinery				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Tractor with Trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**148.12**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**180.35**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**13.83**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,691.28**
					say	***2691.30***
		iv) with 800 x 600 mm rectangular MS sheeting				
		(i) Excavation foundations				
		As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	341.70	43.05
		(ii) Cement concrete M-15 Grade				
		As per item no. 11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86
		(iii) Painting steel tube posts with primer and two coats of epoxy paint as per specifications				
		As per item no 10.7 of Chapter 11	sqm	0.46	112.70	51.84
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		Support of M.S. Sheet tube				
		(I) 47 mm x 47 mm x 12 SWG Sheet	kg	12.40	58.20	721.68
		3050 mm long				
		(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	47.00	49.82
		Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				23.15
		(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications	sqm			
		800 mm x 600 mm rectangular	sqm	0.48	565.44	271.41
		c) Machinery				
		Tractor with Trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**163.77**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**199.41**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**15.29**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,838.84**
					say	***2838.80***
		v) with 600 x 450 mm rectangular MS sheeting				
		(i) Excavation foundations				
		As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	341.70	43.05

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(ii) Cement concrete M-15 Grade				
		As per item no. 11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86
		(iii) Painting steel tube posts with primer and two coats of epoxy paint as per specifications				
		As per item no 10.7 of Chapter 11	sqm	0.46	112.70	51.84
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		Support of M.S. Sheet tube				
		(I) 47 mm x 47 mm x 12 SWG Sheet	kg	12.40	58.20	721.68
		3050 mm long				
		(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	47.00	49.82
		Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				23.15
		(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications	sqm			
		600 mm x 450 mm rectangular	sqm	0.27	565.44	152.67
		c) Machinery				
		Tractor with Trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**147.09**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**179.09**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**13.73**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,681.54**
					say	***2681.50***
		vi) with 600 x 600 mm square MS sheeting				
		(i) Excavation foundations				
		As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	341.70	43.05
		(ii) Cement concrete M-15 Grade				
		As per item no. 11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86
		(iii) Painting steel tube posts with primer and two coats of epoxy paint as per specifications				
		As per item no 10.7 of Chapter 11	sqm	0.46	112.70	51.84
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		Support of M.S. Sheet tube				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(I) 47 mm x 47 mm x 12 SWG Sheet	kg	12.40	58.20	721.68
		3050 mm long				
		(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	47.00	49.82
		Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				23.15
		(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications				
		600 mm x 600 mm	sqm	0.36	565.44	203.56
		c) Machinery				
		Tractor with Trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**154.24**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**187.80**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**14.40**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,748.95**
					say	***2749.00***
	vii)	**with 900 mm side octagon MS sheeting**				
	(i)	**Excavation foundations**				
		As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	341.70	43.05
	(ii)	**Cement concrete M-15 Grade**				
		As per item no. 11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86
	(iii)	**Painting steel tube posts with primer and two coats of epoxy paint as per specifications**				
		As per item no 10.7 of Chapter 11	sqm	0.46	112.70	51.84
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		Support of M.S. Sheet tube				
		(I) 47 mm x 47 mm x 12 SWG Sheet	kg	12.40	58.20	721.68
		3050 mm long				
		(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	47.00	49.82
		Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				23.15

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications				
		900 mm side octagon	sqm	0.672	565.44	379.98
		c) Machinery				
		Tractor with Trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**179.02**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**217.98**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**16.71**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,982.65**
					say	***2982.70***

Note: *1 Any one area of M.S. Sheet given at (i) to (viii) may be adopted as per site requirement and in accordance with IRC-67.*

2 The rate for excavation, cement concrete M-15, and painting may be taken from respective Chapters.

3 The depth of foundation and quantity of cement in the foundation are indicative. These may be increased for areas having higher wind velocities like in coastal area. This is applicable to all road signs and direction boards.

10.3	**1700, 800 & 300**	**Direction and Place Identification signs upto 0.9 sqm size board**				
		A. Retro-reflectorised Traffic Signs				
		(i) Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 2 mm thick with area not exeeding 0.9 sqm supported on a mild steel single angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm bellow ground level as per approved drawings and MoRD Technical Specification Clause 1701.				
		Unit = sqm				
		Taking output = 0.9 sqm				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M-15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86
		iii) Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per				
		Rate as per item No.10.7 of this Chapter	sqm	0.887	112.70	99.96
		a) Labour (For fixing at site)				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	47.00	940.00
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				28.20
		Aluminium sheeting 2.0 mm thick fixed with encapsulated lens type reflective sheeting of size 0.90 sqm including lettering and signs as applicable background with epoxy paint	sqm	0.90	993.20	893.88
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**275.61**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**335.59**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**25.73**
		Cost for 0.9 sqm = (i+ii+iii+a+b+c+d+e+f)				3,941.45
		Rate per sqm (for sign having area upto 0.9 sqm) = (i+ii+iii+a+b+c+d+e+f)/0.90				**4,379.38**
					say	***4379.40***
		(ii) Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 2 mm thick with area not exeeding 0.9 sqm supported on 2 inch dia GI Pipe firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm bellow ground level as per approved drawings and MoRD Technical Specification Clause 1701.				
		Unit = sqm				
		Taking output = 0.9 sqm				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M-15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	310.00	930.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				27.90

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Aluminium sheeting 2.0 mm thick fixed with encapsulated lens type reflective sheeting of size 0.90 sqm including lettering and signs as applicable background with epoxy paint	sqm	0.90	993.20	893.88
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**274.16**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**333.83**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**25.59**
		Cost for 0.9 sqm = (i+ii+iii+a+b+c+d+e+f)				3,827.84
		Rate per sqm (for sign having area upto 0.9 sqm) = (i+ii+iii+a+b+c+d+e+f)/0.90				**4,253.15**
					say	***4253.20***
	(iii)	Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 2 mm thick with area not exceeding 0.9 sqm supported on RCC post 100 mm x 100 mm firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm below ground level as per approved drawings and MoRD Technical Specification Clause 1701.				
		Unit = sqm				
		Taking output = 0.9 sqm				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M-15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86
		iii) Painting two coats including prime coat on concrete surface with Epoxy Paint as per specifications				
		As per item No.10.7 of Chapter 10	sqm	0.90	112.70	101.43
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		i. RCC M-15 Grade in Sub-structure				
		As per item No.12.4.II of Chapter 12	cum	0.0285	10,072.10	287.05
		ii. Steel re-inforcement Twisted steel/ deformed bars				
		As per item No.12.5 of Chapter 12	t	0.0077	68,312.20	526.00
		iii. Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts etc.				24.39

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		iv. Aluminium sheeting 2.0 mm thick fixed with encapsulated lens type reflective sheeting of size 0.90 sqm including lettering and signs as applicable background with epoxy paint	sqm	0.90	993.20	893.88
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b.iii, iv+c)				**143.01**
		e) Contractor's profit @ 15 % on (a+b.iii, iv+c)				**174.13**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**13.35**
		Cost for 0.9 sqm = (i+ii+iii+a+b+c+d+e+f)				3,505.72
		Rate per sqm (for sign having area upto 0.9 sqm) = (i+ii+iii+a+b+c+d+e+f)/0.90				**3,895.24**
					say	***3895.20***

Note: *1 Lettering and arrow markings on sign board to be provided separately as per actual requirement. Rates for these items have been analysed separately.*

2 The rate for excavation, cement concret M15, RCC M15 in Sub-structure, steel re-inforcement and painting may be taken from respective Chapters.

3 The depth of foundation and quantity of cement concrete in the foundation are indicative. These may be increased for areas having higher wind velocities like in coastal areas. This is applicable to all road signs and directions boards.

B. Semi-Reflective Traffic signs

Direction and place indentification signs up to 0.9 sqm size board

Providing and erecting and place identifications of semi reflective sign boards as per IRC:67 made of 2 mm thick M.S. sheet duly stove enameled paint in white colour in front and gray colour on back with red reflective border of 70 mm width and required message, letters and figures with reflective engineering grade tape as per MORD specifications of required shade and colour. Supported and welded on 47 mm x 47 mm x 12 SWG square tube of 3050 mm height duly strengthened by 25 mm x 5 mm MS flat iron on edges on back firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm below ground level as per approved drawings and MoRD Technical Specification Clause 1701.

Unit = each

Take Output = 0.9 sqm

(i)	**Excavation for foundations**					
	As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
(ii)	**Cement concrete M-15 grade**				
	As per item No.11.4.II(ii) of Chapter 11	cum	0.126	9,522.70	1,199.86

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(iii) Painting on M.S. tube post with primer and two coat of epoxy paint as per specifications				
		As per item No.10.7 of Chapter 10	sqm	0.59	112.70	66.49
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Materials				
		i) Support of MS sheet tube				
		47 mm x 47 mm of 12 SWG sheet 3050 mm long	kg	12.40	58.20	721.68
		ii) Angle iron 50 x 50 x 6 mm for lugs including 5% wastage	kg	1.06	47.00	49.82
		iii) 2 mm thick MS sheet strengthened by 25 mm x 5 mm MS flat iron & painted with stove enameled paint including lettering, signs, message, border with reflective tape of engineering grade of required shade and colour as per Technical Specifications.	sqm	0.90	753.60	678.24
		Add 3% cost of MS sheet angle iron towards the cost of fabrications, drilling, holes, nuts, bolts, etc.				43.49
		c) Machinery				
		Tractor with Trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**223.79**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**272.49**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**20.89**
		Cost for 0.9 sqm = (i+ii+iii+a+b+c+d+e+f)				3,419.36
		Rate per sqm = (i+ii+iii+a+b+c+d+e+f) / 0.9				**3,799.29**
					say	***3799.30***

Note: *Rate for excavation, cement concrete M15 and painting may be taken from respective Chapters.*

10.4 **1700, 800 & 300** **Direction and Place Identification signs with size more than 0.9 sqm size board**

A. Retro-reflectorised Traffic Signs

(i) Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 2 mm thick with area exeeding 0.9 sqm supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm 2 Nos. firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm bellow ground level as per approved drawings and MoRD Technical Specification Clause 1701.

Unit = sqm

Taking output = 1.50 sqm

i) Excavation for foundation

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.252	341.70	86.11
		ii) Cement concrete M-15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.252	9,522.70	2,399.72
		iii) Painting Angle Iron Post with Primer and two coats of Epoxy Paint specifications				
		As per item No.10.7 of Chapter 10	sqm	1.774	112.70	199.93
		a) Labour (For fixing at site)				
		Mate	day	0.02	310.00	6.20
		Mazdoor (Unskilled)	day	0.50	310.00	155.00
		b) Material				
		Mild steel angle iron 75 mm x 75 mm x 6 mm, 2.85 m long, 2 nos. with 5 per cent wastage	kg	40.00	47.00	1,880.00
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				56.40
		Aluminium sheeting 2 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint	sqm	1.50	993.20	1,489.80
		c) Machinery				
		Tractor with trolley	hour	0.12	237.00	28.44
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**508.03**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**618.58**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**47.42**
		Cost for 1.5 sqm = i+ii+iii+a+b+c+d+e+f				7,475.63
		Rate per sqm (for sign having area more than 0.9 sqm) = (i+ii+iii+a+b+c+d+e+f)/1.50				**4,983.75**
					say	***4983.80***
	(ii)	Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 2 mm thick with area exeeding 0.9 sqm supported on 50 mm dia GI Pipe, 2 Nos. firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm bellow ground level as per approved drawings and MoRD Technical Specification Clause 1701.				
		Unit = sqm				
		Taking output = 1.50 sqm				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.252	341.70	86.11
		ii) Cement concrete M15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.252	9,522.70	2,399.72
		a) Labour (For fixing at site)				
		Mate	day	0.02	310.00	6.20

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mazdoor (Unskilled)	day	0.50	310.00	155.00
		b) Material				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	6.00	310.00	1,860.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts, etc.				55.80
		Aluminium sheeting 2 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint		1.50	993.20	1,489.80
		c) Machinery				
		Tractor with trolley	hour	0.12	237.00	28.44
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**505.13**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**615.06**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**47.15**
		Cost for 1.50 sqm = i+ii+a+b+c+d+e+f				7,248.41
		Rate per sqm (for sign having area more than 0.9 sqm) = (i+ii+a+b+c+d+e+f)/1.50				**4,832.27**
					say	***4832.30***
	(iii)	Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 2 mm thick with area exceeding 0.9 sqm supported on RCC post 100 mm x 100 mm, 2 Nos. firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm bellow ground level as per approved drawings and MoRD Technical Specification Clause 1701.				
		Unit = sqm				
		Taking output = 1.50 sqm				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.252	341.70	86.11
		ii) Cement concrete M15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.252	9,522.70	2,399.72
		iii) Painting two coats including prime coat on concrete surface with Epoxy Paint as per specifications				
		As per item No.10.7 of Chapter 10	sqm	1.84	112.70	207.37
		a) Labour (For fixing at site)				
		Mate	day	0.02	310.00	6.20
		Mazdoor (Unskilled)	day	0.50	310.00	155.00
		b) Material				
		i. RCC M-15 Grade in Sub-structure				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		As per item No.12.4.II of Chapter 12	cum	0.057	10,072.10	574.11
		ii. Steel re-inforcement Twisted steel/ deformed bars				
		As per item No.12.5 of Chapter 12	t	0.0154	68,312.20	1,052.01
		iii. Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				48.78
		iv. Aluminium sheeting fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint	sqm	1.50	993.20	1,489.80
		c) Machinery				
		Tractor with trolley	hour	0.12	237.00	28.44
		d) Add GST (multiplying factor) @ 0.1405 on (a+b.iii, iv+c)				**242.82**
		e) Contractor's profit @ 15 % on (a+b.iii, iv+c)				**295.66**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**22.67**
		Cost for 1.5 sqm = a+b+c+d+e+f				6,608.68
		Rate per sqm (for sign having area more than 0.9 sqm) = (a+b+c+d+e+f)/1.50				**4,405.78**
					say	***4405.80***

Note:

1 *Lettering and arrow markings on sign boards to be provided separately as per actual requirement. Rates for these items have been analysed separately.*

2 *The rate for excavation, cement concrete M15, RCC M15 in Sub-structure, steel re-inforcement and painting may be taken from respective Chapters.*

3 *The depth of foundation and quantity of cement concrete in the foundation are indicative. These may be increased for areas having higher wind velocities like in coastal areas. This is applicable to all road signs and directions boards.*

B. Semi-Reflective Traffic signs

Direction and place identification signs more than 0.90 sqm sign board

Providing and erecting direction and place identifications of semi reflective sign boards as per IRC:67 made of 2 mm thick M.S. sheet duly stove enameled paint in white colour in front and gray colour on back with reflective border of 70 mm width and required message, letters and figures with reflective engineering grade tape as per MORD specifications of required shade and colour. Supported and welded on 2 Nos. 47 mm x 47 mm x 12 SWG square tube of 3050 mm height duly strengthened by 25 mm x 5 mm MS flat iron on edges on back firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm below ground level as per approved drawings and MoRD Technical Specification Clause 1701.

Unit = each

Taking output = 1.5 sqm

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(i) Excavation for foundations as				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.252	341.70	86.11
		(ii) Cement concrete M15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.252	9,522.70	2,399.72
		(iii) Painting M.S. tube posts with primer and two coats of epoxy paint as per specification				
		As per item No. 10.7 of chapter 10	sqm	0.92	112.70	103.68
		a) Labour (fox fixing at site)				
		Mate	day	0.02	310.00	6.20
		Mazdoor (Unskilled)	day	0.50	310.00	155.00
		b) Material				
		i) Support of MS Sheet tubes 47 mm x 47 mm x 12 SWG sheet 3050 mm long	kg	24.80	58.20	1,443.36
		ii) Angle iron 50 mm x 50 mm x 6 mm for lugs	kg	2.12	47.00	99.64
		iii) 2 mm thick MS Sheet strengthened by 25 mm x 5 mm M.S. flat iron and painted with stove enameled paint including lettering, signs, messages, border with reflective tape of engineering grade of required size, shade and colour as per MORD specifications	sqm	1.50	753.60	1,130.40
		Add 3% cost of MS sheet and angle iron towards the cost of fabrications, drilling, holes, nuts, bolts etc.				80.20
		c) Machinery				
		Tractor with trolley	hour	0.16	237.00	37.92
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**414.86**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**505.14**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**38.73**
		Cost for 1.5 sqm board = (i+ii+iii+a+b+c+d+e+f)				6,500.96
		Rate per sqm = (i+ii+iii+a+b+c+d+e+f) / 1.5				**4,333.97**
					say	***4334.00***

Note: *Rate for excavation cement concrete M15 and painting may be taken from respective chapter*

10.5 1700 Painting Two Coats on New Concrete Surfaces

Painting two coats including primer coat after filling the surface with synthetic enamel paint in all shades on new, plastered / concrete surfaces as per drawing and MoRD Technical Specification clause 1701.

Unit = sqm

Taking output = 40 sqm

a) Labour					
Mate	day	0.20	310.00	62.00
Painter (1st Class)	day	3.00	395.00	1,185.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		b) Material				
		Cement Primer as per specifications	litre	3.00	85.00	255.00
		Paint conforming to requirement of Clause 1701.3.8	litre	6.00	170.00	1,020.00
		Add for scaffolding @ 1 per cent of labour cost where required				18.67
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**444.07**
		d) Contractor's profit @ 15 % on (a+b+c)				**540.71**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**41.45**
		Cost for 40 sqm = a+b+c+d+e				4,186.91
		Rate per sqm = (a+b+c+d+e)/40				**104.67**
					say	***104.70***
10.6	**1700**	**Painting on Steel Surfaces**				
		Providing and applying two coats of ready mix paint including primer coat of approved brand on steel surface after through cleaning of surface to give an even shade as per drawing and MoRD Technical Specification Clause 1701.				
		Unit = sqm				
		Taking output = 10 sqm				
		a) Labour				
		Mate	day	0.25	310.00	77.50
		Painter (1st Class)	day	0.60	395.00	237.00
		Mazdoor (Unskilled)	day	0.40	310.00	124.00
		b) Material				
		Red-oxide Primer as per specifications	litre	0.60	100.00	60.00
		Paint ready mixed approved brand	litre	1.25	170.00	212.50
		Add @ 1 per cent on cost of material for scaffolding wherever required				2.73
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**100.28**
		d) Contractor's profit @ 15 % on (a+b+c)				**122.10**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**9.36**
		Cost for 10 sqm = a+b+c+d+e				945.46
		Rate per sqm = (a+b+c+d+e)/10				**94.55**
					say	***94.50***
10.7	**1700**	**Painting on Concrete/Steel Surfaces with Epoxy**				
		Painting two coats including prime coat with epoxy paint of approved brand on concrete/steel surfaces after through cleaning of surface to give an even shade as per drawing and MoRD Technical Specification Clause 1701.				
		Unit = sqm				
		Taking output = 10 sqm				
		a) Labour				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mate	day	0.25	310.00	77.50
		Painter (1st Class)	day	0.60	395.00	237.00
		Mazdoor (Unskilled)	day	0.40	310.00	124.00
		b) Material				
		Epoxy primer	litre	0.60	160.00	96.00
		Epoxy paint	litre	1.25	250.00	312.50
		Add @ 1 per cent on cost of material for scaffolding wherever required				4.09
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**119.58**
		d) Contractor's profit @ 15 % on (a+b+c)				**145.60**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**11.16**
		Cost for 10 sqm = (a+b+c+d+e)				1,127.42
		Rate per sqm = (a+b+c+d+e)/10				**112.74**
					say	***112.70***
10.8	**1700**	**Painting lines, Dashes, Arrows, etc. on Road in Two Coats on New Work**				
		Painting lines, dashes, arrows, etc. on roads in two coats on new work with ready mixed road marking paint conforming to IS:164 on bituminous/concrete surface, including cleaning the surface of all dirt, dust and other foreign matter, demarcation at site and traffic control as per drawing and MoRD Technical Specification Clause 1702.				
		Assuming 100 mm width				
		Unit = sqm				
		Taking output = 10 sqm				
		a) Labour				
		Mate	day	0.09	310.00	27.90
		Painter 1st Class	day	0.55	395.00	217.25
		Mazdoor (Unskilled)	day	1.55	310.00	480.50
		b) Material				
		Road marking paint as per IS:164	litre	1.48	155.25	229.77
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**134.24**
		d) Contractor's profit @ 15 % on (a+b+c)				**163.45**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**12.53**
		Cost for 10 sqm = a+b+c+d+e				1,265.64
		Rate per sqm = (a+b+c+d+e)/10				**126.56**
					say	***126.60***
10.9	**1700**	**Painting lines, Dashes, Arrows, etc. on Roads in Two Coats on Old Work**				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Painting lines, dashes, arrows, etc. on roads in two coats on old work with ready mixed road marking paint conforming to IS:164 on bituminous / concrete surface, including cleaning the surface of all dirt, dust and other foreign matter, demarcation at site and traffic control as per drawing and MoRD Technical Specification Clause 1702.				
		Assuming 100 cm width				
		Unit = sqm				
		Taking output = 10 sqm				
		a) Labour				
		Mate	day	0.06	310.00	18.60
		Painter (Ist class)	day	0.30	395.00	118.50
		Mazdoor (Unskilled)	day	1.25	310.00	387.50
		b) Material				
		Road marking paint	litre	0.90	155.25	139.73
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**93.34**
		d) Contractor's profit @ 15 % on (a+b+c)				**113.65**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**8.71**
		Cost for 10 sqm = a+b+c+d+e				880.03
		Rate per sqm = (a+b+c+d+e)/10				**88.00**
					say	***88.00***
10.10	**1700**	**Kilometre Stone**				
		Reinforced cement concrete M15 grade kilometre stone / local stone of standard design as per IRC:8 fixing in position including painting and printing, etc. as per drawing and MoRD Technical Specification Clause 1703.				
		i) 5th Kilometre Stone (precast)				
		Unit = each				
		Taking output = 6 Nos.				
		a) M-15 grade of concrete				
		As per item No.12.4.II of Chapter 12	cum	2.35	10,072.10	23,669.44
		b) Steel reinforcement @ 5 kg per sqm				
		As per item No.12.5 of Chapter 12	t	0.0221	68,312.20	1,509.70
		c) Excavation in soil for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	1.68	341.70	574.06
		d) Painting two coats on concrete surface				
		As per item No.10.5 of Chapter 10	sqm	9.85	104.70	1,031.30
		e) lettering on km post (average 30 letters of 10 cm height each)				
		As per item No.10.1 of Chapter 10 (Englisg & Rc	per cm high per letter	1,800.00	0.60	1,080.00
		Transportation and fixing				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		f) Labour				
		Mate	day	0.26	310.00	80.60
		Mason (1st Class)	day	0.60	440.00	264.00
		Mazdoor (Unskilled)	day	6.00	310.00	1,860.00
		g) Machinery				
		50 HP Tractor with trolley	hour	6.00	237.00	1,422.00
		h) Add GST (multiplying factor) @ 0.1405 on (f+g)				**509.54**
		i) Contractor's profit @ 15 % on (f+g+h)				**620.42**
		j) Add Cess @ 1.00 % on (f+g+h+i)				**47.57**
		Cost for 6 Nos. 5th km stone = a+b+c+d+e+f+g+h+i+j				32,668.61
		Rate for each 5th km stone = (a+b+c+d+e+f+g+h+i+j)/6				**5,444.77**
					say	***5444.80***
	ii)	**Ordinary Kilometer Stone (Precast)**				
		Unit = each				
		Taking output = 14 Nos.				
		a) M15 grade of concrete				
		As per item No.12.4.II of Chapter 12	cum	3.77	10,072.10	37,971.82
		b) Steel reinforcement @ 5 kg per sqm				
		As per item No.12.5 of Chapter 12	t	0.0263	68,312.20	1,796.61
		c) Excavation in soil for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	2.77	341.70	946.51
		d) Painting two coats on concrete surface				
		As per item No.10.5 of Chapter 10	sqm	11.41	104.70	1,194.63
		e) lettering on km post (average 30 letters of 10 cm height each)				
		As per item No.10.1 of Chapter 10 (Englisg & Roman)	per cm high per	1,680.00	0.60	1,008.00
		Transportation and fixing				
		f) Labour				
		Mate	day	0.32	310.00	99.20
		Mason (1st Class)	day	1.00	440.00	440.00
		Mazdoor (Unskilled)	day	7.00	310.00	2,170.00
		g) Machinery				
		50 HP Tractor with trolley	hour	6.00	237.00	1,422.00
		h) Add GST (multiplying factor) @ 0.1405 on (f+g)				**580.43**
		i) Contractor's profit @ 15 % on (f+g+h)				**706.75**
		j) Add Cess @ 1.00 % on (f+g+h+i)				**54.18**
		Rate for each ordinary km stone = (a+b+c+d+e+f+g+h+i+j)/14				**3,456.44**
					say	***3456.40***

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		iii) 200 m stone (precast)				
		Unit = each				
		Taking output = 33 Nos.				
		a) M15 grade of concrete				
		As per item No.12.4.II of Chapter 12	cum	1.58	10,072.10	15,913.92
		b) Steel reinforcement @ 5 kg per sqm				
		As per item No.12.5 of Chapter 12	t	0.066	68,312.20	4,508.61
		c) Excavation in soil for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	1.39	341.70	474.96
		d) Painting two coats on concrete surface				
		As per item No.10.5 of Chapter 10	sqm	6.27	104.70	656.47
		e) lettering on km post (average 30 letters of 10 cm height each)				
		As per item No.10.1 of Chapter 10 (Englisg & Roman)	per cm per letter	330.00	0.60	198.00
		Transportation and fixing				
		f) Labour				
		Mate	day	0.34	310.00	105.40
		Mason (1st Class)	day	1.50	440.00	660.00
		Mazdoor (Unskilled)	day	7.00	310.00	2,170.00
		g) Machinery				
		50 HP Tractor with trolley	hour	6.00	237.00	1,422.00
		h) Add GST (multiplying factor) @ 0.1405 on (f+g)				**612.21**
		i) Contractor's profit @ 15 % on (f+g+h)				**745.44**
		j) Add Cess @ 1.00 % on (f+g+h+i)				**57.15**
		Cost for 33 Nos. 200 m stone = (a+b+c+d+e+f+g+h+i+j)				27,524.16
		Rate for each 200 m stone = (a+b+c+d+e+f+g+h+i+j)/33				**834.07**
					say	***834.10***

Note: *1 The rate for excavation, cement concrete, steel reinforcement, painting and lettering may be taken from respective Chapters.*

2 In case local stone is to be used in place of precast RCC stones, then rate of cement concrete and steel reinforcement may be deleted.

10.11 **1700, 800 & 300** **G.I Barbed Wire Fencing 1.2 m high**

Providing and fixing 1.2 m high GI barbed wire fencing with 1.8 m RCC posts 150 mm x 150 mm placed every 3 m centre-to-centre founded in M-15 grade cement concrete, 0.6 m below ground level, every 15th post, last but one end post and corner post shall be strutted on both sides and end post on one side only and provided with 9 horizontal lines and 2 diagonals interwoven with horizontal wires, fixed with GI staples, turn buckles etc. complete as per MoRD technical specification Clause 1705.

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Unit = per running m				
		Taking output = 30 m				
		a) Labour				
		Mate	day	0.09	310.00	27.90
		Blacksmith	day	0.25	418.00	104.50
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		b) Material				
		i. Barbed wire 335 m length @ 9.38 kg per 100 m	kg	31.42	82.35	2,587.44
		R.C.C. Post 150 mm x 150 mm x 1.80 m				
		M15 Grade concrete				
		13 x 150 mm x 150 mm x 1.8 m				
		ii. Rate As per item No.12.4.II of Chapter 12	cum	0.526	10,072.10	5,297.92
		iii. Add 5 per cent extra cost for formwork of M-15				264.90
		Supply of Twisted steel/ deformed bars including cutting, bending, tying & placing in position.				
		10 mm dia bars for posts				
		13 x 4 x 1.8 = 93.6 m @ 0.62 kg/mt = 43.60 kg				
		8 mm dia bars for rings				
		13 x 10 x 0.6 = 78 m @ 0.39 kg/mt = 30.42 kg				
		Total 74.02 kg				
		iv. As per item No.12.5 of Chapter 12	t	0.074	68,312.20	5,055.10
		v. Add for GI staple binding wire, drilling holes, etc. @ 2 per cent of the cost of material				101.10
		c) Painting				
		Applying two coats of painting including primer coat on exposed surface of RCC posts				
		As per item No.10.5 of this Chapter	sqm	8.14	104.70	852.26
		d) Add GST (multiplying factor) @ 0.1405 on (a+b{i,iii & v})				**520.67**
		e) Contractor's profit @ 15 % on (a+b{i,iii & v}+d)				**633.98**
		f) Add Cess @ 1.00 % on (a+b{i,iii & v}+d+e)				**48.60**
		Cost for 30 m fencing = a+b+c+d+e+f				16,065.77
		Rate per m = (a+b+c+d+e+f)/30				**535.53**
					say	***535.50***
		Note: *Cost of excavation for foundation and foundation concrete to be added separately in the cost estimate as per approved design. The rate for these items may be taken from respective Chapters.*				
10.12	**1700, 800 & 300**	**G.I Barbed Wire Fencing 1.8 m high**				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Providing and fixing 1.8 m high GI barbed wire fencing with 2.4 m RCC M15 grade 150 mm x 150 mm concrete post placed every 3 m centre-to-centre founded in M15 grade cement concrete, 0.6 m below ground level, every 15th post, last but one end post and corner post shall be strutted on both sides and end post on one side only and provided with 12 horizontal lines and 2 diagonals interwoven with horizontal wires, fixed with GI staples, turn buckles etc. complete as per MoRD technical specification Clause 1705.				
		Unit = per running m				
		Taking output = 30 m				
		a) Labour				
		Mate	day	0.12	310.00	37.20
		Blacksmith	day	0.40	418.00	167.20
		Mazdoor (Unskilled)	day	2.50	310.00	775.00
		b) Material				
		i. Barbed wire 428 m length @ 9.38 kg per 100 m	kg	40.15	82.35	3,306.35
		R.C.C. Post 150 mm x 150 mm x 2.4 m				
		M-15 Grade				
		13 x 150 mm x 150 mm x 2.4 m				
		ii. As per item No.12.4.II of Chapter 12	cum	0.702	10,072.10	7,070.61
		iii. Add 5 per cent extra cost of C.C. for formwork of M-15				353.53
		Supply of Twisted steel/ deformed bars including cutting, bending, tying & placing in position.				
		10 mm dia steel bars for posts				
		13 x 4 x 2.4 = 124.80 m				
		@ 0.62 kg/mt = 77.38 kg				
		8 mm dia bars for rings				
		13 x 11 x 0.6 = 85.80 m				
		@ 0.39 kg/m = 33.46 kg				
		Total 110.84 kg				
		iv. As per item No.12.5 of Chapter 12	t	0.111	68,312.20	7,582.65
		v. Add for GI staple, binding wire, drilling holes etc. @ 2 per cent of the cost of material				151.65
		c) Painting				
		Applying two coats of painting including prime coat on exposed surface of RCC posts				
		As per item No.10.5 of this Chapter	sqm	12.10	104.70	1,266.87
		d) Add GST (multiplying factor) @ 0.1405 on (a+b{i,iii & v})				**673.13**
		e) Contractor's profit @ 15 % on (a+b{i,iii & v}+d)				**819.61**
		f) Add Cess @ 1.00 % on (a+b{i,iii & v}+d+e)				**104.94**
		Cost for 30 m fencing = a+b+c+d+e				22,203.81
		Rate per m fencing = (a+b+c+d+e)/30				**740.13**
					say	***740.10***

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Note: *Cost of excavation for foundation and foundation concrete to be added separately in the cost estimate as per approved design. The rate for these items may be taken from respective Chapters.*				
10.13	**1700, 800 &300**	**Tubular Steel Railing on Medium Weight Steel Channel (ISMC series) 100 mm x 50 mm** Providing, fixing and erecting 50 mm dia steel pipe railing in 3 rows duly painted on medium weight steel channels(ISMC series) 100 mm x 50 mm, 1.2 m high above ground, 2 m centre-to-centre, complete as per approved drawings MoRD technical specification Clause 1706. Unit = Running m Taking output = 10 m				
		i) Excavation for foundation (6 Nos.) 6 x 0.6 x 0.6 x 0.6				
		As per item No.11.1.A.I(i) of Chapter 11	cum	1.296	341.700	442.84
		ii) Foundation concrete M-15 grade PCC 6 x 0.6 x 0.6 x 0.3				
		As per item No. 11.4.II(ii) of Chapter 11	cum	0.648	9,522.700	6,170.71
		iii) Painting of pipe				
		As per item No.10.6 of this Chapter	sqm	4.71	94.500	445.10
		iv) Painting of channel section (6 nos.) 1.8 m each 0.2 x 1.8 x 1.6 = 2.16				
		As per item No.10.6 of this Chapter	sqm	2.16	94.500	204.12
		a) labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		Plumber	day	0.01	395.00	3.95
		b) Material				
		Steel pipe 50 mm external dia as per IS:1239	m	30.00	310.00	9,300.00
		Medium weight steel channel (ISMC series) 100 mm x 50 mm, 10.8 m length @ 9.2 kg per m including 5 per cent wastage	kg	104.33	51.05	5,326.40
		Add for drilling holes @ 3 per cent of cost of channels				159.79
		c) Machinery				
		50 HP Tractor with trolley	hour	0.06	237.00	14.22
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**2,091.34**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**2,546.45**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**195.23**
		Cost for 10 m = a+b+c+d+e+f				26,980.75
		Rate per m = (a+b+c+d+e+f)/10				**2,698.07**
					say	***2698.10***
10.14	**1700, 800 & 300**	**Tubular Steel Railing on Precast RCC posts, 1.2 m high above Ground Level**				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Providing, fencing and erecting 50 mm dia painted steel pipe railing in 3 rows on precast M-20 grade RCC vertical posts 175 mm x 175 mm x 1.8 m high (1.2 m above GL) with 3 holes 50 mm dia for pipe, fixed 2 m centre-to-centre complete as per approved drawings MoRD technical specification Clause 1706.				
		Unit = Running m				
		Taking output = 10 m				
		i) Excavation for foundation (6 Nos.) 6 x 0.6 x 0.6 x 0.6				
		As per item No.11.1.A.I(i) of Chapter 11	cum	1.296	341.700	442.84
		ii) Foundation concrete M15 grade PCC 6 x 0.6 x 0.6 x 0.3				
		As per item No. 11.4II.ii of Chapter 11	cum	0.648	9,522.700	6,170.71
		iii) RCC M20 for precast posts (6 nos.) of 1.8 m each				
		As per item No.12.4.V.i of Chapter 12	sqm	0.33	10,770.900	3,554.40
		iv) Painting of pipe				
		As per item No.10.6 of this Chapter	sqm	4.71	94.500	445.10
		a) Labour				
		Mate	day	0.014	310.00	4.34
		Mazdoor (Unskilled)	day	0.35	310.00	108.50
		Plumber	day	0.01	395.00	3.95
		b) Material				
		i. Steel pipe 50 mm dia as per IS:1239	m	30.00	310.00	9,300.00
		ii. Twisted steel/ deformed bars As per item No.12.5 of Chapter 12	t	0.032	68,312.20	2,185.99
		c) Machinery				
		50 HP Tractor with trolley	hour	0.25	237.00	59.25
		d) Add GST (multiplying factor) @ 0.1405 on (a+b.i+c)				**1,331.38**
		e) Contractor's profit @ 15 % on (a+b.i+c+d)				**1,621.11**
		f) Add Cess @ 1.00 % on (a+b.i+c+d+e)				**124.29**
		Cost for 10 m = a+b+c+d+e+f				25,351.86
		Rate per m = (a+b+c+d+e+f)/10				**2,535.19**
					say	***2535.20***
10.15	Suggestive	**Traffic Cone**				
		Provision of red fluorescent with white refective sleeve traffic cone made of Low Density Polythylene(LDPE) material with a square base of 390 x 390 x 35 mm and a height of 770 mm, 4 kg in weight, placed at 1.5 m interval, all as per BS:873.				
		Unit = Each				
		Taking output = 68 Nos.				
		a) Labour				
		Mate	day	0.02	310.00	6.20
		Mazdoor (Unskilled)	day	0.50	310.00	155.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) Material				
		Traffic cones with 150 mm reflective sleeve	Nos.	68.00	538.00	36,584.00
		c) Machinery				
		50 HP Tractor with trolley	Hour	0.10	237.00	23.70
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**5,166.03**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**6,290.24**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**482.25**
		Cost for 68 Nos. = a+b+c+d+e+f				48,707.42
		Rate for each cone = (a+b+c+d+e+f)/68				**716.29**
					say	***716.30***
10.16	Suggestive	**Rumble Strips**				
		Provision of 15 nos. rumble strips covered with premix bituminous carpet, 15-20 mm high at centre, 250 mm wide placed at 1 m centre-to-centre at approved locations to control speed, marked with white strips of road marking paint.				
		Unit = sqm				
		Taking output = 57.188 sqm (including gaps)				
		(15.25 m long and 3.75 m wide area)				
		i) Tack coat with bitumen emulsion 0.20 to 0.25 kg per sqm				
		As per item No.5.2(i) of Chapter 5	sqm	14.06	11.90	167.31
		ii) 20 mm thick open graded premix carpet using bituminous binder				
		As per item No.5.8. Case-I.(II) of Chapter 5	cum	14.06	286.30	4,025.38
		iii) Painting with road marking paint				
		As per item No.10.8 of Chapter 10	sqm	7.03	126.60	890.00
		Add 2.00 % extra invlovement of labour for peacemeal work				101.65
		Cost for 57.188 sqm =				5,184.34
		Rate per sqm =				**90.65**
					say	***90.70***
	Note:	*The rate per sqm of premix carpet and road marking may be adopted from Chapters 5 & 10 respectively for the quantities calculated from approved drawings.*				
10.17	Suggestive	**Road Markers/Road Stud with Lens Reflector**				
		Providing and fixing of road stud 100 x 100 mm die cast in aluminium, resistant to corrosive effect of salt and grit, fitted with lense reflectors, installed in concrete or asphaltic surface by drilling holes 30 mm upto a depth of 600 mm and bedded in a suitable bituminous grout or epoxy mortar, all as per BS:873(Part 4) 1973.				
		Unit = each				
		Taking output = 50 Nos.				
		(a) Labour				
		Mate	day	0.04	310.00	12.40
		Mazdoor (Unskilled)	day	1.00	310.00	310.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(b) Material				
		Aluminium studs 100x100 mm fitted with lense reflectors	Nos.	50.00	230.00	11,500.00
		Add 10 per cent of cost of material for fixing and installation.				1,150.00
		(c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**1,822.62**
		(d) Contractor's profit @ 15 % on (a+b+c)				**2,219.25**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**170.14**
		Cost for 50 studs = a+b+c+d+e				17,184.42
		Rate per stud = (a+b+c+d+e)/50				**343.69**
					say	***343.70***

ADDITIONAL ITEMS BY USING JHAMA BRICK AGGREGATE (i.e. LOCALLY AVAILABLE MATERIALS)

10.18	**1700, 300, 800**	**Traffic Signs (using jhama brick aggregate in CC/ PCC)**				
		A. Retro-reflectorised Traffic Signs				
		(1) Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete (using jhama brick aggregate) 450 mm x 450 mm x 600 mm, 600 mm below ground level as per approved drawings and MoRD Technical Specification Clause 801.				
		i) with 900 mm equilateral triangle aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	8,155.20	1,027.56
		iii) Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per				
		As per item No.10.7 of this Chapter	sqm	0.887	112.70	99.96
		a) labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	47.00	940.00
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				28.20

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		900 mm equilateral triangle	sqm	0.35	785.40	274.89
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**188.64**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**229.69**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**17.61**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,949.17**
					say	***2949.20***
		ii) with 600 mm equilateral triangle aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	8,155.20	1,027.56
		iii) Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per				
		As per item No.10.7 of this Chapter	sqm	0.887	112.70	99.96
		a) labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	47.00	940.00
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				28.20
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 mm equilateral triangle	sqm	0.156	785.40	122.52
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**167.23**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**203.63**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**15.61**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,747.33**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	***2747.30***
		iii) with 600 mm circular aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	8,155.20	1,027.56
		iii) Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per				
		As per item No.10.7 of this Chapter	sqm	0.887	112.70	99.96
		a) labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	47.00	940.00
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				28.20
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 mm circular	sqm	0.283	785.40	222.27
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**181.25**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**220.69**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**16.92**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,879.46**
					say	***2879.50***
		iv) with 800 x 600 mm rectangular aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	8,155.20	1,027.56
		iii) Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per				
		As per item No.10.7 of this Chapter	sqm	0.887	112.70	99.96

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	47.00	940.00
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				28.20
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 800 x 600 mm rectangular	sqm	0.48	785.40	376.99
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**202.99**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**247.16**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**18.95**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**3,084.42**
					say	***3084.40***
		v) with 600 x 450 mm rectangular aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	8,155.20	1,027.56
		iii) Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per				
		As per item No.10.7 of this Chapter	sqm	0.887	112.70	99.96
		a) labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	47.00	940.00
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				28.20
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 x 450 mm rectangular	sqm	0.27	785.40	212.06

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**179.81**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**218.94**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**16.79**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,865.94**
					say	***2865.90***
		vi) with 600 x 600 mm square aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	8,155.20	1,027.56
		iii) Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per				
		As per item No.10.7 of this Chapter	sqm	0.887	112.70	99.96
		a) labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	47.00	940.00
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				28.20
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 x 600 mm square	sqm	0.36	785.40	282.74
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**189.75**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**231.04**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**17.71**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,959.57**
					say	***2959.60***
		vii) with 900 mm side octagon aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	8,155.20	1,027.56
		iii) Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per				
		As per item No.10.7 of this Chapter	sqm	0.887	112.70	99.96
		a) labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	47.00	940.00
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				28.20
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 900 mm side octagon	sqm	0.672	785.40	527.79
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**224.17**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**272.96**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**20.93**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**3,284.18**
					say	***3284.20***
	(2)	Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 1.5 mm thick supported on GI pipe 50 mm dia firmly fixed to the ground by means of properly designed foundation with M-15 grade cement concrete (using jhama brick aggregate) 450 mm x 450 mm x 600 mm, 600 mm below ground level as per approveddrawings and MoRD Technical Specification Clause 1701.				
		Unit = each				
		Taking output = one traffic sign				
		i) with 900 mm equilateral triangle aluminium sheeting				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	8,155.20	1,027.56

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) a)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	310.00	930.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				27.90
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		900 mm equilateral triangle	sqm	0.35	785.40	274.89
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**187.20**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**227.93**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**17.47**
		Rate per traffic sign = (i+ii+a+b+c+d+e+f)				**2,835.56**
					say	***2835.60***
		ii) with 600 mm equilateral triangle aluminium sheeting				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	8,155.20	1,027.56
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	310.00	930.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				27.90
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		600 mm equilateral triangle	sqm	0.156	785.40	122.52
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**165.79**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		e) Contractor's profit @ 15 % on (a+b+c+d)				**201.87**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**15.48**
		Rate per traffic sign = (i+ii+a+b+c+d+e+f)				**2,633.72**
					say	***2633.70***
		iii) with 600 mm circular aluminium sheeting				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	8,155.20	1,027.56
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	310.00	930.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				27.90
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		600 mm circular	sqm	0.283	785.40	222.27
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**179.80**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**218.93**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**16.78**
		Rate per traffic sign = (i+ii+a+b+c+d+e+f)				**2,765.85**
					say	***2765.90***
		iv) with 800 x 600 mm rectangular aluminium sheeting				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	8,155.20	1,027.56
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	310.00	930.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				27.90
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		800 mm x 600 mm rectangular	sqm	0.48	785.40	376.99
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**201.54**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**245.40**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**18.81**
		Rate per traffic sign = (i+ii+a+b+c+d+e+f)				**2,970.81**
					say	***2970.80***
		v) with 600 x 450 mm rectangular aluminium sheeting				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	8,155.20	1,027.56
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	310.00	930.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				27.90
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		600 mm x 450 mm rectangular	sqm	0.27	785.40	212.06
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**178.37**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**217.18**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**16.65**
		Rate per traffic sign = (i+ii+a+b+c+d+e+f)				**2,752.33**
					say	***2752.30***
		vi) with 600 mm x 600 mm square aluminium sheeting				
		i) Excavation for foundation				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	8,155.20	1,027.56
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	310.00	930.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				27.90
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		600 mm x 600 mm square	sqm	0.36	785.40	282.74
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**188.30**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**229.28**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**17.58**
		Rate per traffic sign = (i+ii+a+b+c+d+e+f)				**2,845.97**
					say	***2846.00***
		vii) with 900 mm side octagon aluminium sheeting				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	8,155.20	1,027.56
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	310.00	930.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				27.90
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		900 mm sides octagon	sqm	0.672	785.40	527.79

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**222.73**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**271.20**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**20.79**
		Rate per traffic sign = (i+ii+a+b+c+d+e+f)				**3,170.57**
					say	***3170.60***
		(3) Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 1.5 mm thick supported on RCC post 100 mm x 100 mm firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete (using jhama brick aggregate) 450 mm x 450 mm x 600 mm, 600 mm below ground level as per approved drawings and MoRD Technical Specification Clause 1701.				
		i) with 900 mm equilateral triangle aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	8,155.20	1,027.56
		iii) Painting two coats including Prime coat on concrete surface with Epoxy Paint as per specifications				
		As per item No.10.7 of this Chapter	sqm	0.90	112.70	101.43
		a) labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		i. PCC M15 Grade in Sub-structure (using jhama brick aggregate)				
		As per item No.12.14.II of Chapter 12	cum	0.0285	8,625.70	245.83
		ii. Twisted steel/ deformed bar				
		As per item No.12.5 of Chapter 12	t	0.0077	68,312.20	526.00
		iii. Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				23.16
		iv Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		900 mm equilateral triangle	sqm	0.35	785.40	274.89
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b.iii.iv+c)				**55.86**
		e) Contractor's profit @ 15 % on (a+b.iii.iv+c+d)				**68.02**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**5.21**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,470.58**
					say	***2470.60***
		ii) with 600 mm equilateral triangle aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	8,155.20	1,027.56
		iii) Painting two coats including Prime coat on concrete surface with Epoxy Paint as per specifications				
		As per item No.10.7 of this Chapter	sqm	0.90	112.70	101.43
		a) labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		i. PCC M15 Grade in Sub-structure (using jhama brick aggregate)				
		As per item No.12.14.II of Chapter 12	cum	0.0285	8,625.70	245.83
		ii. Twisted steel/ deformed bar				
		As per item No.12.5 of Chapter 12	t	0.0077	68,312.20	526.00
		iii. Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				23.16
		iv Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 mm equilateral triangle	sqm	0.156	785.40	122.52
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b.iii.iv+c)				**34.46**
		e) Contractor's profit @ 15 % on (a+b.iii.iv+c+d)				**41.95**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**3.22**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,268.74**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	***2268.70***
		iii) with 600 mm circular aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	8,155.20	1,027.56
		iii) Painting two coats including Prime coat on concrete surface with Epoxy Paint as per specifications				
		As per item No.10.7 of this Chapter	sqm	0.90	112.70	101.43
		a) labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		i. PCC M15 Grade in Sub-structure (using jhama brick aggregate)	cum	0.0285	8,625.70	245.83
		As per item No.12.14.II of Chapter 12				
		ii. Twisted steel/ deformed bars				
		As per item No.12.5 of Chapter 12	t	0.0077	68,312.20	526.00
		iii. Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				23.16
		iv Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 mm circular	sqm	0.283	785.40	222.27
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b.iii.iv+c)				**48.47**
		e) Contractor's profit @ 15 % on (a+b.iii.iv+c+d)				**59.02**
		f) Add Cess @ 1.00 % on (a+b.iii.iv+c+d+e)				**4.52**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,400.87**
					say	***2400.90***
		iv) with 800 x 600 mm rectangular aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	8,155.20	1,027.56
		iii) Painting two coats including Prime coat on concrete surface with Epoxy Paint as per specifications				
		As per item No.10.7 of this Chapter	sqm	0.90	112.70	101.43
		a) labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		i. PCC M15 Grade in Sub-structure (using jhama brick aggregate)				
		As per item No.12.14.II of Chapter 12	cum	0.0285	8,625.70	245.83
		ii. Steel reinforcement Twisted steel/ deformed bars				
		As per item No.12.5 of Chapter 12	t	0.0077	68,312.20	526.00
		iii. Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				23.16
		iv Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 800 x 600 mm rectangular	sqm	0.48	785.40	376.99
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b.iii.iv+c)				**70.21**
		e) Contractor's profit @ 15 % on (a+b.iii.iv+c+d)				**85.49**
		f) Add Cess @ 1.00 % on (a+b.iii.iv+c+d+e)				**6.55**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,605.83**
					say	***2605.80***
		v) with 600 x 450 mm rectangular aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	8,155.20	1,027.56
		iii) Painting two coats including Prime coat on concrete surface with Epoxy Paint as per specifications				
		As per item No.10.7 of this Chapter	sqm	0.90	112.70	101.43
		a) labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		i. PCC M15 Grade in Sub-structure (using jhama brick aggregate)				
		As per item No.12.14.II of Chapter 12	cum	0.0285	8,625.70	245.83
		ii. Steel reinforcement Twisted steel/ deformed bars				
		As per item No.12.5 of Chapter 12	t	0.0077	68,312.20	526.00
		iii. Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				23.16
		iv Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 x 450 mm rectangular	sqm	0.27	785.40	212.06
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b.iii.iv+c)				**47.04**
		e) Contractor's profit @ 15 % on (a+b.iii.iv+c+d)				**57.27**
		f) Add Cess @ 1.00 % on (a+b.iii.iv+c+d+e)				**4.39**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,387.35**
					say	***2387.30***
		vi) with 600 x 600 mm square aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	8,155.20	1,027.56
		iii) Painting two coats including Prime coat on concrete surface with Epoxy Paint as per specifications				
		As per item No.10.7 of this Chapter	sqm	0.90	112.70	101.43
		a) labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		i. PCC M15 Grade in Sub-structure (using jhama brick aggregate)				
		As per item No.12.14.II of Chapter 12	cum	0.0285	8,625.70	245.83
		ii. Steel reinforcement Twisted steel/ deformed bars				
		As per item No.12.5 of Chapter 12	t	0.0077	68,312.20	526.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		iii. Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				23.16
		iv Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 x 600 mm square	sqm	0.35	785.40	274.89
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b.iii.iv+c)				**55.86**
		e) Contractor's profit @ 15 % on (a+b.iii.iv+c+d)				**68.02**
		f) Add Cess @ 1.00 % on (a+b.iii.iv+c+d+e)				**5.18**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,470.55**
					say	***2470.50***
		vii) with 900 mm side octagon aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	8,155.20	1,027.56
		iii) Painting two coats including Prime coat on concrete surface with Epoxy Paint as per specifications				
		As per item No.10.7 of this Chapter	sqm	0.90	112.70	101.43
		a) labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		i. PCC M15 Grade in Sub-structure (using jhama brick aggregate)				
		As per item No.12.14.II of Chapter 12	cum	0.0285	8,625.70	245.83
		ii. Steel reinforcement Twisted steel/ deformed bars				
		As per item No.12.5 of Chapter 12	t	0.0077	68,312.20	526.00
		iii. Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				23.16
		iv Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 900 mm side octagon	sqm	0.672	785.40	527.79
		c) Machinery				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b.iii.iv+c)				**91.40**
		e) Contractor's profit @ 15 % on (a+b.iii.iv+c+d)				**111.28**
		f) Add Cess @ 1.00 % on (a+b.iii.iv+c+d+e)				**8.53**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,805.59**
					say	***2805.60***

Note: *1 Any one area of aluminium sheeting given at (i) to (vii) may be adopted as per site requirement and in accordance with IRC:67.*

2 The rate for excavation, cement concrete M-15, RCC M-15 in Sub-structure, steel re-inforcement and painting may be taken from respective Chapters.

3 The depth of foundation and quantity of cement concrete in the foundation are indicative. These may be increased for areas having higher wind velocities like in coastal areas. This is applicable to all road signs and directions boards.

B. Semi Reflective Traffic Signs

Providing and fixing of semi reflective cautionary, mandatory and informatory sign board as per IRC:67 made of 1.5 mm thick MS sheet duly stove white colour in front and gray colour on back with red reflective border of 65 mm width and required letters and figures with reflective tape engineering grade as per Clause 1701.3.9 of MORD specification for Rural Roads of required shade and colour supported and welded on 47 mm x 47 mm x 12 SWG sheet tube firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete (using jhama brick aggregate) 450 mm x 450 mm x 600 mm, 600 mm bellow ground level as per approved drawings and MoRD technical specification Clause 1701.2.2.

Unit = Each

Taking output = one traffic sign

	i)	**with 900 mm equilateral triangle MS sheeting**				
	(i)	**Excavation foundations**				
		As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	341.70	43.05
	(ii)	**Cement concrete M15 grade (using jhama brick aggregate)**				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	8,155.20	1,027.56
	(iii)	**Painting steel tube posts with primer and two coats of epoxy paint as per specifications**				
		As per item no 10.7 of Chapter 11	sqm	0.46	112.70	51.84
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Support of M.S. Sheet tube				
		(I) 47 mm x 47 mm x 12 SWG Sheet	kg	12.40	58.20	721.68
		3050 mm long				
		(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	47.00	49.82
		Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				23.15
		(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications				
		900 mm equilateral & triangle	sqm	0.35	565.44	197.90
		c) Machinery				
		Tractor with Trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**153.44**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**186.83**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**14.32**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,569.16**
					say	***2569.20***
		ii) with 600 mm equilateral triangle MS sheeting				
		(i) Excavation foundations				
		As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	341.70	43.05
		(ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	8,155.20	1,027.56
		(iii) Painting steel tube posts with primer and two coats of epoxy paint as per specifications				
		As per item no 10.7 of Chapter 11	sqm	0.46	112.70	51.84
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		Support of M.S. Sheet tube				
		(I) 47 mm x 47 mm x 12 SWG Sheet	kg	12.40	58.20	721.68
		3050 mm long				
		(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	47.00	49.82
		Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				23.15

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications	sqm			
		600 mm equilateral & triangle	sqm	0.156	565.44	0.00
		c) Machinery				
		Tractor with Trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**125.64**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**152.98**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**10.92**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,306.19**
					say	***2306.20***
		iii) with 600 mm circular MS sheeting				
		(i) Excavation foundations				
		As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	341.70	43.05
		(ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	8,155.20	1,027.56
		(iii) Painting steel tube posts with primer and two coats of epoxy paint as per specifications				
		As per item no 10.7 of Chapter 11	sqm	0.46	112.70	51.84
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		Support of M.S. Sheet tube				
		(I) 47 mm x 47 mm x 12 SWG Sheet	kg	12.40	58.20	721.68
		3050 mm long				
		(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	47.00	49.82
		Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				23.15
		(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications	sqm			
		600 mm circular	sqm	0.283	565.44	160.02
		c) Machinery				
		Tractor with Trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**148.12**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		e) Contractor's profit @ 15 % on (a+b+c+d)				**180.35**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**13.83**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,518.97**
					say	***2519.00***
		iv) with 800 x 600 mm rectangular MS sheeting				
		(i) Excavation foundations				
		As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	341.70	43.05
		(ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	8,155.20	1,027.56
		(iii) Painting steel tube posts with primer and two coats of epoxy paint as per specifications				
		As per item no 10.7 of Chapter 11	sqm	0.46	112.70	51.84
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		Support of M.S. Sheet tube				
		(I) 47 mm x 47 mm x 12 SWG Sheet	kg	12.40	58.20	721.68
		3050 mm long				
		(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	47.00	49.82
		Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				23.15
		(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications	sqm			
		800 mm x 600 mm rectangular	sqm	0.48	565.44	271.41
		c) Machinery				
		Tractor with Trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**163.77**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**199.41**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**15.29**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,666.53**
					say	***2666.50***
		v) with 600 x 450 mm rectangular MS sheeting				
		(i) Excavation foundations				
		As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	341.70	43.05
		(ii) Cement concrete M15 grade (using jhama brick aggregate)				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	8,155.20	1,027.56
		(iii) Painting steel tube posts with primer and two coats of epoxy paint as per specifications				
		As per item no 10.7 of Chapter 11	sqm	0.46	112.70	51.84
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		Support of M.S. Sheet tube				
		(I) 47 mm x 47 mm x 12 SWG Sheet	kg	12.40	58.20	721.68
		3050 mm long				
		(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	47.00	49.82
		Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				23.15
		(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications	sqm			
		600 mm x 450 mm rectangular	sqm	0.27	565.44	152.67
		c) Machinery				
		Tractor with Trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**147.09**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**179.09**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**13.73**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,509.24**
					say	***2509.20***
		vi) with 600 x 600 mm square MS sheeting				
		(i) Excavation foundations				
		As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	341.70	43.05
		(ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	8,155.20	1,027.56
		(iii) Painting steel tube posts with primer and two coats of epoxy paint as per specifications				
		As per item no 10.7 of Chapter 11	sqm	0.46	112.70	51.84
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		Support of M.S. Sheet tube				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(I) 47 mm x 47 mm x 12 SWG Sheet	kg	12.40	58.20	721.68
		3050 mm long				
		(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	47.00	49.82
		Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				23.15
		(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications				
		600 mm x 600 mm	sqm	0.36	565.44	203.56
		c) Machinery				
		Tractor with Trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**154.24**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**187.80**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**14.40**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,576.65**
					say	***2576.60***
	vii)	**with 900 mm side octagon MS sheeting**				
	(i)	**Excavation foundations**				
		As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	341.70	43.05
	(ii)	**Cement concrete M15 grade (using jhama brick aggregate)**				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	8,155.20	1,027.56
	(iii)	**Painting steel tube posts with primer and two coats of epoxy paint as per specifications**				
		As per item no 10.7 of Chapter 11	sqm	0.46	112.70	51.84
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		Support of M.S. Sheet tube				
		(I) 47 mm x 47 mm x 12 SWG Sheet	kg	12.40	58.20	721.68
		3050 mm long				
		(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	47.00	49.82
		Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				23.15

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications				
		900 mm side octagon	sqm	0.672	565.44	379.98
		c) Machinery				
		Tractor with Trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**179.02**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**217.98**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**16.71**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e+f)				**2,810.35**
					say	***2810.30***

Note: *1 Any one area of M.S. Sheet given at (i) to (viii) may be adopted as per site requirement and in accordance with IRC-67.*

2 The rate for excavation, cement concrete M-15, and painting may be taken from respective Chapters.

3 The depth of foundation and quantity of cement in the foundation are indicative. These may be increased for areas having higher wind velocities like in coastal area. This is applicable to all road signs and direction boards.

10.19	**1700, 800 & 300**	**Direction and Place Identification signs upto 0.9 sqm size board (using jhama brick aggregate in CC / PCC)**				
		A. Retro-reflectorised Traffic Signs				
		(i) Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 2 mm thick with area not exeeding 0.9 sqm supported on a mild steel single angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete (using jhama brick aggregate) 450 mm x 450 mm x 600 mm, 600 mm bellow ground level as per approved drawings and MoRD Technical Specification Clause 1701.				
		Unit = sqm				
		Taking output = 0.9 sqm				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11		0.126	8,155.20	1,027.56
		iii) Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per				
		Rate as per item No.10.7 of this Chapter	sqm	0.887	112.70	99.96

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	47.00	940.00
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				28.20
		Aluminium sheeting 2.0 mm thick fixed with encapsulated lens type reflective sheeting of size 0.90 sqm including lettering and signs as applicable background with epoxy paint	sqm	0.90	993.20	893.88
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**275.61**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**335.59**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**25.73**
		Cost for 0.9 sqm = (i+ii+iii+a+b+c+d+e+f)				3,769.14
		Rate per sqm (for sign having area upto 0.9 sqm) = (i+ii+iii+a+b+c+d+e+f)/0.90				**4,187.93**
					say	***4187.90***
(ii)		Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 2 mm thick with area not exeeding 0.9 sqm supported on 50 mm dia GI Pipe firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete (using jhama brick aggregate) 450 mm x 450 mm x 600 mm, 600 mm bellow ground level as per approved drawings and MoRD Technical Specification Clause 1701.				
		Unit = sqm				
		Taking output = 0.9 sqm				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11		0.126	8,155.20	1,027.56
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	310.00	930.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				27.90

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Aluminium sheeting 2.0 mm thick fixed with encapsulated lens type reflective sheeting of size 0.90 sqm including lettering and signs as applicable background with epoxy paint	sqm	0.90	993.20	893.88
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**274.16**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**333.83**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**25.59**
		Cost for 0.9 sqm = (i+ii+iii+a+b+c+d+e+f)				3,655.53
		Rate per sqm (for sign having area upto 0.9 sqm) = (i+ii+iii+a+b+c+d+e+f)/0.90				**4,061.70**
					say	***4061.70***
	(iii)	Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 2 mm thick with area not exceeding 0.9 sqm supported on RCC post 100 mm x 100 mm firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete (using jhama brick aggregate) 450 mm x 450 mm x 600 mm, 600 mm below ground level as per approved drawings and MoRD Technical Specification Clause 1701.				
		Unit = sqm				
		Taking output = 0.9 sqm				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	341.70	43.05
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	8,155.20	1,027.56
		iii) Painting two coats including prime coat on concrete surface with Epoxy Paint as per specifications				
		As per item No.10.7 of Chapter 10	sqm	0.90	112.70	101.43
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Material				
		i. PCC M-15 Grade in Sub-structure (using jhama brick aggregate)				
		As per item No.12.14.II of Chapter 12	cum	0.0285	8,625.70	245.83
		ii. Steel re-inforcement Twisted steel/ deformed bars				
		As per item No.12.5 of Chapter 12	t	0.0077	68,312.20	526.00
		iii. Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts etc.				23.16

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		iv. Aluminium sheeting 2.0 mm thick fixed with encapsulated lens type reflective sheeting of size 0.90 sqm including lettering and signs as applicable background with epoxy paint	sqm	0.90	993.20	893.88
		c) Machinery				
		Tractor with trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b.iii.iv+c)				**142.83**
		e) Contractor's profit @ 15 % on (a+b.iii.iv+c+d)				**173.91**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**13.33**
		Cost for 0.9 sqm = (i+ii+iii+a+b+c+d+e+f)				3,290.55
		Rate per sqm (for sign having area upto 0.9 sqm) = (i+ii+iii+a+b+c+d+e+f)/0.90				**3,656.17**
					say	***3656.20***

Note: *1 Lettering and arrow markings on sign board to be provided separately as per actual requirement. Rates for these items have been analysed separately.*

2 The rate for excavation, cement concret M15, RCC M15 in Sub-structure, steel re-inforcement and painting may be taken from respective Chapters.

3 The depth of foundation and quantity of cement concrete in the foundation are indicative. These may be increased for areas having higher wind velocities like in coastal areas. This is applicable to all road signs and directions boards.

B. Semi-Reflective Traffic signs

Direction and place indentification signs up to 0.9 sqm size board

Providing and erecting and place identifications of semi reflective sign boards as per IRC:67 made of 2 mm thick M.S. sheet duly stove enameled paint in white colour in front and gray colour on back with red reflective border of 70 mm width and required message, letters and figures with reflective engineering grade tape as per MORD specifications of required shade and colour. Supported and welded on 47 mm x 47 mm x 12 SWG square tube of 3050 mm height duly strengthened by 25 mm x 5 mm MS flat iron on edges on back firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete (using jhama brick aggregate) 450 mm x 450 mm x 600 mm, 600 mm bellow ground level as per approved drawings and MoRD Technical Specification Clause 1701.

Unit = each

Take Output = 0.9 sqm

	(i)	**Excavation for foundations**				
		As per Item No. 11.1 of Chapter 11	cum	0.126	341.70	43.05
	(ii)	**Cement concrete M15 grade (using jhama brick aggregate)**				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	8,155.20	1,027.56
		(iii) Painting on M.S. tube post with primer and two coat of epoxy paint as per specifications				
		As per item No.10.7 of Chapter 10	sqm	0.59	112.70	66.49
		a) Labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		b) Materials				
		i) Support of MS sheet tube				
		47 mm x 47 mm of 12 SWG sheet 3050 mm long	kg	12.40	58.20	721.68
		ii) Angle iron 50 x 50 x 6 mm for lugs including 5% wastage	kg	1.06	47.00	49.82
		iii) 2 mm thick MS sheet strengthened by 25 mm x 5 mm MS flat iron & painted with stove enameled paint including lettering, signs, message, border with reflective tape of engineering grade of required shade and colour as per Technical Specifications.	sqm	0.90	753.60	678.24
		Add 3% cost of MS sheet angle iron towards the cost of fabrications, drilling, holes, nuts, bolts, etc.				43.49
		c) Machinery				
		Tractor with Trolley	hour	0.08	237.00	18.96
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**223.79**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**272.49**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**20.89**
		Cost for 0.9 sqm = (i+ii+iii+a+b+c+d+e+f)				3,247.06
		Rate per sqm = (i+ii+iii+a+b+c+d+e+f) / 0.9				**3,607.84**
					say	***3607.80***

Note: *Rate for excavation, cement concrete M15 and painting may be taken from respective Chapters.*

10.20 **1700, 800 & 300** **Direction and place identification signs with size more than 0.9 sqm sign board (using jhama brick aggregate in CC /PCC)**

A. Retro-reflectorised Traffic Signs

(i) Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 2 mm thick with area exceeding 0.9 sqm supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm 2 Nos. firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete (using jhama brick aggregate) 450 mm x 450 mm x 600 mm, 600 mm bellow ground level as per approved drawings and MoRD Technical Specification Clause 1701.

Unit = sqm

Taking output = 1.50 sqm

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.252	341.70	86.11
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11		0.252	8,155.20	2,055.11
		iii) Painting Angle Iron Post with Primer and two coats of Epoxy Paint specifications				
		As per item No.10.7 of Chapter 10	sqm	1.774	112.70	199.93
		a) Labour (For fixing at site)				
		Mate	day	0.02	310.00	6.20
		Mazdoor (Unskilled)	day	0.50	310.00	155.00
		b) Material				
		Mild steel angle iron 75 mm x 75 mm x 6 mm, 2.85 m long, 2 nos. with 5 per cent wastage	kg	40.00	47.00	1,880.00
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				56.40
		Aluminium sheeting 2 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint	sqm	1.50	993.20	1,489.80
		c) Machinery				
		Tractor with trolley	hour	0.12	237.00	28.44
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**508.03**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**618.58**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**47.42**
		Cost for 1.5 sqm = i+ii+iii+a+b+c+d+e+f				7,131.02
		Rate per sqm (for sign having area more than 0.9 sqm) = (i+ii+iii+a+b+c+d+e+f)/1.50				**4,754.01**
					say	***4754.00***
(ii)		Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 2 mm thick with area exeeding 0.9 sqm supported on 50 mm dia GI Pipe 2 Nos. firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete (using jhama brick aggregate) 450 mm x 450 mm x 600 mm, 600 mm bellow ground level as per approved drawings and MoRD Technical Specification Clause 1701. Unit = sqm Taking output = 1.50 sqm				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.252	341.70	86.11
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.252	8,155.20	2,055.11

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Labour (For fixing at site)				
		Mate	day	0.02	310.00	6.20
		Mazdoor (Unskilled)	day	0.50	310.00	155.00
		b) Material				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	6.00	310.00	1,860.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts, etc.				55.80
		Aluminium sheeting 2 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint		1.50	993.20	1,489.80
		c) Machinery				
		Tractor with trolley	hour	0.12	237.00	28.44
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**505.13**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**615.06**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**47.15**
		Cost for 1.50 sqm = i+ii+a+b+c+d+e+f				6,903.80
		Rate per sqm (for sign having area more than 0.9 sqm) = (i+ii+a+b+c+d+e+f)/1.50				**4,602.53**
					say	***4602.50***
	(iii)	Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 2 mm thick with area exceeding 0.9 sqm supported on RCC post 100 mm x 100 mm, 2 Nos. firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete (using jhama brick aggregate) 450 mm x 450 mm x 600 mm, 600 mm bellow ground level as per approved drawings and MoRD Technical Specification Clause 1701.				
		Unit = sqm				
		Taking output = 1.50 sqm				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.252	341.70	86.11
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.252	8,155.20	2,055.11
		iii) Painting two coats including prime coat on concrete surface with Epoxy Paint as per specifications				
		As per item No.10.7 of Chapter 10	sqm	1.84	112.70	207.37
		a) Labour (For fixing at site)				
		Mate	day	0.02	310.00	6.20
		Mazdoor (Unskilled)	day	0.50	310.00	155.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) Material				
		i. PCC M-15 Grade in Sub-structure (using jhama brick aggregate)				
		As per item No.12.14.II of Chapter 12	cum	0.057	8,625.70	491.66
		ii. Steel re-inforcement Twisted steel/ deformed bars				
		As per item No.12.5 of Chapter 12	t	0.0154	68,312.20	1,052.01
		iii. Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				46.31
		iv. Aluminium sheeting fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint	sqm	1.50	993.20	1,489.80
		c) Machinery				
		Tractor with trolley	hour	0.12	237.00	28.44
		d) Add GST (multiplying factor) @ 0.1405 on (a+b.iii.iv+c)				**242.47**
		e) Contractor's profit @ 15 % on (a+b.iii.iv+c+d)				**295.23**
		f) Add Cess @ 1.00 % on (a+b.iii.iv+c+d+e)				**22.63**
		Cost for 1.5 sqm = a+b+c+d+e+f				6,178.34
		Rate per sqm (for sign having area more than 0.9 sqm) = (a+b+c+d+e+f)/1.50				**4,118.90**
					say	***4118.90***

Note: *1 Lettering and arrow markings on sign boards to be provided separately as per actual requirement. Rates for these items have been analysed separately.*

2 The rate for excavation, cement concrete M15, RCC M15 in Sub-structure, steel re-inforcement and painting may be taken from respective Chapters.

3 The depth of foundation and quantity of cement concrete in the foundation are indicative. These may be increased for areas having higher wind velocities like in coastal areas. This is applicable to all road signs and directions boards.

B. Semi-Reflective Traffic signs

Direction and place identification signs more than 0.90 sqm sign board

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Providing and erecting and place identifications of semi reflective sign boards as per IRC:67 made of 2 mm thick M.S. sheet duly stove enameled paint in white colour in front and gray colour on back with reflective border of 70 mm width and required message, letters and figures with reflective engineering grade tape as per MORD specifications of required shade and colour. Supported and welded on 47 mm x 47 mm x 12 SWG square tube of 3050 mm height duly strengthened by 25 mm x 5 mm MS flat iron on edges on back firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete (using jhama brick aggregate) 450 mm x 450 mm x 600 mm, 600 mm below ground level as per approved drawings and MoRD Technical Specification Clause 1701.				
		Unit = each				
		Taking output = 1.5 sqm				
		(i) Excavation for foundations as				
		As per item no. 11.1 Chapter 11	cum	0.252	341.70	86.11
		(ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.252	8,155.20	2,055.11
		(iii) Painting M.S. tube posts with primer and two coats of epoxy paint as per specification				
		As per item No. 10.7 of chapter 10	sqm	0.92	112.70	103.68
		a) Labour (fox fixing at site)				
		Mate	day	0.02	310.00	6.20
		Mazdoor (Unskilled)	day	0.50	310.00	155.00
		b) Material				
		i) Support of MS Sheet tubes 47 mm x 47 mm x 12 SWG sheet 3050 mm long	kg	24.80	58.20	1,443.36
		ii) Angle iron 50 mm x 50 mm x 6 mm for lugs	kg	2.12	47.00	99.64
		iii) 2 mm thick MS Sheet strengthened by 25 mm x 5 mm M.S. flat iron and painted with stove enameled paint including lettering, signs, messages, border with reflective tape of engineering grade of required size, shade and colour as per MORD specifications	sqm	1.50	753.60	1,130.40
		Add 3% cost of MS sheet and angle iron towards the cost of fabrications, drilling, holes, nuts, bolts etc.				80.20
		c) Machinery				
		Tractor with trolley	hour	0.16	237.00	37.92
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**414.86**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**505.14**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**38.73**
		Cost for 1.5 sqm board = (i+ii+iii+a+b+c+d+e+f)				6,156.35

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Rate per sqm = (i+ii+iii+a+b+c+d+e+f) / 1.5				**4,104.23**
					say	***4104.20***
		Note: *Rate for excavation cement concrete M15 and painting may be taken from respective chapter*				
10.21	**1700**	**Kilometre Stone (with RCC M15 grade using jhama brick aggregate)**				
		Reinforced cement concrete M15 grade (using jhama brick aggregate) kilometre stone/local stone of standard design as per IRC:8 fixing in position including painting and printing, etc. as per drawing and MoRD Technical Specification Clause 1703.				
		i) 5th Kilometre Stone (precast)				
		Unit = each				
		Taking output = 6 Nos.				
		a) Cement concrete M-15 grade (using jhama brick aggregate)				
		As per item No.12.14.II of Chapter 12	cum	2.35	8,625.70	20,270.40
		b) Steel reinforcement @ 5 kg per sqm				
		As per item No.12.5 of Chapter 12	t	0.0221	68,312.20	1,509.70
		c) Excavation in soil for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	1.68	341.70	574.06
		d) Painting two coats on concrete surface				
		As per item No.10.5 of Chapter 10	sqm	9.85	104.70	1,031.30
		e) lettering on km post (average 30 letters of 10 cm height each)				
		As per item No.10.1 of Chapter 10 (Englisg & Roman)	per cm high per	1,800.00	0.60	1,080.00
		Transportation and fixing				
		f) Labour				
		Mate	day	0.26	310.00	80.60
		Mason (1st Class)	day	0.60	440.00	264.00
		Mazdoor (Unskilled)	day	6.00	310.00	1,860.00
		g) Machinery				
		50 HP Tractor with trolley	hour	6.00	237.00	1,422.00
		h) Add GST (multiplying factor) @ 0.1405 on (f+g)				**509.54**
		i) Contractor's profit @ 15 % on (f+g+h)				**620.42**
		j) Add Cess @ 1.00 % on (f+g+h+i)				**47.57**
		Cost for 6 Nos. 5th km stone = a+b+c+d+e+f+g+h+i+j				29,269.57
		Rate for each 5th km stone = (a+b+c+d+e+f+g+h+i+j)/6				**4,878.26**
					say	***4878.30***
		ii) Ordinary Kilometer Stone (Precast)				
		Unit = each				
		Taking output = 14 Nos.				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Cement concrete M-15 grade (using jhama brick aggregate)				
		As per item No.12.14.II of Chapter 12	cum	3.77	8,625.70	32,518.89
		b) Steel reinforcement @ 5 kg per sqm				
		As per item No.12.5 of Chapter 12	t	0.0263	68,312.20	1,796.61
		c) Excavation in soil for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	2.77	341.70	946.51
		d) Painting two coats on concrete surface				
		As per item No.10.5 of Chapter 10	sqm	11.41	104.70	1,194.63
		e) lettering on km post (average 30 letters of 10 cm height each)				
		As per item No.10.1 of Chapter 10 (Englisg & Roman)	per cm high per	1,680.00	0.60	1,008.00
		Transportation and fixing				
		f) Labour				
		Mate	day	0.32	310.00	99.20
		Mason (1st Class)	day	1.00	440.00	440.00
		Mazdoor (Unskilled)	day	7.00	310.00	2,170.00
		g) Machinery				
		50 HP Tractor with trolley	hour	6.00	237.00	1,422.00
		h) Add GST (multiplying factor) @ 0.1405 on (f+g)				**580.43**
		i) Contractor's profit @ 15 % on (f+g+h)				**706.75**
		j) Add Cess @ 1.00 % on (f+g+h+i)				**54.18**
		Cost for 14 Nos. ordinary km stone = (a+b+c+d+e+f+g+h+i+j)				42,937.20
		Rate for each ordinary km stone = (a+b+c+d+e+f+g+h+i+j)/14				**3,066.94**
					say	***3066.90***
iii)	**200 m stone (precast)**					
		Unit = each				
		Taking output = 33 Nos.				
		a) Cement concrete M-15 grade (using jhama brick aggregate)				
		As per item No.12.14.II of Chapter 12	cum	1.58	8,625.70	13,628.61
		b) Steel reinforcement @ 5 kg per sqm				
		As per item No.12.5 of Chapter 12	t	0.066	68,312.20	4,508.61
		c) Excavation in soil for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	1.39	341.70	474.96
		d) Painting two coats on concrete surface				
		As per item No.10.5 of Chapter 10	sqm	6.27	104.70	656.47
		e) lettering on km post (average 30 letters of 10 cm height each)				
		As per item No.10.1 of Chapter 10 (Englisg & Roman)	per cm per	330.00	0.60	198.00
		Transportation and fixing				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		f) Labour				
		Mate	day	0.34	310.00	105.40
		Mason (1st Class)	day	1.50	440.00	660.00
		Mazdoor (Unskilled)	day	7.00	310.00	2,170.00
		g) Machinery				
		50 HP Tractor with trolley	hour	6.00	237.00	1,422.00
		h) Add GST (multiplying factor) @ 0.1405 on (f+g)				**612.21**
		i) Contractor's profit @ 15 % on (f+g+h)				**745.44**
		j) Add Cess @ 1.00 % on (f+g+h+i)				**57.15**
		Cost for 33 Nos. 200 m stone = (a+b+c+d+e+f+g+h+i+j)				25,238.85
		Rate for each 200 m stone = (a+b+c+d+e+f+g+h+i+j)/33				**764.81**
					say	***764.80***

Note: *1 The rate for excavation, cement concrete, steel reinforcement, painting and lettering may be taken from respective Chapters.*

2 In case local stone is to be used in place of precast RCC stones, then rate of cement concrete and steel reinforcement may be deleted.

10.22	**1700**	**Boundary Pillar (with PCC M15 grade using jhama brick aggregate and reinforcement)**				
		Plain cement concrete M15 grade (using jhama brick aggregate and reinforcement) boundary pillar / local stone of standard design as per IRC:25 fixed in position including finishing and lettering but excluding painting as per drawing and MoRD Technical Specification Clause 1704.				
		Unit = each				
		Taking output = 57 Nos.				
		a) Cement concrete M-15 grade (using jhama brick aggregate)				
		As per item No.12.14.II of Chapter 12	cum	1.37	8,625.70	11,817.21
		b) Excavation in soil				
		As per Item No. 11.1.A.I(i) of Chapter 11	cum	9.58	341.70	3,273.49
		c) lettering, each 10 cm high				
		As per Item No. 10.1 of Chapter 10	per letter per cm	2,280.00	0.60	1,368.00
		Transportation and fixing				
		e) Labour				
		Mate	day	0.57	310.00	176.70
		Mazdoor (Unskilled)	day	14.25	310.00	4,417.50
		f) Machinery				
		Tractor with trolley	hour	6.00	237.00	1,422.00
		g) Material				
		PCC M15 grade with jhama brick aggregate				
		As per item No.12.14.I of Chapter 12	cum	1.31	8,566.00	11,221.46

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		M.S bar 6 mm dia				
		As per Item No. 12.6 of Chapter 12	t	0.076	66,921.30	5,086.02
		h) Add GST (multiplying factor) @ 0.1405 on (e+f)				**845.28**
		i) Contractor's profit @ 15 % on (f+g+h)				**1,029.22**
		j) Add Cess @ 1.00 % on (f+g+h+i)				**78.91**
		Cost for 57 Nos. boundary pillar = a+b+c+d+e+f+g+h+i+j				40,735.78
		Rate for each boundary pillar = (a+b+c+d+e+f+g+h+i+j)/57				**714.66**
					say	***714.70***

Note: *1 In case of soft ground, a proper foundation may be provided as per approved design. In case foundation is required to be provided, the items of excavation and foundation concrete are required to be measured and paid separately.*

2 In case local stone is to be used in place of precast RCC stones, then rate of cement concrete and steel reinforcement may be deleted.

10.23	**1700, 800 & 300**	**G.I Barbed Wire Fencing 1.2 m high (using jhama brick aggreagte in CC/PCC/RCC)**				
		Providing and fixing 1.2 m high GI barbed wire fencing with 1.8 m RCC posts 150 mm x 150 mm placed every 3 m centre-to-centre founded in M15 grade cement concrete,(using jhama brick aggregate) 0.6 m below ground level, every 15th post, last but one end post and corner post shall be strutted on both sides and end post on one side only and provided with 9 horizontal lines and 2 diagonals interwoven with horizontal wires, fixed with GI staples, turn buckles etc. complete as per MoRD technical specification Clause 1705.				
		Unit = per running m				
		Taking output = 30 m				
		a) Labour				
		Mate	day	0.09	310.00	27.90
		Blacksmith	day	0.25	418.00	104.50
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		b) Material				
		i. Barbed wire 335 m length @ 9.38 kg per 100 m	kg	31.42	82.35	2,587.44
		R.C.C. Post 150 mm x 150 mm x 1.80 m				
		M15 Grade concrete				
		13 x 150 mm x 150 mm x 1.8 m				
		ii. Rate as per item No.12.14.II of Chapter 12	cum	0.526	8,625.70	4,537.12
		iii. Add 5 per cent extra cost for formwork of M-15				226.86
		Supply of Twisted steel/ deformed bars including cutting, bending, tying & placing in position.				
		10 mm dia steel bars for posts				
		13 x 4 x 1.8 = 93.6 m @ 0.62 kg/mt = 43.60 kg				
		8 mm dia steel bars for rings				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		13 x 10 x 0.6 = 78 m @ 0.39 kg/mt = 30.42 kg				
		Total 74.02 kg				
		iv. As per item No.12.5 of Chapter 12	t	0.074	68,312.20	5,055.10
		v. Add for GI staple binding wire, drilling holes, etc. @ 2 per cent of the cost of material				101.10
		c) Painting				
		Applying two coats of painting including primer coat on exposed surface of RCC posts				
		As per item No.10.5 of this Chapter	sqm	8.14	104.70	852.26
		d) Add GST (multiplying factor) @ 0.1405 on (a+b{i,iii & v})				**515.33**
		e) Contractor's profit @ 15 % on (a+b{i,iii & v}+d)				**627.47**
		f) Add Cess @ 1.00 % on (a+b{i,iii & v}+d+e)				**48.11**
		Cost for 30 m fencing = a+b+c+d+e+f				15,303.17
		Rate per m = (a+b+c+d+e+f)/30				**510.11**
					say	***510.10***
		Note: *Cost of excavation for foundation and foundation concrete to be added separately in the cost estimate as per approved design. The rate for these items may be taken from respective Chapters.*				
10.24	**1700, 800 & 300**	**G.I Barbed Wire Fencing 1.8 m high (using jhama brick aggreagte in CC/PCC/RCC)**				
		Providing and fixing 1.8 m high GI barbed wire fencing with 2.4 m RCC M15 grade (using jhama brick aggregate)150 mm x 150 mm concrete post placed every 3 m centre-to-centre founded in M15 grade cement concrete, 0.6 m below ground level, every 15th post, last but one end post and corner post shall be strutted on both sides and end post on one side only and provided with 12 horizontal lines and 2 diagonals interwoven with horizontal wires, fixed with GI staples, turn buckles etc. complete as per MoRD technical specification Clause 1705.				
		Unit = per running m				
		Taking output = 30 m				
		a) Labour				
		Mate	day	0.12	310.00	37.20
		Blacksmith	day	0.40	418.00	167.20
		Mazdoor (Unskilled)	day	2.50	310.00	775.00
		b) Material				
		i. Barbed wire 428 m length @ 9.38 kg per 100 m	kg	40.15	82.35	3,306.35
		R.C.C. Post 150 mm x 150 mm x 2.4 m				
		M-15 Grade				
		13 x 150 mm x 150 mm x 2.4 m				
		ii. As per item No.12.14.II of Chapter 12	cum	0.702	8,625.70	6,055.24
		iii. Add 5 per cent extra cost of C.C. for formwork of M-15				302.76

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Supply of Twisted steel/ deformed Bars including cutting, bending, tying & placing in position. 10 mm dia steel bars for posts 13 x 4 x 2.4 = 124.80 m @ 0.62 kg/mt = 77.38 kg 8 mm dia steel bars for rings 13 x 11 x 0.6 = 85.80 m @ 0.39 kg/m = 33.46 kg **Total 110.84 kg**				
		iv. As per item No.12.5 of Chapter 12	t	0.111	68,312.20	7,582.65
		v. Add for GI staple, binding wire, drilling holes etc. @ 2 per cent of the cost of material				151.65
		c) Painting				
		Applying two coats of painting including prime coat on exposed surface of RCC posts As per item No.10.5 of this Chapter	sqm	12.10	104.70	1,266.87
		d) Add GST (multiplying factor) @ 0.1405 on (a+b{i,iii & v})				**665.99**
		e) Contractor's profit @ 15 % on (a+b{i,iii & v}+d)				**810.92**
		f) Add Cess @ 1.00 % on (a+b{i,iii & v}+d+e)				**62.17**
		Cost for 30 m fencing = a+b+c+d+e+f				21,184.02
		Rate per m fencing = (a+b+c+d+e+f)/30				**706.13**
					say	***706.10***
		Note: *Cost of excavation for foundation and foundation concrete to be added separately in the cost estimate as per approved design. The rate for these items may be taken from respective Chapters.*				
10.25	**1700, 800 &300**	**Tubular Steel Railing on Medium Weight Steel Channel (ISMC series) 100 mm x 50 mm** Providing, fixing and erecting 50 mm dia steel pipe railing in 3 rows duly painted on medium weight steel channels(ISMC series) 100 mm x 50 mm, 1.2 m high above ground, 2 m centre-to-centre, complete as per approved drawings as per MoRD technical specification Clause 1706. Unit = Running m Taking output = 10 m				
		i) Excavation for foundation (6 Nos.) 6 x 0.6 x 0.6 x 0.6 As per item No.11.1.A.I(i) of Chapter 11	cum	1.296	341.700	442.84
		ii) Foundation concrete M-15 grade PCC(using jhama brick aggregate) 6 x 0.6 x 0.6 x 0.3 As per item No. 11.9.II(ii) of Chapter 11	cum	0.648	8,155.200	5,284.57
		iii) Painting of pipe As per item No.10.6 of this Chapter	sqm	4.71	94.500	445.10
		iv) Painting of channel section (6 nos.) 1.8 m each 0.2 x 1.8 x 1.6 = 2.16				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		As per item No.10.6 of this Chapter	sqm	2.16	94.500	204.12
		a) labour (For fixing at site)				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		Plumber	day	0.01	395.00	3.95
		b) Material				
		Steel pipe 50 mm external dia as per IS:1239	m	30.00	310.00	9,300.00
		Medium weight steel channel (ISMC series) 100 mm x 50 mm, 10.8 m length @ 9.2 kg per m including 5 per cent wastage	kg	104.33	51.05	5,326.40
		Add for drilling holes @ 3 per cent of cost of channels				159.79
		c) Machinery				
		50 HP Tractor with trolley	hour	0.06	237.00	14.22
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**2,091.34**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**2,546.45**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**195.23**
		Cost for 10 m = a+b+c+d+e+f				26,094.61
		Rate per m = (a+b+c+d+e+f)/10				**2,609.46**
					say	***2609.50***
10.26	**1700, 800 & 300**	**Tubular Steel Railing on Precast RCC posts, 1.2 m high above Ground Level**				
		Providing, fencing and erecting 50 mm dia painted steel pipe railing in 3 rows on precast M-20 grade RCC(using jhama brick aggregate) vertical posts 175 mm x 175 mm x 1.8 m high (1.2 m above GI) with 3 holes 50 mm dia for pipe, fixed 2 m centre-to-centre complete as per approved drawings as per MoRD technical specification Clause 1706.				
		Unit = Running m				
		Taking output = 10 m				
		i) Excavation for foundation (6 Nos.) 6 x 0.6 x 0.6 x 0.6				
		As per item No.11.1.A.I(i) of Chapter 11	cum	1.296	341.700	442.84
		ii) Foundation concrete M15 grade PCC(using jhama brick aggregate) 6 x 0.6 x 0.6 x 0.3				
		As per item No. 11.9.II.ii of Chapter 11	cum	0.648	8,155.200	5,284.57
		iii) RCC M20(using jhama brick aggregate) for precast posts (6 nos.) of 1.8 m each				
		As per item No.12.14.IV of Chapter 12	sqm	0.33	9,190.700	3,032.93
		iv) Painting of pipe				
		As per item No.10.6 of this Chapter	sqm	4.71	94.500	445.10
		a) Labour				
		Mate	day	0.014	310.00	4.34
		Mazdoor (Unskilled)	day	0.35	310.00	108.50
		Plumber	day	0.01	395.00	3.95

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) Material				
		i. Steel pipe 50 mm dia as per IS:1239	m	30.00	310.00	9,300.00
		ii. Steel bars As per item No.12.5 of Chapter 12	t	0.032	68,312.20	2,185.99
		c) Machinery				
		50 HP Tractor with trolley	hour	0.25	237.00	59.25
		d) Add GST (multiplying factor) @ 0.1405 on (a+b.i+c)				**1,331.38**
		e) Contractor's profit @ 15 % on (a+b.i+c+d)				**1,621.11**
		f) Add Cess @ 1.00 % on (a+b.i+c+d+e)				**124.29**
		Cost for 10 m = a+b+c+d+e+f				23,501.41
		Rate per m = (a+b+c+d+e+f)/10				**2,350.14**
					say	***2350.10***
10.27	**1700**	**Providing and Fixing 'Citizens' Information Board' of the Project(with CC structure)**				
		Providing and fixing of typical Citizens' Information board with Logo as per MORD specifications and drawing with CC structure made with M-15 of Size 1150 mm in length, 300 mm in thickness and 2450 mm in height all above G.L. with foundation with M-15 concrete of size 1150 mm x 600 mm x 750 mm , 750 mm below ground level with skin reinforcemet with 8 mm dia TMT bars @ 200 cm C/C from bottom of the structure. Lettering and printing arrows, border etc. will be painted with ready mixed synthetic enamel paint of superior quality in required shade and colour. All sections of structure will be painted with primer and two coats of epoxy paint as per drawing and MoRD technical specification Clause 1701 and Annexure 1700.1				
		Unit = Each				
		Taking out put = one typical board				
		A. Board 'A'				
		(i) Excavation for foundations				
		As per item No. 11.1 of Chapter 11	cum	0.520	341.700	177.68
		(ii) Cement Concrete M15 grade (using jhama brick aggregate)				
		Below G.L 1.15 x 0.60 x 0.75 = 0.520				
		Above G.L 1.15 x 0.30 x 2.45 = 0.850				
		Total :- 1.37				
		As per item No. 11.11.II.ii of Chapter 11	cum	1.370	8,155.200	11,172.62
		Steel for skin reinforcement, 8 mm steel bars @ 200 mm c/c	t	0.041	68,312.20	2,800.80
		(iii) Painting on MS Steel tubes with primer and two coats of epoxy paint				
		2 x 2.05 x 1.15 = 5.60				
		2 x 2.05 x 0.30 = 1.50				
		1 x 1.15 x 0.30 = 0.40				
		Total :- 7.50				

Chapter 10
TRAFFIC SIGNS, MARKINGS AND OTHER ROAD APPURTENANCES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		As per item no. 10.7 of Chapter 10	sqm	7.46	112.70	840.74
		iv) Printing new letters and figures of any shade with synthetic enamel paint black or any other approved colour to give an even shade.				
		Heading Band 90 x 10 = 900				
		Logo 70 x 10 = 700				
		Lettering 50 x 2.5 = 125				
		Band 65 x 1.5 x 3 = 292.5				
		75 x 1.5 x 4 = 450				
		Information 200 x 1.7 x 80 = 340				
		21 x 2.5 = 52.5				
		700 x 1 = 700				
		25 x 1.7 = 42.5				
		1400 x 1.2 = 1680				
		Total :- 5282.50				
		4532.5 per cm height per letter				
		As per item No.10.1 of Chapter 10 (English & Roman	per cm height per	5,282.50	0.60	3,169.50
		a) Labour (for fixing at site)				
		Mate	day	0.05	310.00	15.50
		Mazdoor (Unskilled)	day	1.25	310.00	387.50
		b) Machinery				
		Tractor with trolley	hour	0.30	237.00	71.10
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**66.61**
		d) Contractor's profit @ 15 % on (a+b+c)				**81.11**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**6.22**
		Cost for one Board= (i+ii+iii+iv+a+b+c+d+e)				18,789.39
					say	***18789.40***
		B. Board 'B'				
		(i) Excavation for foundations				
		As per item No. 11.1 of Chapter 11	cum	0.520	341.700	177.68
		(ii) Cement Concrete M15 grade (using jhama brick aggregate)				
		Below G.L 1.15 x 0.60 x 0.75 = 0.520				
		Above G.L 1.15 x 0.30 x 2.45 = 0.850				
		Total :- 1.37				
		As per item No. 11.11.II.ii of Chapter 11	cum	1.370	8,155.200	11,172.62
		Steel for skin reinforcement, 8 mm steel bars @ 200 mm c/c	t	0.041	68,312.20	2,800.80
		(iii) Painting on MS Steel tubes with primer and two coats of epoxy paint				
		2 x 1.15 x 0.30 = 0.70				

Chapter 10
TRAFFIC SIGNS, MARKINGS AND OTHER ROAD APPURTENANCES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		2 x 1.15 x 2.45 = 5.60				
		1 x 0.30 x 2.45 = 0.70				
		Total :- 7.1				
		As per item no. 10.7 of Chapter 10	sqm	7.10	112.70	800.17
		iv) Printing new letters and figures of any shade with synthetic enamel paint black or any other approved colour to give an even shade.				
		Heading Band 90 x 10 = 900				
		Logo 70 x 10 = 700				
		Lettering 50 x 2.5 = 125				
		Band 65 x 1.5 x 3 = 292.5				
		75 x 1.5 x 4 = 450				
		Information 200 x 1.7 x 80 = 340				
		21 x 2.5 = 52.5				
		500 x 1 = 500				
		25 x 1.7 = 42.5				
		800 x 1.2 = 960				
		Total :- 4362.50				
		4532.5 per cm height per letter				
		As per item No.10.1 of Chapter 10 (English & Roman)	per cm height per letter	4,362.00	0.60	2,617.20
		a) Labour (for fixing at site)				
		Mate	day	0.05	310.00	15.50
		Mazdoor (Unskilled)	day	1.25	310.00	387.50
		b) Machinery				
		Tractor with trolley	hour	0.30	237.00	71.10
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**66.61**
		d) Contractor's profit @ 15 % on (a+b+c)				**81.11**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**6.22**
		Cost for one Board= (i+ii+iii+iv+a+b+c+d+e)				18,196.51
					say	***18196.50***

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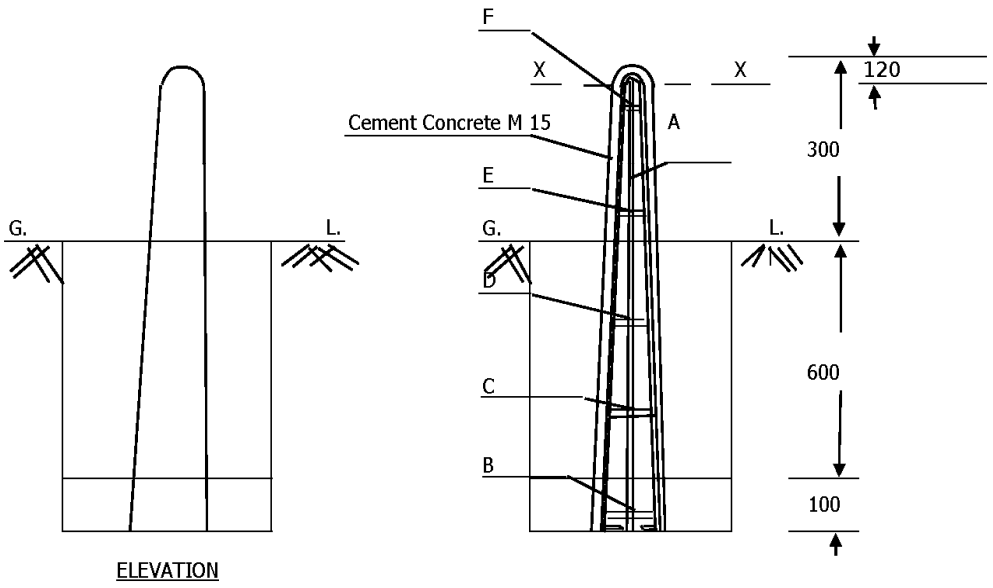
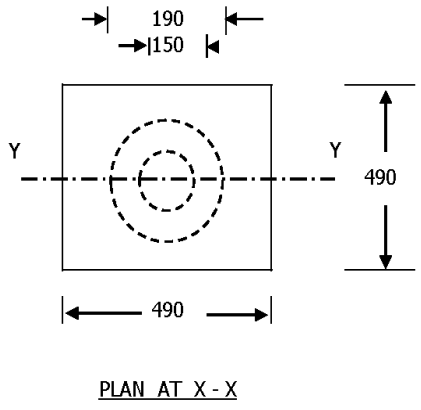
TRAFFIC SIGNS, MARKINGS AND OTHER ROAD APPURTENANCES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)

Note: *Printing and lettering for blank spaces on the lower plate will be written as required and paid seperately.*

Boundary Pillar (with PCC M15 grade using jhama brick aggregate and reinforcement)





SCHEDULE OF REINFORCEMENT
M.S. BARS 6 mm DIA

	LENGTH	No.
A.	1.87 m	2
B.	48 cm	1
C.	47 cm	1
D.	46 cm	1

Chapter 10
TRAFFIC SIGNS, MARKINGS AND OTHER ROAD APPURTENANCES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		E. 43 cm		1		
		F. 41 cm		1		

Note :

1 Not to Scale

2 Hand Sketch

3 All Dimensions are in mm

Chapter 11

FOUNDATION

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
11.1	**300**	**Excavation for Structures**				
		A. Without dewatering.				
		Earthwork in excavation for structures as per drawing and MoRD technical specifications Clause 305.1 including setting out, construction of shoring & bracing, removal of stumps & other deleterious material and disposal upto a lead of 50 m, dressing of sides & bottom and backfilling in trenches with excavated suitable material.				
		I. Ordinary soil				
		(i) Upto 3 m depth				
		Unit = cum				
		Taking output = 10 cum				
		a) Labour				
		Mate	day	0.32	310.00	99.20
		Mazdoor (Unskilled)	day	8.00	310.00	2,480.00
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**362.38**
		c) Contractor's profit @ 15 % on (a+b)				**441.24**
		d) Add Cess @ 1.00 % on (a+b+c)				**33.83**
		Cost for 10 cum = a+b+c+d				3,416.64
		Rate per cum = (a+b+c+d)/10				**341.66**
					say	***341.70***
		Note: *1 Cost of dewatering may be added, where required, up to 10 per cent of labour cost. Assessment for dewatering shall be made as per site conditions.*				
		2 The cost of shoring and shuttering, where needed, may be added @ 3 per cent on cost of excavation for open foundation.				
		3 The excavated earth if found suitable, can be used partly for backfilling in trenches & partly for road work. Hence cost of disposal has not been added except for marshy soil. This note is common to all cases of item 11.1.				
		(ii) 3 m to 6 m depth				
		Unit = cum				
		a) Labour				
		Mate	day	0.38	310.00	117.80
		Mazdoor (Unskilled)	day	9.50	310.00	2,945.00
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**430.32**
		c) Contractor's profit @ 15 % on (a+b)				**523.97**
		d) Add Cess @ 1.00 % on (a+b+c)				**40.17**
		Cost for 10 cum = a+b+c+d				4,057.26
		Rate per cum = (a+b+c+d)/10				**405.73**
					say	***405.70***
		Note: *1 Cost of dewatering may be added, when needed, up to 15 per cent of labour cost.*				

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FOUNDATION

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		2 Cost of shoring and shuttering, where needed, may be added @ 10 per cent on cost of excavation for open foundation.				

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FOUNDATION

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		II. Ordinary rock (not requiring blasting)				
		i) Upto 3 m depth				
		Unit = cum				
		Taking output = 10 cum				
		a) Labour				
		Mate	day	0.40	310.00	124.00
		Mazdoor (Unskilled)	day	10.00	310.00	3,100.00
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**452.97**
		c) Contractor's profit @ 15 % on (a+b)				**551.55**
		d) Add Cess @ 1.00 % on (a+b+c)				**42.29**
		Cost for 10 cum = a+b+c+d				4,270.80
		Rate per cum = (a+b+c+d)/10				**427.08**
					say	***427.10***
		Note: *Cost of dewatering upto 10 per cent of labour cost may be added, where required as per site condition.*				
		III. Hard rock (blasting prohibited)				
		Upto 3 m depth including 1.5 m depth in hard rock				
		Unit = cum				
		Taking output = 10 cum				
		a) Labour				
		Mate	day	0.20	310.00	62.00
		Mazdoor (Unskilled)	day	5.00	310.00	1,550.00
		b) Machinery				
		Air compressor 210 cfm with 2 jack hammers of pneumatic breaker	hour	10.00	210.00	2,100.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**521.54**
		d) Contractor's profit @ 15 % on (a+b+c)				**635.03**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**48.69**
		Cost for 10 cum = a+b+c+d+e				4,917.25
		Rate per cum = a+b+c+d+e/10				**491.73**
					say	***491.70***
		Note: *Cost of dewatering up to 10 per cent of (a+b) may be added, where required as per site conditions.*				
		IV. Marshy soil				
		Unit = cum				
		Taking output = 10 cum				
		a) Labour				
		Mate	day	0.60	310.00	186.00
		Mazdoor (Unskilled)	day	15.00	310.00	4,650.00
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**679.46**

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FOUNDATION

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		c) Contractor's profit @ 15 % on (a+b)				**827.32**
		d) Add Cess @ 1.00 % on (a+b+c)				**63.43**
		Cost for 10 cum = a+b+c+d				6,406.20
		Rate per cum = (a+b+c+d)/10				**640.62**
					say	***640.60***

Note: *1 Cost of dewatering @ 30 per cent of (a) may be added.*

2 Shoring and shuttering @ 15 per cent of (a) may be added where required.

3 Since marshy soil cannot be used in filling in trenches, it shall be removed and replaced by approved quality of soil. The labour cost includes labour input for disposal of marshy soil from excavated pit with a lead upto 50 m lead.

4 Marshy soil is generaly available upto 3 m depth. The rate has, therefore, been done upto 3 m depth of excavation. For deeper excavation refer analysis in item 11.1.

A. With dewatering.

Earthwork in excavation for structures as per drawing and technical specifications Clause 305.1 including setting out, dewatering, construction of shoring, shuttering & bracing, removal of stumps & other deleterious material and disposal upto a lead of 50 m, dressing of sides & bottom and backfilling in trenches with excavated suitable material.

I. Ordinary soil

(i) Upto 3 m depth

Unit = cum

Taking output = 10 cum

a) Labour					
Mate	day	0.32	310.00	99.20
Mazdoor (Unskilled)	day	8.00	310.00	2,480.00
b) Add 5.00 % for dewatering				**128.96**
c) Add 3.00 % for shoring, shuttering & bracing				**81.24**
d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**391.91**
e) Contractor's profit @ 15 % on (a+b+c+d)				**477.20**
f) Add Cess @ 1.00 % on (a+b+c+d+e)				**36.59**
Cost for 10 cum = a+b+c+d+e+f				3,695.10
Rate per cum = (a+b+c+d+e+f)/10				**369.51**
			say	***369.50***

Note: *1 Cost of dewatering is added, where required, @ 5.00 per cent of labour cost. Assessment for dewatering shall be made as per site conditions.*

2 The cost of shoring and shuttering, is added @ 3 per cent on cost of excavation for open foundation.

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FOUNDATION

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		3 The excavated earth if found suitable, can be used partly for backfilling in trenches & partly for road work. Hence cost of disposal has not been added except for marshy soil. This note is common to all cases of item 11.1.				
		(ii) 3 m to 6 m depth				
		Unit = cum				
		Taking output = 10 cum				
		a) Labour				
		Mate	day	0.38	310.00	117.80
		Mazdoor (Unskilled)	day	9.50	310.00	2,945.00
		b) Add 10.00 % for dewatering				**306.28**
		c) Add 5.00 % for shoring, shuttering & bracing				**168.45**
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**497.02**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**605.18**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**46.40**
		Cost for 10 cum = a+b+c+d+e+f				4,686.14
		Rate per cum = (a+b+c+d+e+f)/10				**468.61**
					say	***468.60***
		Note: *1 Cost of dewatering is added, where required, @ 10.00 per cent of labour cost.*				
		2 The cost of shoring and shuttering, is added @ 5.00 per cent on cost of excavation for open foundation.				
11.2	**300 & 1200**	**Filling in foundation trenches as per drawing & MoRD technical specification Clause 305.3.9, 1200.**				
		I. Sand filling				
		Unit = cum				
		a) Labour				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.30	310.00	93.00
		b) Material				
		Sand (local quarry) (assuming 20% voids)	cum	1.20	460.00	552.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**91.06**
		d) Contractor's profit @ 15 % on (a+b+c)				**110.87**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**8.50**
		Rate per cum = a+b+c+d+e				**858.53**
					say	***858.50***
		II. Earth filling (For marshy soil)				
		Unit = cum				
		Taking output = 6 cum				
		a) Labour				

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FOUNDATION

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mate	day	0.20	310.00	62.00
		Mazdoor (Unskilled)	day	3.00	310.00	930.00
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**139.38**
		c) Contractor's profit @ 15 % on (a+b)				**169.71**
		d) Add Cess @ 1.00 % on (a+b+c)				**13.01**
		Cost for 6 cum = a+b+c+d				1,314.09
		Rate per cum = (a+b+c+d)/6				**219.02**
					say	***219.00***

Note: *1 Cost of transportation of good quality earth has not been included. Only labour for carrying carted earth with a lead of 50 m to the foundation pits has been taken in the rate. The cost of carted earth may be worked out separately if the same is not available from the adjoining area.*

2 Backfilling of foundation trenches shall normally be done with excavated earth. The cost of this operation is included in item 11.1. Only in case the excavated earth is not of suitable quality, sand filling or backfilling with carted earth may be resorted to.

11.3 300 & 1200 Filling annular space around footing in rock as per MoRD technical specification Clause 300, 1203.4.3.

Unit = cum

P.C.C grade M 15

Nominal mix 1 : 2.5 : 5 (Hand mixing)

Unit = cum

a) Material					
Cement	t	0.275	5,800.00	1,595.00
Sand	cum	0.48	560.00	268.80
40 mm aggregate	cum	0.54	4,692.00	2,533.68
20 mm aggregate	cum	0.25	4,875.00	1,218.75
10 mm aggregate	cum	0.11	4,730.00	520.30
b) Labour				
Mate	day	0.09	310.00	27.90
Mason (1st Class)	day	0.10	440.00	44.00
Mazdoor (Unskilled)	day	2.00	310.00	620.00
Bhisti	day	0.27	310.00	83.70
c) Formwork @ 4% on (a+b)				**276.49**
d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**1,010.00**
e) Contractor's profit @ 15 % on (a+b+c+d)				**1,229.79**
f) Add Cess @ 1.00 % on (a+b+c+d+e)				**94.28**
Rate per cum = a+b+c+d+e+f				**9,522.69**
			say	***9522.70***

Chapter 11

FOUNDATION

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
11.4	**800 & 1200**	**Providing concrete for plain/reinforced concrete in open foundations complete including formwork as per drawings & MoRD technical specifications Clauses 802, 803, 900, 1202 and 1203. (including centering, shuttering, staging etc. but excluding reinforcement).**				
		I. P.C.C grade M 10				
		(i) Nominal mix 1:3:6				
		Unit = cum				
		a) Material				
		Cement	t	0.250	5,800.00	1,450.00
		Sand	cum	0.48	560.00	268.80
		40 mm aggregate	cum	0.540	4,692.00	2,533.68
		20 mm aggregate	cum	0.240	4,875.00	1,170.00
		10 mm aggregate	cum	0.120	4,730.00	567.60
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	1.63	310.00	505.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Mechnical concrete mixer 0.4/0.28 cum capacity fitted with water measuring device and preferably also with load cell.	hour	0.40	192.00	76.80
		d) Formwork @ 4% on cost of material, labour and machinery (a+b+c)				**268.99**
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				**982.61**
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				**1,196.44**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**91.73**
		Rate per cum = a+b+c+d+e+f+g				**9,264.45**
					say	***9264.40***
		(ii) Nominal mix 1:3.6 (Hand mixing)				
		Unit = cum				
		a) Material				
		Cement	t	0.250	5,800.00	1,450.00
		Sand	cum	0.48	560.00	268.80
		40 mm aggregate	cum	0.540	4,692.00	2,533.68
		20 mm aggregate	cum	0.240	4,875.00	1,170.00
		10 mm aggregate	cum	0.120	4,730.00	567.60
		b) Labour				
		Mate	day	0.09	310.00	27.90
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		Bhisti	day	0.27	310.00	83.70

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FOUNDATION

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		c) Formwork @ 4% on cost of material (a) and labour (b)				**270.63**
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**988.60**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**1,203.74**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**92.29**
		Rate per cum = a+b+c+d+e+f				**9,320.93**
					say	***9320.90***
		II. P.C.C grade M 15				
		(i) Nominal mix (1:2.5:5)				
		Unit = cum				
		a) Material				
		Cement	t	0.275	5,800.00	1,595.00
		Sand	cum	0.48	560.00	268.80
		40 mm aggregate	cum	0.54	4,692.00	2,533.68
		20 mm aggregate	cum	0.25	4,875.00	1,218.75
		10 mm aggregate	cum	0.11	4,730.00	520.30
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class0	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	1.63	310.00	505.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	192.00	76.80
		d) Formwork @ 4% on cost of material, labour and machinery (a+b+c)				**274.85**
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				**1,004.01**
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				**1,222.50**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**93.72**
		Rate per cum = a+b+c+d+e+f+g				**9,466.21**
					say	***9466.20***
		(ii) Nominal mix 1:2.5:5 (Hand mixing)				
		Unit = cum				
		a) Material				
		Cement	t	0.275	5,800.00	1,595.00
		Sand	cum	0.48	560.00	268.80
		40 mm aggregate	cum	0.54	4,692.00	2,533.68
		20 mm aggregate	cum	0.25	4,875.00	1,218.75
		10 mm aggregate	cum	0.11	4,730.00	520.30
		b) Labour				
		Mate	day	0.09	310.00	27.90

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FOUNDATION

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		Bhisti	day	0.27	310.00	83.70
		c) Formwork @ 4% on (a+b)				**276.49**
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**1,010.00**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**1,229.79**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**94.28**
		Rate per cum = a+b+c+d+e+f				**9,522.69**
					say	***9522.70***
		III. P.C.C. grade M 20				
		(i) Nominal mix (1:2:4)				
		Unit = cum				
		a) Material				
		Cement	t	0.33	5,800.00	1,914.00
		Sand	cum	0.45	560.00	252.00
		40 mm aggregate	cum	0.36	4,692.00	1,689.12
		20 mm aggregate	cum	0.36	4,875.00	1,755.00
		10 mm aggregate	cum	0.18	4,730.00	851.40
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	1.63	310.00	505.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	192.00	76.80
		d) Formwork @ 4% on (a+b+c)				**287.84**
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				**1,051.50**
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				**1,280.32**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**98.16**
		Rate per cum = a+b+c+d+e+f+g				**9,913.94**
					say	***9913.90***
		(ii) Nominal mix 1:2:4 (Hand mixed)				
		Unit = cum				
		a) Material				
		Cement	t	0.33	5,800.00	1,914.00
		Sand	cum	0.45	560.00	252.00
		40 mm aggregate	cum	0.36	4,692.00	1,689.12
		20 mm aggregate	cum	0.36	4,875.00	1,755.00
		10 mm aggregate	cum	0.18	4,730.00	851.40

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FOUNDATION

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) Labour				
		Mate	day	0.09	310.00	27.90
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		Bhisti	day	0.27	310.00	83.70
		c) Formwork @ 4% out of material and labour (a+b)				**289.48**
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**1,057.49**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**1,287.61**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**98.72**
		Rate per cum = a+b+c+d+e+f				**9,970.42**
					say	***9970.40***
IV.		**R.C.C grade M 20**				
		Unit = cum				
		a) Material				
		Cement	t	0.35	5,800.00	2,030.00
		Sand	cum	0.45	560.00	252.00
		20 mm aggregate	cum	0.54	4,875.00	2,632.50
		10 mm aggregate	cum	0.36	4,730.00	1,702.80
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class)	day	0.12	440.00	52.80
		Mazdoor (Unskilled)	day	1.73	310.00	536.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	192.00	76.80
		d) Formwork @ 4% on (a+b+c)				**295.67**
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				**1,080.08**
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				**1,315.12**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**100.83**
		Rate per cum = (a+b+c+d+e+f+g)				**10,183.39**
					say	***10183.40***
V.		**R.C.C. grade M 25**				
		Unit = cum				
		a) Material				
		Cement	t	0.404	5,800.00	2,343.20
		Sand	cum	0.45	560.00	252.00
		20 mm aggregate	cum	0.54	4,875.00	2,632.50
		10 mm aggregate	cum	0.36	4,730.00	1,702.80

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class)	day	0.12	440.00	52.80
		Mazdoor (Unskilled)	day	1.73	310.00	536.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	192.00	76.80
		d) Formwork @ 4.00% on (a+b+c)				**308.20**
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				**1,125.84**
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				**1,370.84**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**105.10**
		Rate per cum = a+b+c+d+e+f+g				**10,614.87**
						say 10614.90
11.5	**600 & 1200**	**Brick masorny work in cement mortar in foundation completed excluding pointing & plastering as per drawing & MoRD technical specifications Clauses 600, 1202 & 1203.**				
		Unit = cum				
		I. Brick masonry in 1:3 cement mortar				
		a) Material				
		Brick	Nos.	380.00	12.45	4,731.00
		Cement mortar 1:3	cum	0.24	3,862.20	926.93
		(Rate as per Sub-analysis)				
		b) Labour				
		Mate	day	0.09	310.00	27.90
		Mason (1st Class)	day	0.80	440.00	352.00
		Mazdoor (Unskilled)	day	1.60	310.00	496.00
		Bhisti	day	0.20	310.00	62.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**926.71**
		d) Contractor's profit @ 15 % on (a+b+c)				**1,128.38**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**86.51**
		Rate per cum = a+b+c+d+e				**8,737.43**
						say 8737.40
		Sub-analysis				
		Cement mortar 1:3 (1 cement : 3 sand)				
		Unit = cum				
		a) Material				
		Cement	t	0.51	5,800.00	2,958.00
		Sand	cum	1.05	560.00	588.00
		b) Labour				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mate	day	0.04	310.00	12.40
		Mazdoor (Unskilled)	day	0.90	310.00	279.00
		Bhisti	day	0.08	310.00	24.80
		Total material and labour = (a+b)				***3862.20***
		II. Brick masonry in 1:4 cement mortar				
		Unit = cum				
		a) Material				
		Brick	Nos.	380.00	12.45	4,731.00
		Cement mortar 1:4	cum	0.24	3,108.20	745.97
		Rates as per sub-analysis				
		b) Labour				
		Mate	day	0.09	310.00	27.90
		Mason (1st Class)	day	0.80	440.00	352.00
		Mazdoor (Unskilled)	day	1.60	310.00	496.00
		Bhisti	day	0.20	310.00	62.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**901.29**
		d) Contractor's profit @ 15 % on (a+b+c)				**1,097.42**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**84.14**
		Rate per cum = a+b+c+e				**8,497.72**
					say	***8497.70***
		Sub-analysis				
		Cement mortar 1:4 (1 cement : 4 sand)				
		Unit = cum				
		a) Material				
		Cement	t	0.38	5,800.00	2,204.00
		Sand	cum	1.05	560.00	588.00
		b) Labour				
		Mate	day	0.04	310.00	12.40
		Mazdoor (Unskilled)	day	0.90	310.00	279.00
		Bhisti	day	0.08	310.00	24.80
		Total material and labour = (a+b)				***3,108.20***
11.6	**1000 & 1200**	**Supplying, fitting & placing Thermo-Mechanically treated bar/ Cold twisted deformed steel bar reinforcement in foundation complete as per drawings & MoRD technical specifications Clauses 1000 & 1202.**				
		Unit = t				
		a) Material				
		Twisted steel/ deformed bars including 5 per cent for overlaps and wastage	t	1.05	46,000.00	48,300.00
		Binding wire	kg	6.00	52.00	312.00

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FOUNDATION

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) Labour for cutting, bending, shifting to site, tying and placing in position				
		Mate	day	0.40	310.00	124.00
		Blacksmith	day	2.00	418.00	836.00
		Mazdoor (Unskilled)	day	6.00	310.00	1,860.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**7,226.20**
		d) Contractor's profit @ 15 % on (a+b+c)				**8,798.73**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**674.57**
		Rate per t = a+b+c+d+e				**68,131.49**
						say 68131.50
11.7	**1000 & 1200**	**Supplying, fitting & placing MS bar reinforcement in foundation complete as per drawings & MoRD technical specifications Clauses 1000 & 1202.**				
		Unit = t				
		a) Material				
		MS bars including 5 per cent for overlaps and wasta(	t	1.05	45,000.00	47,250.00
		Binding wire	kg	6.00	52.00	312.00
		b) Labour for cutting, bending, shifting to site, tying and placing in position				
		Mate	day	0.40	310.00	124.00
		Blacksmith	day	2.00	418.00	836.00
		Mazdoor (Unskilled)	day	6.00	310.00	1,860.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**7,078.67**
		d) Contractor's profit @ 15 % on (a+b+c)				**8,619.10**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**660.80**
		Rate per t = a+b+c+d+e				**66,740.57**
						say 66740.60

ADDITIONAL ITEMS BY USING JHAMA BRICK AGGREGATE (i.e. LOCALLY AVAILABLE MATERIALS)

11.8	**300 & 1200**	**Filling annular space around footing in rock as per MoRD technical specification Clause 300, 1203.4.3.**				
		Unit = cum				
		P.C.C grade M 15 (using jhama brick aggregate)				
		Nominal mix 1 : 2.5 : 5 (Hand mixing)				
		Unit = cum				
		a) Material				
		Cement	t	0.275	5,800.00	1,595.00
		Sand	cum	0.48	560.00	268.80
		40 mm aggregate	cum	0.54	3,452.00	1,864.08

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FOUNDATION

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		20 mm aggregate	cum	0.25	3,957.00	989.25
		10 mm aggregate	cum	0.11	3,880.00	426.80
		b) Labour				
		Mate	day	0.09	310.00	27.90
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		Bhisti	day	0.27	310.00	83.70
		c) Formwork @ 4% on (a+b)				**236.78**
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**864.96**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**1,053.19**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**80.74**
		Rate per cum = a+b+c+d+e+f				**8,155.21**
					say	***8155.20***
11.9	**800, 900 & 1200**	**Providing concrete for plain concrete (using jhama brick aggregate) in open foundations complete including formwork as per drawings & MoRD technical specifications Clauses 802, 803, 900, 1202 and 1203. (including centering, shuttering, staging etc. but excluding reinforcement)**				
		I. P.C.C grade M 10 (using jhama brick aggregate)				
		(i) Nominal mix 1:3:6 Unit = cum				
		a) Material				
		Cement	t	0.250	5,800.00	1,450.00
		Sand	cum	0.48	560.00	268.80
		40 mm aggregate	cum	0.540	3,452.00	1,864.08
		20 mm aggregate	cum	0.240	3,957.00	949.68
		10 mm aggregate	cum	0.120	3,880.00	465.60
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	1.63	310.00	505.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Mechnical concrete mixer 0.4/0.28 cum capacity fitted with water measuring device and preferably also with load cell.	hour	0.40	192.00	76.80
		d) Formwork @ 4% on cost of material, labour and machinery (a+b+c)				**229.31**
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				**837.67**
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				**1,019.96**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**78.20**
		Rate per cum = a+b+c+d+e+f+g				**7,897.90**

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FOUNDATION

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	***7897.90***
		(ii) Nominal mix 1:3.6 (Hand mixing)				
		Unit = cum				
		a) Material				
		Cement	t	0.250	5,800.00	1,450.00
		Sand	cum	0.48	560.00	268.80
		40 mm aggregate	cum	0.540	3,452.00	1,864.08
		20 mm aggregate	cum	0.240	3,957.00	949.68
		10 mm aggregate	cum	0.120	3,880.00	465.60
		b) Labour				
		Mate	day	0.09	310.00	27.90
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		Bhisti	day	0.27	310.00	83.70
		c) Formwork @ 4% on cost of material (a) and labour (b)				**230.95**
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**843.66**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**1,027.26**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**78.76**
		Rate per cum = a+b+c+d+e+f				**7,954.38**
					say	***7954.40***
II.		**P.C.C grade M 15 (using jhama brick aggregate)**				
		(i) Nominal mix (1:2.5:5)				
		Unit = cum				
		a) Material				
		Cement	t	0.275	5,800.00	1,595.00
		Sand	cum	0.48	560.00	268.80
		40 mm aggregate	cum	0.54	3,452.00	1,864.08
		20 mm aggregate	cum	0.25	3,957.00	989.25
		10 mm aggregate	cum	0.11	3,880.00	426.80
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class0	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	1.63	310.00	505.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	192.00	76.80
		d) Formwork @ 4% on cost of material, labour and machinery (a+b+c)				**235.14**
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				**858.97**

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FOUNDATION

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				**1,045.90**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**80.19**
		Rate per cum = a+b+c+d+e+f+g				**8,098.72**
					say	***8098.70***
		(ii) Nominal mix 1:2.5:5 (Hand mixing)				
		Unit = cum				
		a) Material				
		Cement	t	0.275	5,800.00	1,595.00
		Sand	cum	0.48	560.00	268.80
		40 mm aggregate	cum	0.54	3,452.00	1,864.08
		20 mm aggregate	cum	0.25	3,957.00	989.25
		10 mm aggregate	cum	0.11	3,880.00	426.80
		b) Labour				
		Mate	day	0.09	310.00	27.90
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		Bhisti	day	0.27	310.00	83.70
		c) Formwork @ 4% on (a+b)				**236.78**
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**864.96**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**1,053.19**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**80.74**
		Rate per cum = a+b+c+d+e+f				**8,155.21**
					say	***8155.20***
		III. P.C.C. grade M 20 (using jhama brick aggregate)				
		(i) Nominal mix (1:2:4)				
		Unit = cum				
		a) Material				
		Cement	t	0.33	5,800.00	1,914.00
		Sand	cum	0.45	560.00	252.00
		40 mm aggregate	cum	0.36	3,452.00	1,242.72
		20 mm aggregate	cum	0.36	3,957.00	1,424.52
		10 mm aggregate	cum	0.18	3,880.00	698.40
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	1.63	310.00	505.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	192.00	76.80

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FOUNDATION

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		d) Formwork @ 4% on (a+b+c)				**250.65**
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				**915.62**
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				**1,114.88**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**85.47**
		Rate per cum = a+b+c+d+e+f+g				**8,632.86**
					say	***8632.90***
		(ii) Nominal mix 1:2:4 (Hand mixed)				
		Unit = cum				
		a) Material				
		Cement	t	0.33	5,800.00	1,914.00
		Sand	cum	0.45	560.00	252.00
		40 mm aggregate	cum	0.36	3,452.00	1,242.72
		20 mm aggregate	cum	0.36	3,957.00	1,424.52
		10 mm aggregate	cum	0.18	3,880.00	698.40
		b) Labour				
		Mate	day	0.09	310.00	27.90
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		Bhisti	day	0.27	310.00	83.70
		c) Formwork @ 4% out of material and labour (a+b)				**252.29**
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**921.61**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**1,122.17**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**86.03**
		Rate per cum = a+b+c+d+e+f				**8,689.35**
					say	***8689.30***

Chapter 12

SUBSTRUCTURE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
12.1	**600, 1200**	**Brick masonry work in cement mortar in substructure complete excepting pointing & plastering, as per drawing & MoRD technical specification Clauses 602, 603, 604, 1202 and 1204.**				
		I. In 1:3 cement mortar				
		Unit = cum				
		a) Material				
		Bricks	Nos.	380.00	12.45	4,731.00
		Cement mortar (Rate as in item 11.5.I)	cum	0.24	3,862.20	926.93
		b) Labour				
		Mate	day	0.09	310.00	27.90
		Mason 1st Class	day	0.80	440.00	352.00
		Mazdoor (Unskilled)	day	1.60	310.00	496.00
		Bhisti	day	0.20	310.00	62.00
		Add for scaffolding @ 5 per cent of cost of materials and labour (a+b)				329.79
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**973.05**
		d) Contractor's profit @ 15 % on (a+b+c)				**1,184.80**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**90.83**
		Rate per cum = a+b+c+d+e				**9,174.30**
					say	***9174.30***
		II. In 1:4 Cement mortar				
		Unit = cum				
		a) Material				
		Bricks	Nos.	380.00	12.45	4,731.00
		Cement mortar (Rate as in item 11.5.II)	cum	0.24	3,108.20	745.97
		b) Labour				
		Mate	day	0.09	310.00	27.90
		Mason 1st Class	day	0.80	440.00	352.00
		Mazdoor (Unskilled)	day	1.60	310.00	496.00
		Bhisti	day	0.20	310.00	62.00
		Add for scaffolding @ 5 per cent of cost of materials and labour (a+b)				320.74
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**946.35**
		d) Contractor's profit @ 15 % on (a+b+c)				**1,152.29**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**88.34**
		Rate per cum = a+b+c+d+e				**8,922.60**
					say	***8922.60***
		III. In 1:5 cement mortar				
		Unit = cum				
		a) Material				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Bricks 1st class	Nos.	380.00	12.45	4,731.00
		Cement mortar (Rate as per sub-analysis)	cum	0.24	2,702.20	648.53
		b) Labour				
		Mate	day	0.09	310.00	27.90
		Mason 1st Class	day	0.80	440.00	352.00
		Mazdoor (Unskilled)	day	1.60	310.00	496.00
		Bhisti	day	0.20	310.00	62.00
		Add for scaffolding @ 5 per cent of cost of materials and labour (a+b)				315.87
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**931.98**
		d) Contractor's profit @ 15 % on (a+b+c)				**1,134.79**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**87.00**
		Rate per cum = a+b+c+d+e				**8,787.07**
					say	***8787.10***
		Sub-analysis				
		Cement mortar 1:5 (1 cement, 5 sand)				
		a) Material				
		Cement	t	0.31	5,800.00	1,798.00
		Sand	cum	1.05	560.00	588.00
		b) Labour				
		Mate	day	0.04	310.00	12.40
		Mazdoor (Unskilled)	day	0.90	310.00	279.00
		Bhisti	day	0.08	310.00	24.80
		Total material and labour = (a+b)				***2,702.20***
12.2	**600, 1200**	**Pointing with cement mortar (1:3) on brickwork as per drawing & MoRD technical specification Clauses 613.3 & 1204.**				
		Unit = 10 sqm				
		Taking output = 10 sqm				
		a) Material				
		Cement mortar 1.3 (Rate as in item 11.5.I)	cum	0.03	3,862.20	115.87
		b) Labour				
		Mate	day	0.04	310.00	12.40
		Mason 1st Class	day	0.50	440.00	220.00
		Mazdoor (Unskilled)	day	0.50	310.00	155.00
		Bhisti	day	0.20	310.00	62.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**79.42**
		d) Contractor's profit @ 15 % on (a+b+c)				**96.70**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**7.41**
		Rate per 10 sqm = (a+b+c+d+e)				**748.80**
		Rate per sqm = (a+b+c+d+e)/10				**74.88**

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SUBSTRUCTURE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	***74.90***
		Note: *Scaffolding is already included in item 12.1*				
12.3	**600, 1200**	**Plastering with cement mortar (1:4) 15 mm thick on brickwork in substructure as per MoRD technical specification Clauses 613.4 & 1204.**				
		Unit = 10 sqm				
		Taking output = 10 sqm				
		a) Material				
		Cement mortar 1:4 (Rate as in item 11.5.II)	cum	0.24	3,108.20	745.97
		b) Labour				
		Mate	day	0.06	310.00	18.60
		Mason 1st Class	day	0.60	440.00	264.00
		Mazdoor (Unskilled)	day	0.60	310.00	186.00
		Bhisti	day	0.30	310.00	93.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**183.71**
		d) Contractor's profit @ 15 % on (a+b+c)				**223.69**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**17.15**
		Rate per 10 sqm = (a+b+c+d+e)				**1,732.12**
		Rate per sqm = (a+b+c+d+e)/10				**173.21**
					say	***173.20***
		Note: *1 Scaffolding is already included in item 12.1*				
		2 Though cement mortar of leaner mix has been included in item 12.1, for cement plaster mix of 1:4 has been proposed for better finishing				
		3 If cement plaster 12 mm or 18 mm thick is required elsewhere only the quantity of cement mortar may be changed on prorata basis without any change in the labour.				
12.4	**800,900 & 1200**	**Plain/reinforced cement concrete in substructure complete including formwork as per drawings & MoRD technical specification Clauses 802, 804, 805, 806, 807, 900, 1202 & 1204. (including centering, shuttering, staging etc. but excluding reinforcement)**				
		Unit = cum				
		I. P.C.C grade M 15				
		Same as item 11.4.II(i) up to 5 m height except for formwork which shall be 10 percent instead of 4 percent of cost of material, labour & machinery.				
		(i) Nominal mix (1:2.5:5)				
		Unit = cum				
		a) Material				
		Cement	t	0.275	5,800.00	1,595.00
		Sand	cum	0.48	560.00	268.80
		40 mm aggregate	cum	0.54	4,692.00	2,533.68

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SUBSTRUCTURE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		20 mm aggregate	cum	0.25	4,875.00	1,218.75
		10 mm aggregate	cum	0.11	4,730.00	520.30
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	1.63	310.00	505.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	192.00	76.80
		d) Formwork @ 10% on cost of material, labour and machinery (a+b+c)				**687.11**
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				**1,061.93**
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				**1,293.03**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**99.13**
		Rate per cum = a+b+c+d+e+f+g				**10,012.33**
					say	***10012.30***
		II. P.C.C grade M 15				
		Same as item 11.4.II(i) up to 5 m height except for formwork which shall be 10 percent instead of 4 percent of cost of material & labour.				
		(ii) Nominal mix 1:2.5:5 (Hand mixing)				
		Unit = cum				
		a) Material				
		Cement	t	0.275	5,800.00	1,595.00
		Sand	cum	0.48	560.00	268.80
		40 mm aggregate	cum	0.54	4,692.00	2,533.68
		20 mm aggregate	cum	0.25	4,875.00	1,218.75
		10 mm aggregate	cum	0.11	4,730.00	520.30
		b) Labour				
		Mate	day	0.09	310.00	27.90
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		Bhisti	day	0.27	310.00	83.70
		c) Formwork @ 10% on (a+b)				**691.21**
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**1,068.27**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**1,300.74**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**99.72**
		Rate per cum = a+b+c+d+e+f				**10,072.08**
					say	***10072.10***
		III. P.C.C. grade M 20 (1:2:4) Nominal mix				

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SUBSTRUCTURE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		i) Same as item 11.4.III(i) up to 5 m height except for formwork which shall be 10 percent instead of 4 percent of cost of material, labour & machinery.				
		ii) For height above 5 m up to 10 m same as item no. 11.4.III with following changes:-				
		a. Add 2 percent of cost of material, labour & machinery excluding formwork to cater for extra lift.				
		b. The provision of formwork shall be 12 percent instead of 4 percent of cost of material, labour and machinery.				
		(i) Up to 5 m height				
		Unit = cum				
		a) Material				
		Cement	t	0.33	5,800.00	1,914.00
		Sand	cum	0.45	560.00	252.00
		40 mm aggregate	cum	0.36	4,692.00	1,689.12
		20 mm aggregate	cum	0.36	4,875.00	1,755.00
		10 mm aggregate	cum	0.18	4,730.00	851.40
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	1.63	310.00	505.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	192.00	76.80
		d) Formwork @ 10% on cost of material, labour and machinery (a+b+c)				**719.61**
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				**1,112.16**
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				**1,354.18**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**103.82**
		Rate per cum = a+b+c+d+e+f+g				**10,485.90**
					say	***10485.90***
		(ii) For height above 5 m upto 10 m				
		Unit = cum				
		a) Material				
		Cement	t	0.33	5,800.00	1,914.00
		Sand	cum	0.45	560.00	252.00
		40 mm aggregate	cum	0.36	4,692.00	1,689.12
		20 mm aggregate	cum	0.36	4,875.00	1,755.00
		10 mm aggregate	cum	0.18	4,730.00	851.40
		b) Labour				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mate	day	0.08	310.00	24.80
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	1.63	310.00	505.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	192.00	76.80
		d) Add 2% of the cost of material, labour and machinery i.e. on (a+b+c) to cater extra lift				**143.92**
		e) Formwork @ 12% on cost of material, labour & machinery i.e. on (a+b+c)				**880.81**
		f) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d+e)				**1,155.03**
		g) Contractor's profit @ 15 % on (a+b+c+d+e+f)				**1,406.38**
		h) Add Cess @ 1.00 % on (a+b+c+d+e+f+g)				**107.82**
		Rate per cum = a+b+c+d+e+f+g+h				**10,890.08**
					say	***10890.10***
		IV. P.C.C. grade M 20 (1:2:4) Hand mix				
		i) Same as item 11.4.III(ii) up to 5 m height except for formwork which shall be 10 percent instead of 4 percent of cost of material & labour.				
		ii) Same III(ii) above.				
		(i) Up to 5 m height				
		Unit = cum				
		a) Material				
		Cement	t	0.33	5,800.00	1,914.00
		Sand	cum	0.45	560.00	252.00
		40 mm aggregate	cum	0.36	4,692.00	1,689.12
		20 mm aggregate	cum	0.36	4,875.00	1,755.00
		10 mm aggregate	cum	0.18	4,730.00	851.40
		b) Labour				
		Mate	day	0.09	310.00	27.90
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		Bhisti	day	0.27	310.00	83.70
		c) Formwork @ 10% out of material and labour (a+b)				**723.71**
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**1,118.50**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**1,361.90**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**104.41**
		Rate per cum = a+b+c+d+e+f				**10,545.64**
					say	***10545.60***

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(ii) For height above 5 m upto 10 m				
		Unit = cum				
		a) Material				
		Cement	t	0.33	5,800.00	1,914.00
		Sand	cum	0.45	560.00	252.00
		40 mm aggregate	cum	0.36	4,692.00	1,689.12
		20 mm aggregate	cum	0.36	4,875.00	1,755.00
		10 mm aggregate	cum	0.18	4,730.00	851.40
		b) Labour				
		Mate	day	0.09	310.00	27.90
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		Bhisti	day	0.27	310.00	83.70
		c) Add 2% of the cost of material, labour i.e. on (a+b) to cater extra lift				**144.74**
		d) Formwork @ 12% on cost of material & labour i.e. on (a+b)				**885.82**
		e) Add GST (multiplying factor) @ on (a+b+c+d)				**1,161.61**
		f) Contractor's profit @ on (a+b+c+d+e)				**1,414.39**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**108.44**
		Rate per cum = a+b+c+d+e+f+g				**10,952.13**
					say	***10952.10***
		V. R.C.C grade M 20				
		i) Same as item 11.4.IV up to 5 m height except for formwork which shall be 10 percent instead of 4 percent of cost of material, labour & machinery.				
		ii) For height above 5 m up to 10 m same as above except that 2 percent of cost excluding formwork is to be added for extra lift. For cost of formwork add 12 percent of cost of material, labour and machinery instead of 4 percent.				
		iii) For height above 10 m same as above with the following changes.				
		a. Add 4 percent of cost of material, labour & machinery excluding formwork to cater for extra lift.				
		b. The provision of formwork shall be 15 percent instead of 4 percent of cost of material, labour and machinery.				
		(i) Up to 5 m height				
		Unit = cum				
		a) Material				
		Cement	t	0.35	5,800.00	2,030.00
		Sand	cum	0.45	560.00	252.00
		20 mm aggregate	cum	0.54	4,875.00	2,632.50

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		10 mm aggregate	cum	0.36	4,730.00	1,702.80
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class)	day	0.12	440.00	52.80
		Mazdoor (Unskilled)	day	1.73	310.00	536.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	192.00	76.80
		d) Formwork @ 10% on cost of material, labour and machinery (a+b+c)				**739.17**
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				**1,142.39**
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				**1,390.99**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**106.64**
		Rate per cum = (a+b+c+d+e+f+g)				**10,770.89**
					say	***10770.90***
		(ii) For height above 5 m upto 10 m				
		Unit = cum				
		a) Material				
		Cement	t	0.35	5,800.00	2,030.00
		Sand	cum	0.45	560.00	252.00
		20 mm aggregate	cum	0.54	4,875.00	2,632.50
		10 mm aggregate	cum	0.36	4,730.00	1,702.80
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class)	day	0.12	440.00	52.80
		Mazdoor (Unskilled)	day	1.73	310.00	536.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	192.00	76.80
		d) Add 2% of the cost of material, labour and machinery i.e. on (a+b+c) to cater extra lift				**147.83**
		e) Formwork @ 12% on cost of material, labour & machinery i.e. on (a+b+c)				**904.74**
		f) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d+e)				**1,186.42**
		g) Contractor's profit @ 15 % on (a+b+c+d+e+f)				**1,444.60**
		h) Add Cess @ 1.00 % on (a+b+c+d+e+f+g)				**110.75**
		Rate per cum = a+b+c+d+e+f+g+h				**11,186.06**
					say	***11186.10***
		(iii) For height above 10 m				

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SUBSTRUCTURE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Unit = cum				
		a) Material				
		Cement	t	0.35	5,800.00	2,030.00
		Sand	cum	0.45	560.00	252.00
		20 mm aggregate	cum	0.54	4,875.00	2,632.50
		10 mm aggregate	cum	0.36	4,730.00	1,702.80
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class)	day	0.12	440.00	52.80
		Mazdoor (Unskilled)	day	1.73	310.00	536.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	192.00	76.80
		d) Add 4% of the cost of material, labour and machinery i.e. on (a+b+c) to cater extra lift				**295.67**
		e) Formwork @ 15% on cost of material, labour & machinery i.e. on (a+b+c)				**1,153.11**
		f) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d+e)				**1,242.09**
		g) Contractor's profit @ 15 % on (a+b+c+d+e+f)				**1,512.38**
		h) Add Cess @ 1.00 % on (a+b+c+d+e+f+g)				**115.95**
		Rate per cum = a+b+c+d+e+f+g+h				**11,710.89**
					say	***11710.90***
		VI. R.C.C. grade M 25				
		i) Same as item 11.4.V up to 5 m height excluding formwork. For cost of formwork add 10 percent instead of 4.00 percent.				
		ii) For height above 5 m up to 10 m same as above except that 2 percent of cost excluding formwork is to be added for extra lift. For cost of formwork add 12 percent of cost of material, labour and machinery instead of 4 %.				
		iii) For height above 10 m add 4 percent of cost as above excluding formwork to cater for extra lift. For cost of formwork add 15 percent of cost of material, labour and machinery instead of 4% .				
		(i) Up to 5 m height				
		Unit = cum				
		a) Material				
		Cement	t	0.404	5,800.00	2,343.20
		Sand	cum	0.45	560.00	252.00
		20 mm aggregate	cum	0.54	4,875.00	2,632.50
		10 mm aggregate	cum	0.36	4,730.00	1,702.80

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class)	day	0.12	440.00	52.80
		Mazdoor (Unskilled)	day	1.73	310.00	536.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	192.00	76.80
		d) Formwork @ 10% on cost of material, labour and machinery (a+b+c)				**770.49**
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				**1,190.79**
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				**1,449.93**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**111.16**
		Rate per cum = a+b+c+d+e+f+g				**11,227.27**
					say	***11227.30***
		(ii) For height above 5 m upto 10 m				
		Unit = cum				
		a) Material				
		Cement	t	0.404	5,800.00	2,343.20
		Sand	cum	0.45	560.00	252.00
		20 mm aggregate	cum	0.54	4,875.00	2,632.50
		10 mm aggregate	cum	0.36	4,730.00	1,702.80
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class)	day	0.12	440.00	52.80
		Mazdoor (Unskilled)	day	1.73	310.00	536.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	192.00	76.80
		d) Add 2% of the cost of material, labour and machinery i.e. on (a+b+c) to cater extra lift				**154.10**
		e) Formwork @ 12% on cost of material, labour & machinery i.e. on (a+b+c)				**943.08**
		f) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d+e)				**1,236.69**
		g) Contractor's profit @ 15 % on (a+b+c+d+e+f)				**1,505.82**
		h) Add Cess @ 1.00 % on (a+b+c+d+e+f+g)				**115.45**
		Rate per cum = a+b+c+d+e+f+g+h				**11,660.03**
					say	***11660.00***
		(iii) For height above 10 m				
		Unit = cum				

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SUBSTRUCTURE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)

a) Material

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Cement	t	0.404	5,800.00	2,343.20
		Sand	cum	0.45	560.00	252.00
		20 mm aggregate	cum	0.54	4,875.00	2,632.50
		10 mm aggregate	cum	0.36	4,730.00	1,702.80
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class)	day	0.12	440.00	52.80
		Mazdoor (Unskilled)	day	1.73	310.00	536.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	192.00	76.80
		d) Add 4% of the cost of material, labour and machinery i.e. on (a+b+c) to cater extra lift				**308.20**
		e) Formwork @ 15% on cost of material, labour & machinery i.e. on (a+b+c)				**1,201.96**
		f) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d+e)				**1,294.72**
		g) Contractor's profit @ 15 % on (a+b+c+d+e+f)				**1,576.47**
		h) Add Cess @ 1.00 % on (a+b+c+d+e+f+g)				**120.86**
		Rate per cum = a+b+c+d+e+f+g+h				**12,207.11**
					say	***12207.10***
12.5	**1000 & 1200**	**Supplying, fitting & placing Thermo-Mechanically treated bar/ Cold twisted deformed steel bar reinforcement in substructure complete as per drawings & MoRD technical specification Clauses 1002, 1005, 1010 and 1202.**				
		Unit = t				
		a) Material				
		Twisted steel/ deformed bars including 5 per cent overlaps and wastage	t	1.05	46,000.00	48,300.00
		Binding wire	kg	6.00	52.00	312.00
		b) Labour for cutting, bending, shifting to site, tying, and placing in position				
		Mate	day	0.34	310.00	105.40
		Blacksmith	day	2.00	418.00	836.00
		Mazdoor (Unskilled)	day	6.50	310.00	2,015.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**7,245.36**
		d) Contractor's profit @ 15 % on (a+b+c)				**8,822.06**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**676.36**
		Rate per t = a+b+c+d+e				**68,312.18**
					say	***68312.20***

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
12.6	**1000 & 1200**	**Supplying, fitting & placing with MS bar reinforcement in substructure complete as per drawings & MoRD technical specification Clauses 1002, 1005, 1010 and 1202.**				
		Unit = t				
		a) Material				
		MS bars including 5 per cent overlaps and wastage	t	1.05	45,000.00	47,250.00
		Binding wire	kg	6.00	52.00	312.00
		b) Labour for cutting, bending, shifting to site, tying, and placing in position				
		Mate	day	0.34	310.00	105.40
		Blacksmith	day	2.00	418.00	836.00
		Mazdoor (Unskilled)	day	6.50	310.00	2,015.00
		c) Overheads @ 20% on (a+b)				**7,097.84**
		d) Contractor's profit @ 10% on (a+b+c)				**8,642.44**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**662.59**
		Rate per t = a+b+c+d+e				**66,921.26**
					say	***66921.30***
12.7	**600,700 & 1200**	**Providing weepholes in brick masonry / stone masonry, plain/ reinforced concrete abutment, wing wall, return wall with 100 mm dia AC pipe or uPVC pipe (110 mm OD of 6.0 Kg/cm^2 pressure) extending through the full width of the structures with slope of 1(V):20(H) towards drawing face complete as per drawing and MoRD technical specification clauses 614, 709, 1204.3.7.**				
		Unit = Mtr				
		Taking output = 30 Mtr				
		a) Material				
		AC pipe / uPVC pipe (6.00 kg/cm2) 100 mm dia including wastage @ 5 per cent. Average length of each weep hole is taken as one metre for the analysis.	m	31.50	197.00	6,205.50
		MS clamps (assume total 30 nos weep hole)	Nos.	30.00	40.71	1,221.34
		Cement mortar 1:4 (For rate refer to item 11.5 II)	cum	0.05	3,108.20	155.41
		b) Labour				
		Mate	day	0.03	310.00	9.30
		Mason 1st Class	day	0.50	440.00	220.00
		Mazdoor (Unskilled)	day	0.25	310.00	77.50
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**1,108.41**
		d) Contractor's profit @ 15 % on (a+b+c)				**1,349.62**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**103.47**
		Cost for 30 Mtr = (a+b+c+d+e)				10,450.55
		Rate per Mtr = (a+b+c+d+e)/30				**348.35**
					say	***348.40***

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
12.8	**1200**	**Backfilling behind abutment, wing wall & return wall complete as per drawings & MoRD technical specification Clause 1204.3.8.**				
		Unit = cum				
		Taking output = 10 cum				
		I) Sandy material				
		Unit = cum				
		Taking output = 10 cum				
		a) Material				
		Sand (local quarry)	cum	12.00	460.00	5,520.00
		b) Labour				
		Mate	day	0.40	310.00	124.00
		Mazdoor (Unskilled)	day	10.00	310.00	3,100.00
		Bhisti	day	0.40	310.00	124.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**1,245.95**
		d) Contractor's profit @ 15 % on (a+b+c)				**1,517.09**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**116.31**
		Cost for 10 cum of sand backfill = a+b+c+d+e				11,747.36
		Rate per cum = (a+b+c+d+e)/10				**1,174.74**
					say	***1174.70***
12.9	**1200**	**Providing & laying filter media with granular crushed aggregates as per specification to a thickness of not less than 600 mm with smaller size towards the soil & bigger size towards the wall & providing over the entire surface behind abutment, wing wall, return wall to the full height, compacted to firm condition complete as per drawing and MoRD technical specification clause 1204.3.8.**				
		Unit = cum				
		Taking output = 10 cum				
		a) Material				
		Filter media as per specification	cum	12.00	2,775.00	33,300.00
		b) Labour				
		Mate	day	0.40	310.00	124.00
		Mazdoor (Unskilled)	day	9.00	310.00	2,790.00
		Mazdoor (Skilled)	day	1.00	395.00	395.00
		Bhisti	day	0.50	310.00	155.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**5,165.34**
		d) Contractor's profit @ 15 % on (a+b+c)				**6,289.40**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**482.19**
		Cost for 10 cum of filter media = a+b+c+d+e				48,700.93
		Rate per cum = (a+b+c+d+e)/10				**4,870.09**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	***4870.10***
12.10	**1200**	**Supplying, fitting & fixing in position true to line & level elastomeric bearing conforming to IRC:83 (Part-II) Section IX complete including all accessories as per drawings & MoRD technical specification Clause 1207.1.**				
		Unit = cubic centimetre				
		Considering an elastomeric bearing of size 500 x 400 x 96 mm for this analysis,				
		Overall volume = 19200 cu.cm				
		Volume of 6 Nos 488x388x4 mm size reinforcing steel plates = 4545 cu.cm.				
		Hence volume of elastomer = 14655 cu. cm.				
		a) Labour				
		Mate	day	0.06	310.00	18.60
		Mazdoor (Unskilled)	day	1.00	310.00	310.00
		Mazdoor Skilled	day	0.50	395.00	197.50
		b) Material				
		Elastomeric bearing assembly consisting of 7 internal layers of elastomer bonded to 6 nos. internal reinforcing steel laminates by the process of vulcanisation, complete with all components as per drawing and technical specification	cubic centimetre	19,200	1.00	19,200.00
		Add for anchorage bolts if required and consumables @ 1 per cent on (a+b)				**197.26**
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**2,799.23**
		d) Contractor's profit @ 15 % on (a+b+c)				**3,408.39**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**261.31**
		Cost for 19200 cu.cm. of elastomeric bearing = a+b+c+d+e				26,392.29
		Rate per cu.cm of elastomeric bearing = (a+b+c+d+e)/19200				**1.37**
					say	***1.40***
		Note: *For such type of manufactured item, the overhead cost is taken as 30 per cent instead of 20 per cent.*				
12.11	**600, 700, 1200**	**Providing PCC M 20 architectural coping on the top of wing wall, return wall etc. complete including formwork as per drawing & MoRD technical specification Clauses 615, 710 & 1204.3.11.**				
		Unit = Running m				
		Taking output = 1 m				
		Assume wall thickness = 345 mm				
		Projection of the coping will be 25 mm wide on both side of the wall = 345 + 50 = 395 mm				
		Quantity = 1 x 0.395 x 0.150 = 0.059				
		a) PCC M-20 Grade (1:2:4) Nominal Mix				
		As per item No. 12.5 (III)(i)	cum	0.059	10,485.90	618.67

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Add 10 per cent extra of cost of (a) being architectural coping				61.87
		Cost of 1 m = a				680.53
		Rate per m = a				**680.53**
					say	***680.50***
12.12	**1200**	**Providing pressure relief pipes 100 mm dia in bottom slab of box cell on a filter media base of 500 mm x 500 mm as per drawing & MoRD technical specification Clause 1205.5.7.**				
		Unit = Nos				
		a) Material				
		AC pipe 100 mm dia i/c wastage of 5 per cent 600 mm long upto the bottom of levelling course	m	0.63	197.00	124.11
		Filter media base with stone aggregate 0.5 m x 0.5 m area 1 m deep	cum	0.25	2,775.00	693.75
		b) Labour				
		Mate	day	0.031	310.00	9.61
		Mason 1st Class	day	0.016	440.00	7.04
		Mazdoor (Unskilled)	day	0.80	310.00	248.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**152.09**
		d) Contractor's profit @ 15 % on (a+b+c)				**185.19**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**14.20**
		Rate per No = (a+b+c+d+e)				**1,433.99**
					say	***1434.00***

ADDITIONAL ITEMS BY USING JHAMA BRICK AGGREGATE (i.e. LOCALLY AVAILABLE MATERIALS)

12.13	**1200**	**Providing & laying filter media with jhama brick aggregates as per specification to a thickness of not less than 600 mm with smaller size towards the soil & bigger size towards the wall & providing over the entire surface behind abutment, wing wall, return wall to the full height, compacted to firm condition complete as per drawing and MoRD technical specification clause 1204.3.8.**				
		Unit = cum				
		Taking output = 10 cum				
		a) Material				
		Filter media as per specification	cum	12.00	2,373.00	28,476.00
		b) Labour				
		Mate	day	0.40	310.00	124.00
		Mazdoor (Unskilled)	day	9.00	310.00	2,790.00
		Mazdoor (Skilled)	day	1.00	395.00	395.00
		Bhisti	day	0.50	310.00	155.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**4,487.57**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		d) Contractor's profit @ 15 % on (a+b+c)				**5,464.14**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**418.92**
		Cost for 10 cum of filter media = a+b+c+d+e				42,310.62
		Rate per cum = (a+b+c+d+e)/10				**4,231.06**
					say	***4231.10***
12.14	**800,900 & 1200**	**Plain cement concrete(using jhama brick aggregate) in substructure complete including formwork as per drawings & MoRD technical specification Clauses 802, 804, 805, 806, 807, 900, 1202 & 1204 (including centering, shuttering, staging etc. but excluding reinforcement)**				
		Unit = cum				
		I. P.C.C grade M 15 (1:2.5:5 Nominal mix)				
		Same as item 11.9.II(i) up to 5 m height except for formwork which shall be 10 percent instead of 4 percent of cost of material, labour & machinery.				
		(i) Nominal mix (1:2.5:5)				
		Unit = cum				
		a) Material				
		Cement	t	0.275	5,800.00	1,595.00
		Sand	cum	0.48	560.00	268.80
		40 mm aggregate	cum	0.54	3,452.00	1,864.08
		20 mm aggregate	cum	0.25	3,957.00	989.25
		10 mm aggregate	cum	0.11	3,880.00	426.80
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	1.63	310.00	505.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	192.00	76.80
		d) Formwork @ 10% on cost of material, labour and machinery (a+b+c)				**587.85**
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				**908.53**
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				**1,106.24**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**84.81**
		Rate per cum = a+b+c+d+e+f+g				**8,565.96**
					say	***8566.00***
		II. P.C.C grade M 15				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Same as item 11.9.II(i) up to 5 m height except for formwork which shall be 10 percent instead of 4 percent of cost of material & labour.				
		(ii) Nominal mix 1:2.5:5 (Hand mixing)				
		Unit = cum				
		a) Material				
		Cement	t	0.275	5,800.00	1,595.00
		Sand	cum	0.48	560.00	268.80
		40 mm aggregate	cum	0.54	3,452.00	1,864.08
		20 mm aggregate	cum	0.25	3,957.00	989.25
		10 mm aggregate	cum	0.11	3,880.00	426.80
		b) Labour				
		Mate	day	0.09	310.00	27.90
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		Bhisti	day	0.27	310.00	83.70
		c) Formwork @ 10% on (a+b)				**591.95**
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**914.86**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**1,113.95**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**85.40**
		Rate per cum = a+b+c+d+e+f				**8,625.70**
					say	***8625.70***
		III. P.C.C. grade M 20 (1:2:4) Nominal mix				
		i) Same as item 11.9.III(i) up to 5 m height except for formwork which shall be 10 percent instead of 4 percent of cost of material, labour & machinery.				
		ii) For height above 5 m up to 10 m same as item no. 11.9.III with following changes:- a. Add 2 percent of cost of material, labour & machinery excluding formwork to cater for extra lift. b. The provision of formwork shall be 12 percent instead of 4 percent of cost of material, labour and machinery.				
		(i) Up to 5 m height				
		Unit = cum				
		a) Material				
		Cement	t	0.33	5,800.00	1,914.00
		Sand	cum	0.45	560.00	252.00
		40 mm aggregate	cum	0.36	3,452.00	1,242.72
		20 mm aggregate	cum	0.36	3,957.00	1,424.52
		10 mm aggregate	cum	0.18	3,880.00	698.40
		b) Labour				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mate	day	0.08	310.00	24.80
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	1.63	310.00	505.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	192.00	76.80
		d) Formwork @ 10% on cost of material, labour and machinery (a+b+c)				**626.62**
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				**968.45**
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				**1,179.20**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**90.41**
		Rate per cum = a+b+c+d+e+f+g				**9,130.91**
					say	***9130.90***
		(ii) For height above 5 m upto 10 m				
		Unit = cum				
		a) Material				
		Cement	t	0.33	5,800.00	1,914.00
		Sand	cum	0.45	560.00	252.00
		40 mm aggregate	cum	0.36	3,452.00	1,242.72
		20 mm aggregate	cum	0.36	3,957.00	1,424.52
		10 mm aggregate	cum	0.18	3,880.00	698.40
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	1.63	310.00	505.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	192.00	76.80
		d) Add 2% of the cost of material, labour and machinery i.e. on (a+b+c) to cater extra lift				**125.32**
		e) Formwork @ 12% on cost of material, labour & machinery i.e. on (a+b+c)				**766.99**
		f) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d+e)				**1,005.78**
		g) Contractor's profit @ 15 % on (a+b+c+d+e+f)				**1,224.65**
		h) Add Cess @ 1.00 % on (a+b+c+d+e+f+g)				**93.89**
		Rate per cum = a+b+c+d+e+f+g+h				**9,482.87**
					say	***9482.90***
		IV. P.C.C. grade M 20 (1:2:4) Hand mix				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		i) Same as item 11.9.III(ii) up to 5 m height except for formwork which shall be 10 percent instead of 4 percent of cost of material & labour.				
		ii) Same III(ii) above.				
		(i) Up to 5 m height				
		Unit = cum				
		a) Material				
		Cement	t	0.33	5,800.00	1,914.00
		Sand	cum	0.45	560.00	252.00
		40 mm aggregate	cum	0.36	3,452.00	1,242.72
		20 mm aggregate	cum	0.36	3,957.00	1,424.52
		10 mm aggregate	cum	0.18	3,880.00	698.40
		b) Labour				
		Mate	day	0.09	310.00	27.90
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		Bhisti	day	0.27	310.00	83.70
		c) Formwork @ 10% out of material and labour (a+b)				**630.72**
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**974.78**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**1,186.91**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**91.00**
		Rate per cum = a+b+c+d+e+f				**9,190.66**
					say	***9190.70***
		(ii) For height above 5 m upto 10 m				
		Unit = cum				
		a) Material				
		Cement	t	0.33	5,800.00	1,914.00
		Sand	cum	0.45	560.00	252.00
		40 mm aggregate	cum	0.36	3,452.00	1,242.72
		20 mm aggregate	cum	0.36	3,957.00	1,424.52
		10 mm aggregate	cum	0.18	3,880.00	698.40
		b) Labour				
		Mate	day	0.09	310.00	27.90
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		Bhisti	day	0.27	310.00	83.70
		c) Add 2% of the cost of material, labour i.e. on (a+b) to cater extra lift				**126.14**
		d) Formwork @ 12% on cost of material & labour i.e. on (a+b)				**772.01**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		e) Add GST (multiplying factor) @ on (a+b+c+d)				**1,012.36**
		f) Contractor's profit @ on (a+b+c+d+e)				**1,232.66**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**94.50**
		Rate per cum = a+b+c+d+e+f+g				**9,544.91**
					say	***9544.90***
12.15	**600, 700, 1200**	**Providing PCC M 20 (with jhama brick aggregate) architectural coping on the top of wing wall, return wall etc. complete including formwork as per drawing & MoRD technical specification Clauses 615, 710 & 1204.3.11.**				
		Unit = Running m				
		Taking output = 1 m				
		Assume wall thickness = 345 mm				
		Projection of the coping will be 25 mm wide on both side of the wall = 345 + 50 = 395 mm				
		Quantity = 1 x 0.395 x 0.150 = 0.059				
		a) PCC M-20 Grade (1:2:4) Nominal Mix				
		As per item No. 12.14 (III)(i)	cum	0.059	9,130.90	538.72
		Add 10 per cent extra of cost of (a) being architectural coping				53.87
		Cost of 1 m = a				592.60
		Rate per m = a				**592.60**
					say	***592.60***
12.16	**1600, 1200**	**Plastering with cement mortar (1:4) 12 mm thick on brickwork / C.C. work including a finishing coat of neat cement punning with 2.75 Kg of cement per sqm in substructure as per MoRD technical specification Clauses 613.4 & 1204.**				
		Unit = sqm				
		Taking output = 10 sqm				
		a) Material				
		Cement mortar				
		(Rate as in sub-analysis of item 11.5 II)	cum	0.192	3,108.20	596.77
		Cement for neat cement punning	t	0.028	5,800.00	162.40
		b) Labour				
		Mate	day	0.06	310.00	18.60
		Mason 1st Class	day	0.60	440.00	264.00
		Mazdoor (Unskilled)	day	0.60	310.00	186.00
		Bhisti	day	0.30	310.00	93.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**185.57**
		d) Contractor's profit @ 15 % on (a+b+c)				**225.95**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**17.32**
		Rate for 10 sqm = a+b+c+d+e				**1,749.62**
		Rate per sqm = (a+b+c+d+e)/ 10				**174.96**

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SUBSTRUCTURE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	***175.00***

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SUPERSTRUCTURE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
13.1	800, 900, 1200	**Providing & laying reinforced cement concrete in superstructure as per drawings & MoRD technical specifications Clauses 800, 900, 1205.4 & 1205.5 (including centering, shuttering, staging etc. but excluding reinforcement).**				
		I. R.C.C grade M 20				
		(i) For nominal mix 1:2:4				
		Unit = cum				
		a) Material				
		Cement	t	0.35	5,800.00	2,030.00
		Fine sand	cum	0.45	560.00	252.00
		20 mm aggregate	cum	0.54	4,875.00	2,632.50
		10 mm aggregate	cum	0.36	4,730.00	1,702.80
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class)	day	0.12	440.00	52.80
		Mazdoor (Unskilled)	day	1.73	310.00	536.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	192.00	40.00
		d) Add for formwork and staging				
		Height upto 5 m @ 20% of (a+b+c)				1,470.98
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				**1,240.04**
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				**1,509.89**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**115.76**
		Rate per cum = a+b+c+d+e+f+g				**11,691.56**
					say	***11691.60***
		(ii) For nominal mix 1:2:4 (Hand mixed)				
		1. For height up to 5 m				
		Unit = cum				
		a) Material				
		Cement	t	0.35	5,800.00	2,030.00
		Fine sand	cum	0.45	560.00	252.00
		20 cum aggregates	cum	0.54	4,875.00	2,632.50
		10 mm aggregate	cum	0.36	4,730.00	1,702.80
		b) Labour				
		Mate	day	0.09	310.00	27.90
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		Bhisti	day	0.27	310.00	83.70

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		c) For formwork and staging add @ 20.00 % of (a+b)				1,478.58
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**1,246.44**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**1,517.69**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**116.36**
		Rate per cum = a+b+c+d+e+f				**11,751.97**
					say	***11752.00***
		2. For height from 5 m to 10 m				
		Unit = cum				
		a) Material				
		Cement	t	0.35	5,800.00	2,030.00
		Fine sand	cum	0.45	560.00	252.00
		20 cum aggregates	cum	0.54	4,875.00	2,632.50
		10 mm aggregate	cum	0.36	4,730.00	1,702.80
		b) Labour				
		Mate	day	0.09	310.00	27.90
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		Bhisti	day	0.27	310.00	83.70
		c) For formwork and staging add @ 25.00 % of (a+b)				1,848.23
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**1,298.38**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**1,580.93**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**121.20**
		Rate per cum = a+b+c+d+e+f				**12,241.63**
					say	***12241.60***
		3. For height above 10 m				
		Unit = cum				
		a) Material				
		Cement	t	0.35	5,800.00	2,030.00
		Fine sand	cum	0.45	560.00	252.00
		20 cum aggregates	cum	0.54	4,875.00	2,632.50
		10 mm aggregate	cum	0.36	4,730.00	1,702.80
		b) Labour				
		Mate	day	0.09	310.00	27.90
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		Bhisti	day	0.27	310.00	83.70
		c) For formwork and staging add @ 30.00 % of (a+b)				2,217.87
		d) Add GST (multiplying factor) @ on (a+b+c)				**1,350.31**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		e) Contractor's profit @ on (a+b+c+d)				**1,644.16**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**126.05**
		Rate per cum = a+b+c+d+e+f				**12,731.30**
					say	***12731.30***
		Note: *For formwork and staging add the following percentage on labour and material* *Height up to 50 m @ 20 %* *Height from 5 m to 10 m @ 25 %* *Height above 10 m @ 30 %*				
		(iii) For design mix RCC M 20				
		1. For height up to 5 m				
		Unit = cum				
		a) Material				
		Cement	t	0.33	5,800.00	1,914.00
		Fine sand	cum	0.45	560.00	252.00
		20 mm aggregate	cum	0.54	4,875.00	2,632.50
		10 mm aggregate	cum	0.36	4,730.00	1,702.80
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class)	day	0.12	440.00	52.80
		Mazdoor (Unskilled)	day	1.73	310.00	536.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	192.00	76.80
				Sub-Total =	***7275.70***	
		d) For formwork and staging add @ 20.00 % of (a+b+c)				1,455.14
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				**1,226.68**
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				**1,493.63**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**114.51**
		Rate per cum = a+b+c+d+e+f+g				**11,565.66**
					say	***11565.70***
		Sub-Analysis (Excluding formwork)				
		Sub-Total				***7275.70***
		Add GST (multiplying factor) @ 0.1405 on sub-total				***1022.23585***
		Contractor's profit @ 15 % on sub-total				***1244.69038***
		Rate per cum = a+b+c+d+e+f				***9542.63***
		2. For height from 5 m to 10 m				
		Unit = cum				
		a) Material				
		Cement	t	0.33	5,800.00	1,914.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Fine sand	cum	0.45	560.00	252.00
		20 mm aggregate	cum	0.54	4,875.00	2,632.50
		10 mm aggregate	cum	0.36	4,730.00	1,702.80
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class)	day	0.12	440.00	52.80
		Mazdoor (Unskilled)	day	1.73	310.00	536.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	192.00	76.80
		d) For formwork and staging add @ 25.00 % of (a+b+c)				1,818.93
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				**1,277.79**
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				**1,555.86**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**119.28**
		Rate per cum = a+b+c+d+e+f+g				**12,047.57**
					say	***12047.60***
		3. For height above 10 m				
		Unit = cum				
		a) Material				
		Cement	t	0.33	5,800.00	1,914.00
		Fine sand	cum	0.45	560.00	252.00
		20 mm aggregate	cum	0.54	4,875.00	2,632.50
		10 mm aggregate	cum	0.36	4,730.00	1,702.80
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class)	day	0.12	440.00	52.80
		Mazdoor (Unskilled)	day	1.73	310.00	536.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	192.00	76.80
		d) For formwork and staging add @ 30.00 % of (a+b+c)				2,182.71
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				**1,328.91**
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				**1,618.10**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**124.05**
		Rate per cum = a+b+c+d+e+f+g				**12,529.47**
					say	***12529.50***

Note: *For formwork and staging add the following percentage on labour and material*
Height up to 50 m @ 20 %
Height from 5 m to 10 m @ 25 %

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Height above 10 m @ 30 %				
		II. R.C.C M 25				
		1. For height up to 5 m				
		Unit =cum				
		a) Material				
		Cement	t	0.40	5,800.00	2,320.00
		Fine sand	cum	0.45	560.00	252.00
		20 mm aggregate	cum	0.54	4,875.00	2,632.50
		10 mm aggregate	cum	0.36	4,730.00	1,702.80
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class)	day	0.12	440.00	52.80
		Mazdoor (Unskilled)	day	1.73	310.00	536.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	192.00	76.80
				Sub-Total =	***7681.70***	
		d) For formwork and staging add @ 20.00 % of (a+b+c)				1,536.34
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				**1,295.13**
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				**1,576.98**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**120.90**
		Rate per cum = a+b+c+d+e+f+g				**12,211.05**
					say	***12211.10***
		Sub-Analysis (Excluding formwork)				
		Sub-Total				***7681.70***
		Add GST (multiplying factor) @ 0.1405 on sub-total				***1079.27885***
		Contractor's profit @ 15 % on sub-total				***1314.14683***
		Rate per cum = a+b+c+d+e+f				***10075.13***
		2. For height from 5 m to 10 m				
		Unit =cum				
		a) Material				
		Cement	t	0.40	5,800.00	2,320.00
		Fine sand	cum	0.45	560.00	252.00
		20 mm aggregate	cum	0.54	4,875.00	2,632.50
		10 mm aggregate	cum	0.36	4,730.00	1,702.80
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class)	day	0.12	440.00	52.80

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mazdoor (Unskilled)	day	1.73	310.00	536.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	192.00	76.80
		d) For formwork and staging add @ 25.00 % of (a+b+c)				1,920.43
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				**1,349.10**
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				**1,642.68**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**125.94**
		Rate per cum = a+b+c+d+e+f+g				**12,719.85**
					say	***12719.80***
		3. For height above 10 m				
		Unit =cum				
		a) Material				
		Cement	t	0.40	5,800.00	2,320.00
		Fine sand	cum	0.45	560.00	252.00
		20 mm aggregate	cum	0.54	4,875.00	2,632.50
		10 mm aggregate	cum	0.36	4,730.00	1,702.80
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class)	day	0.12	440.00	52.80
		Mazdoor (Unskilled)	day	1.73	310.00	536.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	192.00	76.80
		d) For formwork and staging add @ 30.00 % of (a+b+c)				2,304.51
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				**1,403.06**
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				**1,708.39**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**130.98**
		Rate per cum = a+b+c+d+e+f+g				**13,228.64**
					say	***13228.60***

Note: *For formwork and staging add the following percentage on labour and material*
Height up to 50 m @ 20 %
Height from 5 m to 10 m @ 25 %
Height above 10 m @ 30 %

		III. R.C.C. Grade M 30				
		1. For height up to 5 m				
		Unit =cum				
		a) Material				
		Cement	t	0.43	5,800.00	2,494.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Fine sand	cum	0.45	560.00	252.00
		20 mm aggregate	cum	0.54	4,875.00	2,632.50
		10 mm aggregate	cum	0.36	4,730.00	1,702.80
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class)	day	0.12	440.00	52.80
		Mazdoor (Unskilled)	day	1.73	310.00	536.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	192.00	76.80
				Sub-Total =	***7855.70***	
		d) For formwork and staging add @ 20.00 % of (a+b+c)				1,571.14
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				**1,324.47**
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				**1,612.70**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**123.64**
		Rate per cum = a+b+c+d+e+f+g				**12,487.65**
					say	***12487.60***
		Sub-Analysis (Excluding formwork)				
		Sub-Total				***7855.70***
		Add GST (multiplying factor) @ 0.1405 on sub-total				***1103.72585***
		Contractor's profit @ 15 % on sub-total				***1343.91388***
		Rate per cum = a+b+c+d+e+f				***10303.34***
		2. For height from 5 m to 10 m				
		Unit =cum				
		a) Material				
		Cement	t	0.43	5,800.00	2,494.00
		Fine sand	cum	0.45	560.00	252.00
		20 mm aggregate	cum	0.54	4,875.00	2,632.50
		10 mm aggregate	cum	0.36	4,730.00	1,702.80
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class)	day	0.12	440.00	52.80
		Mazdoor (Unskilled)	day	1.73	310.00	536.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	192.00	76.80
		d) For formwork and staging add @ 25.00 % of (a+b+c)				1,963.93
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				**1,379.66**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				**1,679.89**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**128.79**
		Rate per cum = a+b+c+d+e+f+g				**13,007.97**
					say	***13008.00***
		3. For height above 10 m				
		Unit =cum				
		a) Material				
		Cement	t	0.43	5,800.00	2,494.00
		Fine sand	cum	0.45	560.00	252.00
		20 mm aggregate	cum	0.54	4,875.00	2,632.50
		10 mm aggregate	cum	0.36	4,730.00	1,702.80
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class)	day	0.12	440.00	52.80
		Mazdoor (Unskilled)	day	1.73	310.00	536.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	192.00	76.80
		d) For formwork and staging add @ 30.00 % of (a+b+c)				2,356.71
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				**1,434.84**
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				**1,747.09**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**133.94**
		Rate per cum = a+b+c+d+e+f+g				**13,528.29**
					say	***13528.30***

Note: *For formwork and staging add the following percentage on labour and material*
Height up to 50 m @ 20 %
Height from 5 m to 10 m @ 25 %
Height above 10 m @ 30 %

Note: *1 Quantity of cement provided for various components of the superstructure is for estimating purpose only. Actual quantity of cement will be as per approved mix design. Similarly quantity for corase and fine aggregates is for estimating purpose and the exact quantity shall be as per the mix design. Use of design mix in place of nominal mix of concrete of M 20 and higher grader shall be prepared. Nominal mix of grades M 20 and M 25 is to be used with adequate supervision and quality control requirements as per technical specification Clause 803.*

2 For higher grades like M 25 and M 30, if adopted, design mix is recommended.

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		3 Sand can be either coarse or fine as required/ available. Here, provision of fine sand is considered only due to non-availability of coarse sand in Tripura. However, design of concrete dictates for use of coarse sand, then separate analysis may be taken as per site condition.				
13.2	**1000, 1200**	**Supplying, fitting, & placing Thermo-Mechanically treated bar/ Cold twisted deformed steel bar reinforcement in superstructure complete as per drawing & MoRD technical specifications Clauses 1002, 1010 & 1202.**				
		Unit = t				
		a) Material				
		Twisted steel/ deformed bars including 5 per cent for laps and wastage	t	1.05	46,000.00	48,300.00
		Binding wire	kg	8.00	52.00	416.00
		b) Labour for cutting, bending, tying and placing in position				
		Mate	day	0.44	310.00	136.40
		Blacksmith	day	3.00	418.00	1,254.00
		Mazdoor (Unskilled)	day	8.00	310.00	2,480.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**7,388.39**
		d) Contractor's profit @ 15 % on (a+b+c)				**8,996.22**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**689.71**
		Rate per t = a+b+c+d+e				**69,660.72**
					say	***69660.70***
13.3	**1000, 1200**	**Supplying, fitting, & placing MS bar reinforcement in superstructure complete as per drawing & MoRD technical specifications Clauses 1002, 1010 & 1202.**				
		Unit = t				
		a) Material				
		MS bars including 5 per cent for laps and wastage	t	1.05	45,000.00	47,250.00
		Binding wire	kg	8.00	52.00	416.00
		b) Labour for cutting, bending, tying and placing in position				
		Mate	day	0.44	310.00	136.40
		Blacksmith	day	3.00	418.00	1,254.00
		Mazdoor (Unskilled)	day	8.00	310.00	2,480.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**7,240.86**
		d) Contractor's profit @ 15 % on (a+b+c)				**8,816.59**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**675.94**
		Rate per t = a+b+c+d+e				**68,269.79**
					say	***68269.80***

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
13.4	**800, 1200**	**Providing and laying cement concrete wearing course M 30 grade including reinforcement complete as per drawings & MoRD technical specifications Clauses 800 & 1206.3 (including centering, shuttering, staging etc. and reinforcement)**				
		Unit = cum				
		a) Material				
		i) Cement concrete M 30 grade (refer relevant item of concrete in item 13.1.III excluding forwork.	Cum	1.00	10,303.34	10,303.34
		ii) Steel reinforcement (rate as per item 13.2)	t	0.075	69,660.70	5,224.55
		b) Formwork @ 3.00 % of cost of (a)				465.84
		c) Mazdoor (Unskilled) for clearing deck slab concrete surface	day	0.15	310.00	46.50
		d) Add GST (multiplying factor) @ 0.1405 on (b+c)				**71.98**
		e) Contractor's profit @ 15 % on (b+c+d)				**87.65**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**6.72**
		Rate per cum = a+b+c+d+e+f				**16,206.58**
					say	***16206.60***
13.5	**800, 900, 1200**	**Construction of R.C.C railing of M 25 grade in cast-in-situ with 20 mm nominal size aggregate, true to line & grade, tolerance of vertical railing post not to exceed 1 in 500, centre-to-centre spacing between vertical posts not to exceed 2000 mm including reinforcement as per drawing and MoRD technical specifications Clauses 800, 900 and 1208.3 (including centering, shuttering, staging etc. and reinforcement).**				
		Unit = Runing m Taking output = 4x12 m Span = 48 m				
		a) Material				
		i) M 25 grade R.C.C.				
		No. of vertical posts = (6+1) 4 = 28 nos Cross-sectional area of vertical post = 0.25x0.275 = 0.069 sqm Concrete in vertical posts = 0.069 x28x1.00 = 1.932 cum Hand rail in 3 tiers = 3x48 = 144 m Cross-sectional area = 0.17x0.175 = 0.03 sqm Concrete in hand rails = 0.03 x 144 = 4.32 cum Total concrete = 1.932+4.32 = 6.252 cum (rate as per item 13.1(II) except cost of formwork)	cum	6.252	10,075.13	62,989.69
		Ad 12.00 % of above for cost of formwork				7,558.76

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		ii) Steel reinforcement (Rate as per item 13.2)	t	1.36	69,660.70	94,738.55
		Cost for 48 m = (a)				165,287.00
		Rate per m = (a)/48				**3,443.48**
					say	***3443.50***
		Note: *1 48 m length is the total linear length adding both sides of 2x12 m span*				
		2 Quantities of material have been adopted from standard plans of MORTH vide drawing No SD/202				
13.6	**1200**	**Providing, fitting & fixing mild steel railling complete as per drawing & MoRD technical specifications clause 1208.2.**				
		Unit = Runing m				
		Taking output = 100 m				
		a) Material				
		1) IS MC 100=2.806x1.05=2.946 t	t	2.946	47,000.00	138,462.00
		2) MS Flats = 0.964x1.05 =1.012 t	t	1.012	47,000.00	47,564.00
		3) MS bars = 0.17x1.05=0.18 t	t	0.18	45,000.00	8,100.00
		4) MS bolts, nuts and washers	t	0.15	82,300.00	12,345.00
		b) Labour				
		Mate	day	2.80	310.00	868.00
		Blacksmith	day	30.00	418.00	12,540.00
		Mazdoor (Unskilled)	day	40.00	310.00	12,400.00
		c) Add 5 per cent of (a) for painting one shop coat with red oxide primer and three coats of synthetic enamel paint and consumables				**10,323.55**
		d) Add for cost of concrete for fixing vertical post in the preformed recess @ 1 per cent of (a)				**2,064.71**
		e) Add for electricity charges, welding and drilling equipment, electrodes and other consumables @ 1 per cent of (a)				**2,064.71**
		f) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d+e)				**34,665.84**
		g) Contractor's profit @ 15 % on (a+b+c+d+e+f)				**42,209.67**
		h) Add Cess @ 1.00 % on (a+b+c+d+e+f+g)				**3,236.07**
		Rate per m = (a+b+c+d+e+f+g+h)/100				**3,268.44**
					say	***3268.40***
		Note: *A typical drawing for MS railing has been followed for estimate purpose. Rate may be worked out as per design to be followed*				
13.7	**1200**	**Providing & fixing in position pipe railling consisting of IS Rolled steel joist posts designation IS MB 100 (100 x 75) at 2.5 m interval & three rows of 50 mm dia steel pipes (light) including fixing in position on bridge deck complete as per drawing and MoRD technical specifications Clause 1208.2.**				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Unit = Running m				
		Taking output = 2 x 10 m = 20 m				
		a) Material				
		i) Steel posts IS MB 100 (100 x 75)	t	0.13	47,000.00	6,110.00
		5 x 2 x 11.5 x 1.1 x 1.05 = 130 kg				
		ii) 50 mm dia steel pipes	t	0.257	52,700.00	13,546.01
		20 x 3x 4.08 x 1.05 = 257.04 kg				
		iii) M.S Bolts, nuts and washers	t	0.05	82,300.00	4,115.00
		Add @ 5 per cent of (a) for painting one shop coat with red oxide primer and three coats of synthetic enamel paint and consumables				1,188.55
		Add for electricity charges, welding and drilling equipment, electrodes and other consumables @ 1 per cent of (a)				237.71
		b) Labour				
		Mate	day	0.56	310.00	173.60
		Blacksmith	day	6.00	418.00	2,508.00
		Mazdoor (Unskilled)	day	8.00	310.00	2,480.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**4,265.42**
		d) Contractor's profit @ 15 % on (a+b+c)				**5,193.64**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**398.18**
		Cost for 20 m steel railing = a+b+c+d+e				40,216.11
		Rate per metre = (a+b+c+d+e)/20				**2,010.81**
					say	***2010.80***
13.8	**600, 900, 1200**	**Brick masonry work in cement mortar 1:3 in parapet excluding pointing & plastering as per drawing & plastering as per drawing & MoRD technical specifications Clauses 600, 900 & 1208.4.**				
		Rate same as in item 12.1 (I)	cum	1.00	9,174.30	9,174.30
					say	***9174.30***
13.9	**1200**	**Providing and fixing in position Drainage spouts complete as per drawing & MoRD technical specifications Clause 1209.**				
		Unit = 1 No				
		a) Material				
		i) Corrosion resistant structural steel grating including 5 per cent wastage	kg	4.00	75.25	301.01
		ii) G I pipe 100 mm dia (medium)	m	1.00	760.00	760.00
		b) Labour				
		For fabrication				
		Mate	day	0.02	310.00	6.20
		Blacksmith, Welder etc. (Skilled)	day	0.02	418.00	8.36
		Mazdoor (Unskilled)	day	0.20	310.00	62.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		For fixing in position				
		Mate	day	0.01	310.00	3.10
		Mason (1st Class)	day	0.01	440.00	4.40
		Mazdoor (Unskilled)	day	0.20	310.00	62.00
		Add @ 5 per cent of cost of material and labour (a+b) for electrodes, gas cutting, sealant, anti-corrrosive bituminous paint, mild steel grating etc.				60.35
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**178.07**
		d) Contractor's profit @ 15 % on (a+b+c)				**216.82**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**16.62**
		Rate per no = a+b+c+d+e				**1,678.95**
					say	***1678.90***
13.10	**800, 1200**	**P.C.C. M 15 oridinary grade (1:2.5:5) levelling course below approach slab complete as per drawing & MoRD technical specifications Clauses 800 and 1211 (including centering, shuttering, staging etc. but excuding reinforcement)**				
		I P.C.C Grade M15				
		(i) Nominal mix (1:2.5:5)				
		Unit = cum				
		a) Material				
		Cement	t	0.275	5,800.00	1,595.00
		Fine sand	cum	0.48	560.00	268.80
		40 mm aggregate	cum	0.54	4,692.00	2,533.68
		20 mm aggregate	cum	0.24	4,875.00	1,170.00
		10 mm aggregate	cum	0.12	4,730.00	567.60
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class0	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	1.63	310.00	505.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	192.00	76.80
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**965.19**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**1,175.23**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**90.10**
		Rate per cum = a+b+c+d+e+f				**9,100.20**
					say	***9100.20***
		(ii) Nominal mix 1:2.5:5 (Hand mixing)				
		Unit = cum				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Material				
		Cement	t	0.275	5,800.00	1,595.00
		Fine sand	cum	0.48	560.00	268.80
		40 mm aggregate	cum	0.54	4,692.00	2,533.68
		20 mm aggregate	cum	0.24	4,875.00	1,170.00
		10 mm aggregate	cum	0.12	4,730.00	567.60
		b) Labour				
		Mate	day	0.09	310.00	27.90
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		Bhisti	day	0.27	310.00	83.70
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**970.95**
		d) Contractor's profit @ 15 % on (a+b+c)				**1,182.24**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**90.64**
		Rate per cum = a+b+c+d+e+f				**9,154.51**
					say	***9154.50***
13.11	**800, 1200**	**Reinforced Cement Concrete M 25 grade approach slab including reinforcement & formwork complete as per drawing & MoRD technical specifications Clauses 800 & 1211 (including centering, shuttering, staging etc. and reinforcement)**				
		Unit = cum				
		a) Material				
		Reinforced cement concrete M 25 grade				
		Rate as per Item 13.1 II	cum	1.00	12,211.10	12,211.10
		steel reinforcement				
		Rate as per item 13.2	t	0.05	69,660.70	3,483.04
		Rate per cum = (a)				**15,694.14**
					say	***15694.10***
13.12	**1200, 500**	**Providing bituminous wearing coat comprising of 20 mm thick premix carpet with seal coat Type B for culverts as per drawing & MoRD technical specifications Clauses 1206.2 and 500.**				
		i. Rate for wearing coat as per item No. 5.8 of Chapter 5	sqm	1.00	286.30	286.30
		ii. Rate for seal coat Type B as per item No. 5.11 of Chapter 5	sqm	1.00	65.70	65.70
		Rate per sqm = (i+ ii)				**352.00**
					say	***352.00***
		Note: *This type of wearing coat may be adopted where a cushion is provided over the culvert and the adjoining road pavement is continued over it.*				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
14.1	1300	**Providing and laying of apron with cement concrete blocks of size as per Table 1300.1 cast-in-situ and made with nominal mix of M-15 grade cement concrete as per drawing and MoRD technical specification Clause 1301(rate includes preparation of bed, nominal surface re-inforcement and filling of granular material in recesses between blocks).**				
		Unit = cum				
		a) Concrete grade M 15				
		(Rate as per item No 11.4 II (i)	cum	1.00	9,466.20	9,466.20
		Add 2 per cent of cost to account for excavation for preparation of bed, nominal surface reinforcement and filling of granular material in recesses between				189.32
		Rate per cum = (a)				**9,655.52**
					say	***9655.50***
14.2	1300	**Single bamboo palasiding/walling of whole 2nd class bamboo (Jati or Bethua) 65 to 75 mm dia and closely packed & driven @ 150 mm c/c including fitting fixing with half bamboo kamis horizontally in three rows with cane or tying with wire complete and struts 1.5 m apart longitudinally and providing bitumen drum sheet walling fixed with nails as per drawing and MoRD technical specification Clause 1302.5.**				
		A) Driven at least 900 mm below ground and 1200 mm above ground Unit = Running metre				
		Taking Output = 3.00 metre				
		a) Materials				
		2nd Class Bamboo 65 mm to 75 mm dia, (1.2 m to 3.0 m)	m	52.80	16.25	858.00
		Bitumen drum sheet with nails	sqm	3.60	305.00	1,098.00
		Binding Wire (G.I 2mm)	kg	0.15	60.00	9.00
		b) Labour				
		Mate	day	0.04	310.00	12.40
		Mazdoor (Unskilled)	day	1.00	310.00	310.00
		c) Sundries (LS) @ 1.00 % of (a+b)	LS			**22.87**
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**324.59**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**395.23**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**30.30**
		Cost for 3 metre = a+b+c+d+e+f				**3,060.40**
		Rate per metre = (a+b+c+d+e+f) / 3.00				**1,020.13**
					say	***1020.10***
		B) Driven at least 900 mm below ground and 900 mm above ground on average				
		a) Materials				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		2nd Class Bamboo 65 mm to 75 mm dia, (1.2 m to 3.0 m)	m	46.80	16.25	760.50
		Bitumen drum sheet with nails	sqm	3.60	305.00	1,098.00
		Binding Wire (G.I 2mm)	kg	0.15	60.00	9.00
		b) Labour				
		Mate	day	0.04	310.00	12.40
		Mazdoor (Unskilled)	day	1.00	310.00	310.00
		c) Sundries (LS) @ 1.00 % of (a+b)	LS			**21.90**
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**310.76**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**378.38**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**29.01**
		Cost for 3 m = a+b+c+d+e+f				**2,929.95**
		Rate per m = (a+b+c+d+e+f) / 3.00				**976.65**
					say	***976.60***
14.3	**1300**	**Providing and laying flooring laid over cement concrete bedding complete as per drawing and MoRD technical specification Clause 1303.**				
		I. Cement concrete blocks cast in situ grade M15 (size 400 mm x 400 mm x 150 mm) over cement concrete (with M10) bedding of 150 mm thick				
		Unit = Sqm				
		Taking Output = 21.00 sqm				
		a) Cement concrete blocks grade M 15 Rate as per item 11.4 (II) (i) using 400 mm x 400 mm x 150 mm blocks	cum	3.12	9,466.20	29,534.54
		Add for cement concrete bedding M10 Rate as per item 11.4 (I) (i)	cum	3.15	9,264.40	29,182.86
		Add 1 per cent of cost to account for excavation for preparation of bed.				587.17
		Cost for 21 sqm =				**59,304.58**
		Rate per sqm = (a) / 21				**2,824.03**
					say	***2824.00***
		II. Brick on edge laid in cement mortar (1:3)				
		Unit=cum				
		a) Material				
		Bricks	Nos	380.00	12.45	4,731.00
		Cement mortar (1:3) [(Rate as in item 11.5 (i)]	cum	0.15	3,862.20	579.33
		Cement mortar bedding (1:5) [(Rate as in item 1:	cum	0.25	2,702.20	675.55
		b. Labour				
		Mate	day	0.10	310.00	31.00
		Mason 1st Class	day	0.80	440.00	352.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mazdoor (Unskilled)	day	1.60	310.00	496.00
		Bhisti	day	0.20	310.00	62.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**973.23**
		d) Contractor's profit @ 15 % on (a+b+c)				**1,185.02**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**90.85**
		Rate per cum = a+b+c+d+e				**9,175.97**
					say	***9176.00***
	Note:	*Labour cost includes labour required for trimming of slope to proper profile and preparation of bed.*				
14.4	**1300**	**Providing and laying curtain walls complete as per drawing and MoRD technical specification Clause 1304.**				
		Unit = cum				
		I. Brick masonry in cement mortar (1:4)				
		(Rate same as per item 12.I (II)	cum	1.00	8,922.60	8,922.60
		II. Cement concrete grade M 10				
		(Rate same as per item 11.4 I (i)	cum	1.00	9,264.40	9,264.40
	Note:	*1 Other items like excavation for foundation, filling behind wall, filter media, weep holes, etc. shall be added separately as per approved design.*				
14.5	**1300**	**Construction of toe walls for protection of slopes as per Drawing and MoRD technical specifications Clause 1302.5 (including centering, shuttering staging etc. but excluding reinforcement)**				
		I. Brick masonry in cement mortar 1:4 in case of brick pitching				
		Unit = cum				
		a) Material				
		Brick	Nos.	380.00	12.45	4,731.00
		Cement mortar 1:4	cum	0.24	3,108.20	745.97
		Rates as per sub-analysis below				
		b) Labour				
		Mate	day	0.09	310.00	27.90
		Mason (1st Class)	day	0.80	440.00	352.00
		Mazdoor (Unskilled)	day	1.60	310.00	496.00
		Bhisti	day	0.20	310.00	62.00
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**901.29**
		d) Contractor's profit @ 15 % on (a+b+c)				**1,097.42**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**84.14**
		Rate per cum = a+b+c+d+e				**8,497.72**
					say	***8497.70***
		Sub-analysis				
		Cement mortar 1:4 (1 cement : 4 sand)				
		Unit = cum				
		a) Material				
		Cement	*t*	*0.38*	*5,800.00*	*2,204.00*
		Sand	*cum*	*1.05*	*560.00*	*588.00*

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) Labour				
		Mate	*day*	*0.04*	*310.00*	*12.40*
		Mazdoor (Unskilled)	*day*	*0.90*	*310.00*	*279.00*
		Bhisti	*day*	*0.08*	*310.00*	*24.80*
		Total material and labour = (a+b)				***3,108.20***
		II. Cement concrete grade M 10 in case of concrete block pitching				
		Unit = cum				
		I. P.C.C grade M 20				
		(i) Nominal mix 1:3:6				
		Unit = cum				
		a) Material				
		Cement	t	0.250	5,800.00	1,450.00
		Fine sand	cum	0.48	560.00	268.80
		40 mm aggregate	cum	0.576	4,692.00	2,702.59
		20 mm aggregate	cum	0.288	4,875.00	1,404.00
		10 mm aggregate	cum	0.096	4,730.00	454.08
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	1.63	310.00	505.30
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Mechnical concrete mixer 0.4/0.28 cum capacity fitted with water measuring device and preferably also with load cell.	hour	0.40	192.00	76.80
		d) Formwork @ 4% on cost of material, labour and machinery (a+b+c)				**280.56**
		e) Add GST (multiplying factor) @ 0.1405 on (a+b+c+d)				**1,024.90**
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				**1,247.93**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**95.67**
		Rate per cum = a+b+c+d+e+f+g				**9,663.14**
					say	***9663.10***
		(ii) Nominal mix 1:3:6 (Hand mixing)				
		Unit = cum				
		a) Material				
		Cement	t	0.250	5,800.00	1,450.00
		Fine sand	cum	0.48	560.00	268.80
		40 mm aggregate	cum	0.576	4,692.00	2,702.59

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		20 mm aggregate	cum	0.288	4,875.00	1,404.00
		10 mm aggregate	cum	0.096	4,730.00	454.08
		b) Labour				
		Mate	day	0.09	310.00	27.90
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		Bhisti	day	0.27	310.00	83.70
		c) Formwork @ 4% on cost of material, labour and machinery (a+b)				**282.20**
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**1,030.89**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**1,255.22**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**96.23**
		Rate per cum = a+b+c+d+e+f				**9,719.62**
					say	***9719.60***
14.6	**1300**	**Single bamboo spur and palasiding of whole 2nd class bamboo (Jati or Bethua) 65 mm to 75 mm dia @ 150 mm c/c and closely packed & driven including fitting fixing with half bamboo kamis horizontally in three rows with cane or tying wire complete and struts 1500 mm apart longitudinally and providing brush wood as per drawing and technical specification Clause 1302.5.**				
		A) Driven at least 900 mm below ground and 1800 mm above ground on average				
		Unit = Running metre				
		Taking output = 3.00 metre				
		a) Materials				
		2nd class bamboo (65 mm to 75 mm dia 3 m lor	m	64.80	16.25	1,053.00
		Binding wire	Kg.	0.15	60.00	9.00
		Brush Wood (LS) @ 1.50 %				15.93
		b) Labour				
		Mate	day	0.04	310.00	12.40
		Mazdoor (Unskilled)	day	1.00	310.00	310.00
		c) Sundries (LS) @ 1.00 % of (a)				10.78
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**198.26**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**241.41**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**18.51**
		Cost for 3 metre = a+b+c+d+e+f				**1,869.28**
		Rate per metre = (a+b+c+d+e+f)/3				**623.09**
					say	***623.10***

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		B) Driven at least 900 mm below ground and 900 mm above ground on average Unit = Running metre Taking output = 3.00 metre				
		a) Materials				
		2nd class bamboo (65 mm to 75 mm dia 3 m long)	m	46.80	16.25	760.50
		Binding wire	Kg.	0.15	60.00	9.00
		Brush Wood (LS) @ 0.75 %				5.77
		b) Labour				
		Mate	day	0.04	310.00	12.40
		Mazdoor (Unskilled)	day	1.00	310.00	310.00
		c) Sundries (LS) @ 1.50 % of (a)				11.63
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**155.86**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**189.77**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**14.55**
		Cost for 3.00 metre = a+b+c+d+e+f				1,469.48
		Rate per metre = (a+b+c+d+e+f)/3				**489.83**
					say	***489.80***
14.7	Suggestive	**Single bamboo spur and palasiding of whole 1st class bamboo (Bholuka or Barua or barak) 85 mm to 100 mm dia and closely packed & driven @ 150 mm c/c including fitting, fixing with half 2nd class bamboo (Jati or Bethua) horizontally in three rows with cane or tying wire complete and struts 1500 mm apart longitudinally and providing brush wood as per drawings and technical specifications.**				
		A) Driven at least 900 mm below ground and 1800 mm above ground Unit = Running metre Taking output = 3.00 metre				
		a) Materials				
		1st class bamboo (85 mm - 100 mm dia)	m	60.30	22.00	1,326.60
		2nd class bamboo	m	4.50	16.25	73.13
		Binding Wire (G.I 2mm)	Kg.	0.15	60.00	9.00
		Brush Wood (LS) @ 1.00 %				14.09
		b) Labour				
		Mate	day	0.05	310.00	15.50
		Mazdoor (Unskilled)	day	1.20	310.00	372.00
		c) Sundries (LS) @ 1.00 % of (a)				14.23
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**256.35**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**312.13**

Chapter 14
PROTECTION WORKS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**23.93**
		Cost for 3 metre = a+b+c+d+e+f				2,416.95
		Rate per metre = (a+b+c+d+e+f)/3				**805.65**
					say	***805.70***
		B) Driven at least 900 mm below ground and 900 mm above ground on average				
		Unit = Running metre				
		Taking output = 3.00 metre				
		a) Materials				
		1st class bamboo (85 mm - 100 mm dia)	m	42.30	22.00	930.60
		2nd class bamboo	m	4.50	16.25	73.13
		Binding Wire (G.I 2mm)	Kg.	0.15	60.00	9.00
		Brush Wood (LS) @ 1.50 %				15.19
		b) Labour				
		Mate	day	0.04	310.00	12.40
		Mazdoor (Unskilled)	day	1.00	310.00	310.00
		c) Sundries (LS) @ 1.50 % of (a)				15.42
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**191.89**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**233.64**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**17.91**
		Cost for 3.00 metre = a+b+c+d+e+f				1,809.18
		Rate per metre = (a+b+c+d+e+f)/3.00				**603.06**
					say	***603.10***
		C) Driven at least 600 mm below ground and 1200 mm above ground on average.				
		Unit = Running metre				
		Taking output = 3.00 metre				
		a) Materials				
		1st class bamboo (85 mm - 100 mm dia)	m	42.30	22.00	930.60
		2nd class bamboo	m	4.50	16.25	73.13
		Binding Wire (G.I 2mm)	Kg.	0.15	60.00	9.00
		Brush Wood (LS) @ 1.50 %				15.19
		b) Labour				
		Mate	day	0.04	310.00	12.40
		Mazdoor (Unskilled)	day	1.00	310.00	310.00
		c) Sundries (LS) @ 1.50 % of (a)				15.42
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**191.89**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**233.64**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**17.91**

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PROTECTION WORKS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Cost for 3.00 metre = a+b+c+d+e+f				1,809.18
		Rate per metre = (a+b+c+d+e+f)/3.00				**603.06**
					say	***603.10***
14.8	Suggestive	**Bamboo spur 'A' type with whole bamboo placed 230 mm centre to centre driven 900 mm below ground and 1200 mm to 1500 mm above ground tied with 2nd class bamboo (Jati or Bethua) on either side at 450 mm apart horizontally with galvanished wire etc. complete as per drawings and technical specifications.**				
		A) 2nd class bamboo (jati or Bethua) 65 mm to 75 mm dia				
		Unit= Running metre				
		Taking output = 3.00 metre				
		a) Materials				
		2nd class bamboo (65 mm to 75 mm dia)	m	43.50	16.25	706.88
		Binding Wire (G.I 2mm)	Kg.	0.75	60.00	45.00
		b) Labour				
		Mate	day	0.04	310.00	12.40
		Mazdoor (Unskilled)	day	1.00	310.00	310.00
		c) Sundries (LS) @ 2.50 % of (a)				18.80
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**153.58**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**187.00**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**14.34**
		Cost for 3 m = a+b+c+d+e+f				1,447.98
		Rate per metre = (a+b+c+d+e+f)/3				**482.66**
					say	***482.70***
		B) 1st class bamboo (Bholuka or Barua) 85 mm to 100 mm dia				
		Unit = Running metre				
		Taking output = 3.00 metre				
		a) Materials				
		1st class bamboo (85-100 mm dia)	m	31.50	22.00	693.00
		2nd class bamboo (65-75 mm dia)	m	12.00	16.25	195.00
		Binding Wire (G.I 2mm)	Kg.	1.00	60.00	60.00
		Brush Wood (LS) @ 2.00 %				18.96
		b) Labour				
		Mate	day	0.06	310.00	18.60
		Mazdoor (Unskilled)	day	1.40	310.00	434.00
		c) Sundries (LS) @ 2.00 % of (a)				19.34
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**202.17**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**246.16**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**18.87**

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PROTECTION WORKS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Cost for 3 m = a+b+c+d+e+f				1,906.10
		Rate per metre = (a+b+c+d+e+f)/3				**635.37**
					say	***635.40***
14.9	Suggestive	**Providing 'A' type single spur with 1st class bamboo (Bholuka or Barua) 85 mm to 100 mm dia closely placed 230 mm centre to centre, driven 1200 mm to 1500 mm below ground and 3 m to 4 m above ground and tied with cane or coir string, half 2nd class bamboo (Jati or Bethua) horizontally on both face placed not more than one metre apart and 2 nos. of purlin at top and bottom fitted with vertical struts at 1500 mm apart and filling with brushwood or jungle wood inside the spur complete as per drawing and technical specifications.**				
		Unit= Running metre				
		Taking output = 3.00 metre				
		a) Materials				
		1st class bamboo (85-100 mm dia)	m	87.00	22.00	1,914.00
		2nd class bamboo (65-75 mm dia)	m	18.00	16.25	292.50
		Binding wire (GI 2 mm)	Kg.	2.00	60.00	120.00
		Coir Rope (LS) @ 1.00 % of (a)				23.27
		Brush wood (LS) @ 1.00 % of (a)				23.27
		b) Labour				
		Mate	day	0.06	310.00	18.60
		Mazdoor (Unskilled)	day	1.50	310.00	465.00
		c) Sundries (LS) @ 1.00 % of (a)				23.73
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**404.69**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**492.76**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**37.78**
		Cost for 3 metre = a+b+c+d+e				3,815.59
		Rate per metre = (a+b+c+d+e)/3				**1,271.86**
					say	***1271.90***
14.10	**1300**	**Providing close bamboo toe walling consisting of 65 mm to 75 mm diameter bamboos driven 900 mm below ground and 900 mm above ground at 150 mm C/C and provided with three horizontal split bamboo runner fixed with nails. All bamboos to be duly protected by coal tar painting.**				
		Unit = Running Metre				
		Taking output = 10.00 running metre				
		a) Materials				
		2nd class bamboo (65mm-75mm dia)	m	120.60	16.25	1,959.75
		2nd class bamboo (65mm-75mm dia)	m	15.00	16.25	243.75
		Coal tar	kg	10.00	35.00	350.00

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PROTECTION WORKS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) Labour				
		Mate	day	0.06	310.00	18.60
		Mazdoor (Unskilled)	day	1.50	310.00	465.00
		c) Sundries (LS) @ 1.00 % of (a)				25.54
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**430.30**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**523.94**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**40.17**
		Cost for 10 Running Metre = a+b+c+d+e+f				4,057.04
		Rate per Sqm = (a+b+c+d+e+f)/10				**405.70**
					say	***405.70***
14.11	Suggestive	**Double timber spur with two rows at 800 mm c/c apart of 1st class local wood piles with timber of Sal/ Nahar/ Nageswar wood piles of 150 mm dia placed at 400 mm centre to centre, driven 2000 mm minimum below ground and 3600 mm above ground average and placing and fixing bracings etc. of 100 mm x 75 mm size 1st class local wood longitudinally & crosswise at 800 mm apart, at ends fitted with 10 mm dia bolts and nuts etc. including coaltarring of timber members and cost of necessary bamboo staging etc. as directed by the Engineer as per drawing and technical specifications.**				
		Unit =RM				
		Taking output = 4.00 RM				
		a) Material				
		1st class local wood piles 150-200 mm dia, 6m long	m	123.20	578.00	71,209.60
		2nd class local wood (100 mm x 75 mm) for collar, bracing and belt	cum	2.04	24,590.00	50,163.60
		Nuts and Bolts	Kg	10.00	82.30	823.00
		1st Class Bamboo	m	30.00	22.00	660.00
		2nd class bamboo	m	25.00	16.25	406.25
		Coir Rope (LS) @ 0.20 % of (a)				258.85
		Coal tar	Kg	40.00	35.00	1,400.00
		b) Labour				
		Carpenter 1st Class	Nos	1.20	440.00	528.00
		Mate	Nos	1.20	310.00	372.00
		Mazdoor (Unskilled)	Nos	30.00	310.00	9,300.00
		c) Sundries (LS) @ 0.40 % of (a)				499.69
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**19,054.75**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**23,201.36**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**1,778.77**
		Cost for 4 RM = (a+b+c+d+e+f)				179,655.87
		Rate per metre = (a+b+c+d+e+f)/4				**44,913.97**
					say	***44914.00***

Chapter 14
PROTECTION WORKS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
14.12	Suggestive	**Supplying and filling up hollows of the timber spur to an average height of 3600 mm above ground with jungle wood branches as per drawing and technical specifications as directed by the Engineer.**				
		Unit = RM				
		Taking output = 20.00 RM				
		a) Labour				
		Mate	day	0.20	310.00	62.00
		Mazdoor (Unskilled)	day	5.00	310.00	1,550.00
		b) Sundries (LS) @ 3.00 % of (a)				48.36
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**233.28**
		d) Contractor's profit @ 15 % on (a+b+c)				**284.05**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**21.78**
		Cost for 20 RM = (a+b+c+d+e)				2,199.46
		Rate per metre = (a+b+c+d+e)/20				**109.97**
					say	***110.00***

Chapter 14
PROTECTION WORKS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		ADDITIONAL ITEMS BY USING JHAMA BRICK AGGREGATE (i.e. LOCALLY AVAILABLE MATERIALS)				
14.13	**1300**	**Providing and laying of apron with cement concrete blocks of size as per Table 1300.1 cast-in-situ and made with nominal mix of M-15 grade cement concrete (using jhama brick aggregate)as per drawing and MoRD technical specification Clause 1301 (rate includes preparation of bed, nominal surface re-inforcement and filling of granular material in recesses between blocks).**				
		Unit = cum				
		a) Concrete grade M 15				
		Rate as per item No 11.9. II (i)	cum	1.00	8,098.70	8,098.70
		Add 2 per cent of cost to account for excavation for preparation of bed, nominal surface reinforcement and filling of granular material in recesses between blocks.				161.97
		Rate per cum = (a)				**8,260.67**
					say	***8260.70***
14.14	**1300**	**Providing and laying flooring laid over cement concrete bedding complete as per drawing and MoRD technical specification Clause 1303.**				
		I. Cement concrete blocks cast in situ grade M15 (size 400 mm x 400 mm x 150 mm) over cement concrete (with M10, using jhama brick aggregate) bedding of 150 mm thick				
		Unit = Sqm				
		Taking Output = 21.00 sqm				
		a) Cement concrete blocks grade M 15 Rate as per item 11.9 (II) (i) using 400 mm x 400 mm x 150 mm blocks	cum	3.12	8,098.70	25,267.94
		Add for cement concrete bedding M10 Rate as per item 11.9 (I) (i)	cum	3.15	7,897.90	24,878.39
		Add 1 per cent of cost to account for excavation for preparation of bed.				501.46
		Cost for 21 sqm =				**50,647.79**
		Rate per sqm = (a) / 21				**2,411.80**
					say	***2411.80***
14.15	**1300**	**Providing and laying curtain walls complete as per drawing and MoRD technical specification Clause 1304.**				
		Unit = cum				
		Taking Output = 1.00 m				
		I. Brick masonry in cement mortar (1:4)				
		a) Excavation in soil for foundtation				
		Rate as per item No.11.1.A.I(i) of Chapter 11	cum	2.34	341.70	799.58

Chapter 14
PROTECTION WORKS

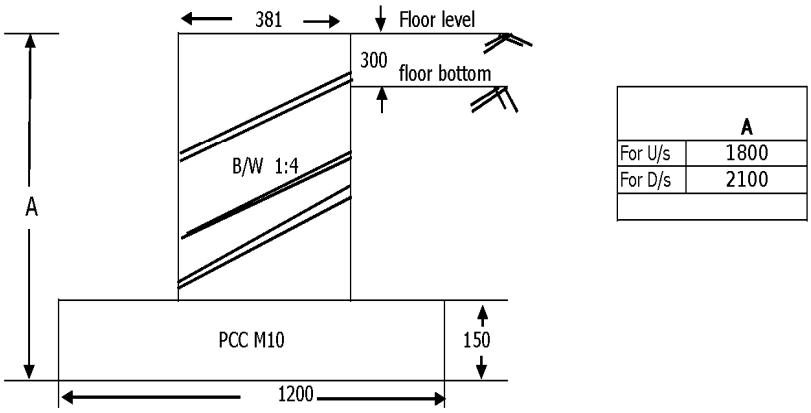
Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) PCC M10 grade (using jhama brick aggregate)				
		(Rate same per item No.11.9.I(ii) of Chapter 11)	cum	0.18	7,954.40	1,431.79
		c) Brick masonry in cement mortar (1:4)				
		(Rate same as per item 11.5 (II) of chapter 11)	cum	0.69	8,497.70	5,863.41
		Rate per m =				**8,094.78**
					say	***8094.80***
		II. PCC grade M10 with jhama brick aggregate (including centering, shuttering staging etc. and reinforcement)				
		a) Excavation in soil for foundtation				
		Rate as per item No.11.1.A.I(i) of Chapter 11	cum	4.68	341.70	1,599.16
		b) PCC M10 grade (using jhama brick aggregate)				
		(Rate same per item No.11.9.I(ii) of Chapter 11)	cum	0.72	7,954.40	5,727.17
		c) Twisted steel/ deformed bar				
		(Rate same as per item 11.6 of chapter 11)	t	0.054	68,131.50	3,679.10
		Rate per m =				**11,005.43**
					say	***11005.40***
14.16	**1300**	**Construction of toe walls for protection of slopes as per Drawing and MoRD technical specifications Clause 1302.5 (including centering, shuttering staging etc. but excluding reinforcement)**				
		I. Cement concrete grade M 10 (using jhama brick aggregate) in case of concrete block pitching				
		Unit = cum				
		I. P.C.C grade M 20				
		(i) Nominal mix 1:3:6				
		Unit = cum				
		a) Material				
		Cement	t	0.250	5,800.00	1,450.00
		Sand (Fine)	cum	0.48	560.00	268.80
		40 mm aggregate	cum	0.576	3,452.00	1,988.35
		20 mm aggregate	cum	0.288	3,957.00	1,139.62
		10 mm aggregate	cum	0.096	3,880.00	372.48
		b) Labour				
		Mate	day	0.08	310.00	24.80
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	1.63	310.00	505.30

Chapter 14
PROTECTION WORKS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Bhisti	day	0.27	310.00	83.70
		c) Machinery				
		Mechnical concrete mixer 0.4/0.28 cum capacity fitted with water measuring device and preferably also with load cell.	hour	0.40	192.00	76.80
		d) Formwork @ 4% on cost of material, labour and machinery (a+b+c)				**238.15**
		e) Add GST (multiplying factor) @ on (a+b+c+d)				**869.98**
		f) Contractor's profit @ on (a+b+c+d+e)				**1,059.30**
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				**81.21**
		Rate per cum = a+b+c+d+e+f+g				**8,202.49**
					say	***8202.50***
		(ii) Nominal mix 1:3:6 (Hand mixing)				
		Unit = cum				
		a) Material				
		Cement	t	0.250	5,800.00	1,450.00
		Sand (Fine)	cum	0.48	560.00	268.80
		40 mm aggregate	cum	0.576	3,452.00	1,988.35
		20 mm aggregate	cum	0.288	3,957.00	1,139.62
		10 mm aggregate	cum	0.096	3,880.00	372.48
		b) Labour				
		Mate	day	0.09	310.00	27.90
		Mason (1st Class)	day	0.10	440.00	44.00
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		Bhisti	day	0.27	310.00	83.70
		c) Formwork @ 4% on cost of material, labour and machinery (a+b)				**239.79**
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**875.97**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**1,066.59**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**81.77**
		Rate per cum = a+b+c+d+e+f				**8,258.97**
					say	***8259.00***

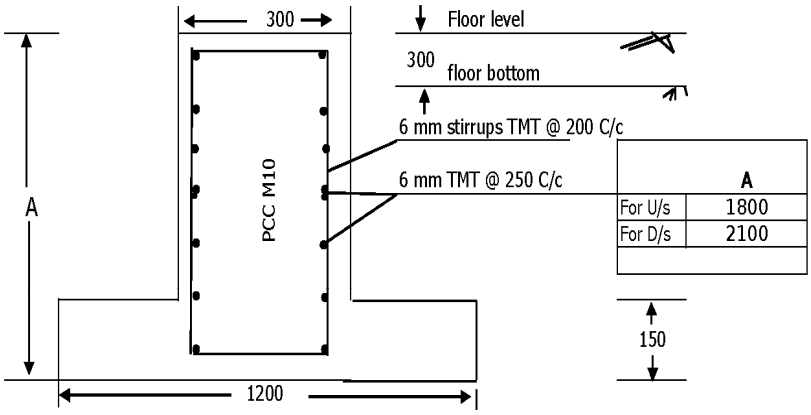
Chapter 14
PROTECTION WORKS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)



	A
For U/s	1800
For D/s	2100

Drawing of Curtain Wall for Item No. 14.15.I of Chapter - 14



	A
For U/s	1800
For D/s	2100

Drawing of Curtain Wall for Item No. 14.15.II of Chapter - 14

Note : 1 All Dimensions are in mm

2 Not to scale.

Chapter 15
MAINTENANCE OF ROADS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
15.1	**1900**	**Restoration of Rain Cuts**				
		i) Restoration of rain cuts with soil , moorum gravel or a mixture of these, clearing the loose soil, benching for 300 mm width laying fresh material in layers not exeeding 250 mm and compaction with plate compactor or power rammer to restore the original alignment, level and slopes as per drawings and MoRD technical specification Clause 1902.				
		A. Manual Means				
		Unit = cum				
		Taking output = 10 cum				
		a) Labour				
		Mate	day	0.24	310.00	74.40
		Mazdoor (Unskilled)	day	6.00	310.00	1,860.00
		b) Machinery				
		Plate compactor	hour	3.00	75.00	225.00
		c) Materials				
		Compensation for earth Taken from private l	cum	7.50	17.05	127.88
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**321.36**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**391.30**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**30.00**
		Cost for 10 cum = a+b+c+d+e+f				3,029.93
		Rate per cum = a+b+c+d+e+f/10				**302.99**
					say	***303.00***
		B. Mechanical Means				
		Unit = cum				
		Taking output = 50 cum				
		a) Labour				
		Mate	day	0.40	310.00	124.00
		Mazdoor (Unskilled)	day	10.00	310.00	3,100.00
		b. Machinery				
		Hydraulic Excavator 0.9 cum bucket capacty @ 60 cum/h	hour	0.83	1,200.00	996.00
		Tipper 5.5 cum, 10 t capacity	hour	2.27	334.00	758.18
		Add 10% cost of carriage towards loading and unloading charges				75.82
		Plate compactor	hour	15.00	75.00	1,125.00
		c. Materials				
		Compensation for earth taken from private la	cum	37.50	17.05	639.38
		d. Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**957.98**
		e. Contractor's profit @ 15 % on (a+b+c+d)				**1,166.45**
		f. Add Cess @ 1.00 % on (a+b+c+d+e)				**89.43**

Chapter 15
MAINTENANCE OF ROADS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Cost for 50 cum = a+b+c+d+e+f				9,032.24
		Rate per cum a+b+c+d+e+f/50				**180.64**
					say	***180.60***

Note: *Only 75% of fresh material has been provided as 25% can be retrieved from site from earth i.e. flown down the slop in the form of slurry and deposited at the foot of rain cuts.*

15.2	**1900**	**1.**	**Maintenance of Earthen shoulder (filling with fresh selected soil)**				
			Making up loss of material / irregularities on shoulders to the design level by adding fresh approved selected soil and compacting it with appropriate equipment at OMC upto a lead of 1000 m as per MoRD technical specification Clause 1903.				
			Unit = sqm				
			Taking output = 100 sqm				
			Assuming average thickness of filling to be 150 mm				
			Quality of fresh material = 15 cum				
			a. Labour				
			Mate	day	0.20	310.00	62.00
			Mazdoor (Unskilled)	day	5.00	310.00	1,550.00
			b. Machinery				
			Hydraulic Excavator 0.9 cum bucket capacity @ 60 cum per hour	hour	0.25	1,200.00	300.00
			Tipper 5.5 cum	hour	0.68	334.00	227.12
			Add 10% cost of transportation to cover cost of loading and unloading				52.71
			Plate compactor @ 25 sqm per hour	hour	4.00	75.00	300.00
			c. Material				
			Compensation of earth	cum	15.00	17.05	255.75
			d. Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**386.04**
			e. Contractor's profit @ 15 % on (a+b+c+d)				**470.04**
			f. Add Cess @ 1.00 % on (a+b+c+d+e)				**36.04**
			Cost for 100 sqm = a+b+c+d+e+f				3,639.70
			Rate per sqm = (a+b+c+d+e+f)/100				**36.40**
						say	***36.40***
		2.	**Maintenance of Earhen shoulder (stripping of excess soil)**				
			Stripping excess soil from the shoulder surface to achieve the approved level and compacting with plate compactor at OMC as per drawing and MoRD technical specification Clause 1903.				
			Unit = sqm				
			Taking output = 100 sqm				
			Assuming height of stripping as 75 mm				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Quantity of earth cutting involved = 7.5 cum				
		a. Labour				
		Mate	day	0.10	310.00	31.00
		Mazdoor (Unskilled)	day	2.50	310.00	775.00
		b. Machinery				
		Plate compactor	hour	4.00	75.00	300.00
		c. Add GST (multiplying factor) @ 0.1405 on (a+b)				**155.39**
		d. Contractor's profit @ 15 % on (a+b+c)				**189.21**
		e. Add Cess @ 1.00 % on (a+b+c+d)				**14.51**
		Cost for 100 sqm = a+b+c+d+e				1,465.11
		Rate per sqm = a+b+c+d+e/100				**14.65**
					say	***14.70***
15.3	**500, 1900**	**Maintenace of bituminous surface road**				
		I Repair to pot holes by removal of failed material, trimming the sides to vertical and levelling the bottom, cleaning the same with compressed air or any appropriate method, filled with 75 mm B.M, after applying bitumen emulsion prime coat at the bottom and bitumen emulsion tack coat on sides and on bottom as per MoRD technical specification Clauses 1900, 502, 503 and 504.				
		Unit = cum				
		Taking output = 187.5x0.075 = 14.06 cum = (30.94 Tonne)				
		(5% area of one km)				
		a) Labour				
		Mate	day	0.80	310.00	248.00
		Mazdoor (Unskilled)	day	20.00	310.00	6,200.00
		b) Machinery				
		Jack hammer 25 kg with tractor	hour	4.00	374.00	1,496.00
		Compressor 210 cfm with tractor	hour	2.00	210.00	420.00
		Emulsion pressure distributor	hour	4.00	202.00	808.00
		Mixall 6/10 t capacity	hour	4.00	765.00	3,060.00
		Three wheeled 80-100 kN Static Roller	hour	4.00	392.00	1,568.00
		c) Material				
		Primer with bitumen emulsion (SS-1) @ 9 kg/10 sqm 187.5x9 = 168.75 kg.	Tonne	0.1688	38,830.00	6,554.50
		Tack coat with bitumen emulsion (RS-1) @ 3.0 kg/ 10 sqm)				
		Bottom = 187.5				
		Sides = 28.27	Tonne	0.0647	37,082.00	2,399.21
		Total = 215.77				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Bitumen (VG-30) for BM @ 3.5% by weight of mix = 30.94 x 3.5 / 100 = 1.082	Tonne	1.082	40,138.00	43,429.32
		Weight of mix (BM) 14.06 cum = (30.94 tonne)				
		Weight of Bitumen = 1.082				
		Weight of aggregate 30.94 -1.082 = 29.86				
		Taking density of aggregate 1.5 t per cum				
		Volume of aggregate 29.86 / 1.5 = 19.90 cum				
		Grading (1) (40 mm nominal size)				
		37.5 - 25 mm 15%	cum	2.985	4,090.00	12,208.65
		25 - 10 mm 45%	cum	8.96	4,485.00	40,163.18
		10 - 5 mm 25%	cum	4.975	4,852.00	24,138.70
		5 mm and below 15%	cum	2.99	4,965.00	14,820.53
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**22,130.73**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**26,946.72**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**2,065.92**
		Cost of 14.06 cum = a+b+c+d+e+f				208,657.44
		Rate per cum = a+b+c+d+e+f/14.06				**14,840.50**
					say	***14840.50***
II.		Patch repair on already filled pot holes with 75 mm BM with 20 mm premix carpet and seal coat type A as per drawing and MoRD technical specification Clauses 1904.2, 508 and 510.				
		Unit = sqm				
		Takign output = 200 sqm				
		a) Labour				
		Mate	day	0.64	310.00	489.60
		Mazdoor (Unskilled)	day	16.00	310.00	4,960.00
		b) Machinery				
		Mixall 6/10 tonne	hour	2.00	765.00	1,530.00
		Bitumen pressure distributior	hour	2.00	202.00	404.00
		Three wheeled 80-100 kN Static Roller	hour	4.00	392.00	1,568.00
		c) Material				
		Bitumen (VG-30) for pre-mix carpet @ 14.60 kg/10 sqm 200x14.60/10 =292 kg	tonne	0.292	40,138.00	11,720.30
		Bitumen (RS-1) for tack coat @ 2 kg per 10 sqm 200 x 2 / 10 = 40 kg	tonne	0.04	37,082.00	1,483.28
		Bitumen (VG-30) for seal coat @ 6.8 kg per 10 sqm	tonne	0.136	40,138.00	5,458.77
		Crushed stone aggregate 13.2 mm to 0.09 mm @ 0.27 cum per 10 sqm = 200 x 0.27 / 10 = 5.4 cum	cum	5.40	4,890.00	26,406.00
		Crushed stone passing 2.36 mm sieve and retained on 180 mircon sieve @ 0.06 cum per 10 sqm	cum	1.20	2,510.00	3,012.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		200 x 0.06 / 10 = 1.20 cum				
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**8,012.99**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**9,756.74**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**748.02**
		Cost of 200 sqm = a+b+c+d+e+f				75,549.69
		Rate/sqm = a+b+c+d+e+f/200				**377.75**
					say	***377.70***
		III. Repair to pot holes and removal of loose material, trimming of sides, cleaning of surface, providing tack coat, 20 mm thick premix carpet and seal coat type B as per drawing and MoRD technical specification clauses 1904.2, 503 and 508.1.				
		Unit = sqm				
		Taking output = 200 sqm				
		a) Labour				
		Mate	day	0.80	310.00	248.00
		Mazdoor (Unskilled)	day	20.00	310.00	6,200.00
		b) Machinery				
		Air compressor 210 cfm with tractor	hour	2.00	210.00	420.00
		Bitumen pressure distributor	hour	2.00	202.00	404.00
		Mixall 6/10t capacity	hour	2.00	765.00	1,530.00
		Three wheeled 80-100 kN Static Roller	hour	4.00	392.00	1,568.00
		c) Material				
		Bitumen (RS-1) for tack coat @ 3kg per 10 sqm 200 x 3 / 10 = 60 kg	tonne	0.064	37,082.00	2,373.25
		Bitumen (VG-30) for pre-mix carpet @ 14.60 kg per 10 sqm = 200 x 14.6 / 10 = 292 kg	tonne	0.292	40,138.00	11,720.30
		Bitumen (VG-30) for seal coat @ 6.8 kg per 10 sqm = 200 x 6.8 / 10 = 136 kg	tonne	0.136	40,138.00	5,458.77
		Crushed stone aggregate 13.2 mm to 0.09 mm @ 0.27 cum per 10 sqm = 200 x 0.27 / 10 = 5.4 cum	cum	5.40	4,890.00	26,406.00
		Sand @ 0.06 cum per 10 sqm 200 x 0.06 / 10 = 1.20 cum	cum	1.20	560.00	672.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				8,008.54
		e) Contractor's profit @ 15 % on (a+b+c+d)				9,751.33
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				747.60
		Cost for 200 sqm = a+b+c+d+e+f				75,507.79
		Rate per sqm = a+b+c+d+e+f/200				377.54
					say	***377.50***

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		IV. Repair to pot holes and removal of loose material, trimming of sides, cleaning of surface, providing tack coat with bitumen emulsion, 20 mm thick premix carpet using cationic bitumen emulsion and seal coat type B with bitumen emulsion as per MoRD technical specification clauses 1904.2, 503 and 508.2. Unit = sqm Taking output = 200 sqm				
		a) Labour				
		Mate	day	0.64	310.00	198.40
		Mazdoor (Unskilled)	day	16.00	310.00	4,960.00
		b) Machinery				
		Concrete mixer 0.4 / 0.28 cum capacity	hour	2.50	192.00	480.00
		Air compressor 210 CFM with tractor	hour	2.00	210.00	420.00
		Emulsion pressur distributor	hour	2.00	202.00	404.00
		Three wheeled 80-100 kN Static Roller	hour	4.00	392.00	1,568.00
		c) Materials				
		Bitumen Emulsion (RS-1) for tack coat @ 3 kg per 10 sqm 200 x 3 / 10 = 60 kg	tonne	0.06	37,082.00	2,224.92
		Bitumen Emulsion (SS-1) for premix carpet @ 21.50 kg per 10 sqm 200 x 21.50 / 10 = 430 kg	tonn	0.43	38,830.00	16,696.90
		Bitumen Emulsion (SS-1) for seal coat @ 10 kg per 10 sqm = 200 x 10 / 10 = 200 kg	tonn	0.20	38,830.00	7,766.00
		Crushed stone aggregate 13.2 mm to 0.09 mm @ 0.27 cum per 10 sqm = 200 x 0.27 / 10 = 5.4 cum	cum	5.40	4,890.00	26,406.00
		Sand @ 0.06 cum per 10 sqm 200 x 0.06 / 10 = 1.20 cum	cum	1.20	560.00	672.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**8,682.37**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**10,571.79**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**810.50**
		Cost for 200 sqm = a+b+c+d+e+f				81,860.88
		Rate per sqm = a+b+c+d+e+f/200				**409.30**
					say	***409.30***
15.4	**1900**	**Maintenance of Drains**				
		The maintenance of drains include erosion, repair, clearing, cleaning, reshaping, regrading, deepening of side drains as well as catch water drains as per MoRD technical specification Clause 1907. Unit - Per Metre Taking output one km = 1000 metre				
		a) Labour				
		Mate	day	0.32	310.00	99.20

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Sr. No.	Ref. to MORD Spec.		Description	Unit	Quantity	Rate (₹)	Amount (₹)
			Mazdoor (Unskilled)	day	8.00	310.00	2,480.00
		b)	**Add GST (multiplying factor) @ 0.1405 on (a)**				**362.38**
		c)	**Contractor's profit @ 15 % on (a+b)**				**441.24**
		d)	**Add Cess @ 1.00 % on (a+b+c)**				**33.83**
			Cost for 1000 metre = a+b+c+d				3,416.64
			Rate per Metre = a+b+c+d/1000				**3.42**
						say	***3.40***
15.5	**1900**	**(I)**	**Maintenance of Culverts Hume Pipe type**				
			Maintenance of Hume pipe Culvert by way of clearing, cleaning, erosion repair, repairs to cracks, parapet wall and protection work as per drawing and MoRD technical specification Clause 1908.				
			Unit = One No. Hume pipe (1000 mm dia)				
			Taking output = One No.H.P. Culvert				
		a)	**Labour**				
			Mate	day	0.10	310.00	31.00
			Mazdoor (Unskilled)	day	1.00	310.00	310.00
			Mason 2nd Class	day	1.40	395.00	553.00
		b)	**Material**				
			Cement, Sand, Brick, Boulder etc. @ 100.00 %	L.S			894.00
		c)	**Add GST (multiplying factor) @ 0.1405 on (a+b)**				**251.21**
		d)	**Contractor's profit @ 15 % on (a+b+c)**				**305.88**
		e)	**Add Cess @ 1.00 % on (a+b+c+d)**				**23.45**
			Cost for one No. Hume pipe culvert = a+b+c+d+e				2,368.55
			Rate per hume pipe Culvert = a+b+c+d+e				**2,368.55**
						say	***2368.50***
		(II)	**Maintenance of Culverts Slab type**				
			Maintenance of Slab Type Culverts by way of clearing, cleaning, erosion repair, repairs to cracks, parapet wall and protection work as per drawing and MoRD technical specification 1908.				
			Unit = One No. Culvert (2 m span)				
			Taking output = one No. Slab Culvert				
		a)	**Labour**				
			Mate	day	0.20	310.00	62.00
			Mazdoor (Unskilled)	day	4.00	310.00	1,240.00
			Mason 2nd Class	day	1.00	395.00	395.00
		b)	**Material**				
			Cement, Sand, Brick, Boulder etc. @ 80.00 % of	L.S			1,357.60
		c)	**Add GST (multiplying factor) @ 0.1405 on (a+b)**				**429.17**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		d) Contractor's profit @ 15 % on (a+b+c)				**522.57**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**40.06**
		Cost for One Slab Culverts =a+b+c+d+e				4,046.40
		Rate per Culvert = a+b+c+d+e				**4,046.40**
					say	***4046.40***
15.6	**1900**	**Maintenance of Road Signs**				
		Maintenance of road signs by way of cleaning and repainting of mandatory/ regulatory / cautionary / informatory and place identification sign board as per drawings and MoRD technical specification Clause 1910.				
		Unit = 1 km				
		Taking output = one km				
		All types of signs in one Km				
		a) Labour				
		Mate	day	0.09	310.00	27.90
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		Painter 1st Class	day	0.125	395.00	49.38
		b) Material				
		Synthetic Enamel Paint, Engineering grade tape, welding machine etc. @ 150.00 % on (a)	LS			1,045.91
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**244.92**
		d) Contractor's profit @ 15 % on (a+b+c)				**298.22**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**22.86**
		Cost for one Km = a+b+c+d+e				2,309.18
		Rate per km = a+b+c+d+e				**2,309.18**
					say	***2309.20***
15.7	**1900**	**Maintenance of steel and RCC Railing**				
		(i) Repair of steel railing to bring it to original shape, cleaning and repainting as per drawing and MoRD technical specification Clause 1911.				
		Steel Railing				
		Unit = Running metre				
		Taking output = 10 metre				
		It is assumed that damage is to the extent of 10%				
		a) Labour				
		Mate	day	0.024	310.00	7.44
		Mazdoor (Unskilled)	day	0.30	310.00	93.00
		Painter 1st Class	day	0.10	395.00	39.50
		Blacksmith	day	0.20	418.00	83.60
		b) Materials				
		Mild steel (structural steel)				
		ISMC = 0.039T	t	0.039	47,000.00	1,833.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		MS Flat = 0.01	t	0.010	47,000.00	470.00
		Nuts and bolts	t	0.001	82,300.00	82.30
		c) Machinery				
		Welding set @ 10.00 % on (a+b)	LS			260.88
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**403.20**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**490.94**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				**37.64**
		Cost for 10 metre = a+b+c+d+e+f				3,801.50
		Rate per metre = a+b+c+d+e+f/10				**380.15**
					say	***380.10***
		(ii) Repair of RCC railing to bring it to the original shape, cleaning and repainting as per drawings and MoRD technical Specification Clause 1911.				
		RCC Railing				
		Unit = running metre				
		Taking output = 1 metre				
		It is assumed that damage is to the extent of 10%				
		a) Labour				
		Mate	day	0.012	310.00	3.72
		Mazdoor (Unskilled)	day	0.20	310.00	62.00
		Mason 1st Class	day	0.10	440.00	44.00
		b) Materials				
		M 30 grade cement concrete				
		Rate as per item no. 13.1 (III) of Chapter 13	cum	0.10	12,487.60	1,248.76
		Steel bars reinforcement				
		Rate as per item no.13.2 of Chapter 13	t	0.013	69,660.70	905.59
		c) Add GST (multiplying factor) @ 0.1405 on (a)				**15.42**
		d) Contractor's profit @ 15 % on (a+c)				**18.77**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**1.44**
		Rate per metre = a+b+c+d+e				**2,299.69**
					say	***2299.70***
15.8	**1900**	**Maintenance of 200 metre and km stones**				
		Maintenance of 200 metre and Km stone by way of refixing of tilted stones repairing with cement mortar, cleaning, repairing and lettering on 200 metre, km stone and 5th km stone as per drawing and MoRD technical specification Clause 1912.				
		Unit = 1 km				
		Assuming 1 km stone, 4 nos 200 metre stone and 1/5th 5km stone				
		(i) Painting two coats with synthetic enamel paint				
		200 m stone 4 nos = 0.760 sqm.				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		One km stone = 0.815 sqm.				
		5th km stone 1x1/5 = 0.320 sqm.				
		Total = 1.895 sqm.				
		As per item No. 10.5 of chapter 10	sqm	1.895	104.70	198.41
		(ii) Printing letters and figures of any shade with synthtic enamel paint of any approved colour to give an even shade				
		200 m stone 4 Nos. = 40 per cm height per letter				
		One no km stone = 120 per cm height per letter				
		5th km stones 1/5th = 60 per cm height per letter				
		Total = 220 per cm height per letter				
		Rate as per item no 10.1 of chapter 10	per cm height per	220.00	0.60	132.00
		a) Labour				
		Mate	day	0.024	310.00	7.44
		Mazdoor	day	0.50	310.00	155.00
		Mason 1st Class	day	0.10	440.00	44.00
		b) Materials				
		Cement, sand, aggregates etc. @ 200.00 % of (	LS			412.88
		(LS = Rs.100.00)				
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**87.01**
		d) Contractor's profit @ 15 % on (a+b+c)				**105.95**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**8.12**
		Cost for one km = (i+ii+a+b+c+d+e)				1,150.81
		Rate per/km = (i+ii+a+b+c+d+e)				**1,150.81**
					say	***1150.80***
15.9	**1900**	**Cutting of branches of trees shrubs and trimming of grass and weeds**				
		(i) Cutting of branches of trees and shrubs from the roadway or within R.O.W including disposal of wood and leaves to suitable location as per MoRD technical specification Clause 1914.				
		Unit = one tree				
		Taking output = 10 trees of 900 mm average girth				
		a) Labour				
		Mate	day	0.12	310.00	37.20
		Mazdoor (Skilled)	day	1.00	395.00	395.00
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**147.83**
		c) Contractor's profit @ 15 % on (a+b)				**180.01**
		d) Add Cess @ 1.00 % on (a+b+c)				**13.80**
		Cost for 10 trees = (a+b+c+d)				1,393.84
		Rate per tree = (a+b+c+d)/10				**139.38**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	***139.40***
		(ii) Cutting of shrubs from the roadway or within R.O.W and disposal of shrubs to suitable locations as per MoRD technical specification Clause 1914.				
		Unit=Each				
		Taking output = 100 nos shrubs				
		a) Labour				
		Mate	day	0.08	310.00	24.80
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**90.59**
		c) Contractor's profit @ 15 % on (a+b)				**110.31**
		d) Add Cess @ 1.00 % on (a+b+c)				**8.46**
		Cost for 100 shurbs = a+b+c+d				**854.16**
		Rate per shurb = a+b+c+d/100				**8.54**
					say	***8.50***
		(iii) Trimming of grass and weeds from the shoulders/berms and disposing off the same to suitable location as per MoRD technical specification Clause 1914.				
		Unit = sqm				
		Taking output = 1500 sqm				
		a) Labour				
		Mate	day	0.40	310.00	124.00
		Mazdoor (Unskilled)	day	10.00	310.00	3,100.00
		b) Add GST (multiplying factor) @ 0.1405 on (a)				**452.97**
		c) Contractor's profit @ 15 % on (a+b)				**551.55**
		d) Add Cess @ 1.00 % on (a+b+c)				**42.29**
		Cost for 1500 sqm = a+b+c+d				4,270.80
		Rate per sqm = a+b+c+d/1500				**2.85**
					say	***2.80***
15.10	**1900**	**White washing of parapet walls of CD work and tree truncks**				
		White washing two coats on parapet walls and tree trunks including preparation of surface by cleaning scraping etc. as per MoRD technical specification Clause 1915.				
		Unit = sqm				
		Taking output = 9 sqm				
		a) Labour				
		Mate	day	0.01	310.00	3.10
		Mazdoor (Unskilled)	day	0.143	310.00	44.29
		White washer	day	0.143	355.00	50.71
		b) Materials				

Chapter 15
MAINTENANCE OF ROADS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Lime	kg	0.450	3.90	1.76
		Fevicol adhesive	kg	0.10	160.00	16.00
		Indigo	kg	0.013	60.00	0.78
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				**16.39**
		d) Contractor's profit @ 15 % on (a+b+c)				**19.95**
		e) Add Cess @ 1.00 % on (a+b+c+d)				**1.53**
		Cost for 9 sqm = a+b+c+d+e				154.51
		Rate per sqm = a+b+c+d+e/9				**17.17**
					say	***17.20***
15.11	**1900, 500**	**Periodical Renewal to existing bituminous surface**				
		1 Open graded Premix carpet 20 mm thick				
		Unit = sqm				
		(i) Tack coat				
		With bituminous Emulsion (RS-1)				
		Rates as per item 5.2 (ii)	sqm	**14.50**		
		(ii) Pre-mix carpet using bituminous (viscocity grade/ modified bitumen) binder				
		Rates as per item No. 5.8	sqm	**286.30**		
		as relevant				
		Or				
		(iii) Premix carpet using bitumen Emulsion				
		Rates as per item No. 5.9	sqm	**292.00**		
		(iv) Seal coat Type A, B or C				
		Rates as per item No. 5.11	sqm	**As applicable**		
		2 Surface dressing single coat/first coat or 2nd coat				
		Rates as per item No. 5.5	sqm	**125.00**		

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
M1.1		**Dismantling of Brick soling** Dismantling of brick soling, stacking serviceable materials and unserviceable materials separately with all lifts and upto a lead of 1000 m as per MoRD Technical Specification Clause 202.					
	I	**(I) By Manual Means** ***Unit = cum*** ***Taking output = 1 cum*** **a) Labour**					
		Mate	day	0.06	310.00	18.60	
		Mazdoor(unskilled)	day	1.50	310.00	465.00	
		b) Machinery					
		Tractor with trolley	hour	0.38	237.00	90.06	
		c) Add GST (multiplying factor) = 0.1405 on (a+b)				80.60	
		d) Contractor's profit = 15 % on (a+b+c)				98.14	
		e) Add Cess @ 1.00 % on (a+b+c+d)				7.52	
		Rate per cum = (a+b+c+d+e)/1.00				759.92	
					say	***759.90***	
	II	**(II) By Mechanical Means** ***Unit = cum*** ***Taking output = 60 cum*** **a) Labour**					
		Mate	day	0.80	310.00	248.00	
		Mazdoor(unskilled)	day	20.00	310.00	6200.00	
		b) Machinery					
		Front end loader 1 cum bucket capacity	hour	6.00	920.00	5520.00	
		Tractor with trolley	hour	18.00	237.00	4266.00	
		c) Add GST (multiplying factor) = 0.1405 on (a+b)				2280.88	
		d) Contractor's profit = 15 % on (a+b+c)				2777.23	
		e) Add Cess @ 1.00 % on (a+b+c+d)				212.92	
		Cost for 60 cum = a+b+c+d+e				21505.03	
		Rate per cum = (a+b+c+d+e)/60				358.42	
					say	***358.40***	
M1.2		**Dismantling of Brick soling** Dismantling of brick soling, stacking serviceable materials and unserviceable materials separately with all lifts and upto a lead of 500 m by manual means as per MoRD Technical Specification Clause 202.					
	I	**(I) By Manual Means** ***Unit = cum*** ***Taking output = 1 cum*** **a) Labour**					
		Mate	day	0.06	310.00	18.60	
		Mazdoor(unskilled)	day	1.50	310.00	465.00	
		b) Add GST (multiplying factor) = 0.1405 on (a)				67.95	
		c) Contractor's profit = 15 % on (a+b)				82.73	
		d) Add Cess @ 1.00 % on (a+b+c)				6.34	
		Rate per cum = (a+b+c+d)/1.00				640.62	
					say	***640.60***	
M1.3		**Charges for Brick soling**					

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
	i.	i. Laying brick soling on prepared subgrade with brick on edge (excluding the cost of bricks but including the cost of binding materials) according to lines, grades and cross-section shown on the drawing, filling joints with sand , watering and rolling the same with three wheeled road roller 80-100 kN as per MoRD Technical Specification Clause 412.					
		Unit = sqm					
		Taking output = 150 sqm					
		a) Labour					
		Mate	day	0.52	310.00	161.20	
		Mazdoor (unskilled)	day	10.00	310.00	3100.00	
		Mason(1st class)	day	3.00	440.00	1320.00	
		b) Machinery					
		Three wheel 80-100 KN static roller @ 150 sqm per hour	hour	1.00	392.00	392.00	
		Water tanker 6 KL capacity	hour	1.00	200.00	200.00	
		c) Material					
		Fine sand	cum	5.66	460.00	2603.60	
		Water	KL	6.00	133.00	798.00	
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				1204.76	
		e) Contractor's profit = 15 % on (a+b+c+d)				1466.93	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				112.46	
		Cost for 150 sqm = a+b+c+d+e+f				11358.96	
		Rate per sqm = (a+b+c+d+e+f)/150				75.73	
					say	***75.70***	
	ii.	ii. Laying flat brick soling on prepared subgrade (excluding the cost of bricks but including the cost of binding materials) according to lines, grades and cross-section shown on the drawing, filling joints with Earth, free from clay with a Plasticity Index not exceeding 6, watering and rolling the same with three wheeled road roller 80-100 kN as per MoRD Technical Specification Clause 412.					
		Unit = sqm					
		Taking output = 150 sqm					
		a) Labour					
		Mate	day	0.44	310.00	136.40	
		Mazdoor (unskilled)	day	8.00	310.00	2480.00	
		Mason(1st class)	day	3.00	440.00	1320.00	
		b) Machinery					
		Three wheel 80-100 KN static roller = 150 sqm per hour	hour	1.00	392.00	392.00	
		Water tanker 6 KL capacity	hour	1.00	200.00	200.00	
		c) Material					
		Earth, free from clay with a Plasticity Index not exceeding 6.	cum	3.396	166.50	565.43	
		Water	KL	3.60	133.00	478.80	
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				782.96	
		e) Contractor's profit = 15 % on (a+b+c+d)				953.34	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				73.09	
		Cost for 150 sqm = a+b+c+d+e+f				7382.02	
		Rate per sqm = (a+b+c+d+e+f)/150				49.21	
					say	***49.20***	

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
	iii.	iii. Laying brick edging on prepared subgrade (excluding the cost of bricks but including the cost of binding materials) according to lines, grades and cross-section shown on the drawing, filling joints with Earth, free from clay with a Plasticity Index not exceeding 6, watering and rolling the same with three wheeled road roller 80-100 kN as per MoRD Technical Specification Clause 412.					
		Unit = m					
		Taking output = 10 m					
		a) Labour					
		Mate	day	0.02	310.00	6.20	
		Mazdoor (unskilled)	day	0.30	310.00	93.00	
		Mason(1st class)	day	0.24	440.00	105.60	
		b) Machinery					
		Three wheel 80-100 KN static roller @ 150 sqm per hour	hour	0.01	392.00	3.92	
		Water tanker 6 KL capacity	hour	0.01	200.00	2.00	
		c) Material					
		Earth, free from clay with a Plasticity Index not exceeding 6.	cum	0.04	166.50	6.66	
		Water	KL	0.04	133.00	5.32	
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				31.29	
		e) Contractor's profit = 15 % on (a+b+c+d)				38.10	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				2.92	
		Cost for 10 m = a+b+c+d+e+f				295.01	
		Rate per m = (a+b+c+d+e+f)/10				29.50	
					say	***29.50***	
	iv.	iv. Laying brick edging laid lengthwise on prepared subgrade (excluding the cost of bricks but including the cost of binding materials) according to lines, grades and cross-section shown on the drawing, filling joints with Earth, free from clay with a Plasticity Index not exceeding 6, watering and rolling the same with three wheeled road roller 80-100 kN as per MoRD Technical Specification Clause 412.					
		Unit = m					
		Taking output = 10 m					
		a) Labour					
		Mate	day	0.01	310.00	3.10	
		Mazdoor (unskilled)	day	0.15	310.00	46.50	
		Mason(1st class)	day	0.10	440.00	44.00	
		b) Machinery					
		Three wheel 80-100 KN static roller @ 150 sqm per hour	hour	0.005	392.00	1.96	
		Water tanker 6 KL capacity	hour	0.005	200.00	1.00	
		c) Material					
		Earth, free from clay with a Plasticity Index not exceeding 6.	cum	0.02	166.50	3.33	
		Water	KL	0.02	133.00	2.66	
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				14.41	
		e) Contractor's profit = 15 % on (a+b+c+d)				17.54	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				1.35	
		Cost for 10 m = a+b+c+d+e+f				135.85	
		Rate per m = (a+b+c+d+e+f)/10				13.58	

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
					say	***13.60***	
M1.4		**Labour charge for Breaking of jhama bats / jhama bricks / 1st class bricks.**					
		Breaking of jhama bats/ jhama bricks/ 1st class bricks (including bigger lumps) into metal/ chips /aggregates and stacking serviceable materials and unserviceable materials separately as per direction of the Engineer-in-charge with all lifts and upto a lead of 100 m.					
		Unit = cum					
		Taking output = 1 cum.					
	i.	**Required sizes for filter media as per MoRD Technical Specification Clause 1204.3.8.**					
		a) Labour					
		Mate	day	0.10	310.00	31.00	
		Mazdoor(unskilled)	day	2.45	310.00	759.50	
		b) Add GST (multiplying factor) = 0.1405 on (a)				111.07	
		c) Contractor's profit = 15 % on (a+b)				135.23	
		d) Add Cess @ 1.00 % on (a+b+c)				10.37	
		Rate per cum = (a+b+c+d)/1.00				1047.17	
					say	***1047.20***	
	ii.	**ii. Required sizes for GSB (53 mm to 0.075 mm) as per MoRD Technical Specification Clause 401.**					
		a) Labour					
		Mate	day	0.11	310.00	34.10	
		Mazdoor(unskilled)	day	2.65	310.00	821.50	
		b) Add GST (multiplying factor) = 0.1405 on (a)				120.21	
		c) Contractor's profit = 15 % on (a+b)				146.37	
		d) Add Cess @ 1.00 % on (a+b+c)				11.22	
		Rate per cum = (a+b+c+d)/1.00				1133.41	
					say	***1133.40***	
	iii.	**iii. Required sizes for WBM Grading 2 (63 mm to 0.075 mm) as per MoRD Technical Specification Clause 405.**					
		a) Labour					
		Mate	day	0.10	310.00	31.00	
		Mazdoor(unskilled)	day	2.50	310.00	775.00	
		b) Add GST (multiplying factor) = 0.1405 on (a)				113.24	
		c) Contractor's profit = 15 % on (a+b)				137.89	
		d) Add Cess @ 1.00 % on (a+b+c)				10.57	
		Rate per cum = (a+b+c+d)/1.00				1067.70	
					say	***1067.70***	
	iv.	**iv. Required sizes for WBM Grading 3 (53 mm to 0.075 mm) as per MoRD Technical Specification Clause 405.**					
		a) Labour					
		Mate	day	0.11	310.00	34.10	
		Mazdoor(unskilled)	day	2.65	310.00	821.50	
		b) Add GST (multiplying factor) = 0.1405 on (a)				120.21	
		c) Contractor's profit = 15 % on (a+b)				146.37	
		d) Add Cess @ 1.00 % on (a+b+c)				11.22	
		Rate per cum = (a+b+c+d)/1.00				1133.41	

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
					say	***1133.40***	
M1.5		**Charge for construction of Granular Sub-base** Charge for Construction of granular sub-base by providing well graded material (53 mm to 0.075 mm Jhama Brick Aggregate , Grading-I), spreading in uniform layers with tractor with attachments on prepared surface, mixing by mix in place method at OMC, applying and brooming sand to fill up the interstices of coarse aggregate, watering and compacting with smooth wheel roller to achieve the desired density, complete as per MoRD Technical Specification Clause 401.(excluding the cost of jhama aggregate which are available at site only).					
	i.	**(i) For Grading-I Material**					
	A	**(A) By Mix in Place Method**					
		Unit = cum					
		Taking output = 300 cum					
		a) Labour					
		Mate	day	0.48	310.00	148.80	
		Mazdoor(skilled)	day	2.00	395.00	790.00	
		Mazdoor(unskilled)	day	10.00	310.00	3100.00	
		b) Machinery					
		Three wheel 80-100 Kn static roller @ 10 cum per hour	hour	30.00	392.00	11760.00	
		Tractor with Rotavator 25 cum	hour	12.00	320.00	3840.00	
		Water tanker 6 KL capacity	hour	5.00	200.00	1000.00	
		c) Material					
		Well graded Granular sub-base Material as per table 400.1					
		53 mm to 9.5 mm = 85 % (free of cost available at site)	cum	326.24		0.00	
		Fine Sand = 15 %	cum	57.56	460.00	26477.60	
		Water	KL	30.00	133.00	3990.00	
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				7180.45	
		e) Contractor's profit = 15 % on (a+b+c+d)				8743.03	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				670.30	
		Cost for 300 cum = a+b+c+d+e+f				67700.18	
		Rate per cum = (a+b+c+d+e+f)/300				225.67	
					say	***225.70***	
M1.6		**Charge for construction of Water Bound Macadam Sub-Base / Base**					
	1	**(1) WBM Grading-2** Charge for laying, spreading and compacting 63 mm to 0.075 mm jhama brick aggregates to water bound macadam specification including spreading in uniform thickness, hand packing rolling with three wheel roller 80-100 kN in stages to proper grade and camber, applying and brooming binding materials to fill up the interstices of coarse aggregate, watering and compacting to the required density Grading 2 as per MoRD Technical Specification Clause 405.(excluding the cost of jhama aggregate which are available at site only).					
	1.A	**(A) By Manual Means**					
		Unit = cum					

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Taking output = 360 cum					
		a) Labour					
		Mate	day	10.08	310.00	3124.80	
		Mazdoor(skilled)	day	2.00	395.00	790.00	
		Mazdoor(unskilled)	day	250.00	310.00	77500.00	
		b) Machinery					
		Three wheel 80-100 Kn static roller @ 8 cum per hour	hour	45.00	392.00	17640.00	
		Water tanker 6 KL capacity	hour	24.00	200.00	4800.00	
		c) Material					
		Refer Tables 400.7,8,9 and 10)					
		Agggregate well graded granular sub-base					
		Grading-II, 63 mm to 0.075 mm @ 1.11 cum per 10 sqm for compacted thickness of 75 mm (free of cost available at site)	cum	532.80		0.00	
		Binding material					
		Binding Material (earth) @ 0.06 cum per 10 sqm for Grading-II material	cum	28.80	17.05	491.04	
		Water	KL	144.00	133.00	19152.00	
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				17351.45	
		e) Contractor's profit = 15 % on (a+b+c+d)				21127.39	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				1619.77	
		Cost for 360 cum = a+b+c+d+e+f				163596.45	
		Rate per cum = (a+b+c+d+e+f)/360				454.43	
					say	***454.40***	
1.B		**(B) By Mechanical Means**					
		Unit = cum					
		Taking output = 360 cum					
		a) Labour					
		Mate	day	0.68	310.00	210.80	
		Mazdoor(skilled)	day	2.00	395.00	790.00	
		Mazdoor(unskilled)	day	15.00	310.00	4650.00	
		b) Machinery					
		Tractor with rotavator	hour	14.40	320.00	4608.00	
		Three wheel 80-100 KN static roller @ 8 cum per hour	hour	45.00	392.00	17640.00	
		Water tanker 6 KL capacity	hour	24.00	200.00	4800.00	
		c) Material					
		Refer Tables 400.7,8,9 and 10)					
		Agggregate well graded granular sub-base					
		Grading-II, 63 mm to 0.075 mm @ 1.11 cum per 10 sqm for compacted thickness of 75 mm (free of cost available at site)	cum	532.80		0.00	
		Binding material					
		Binding Material @ 0.06cum per 10 sqm for Grading-II material	cum	28.80	17.05	491.04	
		Water	KL	144.00	133.00	19152.00	
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				7354.03	
		e) Contractor's profit = 15 % on (a+b+c+d)				8954.38	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				686.50	
		Cost for 360 cum = a+b+c+d+e+f				69336.75	
		Rate per cum = (a+b+c+d+e+f)/360				192.60	
					say	***192.60***	
2		**(2) WBM Grading-III**					

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Providing, laying, spreading and compacting 53 mm to 0.075 mm jhama brick aggregates to water bound macadam specification including spreading in uniform thickness, hand packing, rolling with three wheel 80-100 kN static roller / vibratory roller in stages to proper grade and camber, applying and brooming and binding materials to fill up the interstices of coarse aggregate, watering and compacting to the required density as per MoRT&H Technical Specification Clause 404.					
2.A		**(A) By Manual Means**					
		Unit = cum					
		Taking output = 360 cum					
		a) Labour					
		Mate	day	10.08	310.00	3124.80	
		Mazdoor(skilled)	day	2.00	395.00	790.00	
		Mazdoor(unskilled)	day	250.00	310.00	77500.00	
		b) Machinery					
		Three wheel 80-100 Kn static roller = 8 cum per hour	hour	45.00	392.00	17640.00	
		Water tanker 6 KL capacity	hour	24.00	200.00	4800.00	
		c) Material					
		Refer Tables 400.7,8,9 and 10)					
		Aggregate					
		Grading-III, 53 mm to 0.075 mm = 1.09 cum per 10 sqm for compacted thickness of 75 mm **(free of cost available at site)**	cum	523.20		0.00	
		Binding material					
		Binding Material = 0.06 cum per 10 sqm for Grading-III material	cum	28.80	17.05	491.04	
		Water	KL	144.00	133.00	19152.00	
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				17351.45	
		e) Contractor's profit = 15 % on (a+b+c+d)				21127.39	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				1619.77	
		Cost for 360 cum = a+b+c+d+e+f				163596.45	
		Rate per cum = (a+b+c+d+e+f)/360				454.43	
					say	***454.40***	
2.B		**(B) By Mechanical Means**					
		Unit = cum					
		Taking output = 360 cum					
		a) Labour					
		Mate	day	0.68	310.00	210.80	
		Mazdoor(skilled)	day	2.00	395.00	790.00	
		Mazdoor(unskilled)	day	15.00	310.00	4650.00	
		b) Machinery					
		Tractor with rotavator	hour	14.40	320.00	4608.00	
		Three wheel 80-100 KN static roller @ 8 cum per hour	hour	45.00	392.00	17640.00	
		Water tanker 6 KL capacity	hour	24.00	200.00	4800.00	
		c) Material					
		Refer Tables 400.7,8,9 and 10)					
		Aggregate					
		Grading-III, 53 mm to 0.075 mm @1.09 cum per 10 sqm for compacted thickness of 75 mm (free of cost available at site)	cum	523.20		0.00	
		Binding material					
		Binding Material @ 0.06 cum per 10 sqm for Grading-III material	cum	28.80	17.05	491.04	

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Water	KL	144.00	133.00	19152.00	
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				7354.03	
		e) Contractor's profit = 15 % on (a+b+c+d)				8954.38	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				686.50	
		Cost for 360 cum = a+b+c+d+e+f				69336.75	
		Rate per cum = (a+b+c+d+e+f)/360				192.60	
					say	***192.60***	
M1.7		**Mastic Asphalt waering course**					
		Providing and laying mastic asphalt wearing course with paving grade bitumen (IS 73 : 2013), meeting the requirements given in table 500.29, prepared by using mastic cooker and laid to required level and slope after cleaning the surface, including providing antiskid surface with bitumen precoated finegrained hard stone chipping 13.2 mm nominal size at the rate of 0.005 cum per sqm and at an approximate spacing of 10 cm center to center in both directions, pressed into surface when the temperature of the surfaces is not less than 100˚ C, protruding 1 mm to 4 mm over mastic surface, all complete as per MoRT&H Technical Specification Clause 515.					
	i.	**i. 25 mm thick**					
		Unit = sqm					
		Taking output = 35.00 sqm (0.875 cum) assuming a density of 2.3 tonnes/cum.= 2.0125 tonnes					
		a) Labour					
		Mate	day	0.440	310.00	136.40	
		Mazdoor(unskilled)	day	10.00	310.00	3100.00	
		Mazdoor(skilled)	day	1.000	395.00	395.00	
		b) Machinery					
		Hydraulic broom @ 1250 sqm per hour	hour	0.06	345.00	20.70	
		Air compressor 210 cfm	hour	0.06	210.00	12.60	
		Mastic cooker	hour	6.00	125.00	750.00	
		Bitumen boiler 1500 litres capacity	hour	6.00	198.00	1188.00	
		Tractor for towing and positioning of mastic cooker and bitumen boiler	hour	1.00	237.00	237.00	
		c) Material					
		Base mastic (without coarse aggregates) = 60 %					
		Coarse aggregate (13.2 mm to 6.3 mm) = 40 %					
		i) Bitumen (VG-30)					
		= 15% by weight of mix 2.0125 x 15.00/100 = 0.302	tonne	0.302	40138.00	12121.68	
		ii) Coarse Aggregate					
		iv) Crushed stone chippping 6.7 mm size 100% pasing 11.2mm and retained on 2.36 mm = 40 per cent by weight of mix =	cum	0.553	4430.00	2449.79	
		iii) Fine Aggregate					
		Crushed stone dust or grit passing 2.36mm and retained on 75 micron = 30 per cent by weight of mix = 2.0125 x 30/100 = 0.604 tonnes = 0.604/1.625 = 0.372	cum	0.372	2472.50	919.77	
		iv) Filler					

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Lime stone dust filler with calcium content not less than 80 per cent by weight = 15 per cent by weight of mix = 2.0125 x 15/100 = 0.302	tonne	0.302	6395.00	1931.29	
		v) Stone chips for skid resistance					
		Stone chips of 13.2 mm nominal =0.005cum per 10 sqm = 35 x 0.005/10 = 0.018	cum	0.018	4825.00	86.85	
		vi) Bitumen (VG-30) for precoating					
		= 2 per cent by weight = 0.0175 x 1.456 x 2.0125/100 = 0.0005 MT	tonne	0.0005	40138.00	20.07	
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				3283.36	
		e) Contractor's profit = 15 % on (a+b+c+d)				3997.88	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				306.50	
		Cost for 35.00 sqm = a+b+c+d+e+f				30956.89	
		Rate per sqm = (a+b+c+d+e+f)/35				884.48	
					say	***884.00***	
ii.		**ii. 40 mm thick**					
		Unit = sqm					
		Taking output = 22.00 sqm (0.88 cum) assuming a density of 2.3 tonnes/cum.= 2.024 tonnes					
		a) Labour					
		Mate	day	0.44	310.00	136.40	
		Mazdoor(unskilled)	day	10.00	310.00	3100.00	
		Mazdoor(skilled)	day	1.00	395.00	395.00	
		b) Machinery					
		Hydraulic broom = 1250 sqm per hour	hour	0.06	345.00	20.70	
		Air compressor 210 cfm	hour	0.06	210.00	12.60	
		Mastic cooker	hour	6.00	125.00	750.00	
		Bitumen boiler 1500 litres capacity	hour	6.00	198.00	1188.00	
		Tractor for towing and positioning of mastic cooker and bitumen boiler	hour	1.10	237.00	260.70	
		c) Material					
		Base mastic (without coarse aggregates) = 60 %					
		Coarse aggregate (13.2 mm to 6.3 mm) = 40 %					
		i) Bitumen (VG-30)					
		= 15% by weight of mix 2.024 x 15.00/100 = 0.304	tonne	0.304	40138.00	12201.95	
		ii) Coarse Aggregate					
		iv) Crushed stone chippping 6.7 mm size 100% pasing 11.2mm and retained on 2.36 mm = 40 per cent by weight of mix =	cum	0.556	4430.00	2463.08	
		iii) Fine Aggregate					
		Crushed stone dust or grit passing 2.36mm and retained on 75 micron = 30 per cent by weight of mix = 2.024 x 30/100 = 0.607 tonnes = 0.607/1.625 = 0.374	cum	0.374	2510.00	938.74	
		iv) Filler					
		Lime stone dust filler with calcium content not less than 80 per cent by weight = 18 per cent by weight of mix = 2.024 x 15/100 = 0.304	tonne	0.304	6395.00	1944.08	
		v) Stone chips for skid resistance					
		Stone chips of 13.2 mm nominal =0.005cum per 10 sqm = 22 x 0.005/10 = 0.011	cum	0.011	4825.00	53.08	
		vi) Bitumen (VG-30) for precoating					
		= 2 per cent by weight = 0.0176 x 1.456 x 2.024/100 = 0.0005 MT	tonne	0.0005	40138.00	20.07	

MISCELLANEOUS-1

DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				3299.56	
		e) Contractor's profit = 15 % on (a+b+c+d)				4017.59	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				308.02	
		Cost for 22.00 sqm = a+b+c+d+e+f				31109.56	
		Rate per sqm = (a+b+c+d+e+f)/22				1414.07	
					say	***1414.00***	
iii.		**iii. 50 mm thick**					
		Unit = sqm					
		Taking output = 18.00 sqm (0.90 cum) assuming a density of 2.3 tonnes/cum.= 2.07 tonnes					
		a) Labour					
		Mate	day	0.44	310.00	136.40	
		Mazdoor(unskilled)	day	10.00	310.00	3100.00	
		Mazdoor(skilled)	day	1.00	395.00	395.00	
		b) Machinery					
		Hydraulic broom = 1250 sqm per hour	hour	0.06	345.00	20.70	
		Air compressor 210 cfm	hour	0.06	210.00	12.60	
		Mastic cooker	hour	6.00	125.00	750.00	
		Bitumen boiler 1500 litres capacity	hour	6.00	198.00	1188.00	
		Tractor for towing and positioning of mastic cooker and bitumen boiler	hour	1.15	237.00	272.55	
		c) Material					
		Base mastic (without coarse aggregates) = 60 %					
		Coarse aggregate (13.2 mm to 6.3 mm) = 40 %					
		i) Bitumen (VG-30)					
		= 15% by weight of mix 2.07 x 15.00/100 = 0.311	tonne	0.311	40138.00	12482.92	
		ii) Coarse Aggregate					
		iv) Crushed stone chippping 6.7 mm size 100% pasing 11.2mm and retained on 2.36 mm = 40 per cent by weight of mix =	cum	0.569	4430.00	2520.67	
		iii) Fine Aggregate					
		Crushed stone dust or grit passing 2.36mm and retained on 75 micron = 30 per cent by weight of mix = 2.07 x 30/100 = 0.621 tonnes = 0.621/1.625 = 0.382	cum	0.382	2510.00	958.82	
		iv) Filler					
		Lime stone dust filler with calcium content not less than 80 per cent by weight = 15 per cent by weight of mix = 2.07 x 15/100 = 0.311	tonne	0.311	6395.00	1988.85	
		v) Stone chips for skid resistance					
		Stone chips of 13.2 mm nominal =0.005cum per 10 sqm = 18 x 0.005/10 = 0.009	cum	0.009	4825.00	43.43	
		vi) Bitumen (VG-30) for precoating					
		= 2 per cent by weight = 0.018 x 1.456 x 2.07/100 = 0.0005 MT	tonne	0.0005	40138.00	20.07	
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				3356.54	
		e) Contractor's profit = 15 % on (a+b+c+d)				4086.98	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				313.34	
		Cost for 18.00 sqm = a+b+c+d+e+f				31646.86	
		Rate per sqm = (a+b+c+d+e+f)/18.00				1758.16	
					say	***1758.00***	

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
M1.8		**Sanding**					
		Applying local sands to areas of road where bleeding of excess bitumen has occurred as per specification.					
		Unit = sqm					
		Taking output = 3500 sqm(0.900 cum/2.07t)					
		a) Labour					
		Mate	day	0.08	310.00	24.80	
		Mazdoor (unskilled)	day	2.00	310.00	620.00	
		b) Material					
		Fine Sand	cum	6.25	460.00	2875.00	
		Add 5.00 % for wastage				175.99	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				519.26	
		d) Contractor's profit @ 15 % on (a+b+c)				632.26	
		e) Add Cess @ 1.00 % on (a+b+c+d)				48.47	
		Cost for 3500 sqm = a+b+c+d+e				4895.78	
		Rate per sqm = (a+b+c+d+e)/3500				1.40	
					say	***1.40***	
M1.9		**laying Reinforced Cement Concrete Pipe NP3 as per design in single Row**					
		Laying reinforced cement concrete pipe NP3 for culverts on first class bedding of granular material in single row including fixing collar with cement mortar 1:2 but excluding cost of pipes (available at site), excavation, protection works, backfilling , concrete and masonry works in head walls and parapets as per MoRD Technical specification Clause 1106.					
		Unit = metre					
		Taking output = 7.50 metres (3 pipes of 2.5 m length each)					
	A	**A. 1200 mm dia**					
		a) Labour					
		Mate	day	0.14	310.00	43.40	
		Mason (1st Class)	day	0.50	440.00	220.00	
		Mazdoor (unskilled)	day	3.00	310.00	930.00	
		b) Material					
		Sand	cum	0.05	560.00	28.00	
		Cement	tonne	0.07	5800.00	406.00	
		c) Add GST (multiplying factor) = 0.1405 on (a+b)				228.65	
		d) Contractor's profit = 15 % on (a+b+c)				278.41	
		e) Add Cess @ 1.00 % on (a+b+c+d)				21.34	
		Cost for 7.50 metres = a+b+c+d+e				2155.80	
		Rate per metre= (a+b+c+d+e)/7.50				287.44	
					say	***287.40***	
	B	**B. 1000 mm dia**					
		a) Labour					
		Mate	day	0.09	310.00	27.90	
		Mason (1st Class)	day	0.25	440.00	110.00	
		Mazdoor (unskilled)	day	2.00	310.00	620.00	
		b) Material					
		Sand	cum	0.04	560.00	22.40	
		Cement	tonne	0.03	5800.00	174.00	
		c) Add GST (multiplying factor) = 0.1405 on (a+b)				134.08	
		d) Contractor's profit = 15 % on (a+b+c)				163.26	
		e) Add Cess @ 1.00 % on (a+b+c+d)				12.52	
		Cost for 7.50 metres = a+b+c+d+e				1264.15	

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Rate per metre = (a+b+c+d+e)/7.50				168.55	
					say	***168.60***	
	C	**C. 750 mm dia**					
		a) Labour					
		Mate	day	0.05	310.00	15.50	
		Mason (1st Class)	day	0.15	440.00	66.00	
		Mazdoor (unskilled)	day	1.20	310.00	372.00	
		b) Material					
		Sand	cum	0.02	560.00	11.20	
		Cement	tonne	0.02	5800.00	116.00	
		c) Add GST (multiplying factor) = 0.1405 on (a+b)				81.59	
		d) Contractor's profit = 15 % on (a+b+c)				99.34	
		e) Add Cess @ 1.00 % on (a+b+c+d)				7.62	
		Cost for 7.50 metres = a+b+c+d+e				769.25	
		Rate per metre = (a+b+c+d+e)/7.50				102.57	
					say	***102.60***	
	D	**D. 600 mm dia**					
		a) Labour					
		Mate	day	0.04	310.00	12.40	
		Mason (1st Class)	day	0.12	440.00	52.80	
		Mazdoor (unskilled)	day	0.96	310.00	297.60	
		b) Material					
		Sand	cum	0.0192	560.00	10.75	
		Cement	tonne	0.014	5800.00	81.20	
		c) Add GST (multiplying factor) = 0.1405 on (a+b)				63.89	
		d) Contractor's profit = 15 % on (a+b+c)				77.80	
		Cost for 7.50 metres = a+b+c+d+e				596.44	
		Rate per metre = (a+b+c+d+e)/7.50				79.53	
					say	***79.50***	
M1.10		**Laying Reinforced Cement Concrete Pipe NP3 as per design in Double Row**					
		Laying reinforced cement concrete pipe NP3 for culverts on first class bedding of granular material in Double row including fixing collar with cement mortar 1:2 but excluding cost of pipes (available at site), excavation, protection works, backfilling , concrete and masonry works in head walls and parapets as per MoRD Technical specification Clause 1106.					
		Unit = metre					
		Taking output = 7.50 metres (6 pipes of 2.5 m length each in two rows)					
	A	**A. 1200 mm dia**					
		a) Labour					
		Mate	day	0.34	310.00	105.40	
		Mason (1st Class)	day	1.20	440.00	528.00	
		Mazdoor (unskilled)	day	7.20	310.00	2232.00	
		b) Material					
		Sand	cum	0.11	560.00	61.60	
		Cement	tonne	0.14	5800.00	812.00	
		c) Add GST (multiplying factor) = 0.1405 on (a+b)				525.33	
		d) Contractor's profit = 15 % on (a+b+c)				639.65	
		e) Add Cess @ 1.00 % on (a+b+c+d)				49.04	
		Cost for 7.50 metres = a+b+c+d+e				4953.02	
		Rate per metre= (a+b+c+d+e)/7.50				660.40	

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
					say	***660.40***	
	B	**B. 1000 mm dia**					
		a) Labour					
		Mate	day	0.22	310.00	68.20	
		Mason (1st Class)	day	0.60	440.00	264.00	
		Mazdoor (unskilled)	day	4.80	310.00	1488.00	
		b) Material					
		Sand	cum	0.08	560.00	44.80	
		Cement	tonne	0.06	5800.00	348.00	
		c) Add GST (multiplying factor) = 0.1405 on (a+b)				310.93	
		d) Contractor's profit = 15 % on (a+b+c)				378.59	
		e) Add Cess @ 1.00 % on (a+b+c+d)				29.03	
		Cost for 7.50 metres = a+b+c+d+e				2931.54	
		Rate per metre = (a+b+c+d+e)/7.50				390.87	
					say	***390.90***	
	C	**C. 750 mm dia**					
		a) Labour					
		Mate	day	0.11	310.00	34.10	
		Mason (1st Class)	day	0.30	440.00	132.00	
		Mazdoor (unskilled)	day	4.80	310.00	1488.00	
		b) Material					
		Sand	cum	0.08	560.00	44.80	
		Cement	tonne	0.06	5800.00	348.00	
		c) Add GST (multiplying factor) = 0.1405 on (a+b)				287.59	
		d) Contractor's profit = 15 % on (a+b+c)				350.17	
		e) Add Cess @ 1.00 % on (a+b+c+d)				26.85	
		Cost for 7.50 metres = a+b+c+d+e				2711.51	
		Rate per metre = (a+b+c+d+e)/7.50				361.53	
					say	***361.50***	
	D	**D. 600 mm dia**					
		a) Labour					
		Mate	day	0.09	310.00	27.90	
		Mason (1st Class)	day	0.24	440.00	105.60	
		Mazdoor (unskilled)	day	3.84	310.00	1190.40	
		b) Material					
		Sand	cum	0.060	560.00	33.60	
		Cement	tonne	0.050	5800.00	290.00	
		c) Add GST (multiplying factor) = 0.1405 on (a+b)				231.47	
		d) Contractor's profit = 15 % on (a+b+c)				281.85	
		e) Add Cess @ 1.00 % on (a+b+c+d)				21.61	
		Cost for 7.50 metres = a+b+c+d+e				2182.43	
		Rate per metre = (a+b+c+d+e)/7.50				290.99	
					say	***291.00***	
M1.11		**Laying Reinforced Cement Concrete Pipe NP2 as per design in single Row**					
		Laying reinforced cement concrete pipe NP2 for culverts on first class bedding of granular material in single row including fixing collar with cement mortar 1:2 but excluding cost of pipes (available at site), excavation, protection works, backfilling , concrete and masonry works in head walls and parapets as per MoRD Technical specification Clause 1106. ***Unit = metre*** ***Taking output = 7.50 metres (3 pipes of 2.5 m length each)***					

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
A		**A. 1200 mm dia**					
		a) Labour					
		Mate	day	0.14	310.00	43.40	
		Mason (1st Class)	day	0.50	440.00	220.00	
		Mazdoor (unskilled)	day	3.00	310.00	930.00	
		b) Material					
		Sand	cum	0.05	560.00	28.00	
		Cement	tonne	0.07	5800.00	406.00	
		c) Add GST (multiplying factor) = 0.1405 on (a+b)				228.65	
		d) Contractor's profit = 15 % on (a+b+c)				278.41	
		e) Add Cess @ 1.00 % on (a+b+c+d)				21.34	
		Cost for 7.50 metres = a+b+c+d+e				2155.80	
		Rate per metre= (a+b+c+d+e)/7.50				287.44	
					say	***287.40***	
B		**B. 900 mm dia**					
		a) Labour					
		Mate	day	0.09	310.00	27.90	
		Mason (1st Class)	day	0.25	440.00	110.00	
		Mazdoor (unskilled)	day	2.00	310.00	620.00	
		b) Material					
		Sand	cum	0.04	560.00	22.40	
		Cement	tonne	0.03	5800.00	174.00	
		c) Add GST (multiplying factor) = 0.1405 on (a+b)				134.08	
		d) Contractor's profit = 15 % on (a+b+c)				163.26	
		e) Add Cess @ 1.00 % on (a+b+c+d)				12.52	
		Cost for 7.50 metres = a+b+c+d+e				1264.15	
		Rate per metre = (a+b+c+d+e)/7.50				168.55	
					say	***168.60***	
C		**C. 600 mm dia**					
		a) Labour					
		Mate	day	0.05	310.00	15.50	
		Mason (1st Class)	day	0.15	440.00	66.00	
		Mazdoor (unskilled)	day	1.20	310.00	372.00	
		b) Material					
		Sand	cum	0.02	560.00	11.20	
		Cement	tonne	0.02	5800.00	116.00	
		c) Add GST (multiplying factor) = 0.1405 on (a+b)				81.59	
		d) Contractor's profit = 15 % on (a+b+c)				99.34	
		e) Add Cess @ 1.00 % on (a+b+c+d)				7.62	
		Cost for 7.50 metres = a+b+c+d+e				769.25	
		Rate per metre = (a+b+c+d+e)/7.50				102.57	
					say	***102.60***	
D		**D. 450 mm dia**					
		a) Labour					
		Mate	day	0.04	310.00	12.40	
		Mason (1st Class)	day	0.12	440.00	52.80	
		Mazdoor (unskilled)	day	0.96	310.00	297.60	
		b) Material					
		Sand	cum	0.0192	560.00	10.75	
		Cement	tonne	0.014	5800.00	81.20	
		c) Add GST (multiplying factor) = 0.1405 on (a+b)				63.89	
		d) Contractor's profit = 15 % on (a+b+c)				77.80	
		e) Add Cess @ 1.00 % on (a+b+c+d)				5.96	
		Cost for 7.50 metres = a+b+c+d+e				602.41	
		Rate per metre = (a+b+c+d+e)/7.50				80.32	

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
					say	***80.30***	
	E	**E. 300 mm dia**					
		a) Labour					
		Mate	day	0.03	310.00	9.30	
		Mason (1st Class)	day	0.10	440.00	44.00	
		Mazdoor (unskilled)	day	0.77	310.00	238.70	
		b) Material					
		Sand	cum	0.0154	560.00	8.62	
		Cement	tonne	0.012	5800.00	69.60	
		c) Add GST (multiplying factor) = 0.1405 on (a+b)				52.02	
		d) Contractor's profit = 15 % on (a+b+c)				63.34	
		e) Add Cess @ 1.00 % on (a+b+c+d)				4.86	
		Cost for 7.50 metres = a+b+c+d+e				490.43	
		Rate per metre = (a+b+c+d+e)/7.50				65.39	
					say	***65.40***	
M1.12		**Laying Reinforced Cement Concrete Pipe NP2 as per design in Double Row** Laying reinforced cement concrete pipe NP2 for culverts on first class bedding of granular material in Double row including fixing collar with cement mortar 1:2 but excluding cost of pipes (available at site), excavation, protection works, backfilling , concrete and masonry works in head walls and parapets as per MoRD Technical specification Clause 1106. ***Unit = metre*** ***Taking output = 7.50 metres (6 pipes of 2.5 m length each in two rows)***					
	A	**A. 1200 mm dia**					
		a) Labour					
		Mate	day	0.34	310.00	105.40	
		Mason (1st Class)	day	1.20	440.00	528.00	
		Mazdoor (unskilled)	day	7.20	310.00	2232.00	
		b) Material					
		Sand	cum	0.11	560.00	61.60	
		Cement	tonne	0.14	5800.00	812.00	
		c) Add GST (multiplying factor) = 0.1405 on (a+b)				525.33	
		d) Contractor's profit = 15 % on (a+b+c)				639.65	
		e) Add Cess @ 1.00 % on (a+b+c+d)				49.04	
		Cost for 7.50 metres = a+b+c+d+e				4953.02	
		Rate per metre= (a+b+c+d+e)/7.50				660.40	
					say	***660.40***	
	B	**B. 900 mm dia**					
		a) Labour					
		Mate	day	0.22	310.00	68.20	
		Mason (1st Class)	day	0.60	440.00	264.00	
		Mazdoor (unskilled)	day	4.80	310.00	1488.00	
		b) Material					
		Sand	cum	0.08	560.00	44.80	
		Cement	tonne	0.06	5800.00	348.00	
		c) Add GST (multiplying factor) = 0.1405 on (a+b)				310.93	
		d) Contractor's profit = 15 % on (a+b+c)				378.59	
		e) Add Cess @ 1.00 % on (a+b+c+d)				29.03	
		Cost for 7.50 metres = a+b+c+d+e				2931.54	
		Rate per metre = (a+b+c+d+e)/7.50				390.87	

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
					say	***390.90***	
	C	**C. 600 mm dia**					
		a) Labour					
		Mate	day	0.11	310.00	34.10	
		Mason (1st Class)	day	0.30	440.00	132.00	
		Mazdoor (unskilled)	day	4.80	310.00	1488.00	
		b) Material					
		Sand	cum	0.080	560.00	44.80	
		Cement	tonne	0.060	5800.00	348.00	
		c) Add GST (multiplying factor) = 0.1405 on (a+b)				287.59	
		d) Contractor's profit = 15 % on (a+b+c)				350.17	
		e) Add Cess @ 1.00 % on (a+b+c+d)				26.85	
		Cost for 7.50 metres = a+b+c+d+e				2711.51	
		Rate per metre = (a+b+c+d+e)/7.50				361.53	
					say	***361.50***	
	D	**D. 450 mm dia**					
		a) Labour					
		Mate	day	0.09	310.00	27.90	
		Mason (1st Class)	day	0.24	440.00	105.60	
		Mazdoor (unskilled)	day	3.84	310.00	1190.40	
		b) Material					
		Sand	cum	0.060	560.00	33.60	
		Cement	tonne	0.050	5800.00	290.00	
		c) Add GST (multiplying factor) = 0.1405 on (a+b)				231.47	
		d) Contractor's profit = 15 % on (a+b+c)				281.85	
		e) Add Cess @ 1.00 % on (a+b+c+d)				21.61	
		Cost for 7.50 metres = a+b+c+d+e				2182.43	
		Rate per metre = (a+b+c+d+e)/7.50				290.99	
					say	***291.00***	
	E	**E. 300 mm dia**					
		a) Labour					
		Mate	day	0.07	310.00	21.70	
		Mason (1st Class)	day	0.19	440.00	83.60	
		Mazdoor (unskilled)	day	3.07	310.00	951.70	
		b) Material					
		Sand	cum	0.050	560.00	28.00	
		Cement	tonne	0.040	5800.00	232.00	
		c) Add GST (multiplying factor) = 0.1405 on (a+b)				185.04	
		d) Contractor's profit = 15 % on (a+b+c)				225.31	
		e) Add Cess @ 1.00 % on (a+b+c+d)				17.27	
		Cost for 7.50 metres = a+b+c+d+e				1744.62	
		Rate per metre = (a+b+c+d+e)/7.50				232.62	
					say	***232.60***	
M1.13	**900, 502, 503**	**Maintenance of bituminous surface road using Jhama brick aggregate**					

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Repair to pot holes by removal of failed material, trimming the sides to vertical and levelling the bottom, cleaning the same with compressed air or any appropriate method, filled with B.M (using jhama brick aggregate & bitumen of VG-30), after applying prime coat at the bottom and tack coat on sides and on bottom (using bitumen emulsion) and compacting, trimming & finishing the surface to form a smooth continuous surface, all as per MoRD technical specification Clauses 1900, 502, 503 and 504.					
		Unit = cum					
		Taking output = 187.5x0.075(avg)					
		= 14.06 cum = (26.71 Tonne)					
		(5% area of one km)					
		a) Labour					
		Mate	day	0.80	310.00	248.00	
		Mazdoor (Unskilled)	day	20.00	310.00	6200.00	
		b) Machinery					
		Emulsion pressure distributor	hour	4.00	202.00	808.00	
		Mixall 6/10 t capacity	hour	4.00	765.00	3060.00	
		Three wheeled 80-100 KN Static Roller	hour	4.00	392.00	1568.00	
		c) Material					
		Primer with bitumen emulsion (SS-1) @ 9.00 kg/10 sqm 187.5x0.9 = 168.75 kg.	Tonne	0.1688	38830.00	6554.50	
		Tack coat with bitumen emulsion (RS-1) @ 3.00 kg/ 10 sqm) Bottom = 187.5 Sides = 28.27					
		Total = 215.77	Tonne	0.0647	37082.00	2399.21	
		Bitumen (VG-30) for BM @ 3.5% by weight of mix = 26.71 x 3.5 / 100 = 0.935	Tonne	0.935	40138.00	37529.03	
		Weight of mix (BM) 14.06 cum = (26.71 tonne) Weight of Bitumen = 0.935 Weight of aggregate 26.71 -0.935 = 25.775 Taking density of aggregate 1.5 t per cum					
		Volume of jhama brick aggregate 25.775 / 1.5 = 17.183 cum					
		45 mm to 22.4 mm 70 %	cum	12.028	3365.00	40474.22	
		22.4 mm to 2.36 mm 30%	cum	5.155	3445.00	17758.98	
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				**16,382.29**	
		e) Contractor's profit and overheads = 15 % on (a+b+c+d)				**19,947.33**	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				1529.30	
		Cost of 14.06 cum = a+b+c+d+e+f				154,458.85	
		Rate per cum = a+b+c+d+e+f/14.06				**10,985.69**	
					say	***10985.70***	
M1.14		**Seal coat on old bituminous road surface**					
		Sand seal coat on old bituminous road surface by applying Viscocity Graded (VG-30) bitumen @ 1.00 kg per sqm using rubber brush after proper cleaning of the road surface and spreading of river sand @ 0.06 cum/ 10 sqm complete as per specification and direction of the Engg.-in-Charge.					
		Unit = sqm					
		Taking output = 1250 sqm					
		a) Labour					

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Mate	day	0.64	310.00	198.40	
		Mazdoor (Unskilled)	day	11.25	310.00	3,487.50	
		Mazdoor (Semi-Skilled)	day	1.50	355.00	532.50	
		b) Machinery					
		Cleaning by mechanical/ manual means	@ 15 % of (a)			632.76	
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	1.00	198.00	198.00	
		c) Material					
		Bitumen (VG-30) @ 1.00 kg per sqm	t	1.250	40,138.00	50,172.50	
		Sand (fine) applied @ 0.06 cum per 10 sqm	cum	7.50	560.00	4,200.00	
		d) Cost of rubber brush, etc.	@ 5 % of (a)			210.92	
		e) Add GST (multiplying factor) = 0.1405 on (a+b+c)				**8,378.38**	
		f) Contractor's profit @ 15 % on (a+b+c+d)				**10,201.64**	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				782.13	
		Cost of 1250 sqm = a+b+c+d+e+f+g				78,994.73	
		Rate per sqm = (a+b+c+d+e+f+g)/1250				**63.20**	
					say	***63.20***	
M1.15	**900, 502, 503 and 504**	**Patch repairing/ Maintenance of bituminous surface road using Jhama brick aggregate & viscocity graded bitumen (VG-30)**					
		Repairing pot-holes and making up small depressions with ramming or power rolling after removal/ disposal of disintegrated materials within a lead of 50 m, cutting pot holes to regular shapes with vertical edges and levelling the bottom, cleaning the same with compressed air or any other appropriate method including screening, cleaning of aggregates; and filling up with with jhama chips using bitumen of VG-30 @ 54 kg per m^3 of loose volume of jhama brick chips, after applying tack coat of bitumen on sides and bottom @ 0.75 kg/ sqm and finishing the top of repaired surface levelled with adjoining area in proper grade and camber including spreading of sand @ 0.006 cum/ sqm of prepared road surface as per direction of the Engineer-in-Charge and all as per MoRD technical specification Clauses 1900, 502, 503 and 504.					
		Unit = cum					
		Taking output = 187.5 x 0.075(avg. depth) = 14.06 cum = (26.71 Tonne)					
		a) Labour					
		Mate	day	0.90	310.00	279.00	
		Mazdoor (Unskilled)	day	22.80	310.00	7068.00	
		b) Machinery					
		Bitumen emulsion pressure distributor	hour	4.00	202.00	808.00	
		Mixall 6/10 t capacity	hour	4.00	765.00	3060.00	
		Three wheeled 80-100 KN Static Roller	hour	4.00	392.00	1568.00	
		c) Material					
		Weight of mix (BM) 14.06 cum = (26.71 tonne)					
		Weight of aggregate, 96.5 % of weight of mix 26.71 Tonne = 25.775 Tonne					
		Taking density of aggregate 1.5 t per cum					
		Volume of jhama brick aggregate 25.775 / 1.5 = 17.183 cum					

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		45 mm to 22.4 mm 70 %	cum	12.028	3365.00	40474.22	
		22.4 mm to 2.36 mm 30%	cum	5.155	3083.00	15892.87	
		Sand (fine) applied @ 0.006 cum per sqm	cum	1.130	560.00	632.80	
		Bitumen (VG-30) for BM @ 54 kg/ cum of loose net volume of aggregate i.e 17.183 cum = 17.183 x 54 kg					
		Weight of Bitumen = 0.9279 Tonne	Tonne	0.9279	40138.00	37244.05	
		Tack coat with bitumen of VG-30 @ 0.75 kg/ sqm) Bottom = 187.5 Sides = 37.54					
		Total = 225.04 sqm, Bitumen for tack coat	Tonne	0.16878	40138.00	6774.49	
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				**15,989.10**	
		e) Contractor's profit and overheads = 15 % on (a+b+c+d)				**19,468.58**	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				1492.59	
		Cost of 14.06 cum = a+b+c+d+e+f				150,751.70	
		Rate per cum = a+b+c+d+e+f/14.06				**10,722.03**	
					say	***10722.00***	
M1.16		**Labour charge for Seal coat on old bituminous road surface** Labour charge for Sand seal coat on old bituminous road surface by applying Vicocity Graded (VG-30) bitumen @ 1.00 kg per sqm using rubber brush after proper cleaning of the road surface and spreading of river sand @ 0.06 cum/10 sqm complete as per specification and direction of the Engg.-in-Charge. (bitumen to be issued at free of cost by the department)					
		Unit = sqm Taking output = 1250 sqm					
		a) Labour					
		Mate	day	0.64	310.00	198.40	
		Mazdoor (Unskilled)	day	11.25	310.00	3,487.50	
		Mazdoor (Semi-Skilled)	day	1.50	355.00	532.50	
		b) Machinery					
		Cleaning by mechanical/ manual means	@ 15 % of (a)			632.76	
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	1.00	198.00	198.00	
		c) Material					
		Sand (fine) applied @ 0.06 cum per 10 sqm	cum	7.50	560.00	4,200.00	
		d) Cost of rubber brush, etc.	@ 5 % of (a)			210.92	
		e) Add GST (multiplying factor) = 0.1405 on (a+b+c+d)				**1,329.14**	
		f) Contractor's profit @ 15 % on (a+b+c+d+e)				**1,618.38**	
		g) Add Cess @ 1.00 % on (a+b+c+d+e+f)				124.08	
		Cost of 1250 sqm = a+b+c+d+e+f+g				12,531.68	
		Rate per sqm = (a+b+c+d+e+f+g)/1250				**10.03**	
					say	***10.00***	
M1.17	**502 & 503**	**Tack coat using hot straight run bitumen of grade VG-30 on W.B.M.**					

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Providing and applying tack coat using hot straight run bitumen of grade VG-30, including heating the bitumen, spraying the bitumen, cleaning and preparing the existing road surface as per specifications: **On W.B.M. @ 0.75 kg/ sqm.**					
		Unit = sqm					
		Taking output = 100 sqm					
		a) Labour					
		(a) For cleaning:					
		Mate	day	0.06	310.00	18.60	
		Mazdoor (Unskilled)	day	1.46	310.00	452.60	
		(b) For heating bitumen: -					
		Mazdoor (Unskilled)	day	0.19	310.00	58.90	
		(c) For applying tack coat: -					
		Mazdoor (Unskilled)	day	0.47	310.00	145.70	
		b) Machinery					
		Bitumen Pressure Distributor	hour	0.07	202.00	14.14	
		c) Material					
		Bitumen (VG-30) @ 0.75 kg per sqm	t	0.075	40,138.00	3,010.35	
		Materials for cleaning the road surface : -					
		Wire brush (with thick wire)	each	0.05	20.00	1.00	
		Soft brush	each	0.12	20.00	2.40	
		Gunny bags	L.S.	7.80	2.15	16.77	
		Sundries @ 0.6 % of material	L.S.			18.18	
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				**525.28**	
		e) Contractor's profit = 15 % on (a+b+c+d)				**639.59**	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				49.04	
		Cost of 100 sqm = a+b+c+d+e+f				4,952.54	
		Rate per sqm = (a+b+c+d+e+f)/100				**49.53**	
					say	***49.50***	
M1.18	**502 & 503**	**Tack coat using hot straight run bitumen of grade VG-30 on bituminous surface**					
		Providing and applying tack coat using hot straight run bitumen of grade VG-30, including heating the bitumen, spraying the bitumen, cleaning and preparing the existing road surface as per specifications: : **On bituminous surface @ 0.50 Kg/Sqm.**					
		Unit = sqm					
		Taking output = 100 sqm					
		a) Labour					
		(a) For cleaning:					
		Mate	day	0.06	310.00	18.60	
		Mazdoor (Unskilled)	day	1.46	310.00	452.60	
		(b) For heating bitumen:					
		Mazdoor (Unskilled)	day	0.19	310.00	58.90	
		(c) For applying tack coat:					
		Mazdoor (Unskilled)	day	0.47	310.00	145.70	
		b) Machinery					
		Bitumen Pressure Distributor	hour	0.07	202.00	14.14	
		c) Material					
		Bitumen (VG-30) @ 0.50 kg per sqm	t	0.050	40,138.00	2,006.90	
		Materials for cleaning the road surface :					
		Wire brush (with thick wire)	each	0.05	20.00	1.00	
		Soft brush	each	0.12	20.00	2.40	
		Gunny bags	L.S.	7.80	2.15	16.77	
		Sundries @ 0.85 % of material	L.S.			17.23	
		d) Add GST (multiplying factor) =				**384.16**	

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		e) Contractor's profit = 15 % on (a+b+c+d)				**467.76**	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				35.86	
		Cost of 100 sqm = a+b+c+d+e+f				3,622.02	
		Rate per sqm = (a+b+c+d+e+f)/100				**36.22**	
					say	***36.20***	
M1.19		**Providing and laying factory made kerb stone** Providing and laying at or near ground level factory made kerb stone of M-25 grade cement concrete inposition to the required line, level and curvature jointed with cement mortar 1:3 (1 cement : 3 sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5 mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-Charge (length of finished kerb edging shall be measured for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-Charge).					
		Unit = cum Taking output = 7.50 Cum					
		a) Labour					
		Labour for fixing of Kerb stone					
		Mason 1st class	Day	2.50	440.00	1,100.00	
		Mason 2nd class	Day	2.50	395.00	987.50	
		Mazdoor (Unskilled)	Day	2.50	310.00	775.00	
		Mate	Day	1.65	310.00	511.50	
		b) Material					
		Details for 100 metre i.e. 100 x 0.375 x 0.20 = 7.50 cum					
		Precast C.C. Kerb stone M - 25 Number of kerb stones = 100 / 0.405 = 247 Nos. 247 x 0.40 x 0.375 x 0.20 = 7.41 cum	cum	7.410	8,233.00	61,006.53	
		Mortar 1:3 for fixing joints, No. of joints = 247 - 1 = 246 Nos. Cement Mortar 1:3 for fixing joints =246 x [(0.115 + 0.20)/2 x 0.375 x 0.005] = 0.073 cum					
		Cement mortar 1:3 (1 cement : 3 sand) *Rate vide item number 11.5 (I) of MORD*	*Cum*	*0.073*	*27.90*	*2.04*	
		c) Add GST (multiplying factor) = 0.1405 on (a+b)				**9,045.46**	
		d) Contractor's profit = 15 % on (a+b+c)				**11,013.90**	
		e) Add Cess @ 1.00 % on (a+b+c+d)				844.40	
		Cost of 7.50 cum = a+b+c+d+e				85,286.33	
		Rate per cum = (a+b+c+d+e)/7.50				**11,371.51**	
					say	***11371.50***	
	Note:	*i.Carriage of kerb stones are payable seperately as per Chapter of carriage of material (item no. 1.8 and 1.10 of MoRD) from nearest place of procurement to the site of work.*					
M1.20	**1500**	**Taking out existing CC interlocking paver blocks**					

MISCELLANEOUS-1

DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Taking out existing CC interlocking paver blocks from footpath/ central verge, including removal of rubbish etc., disposal of unserviceable material to the dumping ground, for which payment shall be made separately and stacking of serviceable material within 50 metre lead as per direction of Engineer-in-Charge.					
		Unit = sqm					
		Taking output = 10.00 sqm					
		a) Labour					
		Mate	Day	0.25	310.00	77.50	
		Mazdoor (Unskilled)	Day	1.00	310.00	310.00	
		Other incidental charges @ 1.5 % of Lbaour				5.81	
		b) Add GST (multiplying factor) = 0.1405 on (a)				**55.26**	
		c) Contractor's profit = 15 % on (a+b)				**67.29**	
		d) Add Cess @ 1.00 % on (a+b+c)				5.16	
		Cost of 10.00 Sqm = a+b+c+d				521.02	
		Rate per sqm = (a+b+c+d)/10.00				**52.10**	
					say	***52.10***	
M1.21	**1500**	**Laying old cement concrete interlocking paver blocks**					
		Laying old cement concrete interlocking paver blocks of any design/shape laid in required line, level, curvature, colour and pattern over and including 50 mm thick compacted bed of coarse sand, filling the joints with fine sand etc. all complete as per the direction of Engineer-in-charge. (Old CC paver blocks shall be supplied by the department free of cost).					
		Unit = sqm					
		Taking output = 10.00 sqm					
		a) Labour					
		Laying charges					
		Mason 1st class	Day	0.50	440.00	220.00	
		Mason 2nd class	Day	0.50	395.00	197.50	
		Mazdoor (Unskilled)	Day	1.00	310.00	310.00	
		Mate	Day	0.50	310.00	155.00	
		b) Material					
		Bedding Layer 50 mm thick					
		Sand as per Table 1500.5					
		=10.00 x 0.050 = 0.50 cum	Cum	0.500	205.00	102.50	
		Fine sand for joint as per Table 1500.5	Cum	0.150	745.00	111.75	
		Water	Kl	0.027	310.00	8.27	
		c) Add GST (multiplying factor) = 0.1405 on (a+b)				**155.26**	
		d) Contractor's profit = 15 % on (a+b+c)				**189.04**	
		e) Add Cess @ 1.00 % on (a+b+c+d)				14.49	
		Cost of 10.00 Sqm = a+b+c+d+e				1,463.81	
		Rate per sqm = (a+b+c+d+e)/10.00				**146.38**	
					say	***146.40***	
M1.22	**1500**	**60 mm thick factory made c.c interlocking paver block of M -30 Grade**					

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Providing and laying 60 mm thick factory made cement concrete interlocking paver block of M-30 grade made by block making machine with strong vibratory compaction, of approved size, design & shape, laid in required colour and pattern over and including 50 mm thick compacted bed of sand, filling the joints with fine sand etc. all complete as per specification and approval/ direction of the Engineer-in-charge.					
		Unit = sqm					
		Taking output = 10.00 sqm					
		a) Labour					
		Laying charges (Based on actual observation)					
		Mason 1st class	Day	0.50	440.00	220.00	
		Mason 2nd class	Day	0.50	395.00	197.50	
		Mazdoor (Unskilled)	Day	1.00	310.00	310.00	
		Mate	Day	0.50	310.00	155.00	
		b) Material					
		Interlocking C.C. paver block (60 mm thick, M-30)	Sqm	10.000	683.00	6,830.00	
		Bedding Layer 50 mm thick					
		Sand as per Table 1500.5					
		=10.00 x 0.050 = 0.50 cum	Cum	0.500	460.00	230.00	
		Fine sand for joint as per Table 1500.5	Cum	0.150	560.00	84.00	
		Water	Kl	0.027	133.00	3.55	
		c) Add GST (multiplying factor) = 0.1405 on (a+b)				**1,127.72**	
		d) Contractor's profit = 15 % on (a+b+c)				**1,373.67**	
		e) Add Cess @ 1.00 % on (a+b+c+d)				105.31	
		Cost of 10.00 Sqm = a+b+c+d+e				10,636.75	
		Rate per sqm = (a+b+c+d+e)/10.00				**1,063.68**	
					say	***1063.70***	
	Note:	*i.Carriage of interlocking blocks are payable seperately as per Chapter of carriage of material (item no. 1.8 and 1.10 of MoRD) from nearest place of procurement to the site of work.*					
		ii.The rates for sub-grade, sub-base and base course if required can be taken separately from respective Chapters.					
M1.23	**1500**	**60 mm thick factory made c.c. interlocking paver block of M-35 Grade**					
		Providing and laying factory made coloured chamfered edge Cement Concrete paver blocks of required strength, thickness & size/shape, made by table vibratory method using PU mould, laid in required colour & pattern over 50 mm thick compacted bed of sand, compacting and proper embedding/laying of inter locking paver blocks into the sand bedding layer through vibratory compaction by using plate vibrator, filling the joints with fine sand and cutting of paver blocks as per required size and pattern, finishing and sweeping extra sand in footpath, parks, lawns, drive ways or light traffic parking etc. complete as per specifications & approval/ direction of Engineer-in-Charge.					
		(a) 60 mm thick c.c. paver block of M-35 grade with approved colour design and pattern.					
		Unit = sqm					

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Taking output = 10.00 sqm					
		a) Labour					
		Laying charges (Based on actual observation)					
		Mason 1st class	Day	0.50	440.00	220.00	
		Mason 2nd class	Day	0.50	395.00	197.50	
		Mazdoor (Unskilled)	Day	1.00	310.00	310.00	
		Mate	Day	0.50	310.00	155.00	
		b) Machinery					
		Plate Vibrator	Hour	0.520	75.00	39.00	
		c) Material					
		Interlocking C.C. paver block (60 mm thick, M-35)	Sqm	10.000	717.00	7,170.00	
		Bedding Layer 50 mm thick					
		Sand as per Table 1500.5					
		=10.00 x 0.050 = 0.50 cum	Cum	0.500	460.00	230.00	
		Fine sand for joint as per Table 1500.5	Cum	0.150	560.00	84.00	
		Water for wetting of bedding sand	Kl	0.027	133.00	3.55	
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				**1,180.97**	
		e) Contractor's profit = 15 % on (a+b+c+d)				**1,438.50**	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				110.29	
		Cost of 10.00 sqm = a+b+c+d+e+f				11,138.81	
		Rate per sqm = (a+b+c+d+e+f)/10.00				**1,113.88**	
					say	***1113.90***	
	Note:	*i.Carriage of interlocking blocks are payable seperately as per Chapter of carriage of material (item no. 1.8 and 1.10 of MoRD) from nearest place of procurement to the site of work.*					
		ii.The rates for sub-grade, sub-base and base course if required can be taken separately from respective Chapters.					
M1.24	**1500**	**80 mm thick factory made c.c. interlocking paver block of M-30 Grade**					
		Providing and laying factory made chamfered edge Cement Concrete paver blocks of required strength, thickness & size/shape, made by table vibratory method , to attain superior smooth finish using PU or equivalent moulds, laid in required grey colour & pattern over 50 mm thick compacted bed of sand, compacting and proper embedding/ laying of inter locking paver blocks into the sand bedding layer through vibratory compaction by using plate vibrator, filling the joints with fine sand and cutting of paver blocks as per required size and pattern, finishing and sweeping extra sand in footpath, parks, lawns, drive ways or light traffic parking etc. all complete as per specifications & approval/ direction of the Engineer -in-Charge:					
		(a) 80 mm thick c.c. paver block of M-30 grade with approved colour design and pattern.					
		Unit = sqm					
		Taking output = 10.00 sqm					
		a) Labour					
		Laying charges (Based on actual observation)					
		Mason 1st class	Day	0.50	440.00	220.00	
		Mason 2nd class	Day	0.50	395.00	197.50	
		Mazdoor (Unskilled)	Day	1.00	310.00	310.00	
		Mate	Day	0.50	310.00	155.00	
		b) Machinery					

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Plate Vibrator	Hour	0.700	75.00	52.50	
		c) Material					
		Interlocking C.C. paver block (80 mm thick, M-30)	Sqm	10.000	909.00	9,090.00	
		Bedding Layer 50 mm thick					
		Sand as per Table 1500.5					
		=10.00 x 0.050 = 0.50 cum	Cum	0.500	460.00	230.00	
		Fine sand for joint as per Table 1500.5	Cum	0.200	560.00	112.00	
		Water for wetting of bedding sand	Kl	0.027	133.00	3.55	
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				**1,456.56**	
		e) Contractor's profit = 15 % on (a+b+c+d)				**1,774.07**	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				136.01	
		Cost of 10.00 sqm = a+b+c+d+e+f				13,737.19	
		Rate per sqm = (a+b+c+d+e+f)/10.00				**1,373.72**	
					say	***1373.70***	
	Note:	*i.Carriage of interlocking blocks are payable seperately as per Chapter of carriage of material (item no. 1.8 and 1.10 of MoRD) from nearest place of procurement to the site of work.*					
		ii.The rates for sub-grade, sub-base and base course if required can be taken separately from respective Chapters.					
M1.25	**1500**	**Cement concrete 1:2:4 in pavements, laid to required slope and camber in panels**					
		Cement concrete 1:2:4 (1 cement : 2 sand : 4 graded stone aggregate 40 mm nominal size) in pavements, laid to required slope and camber in panels as required including consolidation finishing and tamping complete as per direction of the of the Engineer-in-Charge.					
		Unit = cum					
		Taking output = 1.00 cum					
		cementg concrete 1:2:4 mix					
		a) Labour					
		Laying charges					
		Mason 1st class	Day	0.10	440.00	44.00	
		Bhisti	Day	0.70	310.00	217.00	
		Mazdoor (Unskilled)	Day	1.63	310.00	505.30	
		b) Machinery				0.00	
		Concrete mixer 0.25 to 0.4 cum with hopper	Hour	0.40	192.00	76.80	
		Needle vibrator 40 mm	Hour	0.35	66.00	23.10	
		c) Material				0.00	
		Stone Aggregate (Single size) : 40 mm nominal size	Cum	0.450	4,692.00	2,111.40	
		Stone Aggregate (Single size) : 20 mm nominal size	Cum	0.270	4,875.00	1,316.25	
		Stone Aggregate (Single size) : 10 mm nominal size	Cum	0.180	4,730.00	851.40	
		Portland Cement	Tonne	0.330	5,800.00	1,914.00	
		Sand	Cum	0.450	560.00	252.00	
		Side shuttering :	L.S. @ 1.00 % of (C)			64.00	
		(Taking the slab to be 15 cm thick and width to be 6 metre, length of road 27 metre = 9.90/24.30 = 0.407 sqm)					
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				**1,027.23**	
		e) Contractor's profit = 15 % on (a+b+c+d)				**1,260.37**	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				96.63	

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Cost of 1.00 cum = a+b+c+d+e+f				9,759.48	
		Rate per sqm = (a+b+c+d+e+f)/1.00				**9,759.48**	
					say	***9759.50***	
M1.26	511 of MoRT &H/ 508 of MoRD	Providing, laying and rolling of open - graded premix surfacing of 25 mm thickness composed of 13.2 mm to 5.6 mm aggregates using modified bitumen to required line, grade and level to serve as wearing course on a previously prepared base, including mixing in a suitable plant, laying and rolling with a smooth wheeled roller 8-10 tonne capacity, finished to required level and grades as per Technical Specification and as directed by the Engineerin-Charge.					
		i) With Refinery Modified Bitumen CRMB 55 conforming to IRC: SP: 53-1999					
		Unit = sqm					
		Taking output = 3200 sqm (80 cum)					
		a) Labour					
		Mate	day	0.52	310.00	161.20	
		Mazdoor(unskilled)	day	10.00	310.00	3100.00	
		Mazdoor(skilled)	day	3.00	395.00	1185.00	
		b) Machinery					
		Batch type HMP 30/40 TPH	hour	6.00	8900.00	53400.00	
		Electric Generator Set 125 KVA	hour	6.00	445.00	2670.00	
		Tipper 5.50 cum/ 10 tonne capacity	hour	3.64	334.00	1215.76	
		Front end loader 1 cum bucket capacity	hour	6.00	920.00	5520.00	
		Paver finisher hydrostatic with sensor	hour	6.00	2250.00	13500.00	
		Smooth wheeled/tandom roller 8-10 tonnes weight	hour	3.00	1205.00	3615.00	
		c) Material					
		i) Modified Bitumen Refinery produced CRMB - 55					
		@ 18.25 kg per 10 sqm	tonne	5.84	41469.00	242178.96	
		ii) Aggregate					
		Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.34 cum per 10 sqm	cum	108.80	4890.00	532032.00	
		ii) Solvent					
		solvent @ of 70 grams per kg of Modified Bitumen	Kg	408.80	29.00	11855.20	
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				122295.85	
		e) Contractor's profit = 15 % on (a+b+c+d)				148909.35	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				11416.38	
		Cost for 3200 sqm = a+b+c+d+e+f				1153054.70	
		Rate per sqm = (a+b+c+d+e+f)/3200				360.33	
					say	***360.30***	
		ii) With Polymer Modified Bitumen PMB - 70					
		Unit = sqm					
		Taking output = 3200 sqm (80 cum)					
		a) Labour					
		Mate	day	0.52	310.00	161.20	
		Mazdoor(unskilled)	day	10.00	310.00	3100.00	
		Mazdoor(skilled)	day	3.00	395.00	1185.00	
		b) Machinery					
		Batch type HMP 30/40 TPH	hour	6.00	8900.00	53400.00	
		Electric Generator Set 125 KVA	hour	6.00	445.00	2670.00	
		Tipper 5.50 cum/ 10 tonne capacity	hour	3.64	76102.00	277011.28	
		Front end loader 1 cum bucket capacity	hour	6.00	920.00	5520.00	
		Paver finisher hydrostatic with sensor	hour	6.00	2250.00	13500.00	

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Smooth wheeled/tandom roller 8-10 tonnes weight	hour	3.00	1205.00	3615.00	
		c) Material					
		i) Polymer Modified Bitumen PMB - 70					
		@ 18.25 kg per 10 sqm	tonne	5.84	46362.00	270754.08	
		ii) Aggregate					
		Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.34 cum per 10 sqm	cum	108.80	4890.00	532032.00	
		ii) Solvent					
		solvent @ of 70 grams per kg of Modified Bitumen	Kg	408.80	29.00	11855.20	
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				165059.93	
		e) Contractor's profit = 15 % on (a+b+c+d)				200979.55	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				15408.43	
		Cost for 3200 sqm = a+b+c+d+e+f				1556251.67	
		Rate per sqm = (a+b+c+d+e+f)/3200				486.33	
					say	***<u>486.30</u>***	
M1.27	511 of MoRT &H/ 508 of MoRD	Providing, laying and rolling of open - graded premix surfacing of 20 mm thickness composed of 13.2 mm to 5.6 mm aggregates using modified bitumen to required line, grade and level to serve as wearing course on a previously prepared base, including mixing in a suitable plant, laying and rolling with a smooth wheeled roller 8-10 tonne capacity, finished to required level and grades as per Technical Specification and as directed by the Engineerin-Charge.					
		i) With Refinery Modified Bitumen CRMB 55 conforming to IRC: SP: 53-1999					
		Unit = sqm					
		Taking output = 4000 sqm (80 cum)					
		a) Labour					
		Mate	day	0.52	310.00	161.20	
		Mazdoor(unskilled)	day	10.00	310.00	3100.00	
		Mazdoor(skilled)	day	3.00	395.00	1185.00	
		b) Machinery					
		Batch type HMP 30/40 TPH	hour	6.00	8900.00	53400.00	
		Electric Generator Set 125 KVA	hour	6.00	445.00	2670.00	
		Tipper 5.50 cum/ 10 tonne capacity	hour	3.64	334.00	1215.76	
		Front end loader 1 cum bucket capacity	hour	6.00	920.00	5520.00	
		Paver finisher hydrostatic with sensor	hour	6.00	2250.00	13500.00	
		Smooth wheeled/tandom roller 8-10 tonnes weight	hour	3.00	1205.00	3615.00	
		c) Material					
		i) Modified Bitumen Refinery produced CRMB - 55					
		@ 14.60 kg per 10 sqm	tonne	5.84	41469.00	242178.96	
		ii) Aggregate					
		Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.27 cum per 10 sqm	cum	108.00	4890.00	528120.00	
		ii) Solvent					
		solvent @ of 70 grams per kg of Modified Bitumen	Kg	408.80	29.00	11855.20	
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				121746.22	
		e) Contractor's profit = 15 % on (a+b+c+d)				148240.10	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				11365.07	

MISCELLANEOUS-1

DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Cost for 4000 sqm = a+b+c+d+e+f				1147872.51	
		Rate per sqm = (a+b+c+d+e+f)/4000				286.97	
					say	***287.00***	
		ii) With Polymer Modified Bitumen PMB - 70					
		Unit = sqm					
		Taking output = 4000 sqm (80 cum)					
		a) Labour					
		Mate	day	0.52	310.00	161.20	
		Mazdoor(unskilled)	day	10.00	310.00	3100.00	
		Mazdoor(skilled)	day	3.00	395.00	1185.00	
		b) Machinery					
		Batch type HMP 30/40 TPH	hour	6.00	8900.00	53400.00	
		Electric Generator Set 125 KVA	hour	6.00	445.00	2670.00	
		Tipper 5.50 cum/ 10 tonne capacity	hour	3.64	76102.00	277011.28	
		Front end loader 1 cum bucket capacity	hour	6.00	920.00	5520.00	
		Paver finisher hydrostatic with sensor	hour	6.00	2250.00	13500.00	
		Smooth wheeled/tandom roller 8-10 tonnes weight	hour	3.00	1205.00	3615.00	
		c) Material					
		i) Polymer Modified Bitumen PMB - 70					
		@ 14.60 kg per 10 sqm	tonne	5.84	46362.00	270754.08	
		ii) Aggregate					
		Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.27 cum per 10 sqm	cum	108.00	4890.00	528120.00	
		ii) Solvent					
		solvent @ of 70 grams per kg of Modified Bitumen	Kg	408.80	29.00	11855.20	
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				164510.29	
		e) Contractor's profit = 15 % on (a+b+c+d)				200310.31	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				15357.12	
		Cost for 4000 sqm = a+b+c+d+e+f				1551069.48	
		Rate per sqm = (a+b+c+d+e+f)/4000				387.77	
					say	***387.80***	

M1.28 Road Stud with Lense Reflector

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
	804 of MoRT &H	Providing and fixing reflective road studs of size 100 x 20 mm made of ASA (Acrylic styrene Acryloretrite) or HIPS (High impact polystyrene) or ABS (Acrylonitrile butadiene styrene) or any other suitable material approved by the engineer having electronically welded micro-prismatic lens with abrasion resistant coating. The glow stud shall support a load of 13.635 tonne tested in accordance with ASTM D 4280. The slope of retro-reflective surface shall be 35 (± 5) degrees to base. The reflective panel should conform to ASTM D 788. The area of each retro-reflecting surface shall not be less than 13 sqcm. The luminance intensity should be as per the specification and shall be tested as described in ASTM I : 809 as recommended in BS: 873 part 4 : 1973. The studs shall be fixed to the Road surface in accordance with technical specification clause no. 804.7.2 using the adhesive conforming to IS or as per procedure recommended by the manufacturer complete and as per direction of Engineer-in-Charge and in field performance as per technical specification clause no. 804.7.3.					
		Unit = Nos					
		Details of cost for 15 Nos.					
		a) Labour					
		Mason (2nd Class)	day	0.50	395.00	197.50	
		Mazdoor (Unskilled)	day	0.50	310.00	155.00	
		b) Material					
		ABS/ ASA/ HIPS body road stud	Nos	15.00	**195.00**	2925.00	
		Add 2.25 % of the cost of (b) as Sundries (LS) for material required for fixing cats eyes and providing barricading to divert traffic.				65.81	

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		c) Add GST (multiplying factor) = 0.1405 on (a+b)				469.74	
		d) Contractor's profit = 15 % on (a+b+c)				571.96	
		e) Add Cess @ 1.00 % on (a+b+c+d)				43.85	
		Cost for 15 Nos = a+b+c+d+e				4428.86	
		Rate per No = (a+b+c+d+e)/15				295.26	
					say	***295.30***	
M1.29		Solar Powered Road Markers (Solar studs)					
	804 of MoRT &H	Providing and fixing Solar Powered Road Markers (Solar studs) of specified size to meet the requirement of technical specification clause 804.6 made of aluminium alloy and poly carbonate material which shall be absolutely weather resistant and shall support a load of 13.635 tonne tested in accordance with ASTM D 4280, of appropriate color & water resistant to meet the requirement of IP 65 in accordance with IS: 12063:1987 category 2 for protection against water ingress. It shall have super bright LEDs of flashing rate not less than 1Hz having a life of not less than three years. The slope of retro-reflective surface shall be 35 (±5) degrees to base. The studs shall be fixed to the Road surface in accordance with technical specification clause no. 804.7.2 using the adhesive conforming to IS or as per procedure recommended by the manufacturer complete and as per direction of Engineer-in-Charge and in field performance as per technical specification clause no. 804.7.3.					
		Unit = Nos					
		Details of cost for 15 Nos.					
		a) Labour					
		Mason (2nd Class)	day	0.50	395.00	197.50	
		Mazdoor (Unskilled)	day	0.50	310.00	155.00	
		b) Material					
		Solar Powered Road Markers made of aluminium alloy and poly carbonate material (Solar studs)	Nos	15.00	**925.00**	13875.00	
		Add 0.50 % of the cost of (b) as Sundries (LS) for material required for fixing cats eyes and providing barricading to divert traffic.				69.38	
		d) Add GST (multiplying factor) = 0.1405 on (a+b)				2008.71	
		d) Contractor's profit = 15 % on (a+b+c)				2445.84	
		e) Add Cess @ 1.00 % on (a+b+c+d)				187.51	
		Cost for 15 Nos = a+b+c+d+e				18938.94	
		Rate per No = (a+b+c+d+e)/15				1262.60	
					say	***1262.60***	
M1.30		Delineators made of ABS					
		Providing and fixing post delineators made of ABS round body fitted with 2 nos 100 mm dia high reflective reflectors and mounted on MS pipe of 65 mm dia duly powder coated anti-rust and anti theft steel to be installed as per direction of Engineer-in-Charge.					
		Unit = Nos					

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Details of cost for 1 No.					
		a) Material & Labour					
		ABS Delineator	Nos	1.00	275.00	275.00	
		Add LS 25 % of the cost of delineator for fixing material				68.75	
		Add LS 45 % of the cost of delineator for fixing charge				123.75	
		b) Add GST (multiplying factor) = 0.1405 on a)				65.68	
		c) Contractor's profit = 15 % on (a+b)				79.98	
		d) Add Cess @ 1.00 % on (a+b+c)				6.13	
		Cost for 1 No = a+b+c+d				619.29	
					say	***619.30***	
M1.31		Mending Potholes and depressions by stitching picked jhama bricks with one brick-on-edge laid in herring bone pattern and including necessary cushion of sand below the soling (and in between layers) including cutting the pothole area to rectangular shape with vertical edges, removing all loose materials, finishing the surface to match with adjacent areas complete as per direction of the Engineer-in-Charge.					
		(a) One brick-on-edge laid in herring bone pattern on a layer of flat brick (thickness 75 mm plus 125 mm)					
		Unit = sqm					
		Taking output = 150 sqm					
		a) Labour					
		Mason 1st Class	day	7.20	440.00	3,168.00	
		Mate	day	1.20	310.00	372.00	
		Mazdoor (Unskilled)	day	23.00	310.00	7,130.00	
		b) Machinery					
		Three wheel 80-100 KN static roller @ 150 sqm per hour	hour	1.00	392.00	392.00	
		Water tanker 6 kl capacity	hour	1.70	200.00	340.00	
		c) Material					
		Over burnt bricks (picked Jhama)	no	12,450.00	12.45	155,002.50	
		Fine Sand (local)	cum	10.88	460.00	5,004.80	
		Water	kl	9.50	133.00	1,263.50	
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				**24,260.53**	
		e) Contractor's profit = 15 % on (a+b+c)				**29,540.00**	
		f) Add Cess @ 1.00 % on (a+b+c+d)				2264.73	
		Cost for 150 sqm = a+b+c+d+e+f				228,738.06	
		Rate per sqm = (a+b+c+d+e+f)/150				**1,524.92**	
					say	***1524.90***	
		(b) One brick-on-edge laid in herring bone pattern (thickness 125 mm)					
		Unit = sqm					
		Taking output = 150 sqm					
		a) Labour					
		Mason 1st Class	day	3.60	440.00	1,584.00	
		Mate	day	0.62	310.00	192.20	
		Mazdoor (Unskilled)	day	12.00	310.00	3,720.00	
		b) Machinery					
		Three wheel 80-100 KN static roller @ 150 sqm per hour	hour	1.00	392.00	392.00	
		Water tanker 6 kl capacity	hour	1.00	200.00	200.00	
		c) Material					
		Over burnt bricks (picked Jhama)	no	7,800.00	12.45	97,110.00	

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Fine Sand (local)	cum	6.79	460.00	3,123.40	
		Water	kl	6.00	133.00	798.00	
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				**15,050.30**	
		e) Contractor's profit = 15 % on (a+b+c+d)				**18,325.49**	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				1404.95	
		Cost for 150 sqm = a+b+c+d+e+f				141,900.34	
		Rate per sqm = (a+b+c+d+e+f)/150				**946.00**	
					say	***946.00***	
M1.32	303.5.2	Preparation and consolidation of sub grade with power road roller of 8 to 12 tonne capacity after excavating earth to an average of 22.5 cm depth, dressing to camber and consolidating with road roller including making good the undulations etc. and re-rolling the sub grade and disposal of surplus earth with lead upto 50 metres as per direction of the of the Engineer-in-Charge.					
		Unit = 100 sqm					
		Details of cost for 1000 sqm					
		a) Labour					
		Mate	day	0.23	310.00	69.75	
		Mazdoor (Unskilled)	day	5.63	310.00	1,743.75	
		b) Machinery					
		Tractor with ripper attachment	hour	3.75	223.00	836.25	
		Water tanker 6 kl capacity	hour	1.50	200.00	300.00	
		Three wheel 80-100 kN Static Roller	hour	3.23	392.00	1,264.20	
		c) Material					
		Water	kl	9.00	133.00	1,197.00	
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				**760.24**	
		e) Contractor's profit = 15 % on (a+b+c+d)				**925.68**	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				70.97	
		Cost for 1000 sqm = a+b+c+d+e+f				7,167.84	
		Rate per 100 sqm = (a+b+c+d+e+f)/10				**716.78**	
					say	***716.80***	
M1.33	600,700 & 1200	Providing weep holes on brick masonry/ plain/ reinforced concrete wall with 90 mm dia uPVC pipe with ISI mark of approved/ reputed make extending through the full width of the structures with slope of 1(V):20(H) towards drawing face including cutting, fixing etc. complete as per drawing and direction of the Engineer-in-Charge and technical specification.					
		Unit = Mtr					
		Taking output = 30 Mtr					
		a) Material					
		uPVC pipe 90 mm dia including wastage @ 5 per cent. Average length of each weep hole is taken as one metre for the analysis.	m	31.50	131.10	4,129.65	
		Cement mortar 1:4 (For rate refer to item 11.5 II)	cum	0.045	3,108.20	139.87	
		b) Labour					
		Mate	day	0.03	310.00	9.30	
		Mason 1st Class	day	0.20	440.00	88.00	
		Mazdoor (Unskilled)	day	0.07	310.00	21.70	
		c) Add GST (multiplying factor) = 0.1405 on (a+b)				**616.59**	
		d) Contractor's profit = 15 % on (a+b+c)				**750.77**	
		e) Add Cess @ 1.00 % on (a+b+c+d)				57.56	

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Cost for 30 Mtr = (a+b+c+d+e)				5,813.43	
		Rate per Mtr = (a+b+c+d+e)/30				**193.78**	
					say	***193.80***	
M1.34	600,700 & 1200	Providing weep holes on brick masonry/ plain/ reinforced concrete wall with 75 mm dia uPVC pipe with ISI mark of approved/ reputed make extending through the full width of the structures with slope of 1(V):20(H) towards drawing face including cutting, fixing etc. complete as per drawing and direction of the Engineer-in-Charge and technical specification.					
		Unit = Mtr					
		Taking output = 30 Mtr					
		a) Material					
		uPVC pipe 75 mm dia including wastage @ 5 per cent. Average length of each weep hole is taken as one metre for the analysis.	m	31.50	94.15	2,965.73	
		Cement mortar 1:4 (For rate refer to item 11.5 II)	cum	0.038	3,108.20	118.11	
		b) Labour					
		Mate	day	0.03	310.00	9.30	
		Mason 1st Class	day	0.18	440.00	79.20	
		Mazdoor (Unskilled)	day	0.06	310.00	18.60	
		c) Add GST (multiplying factor) = 0.1405 on (a+b)				448.33	
		d) Contractor's profit = 15 % on (a+b+c)				545.89	
		e) Add Cess @ 1.00 % on (a+b+c+d)				41.85	
		Cost for 30 Mtr = (a+b+c+d+e)				4,227.00	
		Rate per Mtr = (a+b+c+d+e)/30				**140.90**	
					say	***140.90***	
M1.35	**900, 502, 503, 504 and 3004**	Repair to pot holes/ patch repair on all types of bituminous pavement by using All Weather Instant Patch Repair Cold Readymix Compound (INSSTAPATTCH/ SHELMAC - PR/ SHALIPATCH or equivalent products accredited by IRC) within specified shelf life including cleaning the existing portion of the road to be repaired by appropriate method, disposal of all failed material, compacting, etc. complete as per relevant technical specification and as per direction of the Engineer-in-charge. (irrespective of recorded premeasured area/ volume of pot holes repaired, to be measured for payment in multiple packs of 25/ 50 kg net HDPE bags with inside LDPE liner actually supplied/ delivered & utilised)					
		Unit = per kg					
		Details of cost for 100 sqm assuming average 20 mm thickness of area or 2500 kg (50 Bag of 50 kg each)					
		coverage – Approximately (1 sqm x 20 mm per 25 kg of mix). Density of mix is approx. 2000 kg/ m3. (Assumed for analysis only)					
		a) Labour					
		Mate	day	0.27	310.00	83.70	
		Mazdoor (Unskilled)	day	7.00	310.00	2,170.00	
		Compaction can be done using shovel and a simple hand rammer. For large repairs, using a roller shall ensure smooth/even compaction..					
		b) Machinery					
		Tractor with trolley (for additional carriage of material at different stretches of road)	hour	0.75	237.00	177.75	

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Three wheel 80-100 kN Static Roller (Only taken for large potholes filled in layers if required as additional)	hour	0.10	392.00	39.20	
		c) Material					
		Instant Road Repair Compound (INSSTAPATTCH/ SHELMAC - PR/ SHALIPATCH or Equivalent)	kg	2,500.00	20.50	51,250.00	
		Add 2.5% labour rate for cost of brush etc.				56.34	
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				**7,555.67**	
		e) Contractor's profit = 15 % on (a+b+c+d)				**9,199.90**	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				705.33	
		Cost for 50 bag of 50 kg each = a+b+c+d+e+f				71,237.88	
		Rate per kg = (a+b+c+d+e+f)/2500				**28.50**	
					say	***28.50***	
	Note:	*i.Manufacturer's specification/ direction shall also to be followed during execution of work.*					
M1.36	**900, 502, 503, 504 and 3004**	Labour charge for repair to pot holes/ patch repair on all types of bituminous pavement by using All Weather Instant Patch Repair Cold Readymix Compound (INSSTAPATTCH/ SHELMAC - PR/ SHALIPATCH or equivalent products accredited by IRC) within specified shelf life including cleaning the existing portion of the road to be repaired by appropriate method, disposal of all failed material, compacting, etc. complete as per relevant technical specification and as per direction of the Engineer-in-charge. (irrespective of recorded premeasured area/ volume of pot holes repaired, to be measured for payment in multiple packs of 25/ 50 kg net HDPE bags with inside LDPE liner actually issued at free of cost by the department & utilised)					
		Unit = Bag of 50 Kg each Details of cost for 100 sqm assuming average 20 mm thickness of area or 2500 kg (50 Bag of 50 kg each) coverage – Approximately (1 sqm x 20 mm per 25 kg of mix). Density of mix is approx. 2000 kg/ m3. (Assumed for analysis only)					
		a) Labour					
		Mate	day	0.27	310.00	83.70	
		Mazdoor (Unskilled)	day	7.00	310.00	2,170.00	
		Compaction can be done using shovel and a simple hand rammer. For large repairs, using a roller shall ensure smooth/even compaction..					
		b) Machinery					
		Tractor with trolley (for additional carriage of material at different stretches of road)	hour	0.75	237.00	177.75	
		Three wheel 80-100 kN Static Roller (Only taken for large potholes filled in layers if required as additional)	hour	0.10	392.00	39.20	
		c) Material					
		Instant Road Repair Compound (INSSTAPATTCH/ SHELMAC - PR/ SHALIPATCH or Equivalent)	kg	2,500.00			
		Add 2.5% labour rate for cost of brush etc.				56.34	
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				**355.04**	

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		e) Contractor's profit = 15 % on (a+b+c+d)				**432.31**	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				33.14	
		Cost for 50 bag of 50 kg each = a+b+c+d+e+f				3,347.48	
		Rate per kg = (a+b+c+d+e+f)/2500				**1.34**	
					say	***1.30***	
		Note: *i.Carriage of packs of 25/ 50 kg net HDPE bags from departmental store to work site is payable seperately as per similar item of Chapter of carriage of material (item no. 1.4 and 1.10 of MoRD).* *ii.Manufacturer's specification/ direction shall also to be followed during execution of work.*					
M1.37	402	Gravel / Soil - Aggregate Base (Table 400.2) Construction of gravel / soil - aggregate base by providing well graded material, spreading in uniform layers with Tractor mount grader on prepared surface, mixing by mix in place method with Tractor mount rotavator at OMC, and compacting with three wheel 80 - 100 kN static roller to achieve the desired density, complete as per Technical Specification Clause 402.					
	(i)	**Grading -A**					
		Unit = cum					
		Taking out put = 300 cum					
		a) Labour					
		Mate	day	0.40	310.00	124.00	
		Mazdoor(skilled)	day	2.00	395.00	790.00	
		Mazdoor (Unskilled)	day	8.00	310.00	2,480.00	
		b) Machinery					
		Tractor mount Grader @ 25 cum per hour	hour	12.00	320.00	3,840.00	
		Three wheel 80-100 KN static roller @10 cum per hour	hour	30.00	392.00	11,760.00	
		Water tanker 6kl capacity	hour	5.00	200.00	1,000.00	
		Tractor withh Rotavator @25 cum per hour	hour	12.00	320.00	3,840.00	
		c) Material					
		Well Graded granular sub-base material as per Table 400.2 Grading-A					
		53 mm to 26.5 mm @ 35 per cent	cum	134.40	4,279.00	575,097.60	
		26.5 mm to 4.75 mm @ 45 per cent	cum	172.80	4,770.00	824,256.00	
		2.36 mm below @ 20 per cent	cum	76.80	2,536.00	194,764.80	
		Water	kl	30.00	133.00	3,990.00	
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				**227,882.91**	
		e) Contractor's profit = 15 % on (a+b+c+d)				**277,473.80**	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				21272.99	
		cost of 300cum= a+b+c+d+e+f				**2,148,572.09**	
		Rate per cum= (a+b+c+d+e+f)/300				**7,161.91**	
					say	***7161.90***	
	(ii)	**Grading -B**					
		Unit = cum					
		Taking out put = 300 cum					
		a) Labour					
		Mate	day	0.40	310.00	124.00	
		Mazdoor(skilled)	day	2.00	395.00	790.00	
		Mazdoor (Unskilled)	day	8.00	310.00	2,480.00	
		b) Machinery					
		Tractor mount Grader @ 25 cum per hour	hour	12.00	320.00	3,840.00	
		Three wheel 80-100 KN static roller @10 cum per hour	hour	30.00	392.00	11,760.00	
		Water tanker 6kl capacity	hour	5.00	200.00	1,000.00	
		Tractor withh Rotavator @25 cum per hour	hour	12.00	320.00	3,840.00	
		c) Material					

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Well Graded granular sub-base material as per Table 400.2 Grading-B	cum				
		26.5 mm to 4.75 mm @ 75 per cent	cum	288.00	4,770.00	1,373,760.00	
		2.36 mm below @ 25 per cent	cum	96.00	2,535.00	243,360.00	
		Water	kl	30.00	133.00	3,990.00	
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				**231,114.63**	
		e) Contractor's profit = 15 % on (a+b+c+d)				**281,408.79**	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				21574.67	
		cost of 300cum= a+b+c+d+e+f				**2,179,042.10**	
		Rate per cum= (a+b+c+d+e+f)/300				**7,263.47**	
					say	***7263.50***	
	(iii)	**Grading -C**					
		Unit = cum					
		Taking out put = 300 cum					
	a)	**Labour**					
		Mate	day	0.40	310.00	124.00	
		Mazdoor(skilled)	day	2.00	395.00	790.00	
		Mazdoor (Unskilled)	day	8.00	0.00	0.00	
	b)	**Machinery**					
		Tractor mount Grader @ 25 cum per hour	hour	12.00	320.00	3,840.00	
		Three wheel 80-100 KN static roller @10 cum per hour	hour	30.00	392.00	11,760.00	
		Water tanker 6kl capacity	hour	5.00	200.00	1,000.00	
		Tractor withh Rotavator @25 cum per hour	hour	12.00	320.00	3,840.00	
	c)	**Material**					
		Well Graded granular sub-base material as per Table 400.2 Grading-C	cum				
		9.5 mm to 4.75 mm @ 66 per cent	cum	255.00	4,920.00	1,254,600.00	
		2.36 mm below @ 34 per cent	cum	129.00	2,536.00	327,144.00	
		Water	kl	30.00	133.00	3,990.00	
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				**225,795.86**	
		e) Contractor's profit = 15 % on (a+b+c+d)				**274,932.58**	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				21078.16	
		cost of 300cum= a+b+c+d+e+f				**2,128,894.61**	
		Rate per cum= (a+b+c+d+e+f)/300				**7,096.32**	
					say	***7096.30***	
M1.38	402	Gravel / Soil - Aggregate Surface Course (Table 400.3)					
		Construction of gravel / soil - aggregate surface course by providing well graded material, spreading in uniform layers with Tractor mount grader on prepared surface, mixing by mix in place method with Tractor mount rotavator at OMC, and compacting with three wheel 80 - 100 kN static roller to achieve the desired density, complete as per Technical Specification Clause 402.					
		Unit = cum					
		Taking out put = 300 cum					
	a)	**Labour**					
		Mate	day	0.40	0.00	0.00	
		Mazdoor(skilled)	day	2.00	0.00	0.00	
		Mazdoor (Unskilled)	day	8.00	0.00	0.00	
	b)	**Machinery**					
		Tractor mount Grader @ 25 cum per hour	hour	12.00	320.00	3,840.00	
		Three wheel 80-100 KN static roller @10 cum per hour	hour	30.00	392.00	11,760.00	
		Water tanker 6kl capacity	hour	5.00	200.00	1,000.00	
		Tractor withh Rotavator @25 cum per hour	hour	12.00	320.00	3,840.00	
	c)	**Material**					
		Well Graded granular sub-base material as per Table 400.3	cum				

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		4.75 to 2.36 mm 40 per cent	cum	153.60	5,015.00	770,304.00	
		2.36 mm below @ 60 per cent	cum	210.40	2,535.00	533,364.00	
		Water	kl	30.00	133.00	3,990.00	
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				**186,597.77**	
		e) Contractor's profit = 15 % on (a+b+c+d)				**227,204.37**	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				17419.00	
		cost of 300cum= a+b+c+d+e+f				**1,759,319.14**	
		Rate per cum= (a+b+c+d+e+f)/300				**5,864.40**	
					say	***5864.40***	
M1.39	IRC:SP:98-2013	40/50 mm compacted thickness with bitumen of grade VG-30 @ 5.5% percentage by weight of total mix) and lime filler @ 3% (percentage by weight of Aggregate) and waste plastic additive @ 8% (percentage by weight of bitumen) prepared in Batch Type Hot Mix Plant of 100- 120 TPH capacity as per direction of Engineer-in-charge.					
		Unit = cum					
		Details of cost for 191 cum (450 tonnes)					
		a) Labour					
		Mate	day	0.84	310.00	260.40	
		Mazdoor(unskilled)	day	16.00	310.00	4960.00	
		Mazdoor(skilled)	day	5.00	395.00	1975.00	
		b) Machinery					
		Batch mix HMP 100-120 TPH hydrostatic with sensor control	hour	6.00	15400.00	92400.00	
		Electric generator set, 250 KVA	hour	6.00	625.00	3750.00	
		Tipper 5.50 cum/ 10 tonne capacity	hour	18.64	334.00	6225.76	
		Hydraulic broom @ 1250 sqm per hour	hour	2.20		0.00	
		Front end loader 1 cum bucket capacity	hour	6.00	920.00	5520.00	
		Paver finisher hydrostatic with sensor	hour	6.00	2250.00	13500.00	
		80-100 kN Static Roller	hour	3.90	392.00	1528.80	
		(for initial break down rolling.(6*0.65))					
		80-100 kN Vibratory roller	hour	3.90	1395.00	5440.50	
		(for intermediate rolling.(6*0.65))					
		80-100 kN Tandem roller (Finish rolling with 6-8 tonnes smooth wheeled tandem roller.(6*0.65))	hour	3.90	1205.00	4699.50	
		c) Material					
		i) Paving Asphalt VG-30 of approved quality					
		@5.50% (percentage by weight of total mix	tonne	24.75	40138.00	993415.50	
		ii) Aggregate					
		Total weight of mix = 450 tonnes, Weight of bitumen = 24.75 tonnes, Weight of aggregate = 450 - 24.75 = 425.25 tonnes					
		Taking density of aggregate = 1.5 tonne/cum, **Volume of aggregate =425.25/1.5 = 283.50 cum**					
		Grading - II/19 mm (Nominal Size) 13.2 - 10 mm size = 30% of 283.50 = 85.05 cum	cum	85.05	4720.00	401436.00	
		10 - 5 mm size = 25% of 283.50 = 70.88 cum	cum	70.88	4852.00	343909.76	
		5 mm and below = 42% of 283.50 = 119.07 cum	cum	119.07	4965.00	591182.55	
		iii) Waste Plastic @ 8% of the weigh of bitumen i.e. 24.75*8%					
		Waste plastic additive	tonne	1.98	43000.00	85140.00	

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		iv) Dry hydrated lime (factory made)	quintal	127.60	380.00	48488.00	
		(Lime filler @ 3% (percentage by weight of aggregate)(consider density of lime as 1.29 T per cum, V = 12.758/1.29 = 9.89 cum)					
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				365838.36	
		e) Contractor's profit = 15 % on (a+b+c+d)				445450.52	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				34151.21	
		Cost for 191 cum = a+b+c+d+e+f				3449271.86	
		Rate per cum = (a+b+c+d+e+f)/191				18059.01	
					say	***18059.00***	
M1.40		Providing and fixing Solar Power Road Delineator made of poly carbonate cup of approximate 80 mm dia and 90 mm height and mounted on MS pipe of 65 mm dia duly powder coated anti-rust and anti theft steel to be installed as per direction of Engineer-in-charge.					
		Unit = Nos					
		Details of cost for 1 No.					
		a) Material					
		Solar Power Road Delineator	Nos	1.00	565.00	565.00	
		Add 45 % of the cost of (a) as (LS) for **materials** required for fixing delineators.				254.25	
		b) Labour					
		Add 25 % of the cost of material as (LS) for charges of fixing delineators and providing barricading to divert traffic.				141.25	
		c) Add GST (multiplying factor) = 0.1405 on (a+b)				134.95	
		d) Contractor's profit = 15 % on (a+b+c)				164.32	
		e) Add Cess @ 1.00 % on (a+b+c+d)				12.60	
		Cost for 1 No = a+b+c+d+e				1272.37	
		Rate per No = (a+b+c+d+e)				1272.37	
					say	***1272.40***	
M1.41		**Retro Reflective Tapes**					
		Providing and fixing retro-relectorised warning signs of red, white, yellow high quality retro-reflecting water proof sheeting tapes (45mx72mm) in width of standard specification and direction of the Engineer-in-charge.					
		Unit = Mtr					
		taking output = 3 x 45 mtr tape.					
		a) Material					
		Retro Reflective Tapes (45m x 72mm)	no	1.00	1,225.00	1225.00	
		Add 3 % of the cost of (a) as (LS) wastage.				36.75	
		b) Labour					
		Helper (skilled)	day	0.05	355.00	17.75	
		Mazdoor(unskilled)	day	0.05	310.00	15.50	
		c) Add GST (multiplying factor) = 0.1405 on (a+b)				181.95	
		d) Contractor's profit = 15 % on (a+b+c)				221.54	
		e) Add Cess @ 1.00 % on (a+b+c+d)				16.98	
		Cost for 3x 45 mtr = a+b+c+d+e				1715.47	
		Rate per mtr = (a+b+c+d+e)				12.71	
					say	***12.70***	
M1.42		Flexible median Marker					

MISCELLANEOUS-1
DIFFERENT MISCELLANEOUS ITEMS FOR ROADS & STEEL BRIDGES

Sr. No.		Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Supply and fixing of Flexible Median Markers (FMM) made of tough high impact resistance injection moulded thermoplastic body of standard size and thickness with fluorocent yellow colour type XI retroreflective sheeting fixed on both sides fixed with epoxy adhesive and grouting to the surface complete in all respect as per IRC accrediation and the direction of the engineer-in-charge.					
		Unit = each					
		Details of cost for 1 No. (FMM)					
		a) Material					
		Epoxy dhesive	kg	0.032	160.00	5.12	
		Flexible median marker, yellow color with ABS body material of standard size	no	1.00	205.00	205.00	
		b) Labour					
		Mate	day	0.01	310.00	3.10	
		Mazdoor(unskilled)	day	0.02	310.00	6.20	
		c) Machinery					
		Generator 33 KVA	hour	0.08	225.00	18.00	
		Drilling machine 5% of (a)	LS			10.51	
		d) Add GST (multiplying factor) = 0.1405 on (a+b+c)				34.83	
		e) Contractor's profit = 15 % on (a+b+c+d)				42.41	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				3.25	
		Cost for 1 No = a+b+c+d+e+f				328.43	
		Rate per No = (a+b+c+d+e+f)				328.43	
					say	***328.40***	

MISCELLANEOUS-2
MISCELLANEOUS ITEMS FOR TIMBER BRIDGES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
M2.1		Providing of Sal / Nahar / Nageswar piles dressed to heart wood and making shoes with end tappered upto 750 mm from the bottom of the pile, marking of length with chisel in metre and part of a metre run from the bottom of the piles, applying coal tar after verification and approval of the piles and stacking at the work site as per Specification.					
		(i) 250 mm dia to 300 mm dia piles					
		Unit = m					
		Taking output = 10.00 m					
		a) Labour					
		Mate	day	0.04	310.00	12.40	L-19
		Carpenter(2nd class)	day	0.50	395.00	197.50	L-08
		Mazdoor(unskilled)	day	0.50	310.00	155.00	L-20
		b) Material					
		Sal/Nahar/Nageswar piles, 250 mm dia to 300 mm dia piles	cum	10.10	1595.00	16109.50	M-230
		Applying coal tar, **Rate vide item no. M2.9(ex/c OH & CP)**	Sqm	8.64	27.39	236.67	Item no. M2.9
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				2347.90	
		d) Contractor's profit @ 15 % on (a+b+c)				2858.85	
		e) Add Cess @ 1.00 % on (a+b+c+d)				219.18	
		Cost for 10 m = a+b+c+d+e				22137.00	
		Rate per m = (a+b+c+d+e)/10				2213.70	
					say	***2213.70***	
		(ii) 200 mm dia to 250 mm dia piles					
		Unit = m					
		Taking output = 10.00 m					
		a) Labour					
		Mate	day	0.032	310.00	9.92	L-19
		Carpenter(2nd class)	day	0.40	395.00	158.00	L-08
		Mazdoor(unskilled)	day	0.40	310.00	124.00	L-20
		b) Material					
		Sal/Nahar/Nageswar piles, 200 mm dia to 250 mm dia piles	cum	10.10	1395.00	14089.50	M-231
		Applying coal tar, **rate vide item no. M2.9**	Sqm	7.07		0.00	Item no. M2.9
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				2020.59	
		d) Contractor's profit @ 15 % on (a+b+c)				2460.30	
		e) Add Cess @ 1.00 % on (a+b+c+d)				188.62	
		Cost for 10 m = a+b+c+d+e				19050.93	
		Rate per m = (a+b+c+d+e)/10				1905.09	
					say	***1905.10***	
M2.2		Handling and driving of Sal / Nahar / Nageswar piles with 3/4th to 1.0 ton monkey upto refusal as per Specification.					
		(ii) 250 mm dia to 300 mm dia piles					
		Unit = m					
		Taking output = 10.00 m					
		a) Labour					
		Mate	day	0.92	310.00	285.20	L-19

MISCELLANEOUS-2
MISCELLANEOUS ITEMS FOR TIMBER BRIDGES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Mistri(for wooden pile driving/ lifting)	day	1.00	440.00	440.00	L-23
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-22
		Mazdoor(semi-skilled)	day	6.00	355.00	2130.00	L-21
		Mazdoor(unskilled)	day	15.00	310.00	4650.00	L-20
		b) Tools					
		3/4th to 1.00 tonne monkey with necessary chains, pulley and other accessories for handling and driving of wooden piles (hire charges)	day	1.00	3052.00	3052.00	
		Add 1.00% on (a+b) for sundries				113.47	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				1594.28	
		d) Contractor's profit @ 15 % on (a+b+c)				1958.24	
		e) Add Cess @ 1.00 % on (a+b+c+d)				150.13	
		Cost for 10 m = a+b+c+d+e				15163.33	
		Rate per m = (a+b+c+d+e)/10				1516.33	
					say	***1516.30***	
		(ii) 200 mm dia to 250 mm dia piles					
		Unit = m					
		Taking output = 10.00 m					
		a) Labour					
		Mate	day	0.56	310.00	173.60	L-19
		Mistri(for wooden pile driving/ lifting)	day	1.00	440.00	440.00	L-23
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-22
		Mazdoor(semi-skilled)	day	4.00	355.00	1420.00	L-21
		Mazdoor(unskilled)	day	8.00	310.00	2480.00	L-20
		b) Tools					
		3/4th to 1.00 tonne monkey with necessary chains, pulley and other accessories for handling and driving of wooden piles (hire charges)	day	1.00	3052.00	3052.00	
		Add 1.00% on (a+b) for sundries				83.56	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				1173.96	
		d) Contractor's profit @ 15 % on (a+b+c)				1441.97	
		e) Add Cess @ 1.00 % on (a+b+c+d)				110.55	
		Cost for 10 m = a+b+c+d+e				11165.64	
		Rate per m = (a+b+c+d+e)/10				1116.56	
					say	***1116.60***	
M2.3		Scarfing and jointing (half lap joint 1.00 m long) of Sal / Nahar / Nageswar piles of required dia with 3 Nos M.S. circular clamps of made of 50 mm x 10 mm MS flat or plate of required length, 2 nos. 100 mm x 100 mm x 10 mm MS angle 1.50 m long tightened with 12 mm dia & 50 mm long bolts and nuts for circular clamp and 3 Nos. 16 mm dia bolts and nuts of required length with washers on both side of the angles complete (payment for the length of piles required for jointing is to be made separately) as per drawing and as per Specification.					
		(i) 250 mm dia to 300 mm dia piles					
		Unit = No					
		Taking output = 1 No					
		a) Labour					
		Mate	day	0.01	310.00	3.10	L-19

MISCELLANEOUS-2
MISCELLANEOUS ITEMS FOR TIMBER BRIDGES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Carpenter(2nd class)	day	0.30	395.00	118.50	L-08
		Mazdoor(unskilled)	day	0.30	310.00	93.00	L-20
		b) Material					
		M.S. Clamp made of MS flat or plate 50 x 10 mm 1.34 m long @ 3.80 kg/m 3 nos	Kg	15.28	47.00	718.16	M-131
		M.S. angle 100 x 100 x 10 mm 1.5 m long @ 15.20 kg/m 2 nos	Kg	45.60	47.00	2143.20	M-131
		Machine charge of clamps and angles with necessary holes also @ 5.00 %				153.80	
		M.S. nut & bolts with washers 16 mm dia 3 nos 350 mm long	Kg	1.69	82.30	139.09	M-143
		M.S. nut & bolts with washers 12 mm dia 2 nos 50 mm long	Kg	0.09	82.30	7.41	M-143
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				474.36	
		d) Contractor's profit @ 15 % on (a+b+c)				577.59	
		e) Add Cess @ 1.00 % on (a+b+c+d)				44.28	
		Cost for 1 no = a+b+c+d+e				4472.49	
		Rate per no of joint = (a+b+c+d+e)/1				4472.49	
					say	***4472.50***	
		(ii) 200 mm dia to 250 mm dia piles					
		Unit = No					
		Taking output = 1 No					
		a) Labour					
		Mate	day	0.01	310.00	3.10	L-19
		Carpenter(2nd class)	day	0.30	395.00	118.50	L-08
		Mazdoor(unskilled)	day	0.30	310.00	93.00	L-20
		b) Material					
		M.S. Clamp made of MS flat or plate 50 x 10 mm 1.19 m long @ 3.80 kg/m 3 nos	Kg	13.57	47.00	637.79	M-131
		M.S. angle 100 x 100 x 10 mm 1.5 m long @ 15.20 kg/m 2 nos	Kg	45.60	47.00	2143.20	M-131
		Machine charge of clamps and angles with necessary holes also @ 5.00 %				149.78	
		M.S. nut & bolts with washers 16 mm dia 3 nos 300 mm long	Kg	1.45	82.30	119.34	M-143
		M.S. nut & bolts with washers 12 mm dia 2 nos 50 mm long	Kg	0.09	82.30	7.41	M-143
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				459.73	
		d) Contractor's profit @ 15 % on (a+b+c)				559.78	
		e) Add Cess @ 1.00 % on (a+b+c+d)				42.92	
		Cost for 1 no = a+b+c+d+e				4334.54	
		Rate per no of joint = (a+b+c+d+e)/1				4334.54	
					say	***4334.50***	
M2.4		Cutting and jointing (butt joints) of Sal/ Nahar /Nageswar piles of required dia fitted with 400 mm long 32 mm dia MS Dowel bar at centre of the pile, 4 nos. 100 mm x 100 mm x 10 mm MS angle 1.50 m long tightened with 6 x 2 Nos. 16 mm dia bolts and nuts of required length with washers on both side of the angles complete as per drawing and as per Specification					
		(i) 250 mm dia to 300 mm dia piles					
		Unit = No					

MISCELLANEOUS-2
MISCELLANEOUS ITEMS FOR TIMBER BRIDGES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Taking output = 1 No					
		a) Labour					
		Mate	day	0.01	310.00	3.10	L-19
		Carpenter(2nd class)	day	0.20	395.00	79.00	L-08
		Mazdoor(unskilled)	day	0.20	310.00	62.00	L-20
		b) Material					
		M.S. angle 100 x 100 x 10 mm 1.5 m long @ 15.20 kg/m 4 nos	Kg	91.20	47.00	4286.40	M-131
		Machine charge of clamps and angles with necessary holes also @ 5.00 %				221.53	
		M.S. nut & bolts with washers 16 mm dia 12 nos 350 mm long	Kg	6.76	82.30	556.35	M-143
		M.S. dowel bar 32 mm dia 1 no 400 mm long	Kg	2.57	82.30	211.51	M-143
		For staging etc. @ 5.00 %				270.99	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				799.57	
		d) Contractor's profit @ 15 % on (a+b+c)				973.57	
		e) Add Cess @ 1.00 % on (a+b+c+d)				74.64	
		Cost for 1 no = a+b+c+d+e				7538.65	
		Rate per no of joint = (a+b+c+d+e)/1				7538.65	
					say	***7538.70***	
		(ii) 200 mm dia to 250 mm dia piles					
		Unit = No					
		Taking output = 1 No					
		a) Labour					
		Mate	day	0.01	310.00	3.10	L-19
		Carpenter(2nd class)	day	0.20	395.00	79.00	L-08
		Mazdoor(unskilled)	day	0.20	310.00	62.00	L-20
		b) Material					
		M.S. angle 100 x 100 x 10 mm 1.5 m long @ 15.20 kg/m 4 nos	Kg	91.20	47.00	4286.40	M-131
		Machine charge of clamps and angles with necessary holes also @ 5.00 %				221.53	
		M.S. nut & bolts with washers 16 mm dia 12 nos 300 mm long	Kg	5.79	82.30	476.52	M-143
		M.S. dowel bar 32 mm dia 1 no 400 mm long	Kg	2.57	82.30	211.51	M-143
		For staging etc. @ 5.00 %				267.00	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				787.79	
		d) Contractor's profit @ 15 % on (a+b+c)				959.23	
		e) Add Cess @ 1.00 % on (a+b+c+d)				73.54	
		Cost for 1 no = a+b+c+d+e				7427.61	
		Rate per no of joint = (a+b+c+d+e)/1				7427.61	
					say	***7427.60***	
M2.5		Providing and placing R.S. Joists in position in SPT bridges including cutting, hoisting, making holes, fitting with 3 nos of MS hooks of 16 mm dia on both side of the joists with each beam, apllying priming coat of red lead paint as per drawing and as per Specification.					
		Unit = t					
		Taking output = 3.182 t.					
		a) Labour					
		Mate	day	2.40	310.00	744.00	L-19
		Carpenter(2nd class)	day	4.00	395.00	1580.00	L-08

MISCELLANEOUS-2
MISCELLANEOUS ITEMS FOR TIMBER BRIDGES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Mazdoor(unskilled)	day	60.00	310.00	18600.00	L-20
		b) Material					
		RS Joist 450 x 150 mm size 12.00 m long @ 44.20 kg/m	Tonne	3.182	47000.00	149554.00	M-184
		M.S. hooks, 16 mm dia 36 nos 200 mm long	Kg	11.59	45.00	521.55	M-186
		Machine charge for cutting joists, making holes, etc. @ 25.00 % of labour				5231.00	
		For making arrangements for placing the joist in position, etc. @ 25.00 % of labour				5231.00	
		Applying a priming coat of red lead paint including staging as required @ 15.00 % of labour				3138.60	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				25936.32	
		d) Contractor's profit @ 15 % on (a+b+c)				31580.47	
		e) Add Cess @ 1.00 % on (a+b+c+d)				2421.17	
		Cost for 3.182 t = a+b+c+d+e				244538.11	
		Rate per Tonne = (a+b+c+d+e)/3.182				76850.44	
					say	***76850.40***	
M2.6		Charges for placing R.S. Joists in position in SPT bridges including cutting, hoisting, making holes, fitting with 3 nos of MS hooks of 16 mm dia on both side of the joists with each beam, apllying priming coat of red lead paint as per drawing and as per Specification (excluding the cost of the RS Joist available at site).					
		i. For placing new RS Joist					
		Unit = t					
		Taking output = 3.182 t.					
		a) Labour					
		Mate	day	2.40	310.00	744.00	L-19
		Carpenter(2nd class)	day	4.00	395.00	1580.00	L-08
		Mazdoor(unskilled)	day	60.00	310.00	18600.00	L-20
		b) Material					
		RS Joist 450 x 150 mm size 12.00 m long @ 44.20 kg/m **(available at site)**	Tonne	3.182		0.00	
		M.S. hooks, 16 mm dia 36 nos 200 mm long	Kg	11.59	45.00	521.55	M-186
		Machine charge for cutting joists, making holes, etc. @ 25.00 % of labour				5231.00	
		For making arrangements for placing the joist in position, etc. @ 25.00 % of labour				5231.00	
		Applying a priming coat of red lead paint including staging as required @ 15.00 % of labour				3138.60	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				4923.98	
		d) Contractor's profit @ 15 % on (a+b+c)				5995.52	
		e) Add Cess @ 1.00 % on (a+b+c+d)				459.66	
		Cost for 3.182 t = a+b+c+d+e				46425.31	
		Rate per Tonne = (a+b+c+d+e)/3.182				14589.98	
					say	***14590.00***	

MISCELLANEOUS-2
MISCELLANEOUS ITEMS FOR TIMBER BRIDGES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		ii. For placing old and dismantled RS joists					
		Unit = t					
		Taking output = 3.182 t.					
		a) Labour					
		Mate	day	2.40	310.00	744.00	L-19
		Carpenter(2nd class)	day	4.00	395.00	1580.00	L-08
		Mazdoor(unskilled)	day	60.00	310.00	18600.00	L-20
		b) Material					
		RS Joist 450 x 150 mm size 12.00 m long @ 44.20 kg/m **(available at site)**	Tonne	3.182		0.00	
		M.S. hooks, 16 mm dia 36 nos 200 mm long	Kg	11.59	45.00	521.55	M-186
		For making arrangements for placing the joist in position, etc. @ 25.00 % of labour				5231.00	
		For Scrapping of RS Joist. @ 5.00 % of labour				1046.20	
		Applying a priming coat of red lead paint including staging as required @ 15.00 % of labour				3138.60	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				4336.02	
		d) Contractor's profit @ 15 % on (a+b+c)				5279.61	
		e) Add Cess @ 1.00 % on (a+b+c+d)				404.77	
		Cost for 3.182 t = a+b+c+d+e				40881.74	
		Rate per Tonne = (a+b+c+d+e)/3.182				12847.81	
					say	***12847.80***	
M2.7		Dismantling R.S. Joists from SPT Bridges and stacking properly at site of work within 100 m lead with all lifts as per drawing and as per Specification.					
		Unit = t					
		Taking output = 3.182 t					
		a) Labour					
		Mate	day	2.20	310.00	682.00	L-19
		Carpenter(2nd class)	day	4.00	395.00	1580.00	L-08
		Mazdoor(unskilled)	day	55.00	310.00	17050.00	L-20
		b) Add GST (multiplying factor) @ 0.1405 on (a)				2713.34	
		c) Contractor's profit @ 15 % on (a+b)				3303.80	
		d) Add Cess @ 1.00 % on (a+b+c)				253.29	
		Cost for 3.182 t = a+b+c+d+e				25582.43	
		Rate per m = (a+b+c+d)/3.182				8039.73	
					say	***8039.70***	
M2.8		Providing and fitting fixing of MS bolts with heads and nuts of various dia and length including making of holes in wooden members as per Specification.					
		Unit = kg					
		Taking output = 15.88 kg					
		a) Labour					
		Mate	day	0.01	310.00	3.10	L-19
		Carpenter(2nd class)	day	0.30	395.00	118.50	L-08
		Mazdoor(unskilled)	day	0.30	310.00	93.00	L-20
		b) Material					

MISCELLANEOUS-2
MISCELLANEOUS ITEMS FOR TIMBER BRIDGES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		M.S. nut & bolts with washers 16 mm dia 16 nos 350 mm long	Kg	9.01	82.30	741.52	M-143
		M.S. nut & bolts with washers 12 mm dia 30 nos 200 mm long	Kg	5.97	82.30	491.33	M-143
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				203.37	
		d) Contractor's profit @ 15 % on (a+b+c)				247.62	
		e) Add Cess @ 1.00 % on (a+b+c+d)				18.98	
		Cost for 15.88 kg = a+b+c+d+e				1917.43	
		Rate per kg = (a+b+c+d+e)/15.88				120.74	
					say	***120.70***	
M2.9		Applying coal tar at least two coats on wood work including handling and stacking the coal tarred material at the work site as per Specification.					
		Unit = sqm					
		Taking output = 10.00 sqm					
		a) Labour					
		Mate	day	0.02	310.00	6.20	L-19
		Mazdoor(unskilled)	day	0.50	310.00	155.00	L-20
		b) Material					
		Coal Tar (considering 1.52 kg for 1st coat & 1.11 kg for 2nd coat and 5.00 % wastage)	Kg	2.76	35.00	96.60	M-056
		Add 10.00 % of labour cost for Sundries				16.12	
		Basic cost of labour & materials(a+b)/ Sqm				***27.39***	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				38.49	
		d) Contractor's profit @ 15 % on (a+b+c)				46.86	
		e) Add Cess @ 1.00 % on (a+b+c+d)				3.59	
		Cost for 10.00 sqm = a+b+c+d+e				362.86	
		Rate per sqm = (a+b+c+d+e)/10.00				36.29	
					say	***36.30***	
M2.10		Providing and fitting fixing of wooden beams including hoisting and placing in position with necessary dog spikes / nuts and bolts as per design and drawing, including applying coal tar of minimum two coats on all sides of new wood work complete as per the as per Specification.					
		Unit = cum					
		Taking output = 0.270 cum					
		4.50 m x0 .30 m x0 .20 m = 0.2700 Cum					
		Wastage @ 2.00 % (+)= 0.0054 Cum					
		Total = 0.2754 Cum					
		A. Sal Wood					
		a) Labour					
		Mate	day	0.20	310.00	62.00	L-19
		Carpenter(2nd class)	day	1.00	395.00	395.00	L-08
		Mazdoor(unskilled)	day	4.00	310.00	1240.00	L-20
		b) Material					
		Sal wood beam	Cum	0.2754	67000.00	18451.80	M-232
		Structural steel Dog spikes for beams, MS Bar 16 mm dia 4 nos @ 0.90 m long	kg	5.79	47.00	272.13	M-199
		Cost for making dog spikes @ 20.00 % of materials cost				54.43	

MISCELLANEOUS-2
MISCELLANEOUS ITEMS FOR TIMBER BRIDGES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Coal tarring, Rate as per item no. M2.9(ex/c CP & OH)	Sqm	4.62	27.39	126.55	Rate as per item M2.9
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				2894.57	
		d) Contractor's profit @ 15 % on (a+b+c)				3524.47	
		e) Add Cess @ 1.00 % on (a+b+c+d)				270.21	
		Cost for 0.27 cum = a+b+c+d+e				27291.16	
		Rate per cum = (a+b+c+d+e)/0.27				101078.35	
					say	***101078.40***	
		B. Karai Wood					
		a) Labour					
		Mate	day	0.20	310.00	62.00	L-19
		Carpenter(2nd class)	day	1.00	395.00	395.00	L-08
		Mazdoor(unskilled)	day	4.00	310.00	1240.00	L-20
		b) Material					
		Karai wood beam	Cum	0.2754	55000.00	15147.00	M-233
		Structural steel Dog spikes for beams, MS Bar 16 mm dia 4 nos @ 0.90 m long	kg	5.79	47.00	272.13	M-199
		Cost for making dog spikes @ 20.00 % of materials cost				54.43	
		Coal tarring, Rate as per item no. M2.9(ex/c CP & OH)	Sqm	4.62	27.39	126.55	Rate as per item M2.9
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				2430.24	
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				2959.10	
		e) Add Cess @ 1.00 % on (a+b+c+d)				226.86	
		Cost for 0.27 cum = a+b+c+d+e				22913.32	
		Rate per cum = (a+b+c+d+e)/0.27				84864.14	
					say	***84864.10***	
M2.11		Providing and fitting fixing of deckings, trackways, battens and planks for abutments & wing walls including hoisting and placing in position with necessary nails and spikes as per design and drawings, including applying coal tar of minimum two coats on all sides of new wood work complete as per the Specification.					
		Unit = cum					
		Taking output = 5.508 Cum					
		(considering 10.00 m span bridge)					
		Decking:-					
		66 x 4.200 m x 0.150 m x 0.100 m = 4.1580 Cum					
		Trackway:-					
		12 x 10.000 m x 0.150 m x 0.075 m = 1.3500 Cum					
		Total:- = 5.5080 Cum					
		Wastage @ 2.00 % (+)= 0.1102 Cum					
		Grand Total = 5.6182 Cum					
		A. Sal Wood					
		a) Labour					
		Mate	day	0.91	310.00	282.10	L-19
		Carpenter(2nd class)	day	5.06	395.00	1998.70	L-08
		Mazdoor(unskilled)	day	17.71	310.00	5490.10	L-20

MISCELLANEOUS-2
MISCELLANEOUS ITEMS FOR TIMBER BRIDGES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		b) Material					
		Sal wood Scantling	Cum	5.6182	44832.00	251875.14	M-234
		M.S. Spikes	kg	22.47	63.00	1415.61	M-142
		Coal tarring, Rate as per item no. M2.9(ex/c CP & OH)	Sqm	194.85	27.39	5337.33	Rate as per item M2.9
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				37429.06	
		d) Contractor's profit @ 15 % on (a+b+c)				45574.21	
		e) Add Cess @ 1.00 % on (a+b+c+d)				3494.02	
		Cost for 5.508 cum = a+b+c+d+e				352896.27	
		Rate per cum = (a+b+c+d+e)/5.508				64069.77	
					say	***64069.80***	
		B. Karai Wood					
		a) Labour					
		Mate	day	0.82	310.00	254.20	L-19
		Carpenter(2nd class)	day	4.55	395.00	1797.25	L-08
		Mazdoor(unskilled)	day	15.93	310.00	4938.30	L-20
		b) Material					
		Karai wood scantling	Cum	5.6182	34235.00	192339.08	M-235
		M.S. Spikes	kg	22.47	63.00	1415.61	M-142
		Coal tarring, Rate as per item no. M2.9(ex/c CP & OH)	Sqm	194.85	27.39	5337.33	Rate as per item M2.9
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				28954.49	
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				35255.44	
		e) Add Cess @ 1.00 % on (a+b+c+d)				2702.92	
		Cost for 5.508 cum = a+b+c+d+e				272994.61	
		Rate per cum = (a+b+c+d+e)/5.508				49563.29	
					say	***49563.30***	
		C. Soft Wood					
		a) Labour					
		Mate	day	0.66	310.00	204.60	L-19
		Carpenter(2nd class)	day	4.10	395.00	1619.50	L-08
		Mazdoor(unskilled)	day	12.30	310.00	3813.00	L-20
		b) Material					
		Soft wood scantling	Cum	5.6182	20450.00	114892.19	M-239
		M.S. Spikes	kg	22.47	63.00	1415.61	M-142
		Coal tarring, Rate as per item no. M2.9(ex/c CP & OH)	Sqm	194.85	27.39	5337.33	Rate as per item M2.9
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				17883.15	
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				21774.81	
		e) Add Cess @ 1.00 % on (a+b+c+d)				1669.40	
		Cost for 5.508 cum = a+b+c+d+e				168609.59	
		Rate per cum = (a+b+c+d+e)/5.508				30611.76	
					say	***30611.80***	

MISCELLANEOUS-2
MISCELLANEOUS ITEMS FOR TIMBER BRIDGES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
M2.12		Providing and fitting fixing of joist runner, wheel guards, rail post, struts, railings, bracings of piles, including hoisting and placing in position with necessary nails and spikes and finally fitted with nuts & bolts as per design and drawings, including applying of coal tar of minimum two coats on all sides of new wood work complete (payment for nuts & bolts is to be made separately) as per the as per Specification.					
		Unit = cum					
		Taking output = 3.2206 Cum					
		(considering 10.00 m span bridge)					
		Wheel Guard:-					
		2 x 10.000 m x 0.150 m x 0.200 m = 0.6000 Cum					
		Rail Post:-					
		14 x 1.000 m x 0.100 m x 0.100 m = 0.1400 Cum					
		Strut:-					
		14 x 1.500 m x 0.100 m x 0.075 m = 0.1575 Cum					
		Railing:-					
		6 x 10.000 m x 0.100 m x 0.075 m = 0.4500 Cum					
		Joist Packing:-					
		6 x 10.000 m x 0.150 m x 0.125 m = 1.1250 Cum					
		Bracing:-					
		14 x 4.750 m x 0.150 m x 0.075 m = 0.7481 Cum					
		*Total:- = **3.2206 Cum***					
		Wastage @ 2.00 % (+)= 0.0644 Cum					
		Grand Total = 3.2850 Cum					
		A. Sal Wood					
		a) Labour					
		Mate	day	0.66	310.00	204.60	L-19
		Carpenter(2nd class)	day	3.29	395.00	1299.55	L-08
		Mazdoor(unskilled)	day	13.16	310.00	4079.60	L-20
		b) Material					
		Sal wood Scantling	Cum	3.2850	44832.00	147273.12	M-234
		M.S. Nails & Spikes for placing the scantling in position	kg	3.29	63.00	207.27	M-142
		Coal tarring, Rate as per item no. M2.9(ex/c CP & OH)	Sqm	112.12	27.39	3071.19	Rate as per item M2.9
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				21937.01	
		d) Contractor's profit @ 15 % on (a+b+c)				26710.85	
		e) Add Cess @ 1.00 % on (a+b+c+d)				2047.83	
		Cost for 3.2206 cum = a+b+c+d+e				206831.03	
		Rate per cum = (a+b+c+d+e)/3.2206				64221.27	
					say	***64221.30***	
		B. Karai Wood					
		a) Labour					
		Mate	day	0.53	310.00	164.30	L-19
		Carpenter(2nd class)	day	2.96	395.00	1169.20	L-08
		Mazdoor(unskilled)	day	10.36	310.00	3211.60	L-20
		b) Material					
		Karai wood scantling	Cum	3.2850	34235.00	112461.98	M-235
		M.S. Nails & Spikes for placing the scantling in position	kg	3.29	63.00	207.27	M-142
		Coal tarring, Rate as per item no. M2.9(ex/c CP & OH)	Sqm	112.12	27.39	3071.19	Rate as per item M2.9

MISCELLANEOUS-2
MISCELLANEOUS ITEMS FOR TIMBER BRIDGES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				16900.12	
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				20577.85	
		e) Add Cess @ 1.00 % on (a+b+c+d)				1577.64	
		Cost for 3.2206 cum = a+b+c+d+e				159341.14	
		Rate per cum = (a+b+c+d+e)/3.2206				49475.61	
					say	***49475.60***	
		C. Soft Wood					
		a) Labour					
		Mate	day	0.43	310.00	133.30	L-19
		Carpenter(2nd class)	day	2.66	395.00	1050.70	L-08
		Mazdoor(unskilled)	day	7.98	310.00	2473.80	L-20
		b) Material					
		Soft wood scantling	Cum	3.2850	20450.00	67178.25	M-239
		M.S. Nails & Spikes for placing the scantling in position	kg	3.29	63.00	207.27	M-142
		Coal tarring, Rate as per item no. M2.9(ex/c CP & OH)	Sqm	112.12	27.39	3071.19	Rate as per item M2.9
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				10413.09	
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				12679.14	
		e) Add Cess @ 1.00 % on (a+b+c+d)				972.07	
		Cost for 3.2206 cum = a+b+c+d+e				98178.81	
		Rate per cum = (a+b+c+d+e)/3.2206				30484.63	
					say	***30484.60***	
M2.13		Dismantling of existing Wood work with all T&P and scaffolding whenever necessary, sorting the dismantled materials, disposal of unserviceable materials and stacking the serviceable materials separately and refitting the serviceable dismantled materials with spikes and nails with all lifts and lead at site of work as per Specification.					
		Unit = cum					
		Taking output = 4.00 cum					
		a) Labour					
		Mate	day	0.80	310.00	248.00	L-19
		Carpenter(2nd class)	day	4.00	395.00	1580.00	L-08
		Mazdoor(unskilled)	day	16.00	310.00	4960.00	L-20
		b) Material					
		M.S. Nails & Spikes for placing the scantling in position	kg	12.00	63.00	756.00	M-142
		Cost for T&P and scoffolding whenever necessary @ 0.50 %				37.72	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				1065.23	
		d) Contractor's profit @ 15 % on (a+b+c)				1297.04	
		e) Add Cess @ 1.00 % on (a+b+c+d)				99.44	
		Cost for 4.00 cum = a+b+c+d+e				10043.43	
		Rate per cum = (a+b+c+d+e)/4.00				2510.86	
					say	***2510.90***	

MISCELLANEOUS-2
MISCELLANEOUS ITEMS FOR TIMBER BRIDGES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
M2.14		Handling and liftng of Sal/ Nahar/ Nageswar piles by any means from river / cherra bed level, stacking properly, as per Specification.					
		(ii) 250 mm dia to 300 mm dia piles					
		Unit = m					
		Taking output = 10.00 m					
		a) Labour					
		Mate	day	0.60	310.00	186.00	L-19
		Mistri(for wooden pile driving/ lifting)	day	1.00	440.00	440.00	L-23
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-22
		Mazdoor(semi-skilled)	day	3.00	355.00	1065.00	L-21
		Mazdoor(unskilled)	day	10.00	310.00	3100.00	L-20
		b) Tools					
		Chain, pully and other accessories for handling and lifting of wooden piles (hire charges)	day	1.00	1928.00	1928.00	
		Add 1.00% on (a+b) for sundries				75.09	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				1055.01	
		d) Contractor's profit @ 15 % on (a+b+c)				1295.87	
		e) Add Cess @ 1.00 % on (a+b+c+d)				99.35	
		Cost for 10 m = a+b+c+d+e				10034.32	
		Rate per m = (a+b+c+d+e)/10				1003.43	
					say	***1003.40***	
		(ii) 200 mm dia to 250 mm dia piles					
		Unit = m					
		Taking output = 10.00 m					
		a) Labour					
		Mate	day	0.48	310.00	148.80	L-19
		Mistri(for wooden pile driving/ lifting)	day	1.00	440.00	440.00	L-23
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-22
		Mazdoor(semi-skilled)	day	2.00	355.00	710.00	L-21
		Mazdoor(unskilled)	day	8.00	310.00	2480.00	L-20
		b) Tools					
		Chain, pully and other accessories for handling and lifting of wooden piles (hire charges)	day	1.00	1928.00	1928.00	
		Add 1.00% on (a+b) for sundries				64.97	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				912.80	
		d) Contractor's profit @ 15 % on (a+b+c)				1121.19	
		e) Add Cess @ 1.00 % on (a+b+c+d)				85.96	
		Cost for 10 m = a+b+c+d+e				8681.71	
		Rate per m = (a+b+c+d+e)/10				868.17	
					say	***868.20***	
M2.15		Making 12 mm dia holes in the RS joists at specified spacing for fitting, fixing of wooden joist runner as per Specification.					
		Unit = no					
		Taking output = 36 Nos					
		a) Labour					
		Mate	day	0.08	310.00	24.80	L-19
		Blacksmith	day	1.00	418.00	418.00	L-04
		Mazdoor(unskilled)	day	2.00	310.00	620.00	L-20
		b) Tools					

MISCELLANEOUS-2
MISCELLANEOUS ITEMS FOR TIMBER BRIDGES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Appliances for making holes @ 5.00 %				53.14	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				156.79	
		d) Contractor's profit @ 15 % on (a+b+c)				190.91	
		e) Add Cess @ 1.00 % on (a+b+c+d)				14.64	
		Cost for 36 nos = a+b+c+d+e				1478.28	
		Rate per no = (a+b+c+d+e)/36				41.06	
					say	***41.10***	
M2.16		Charges for fitting fixing of new timber beams, deckings, trackways, battens and planks for abutments & wing walls, joist runner, wheel guards, rail post, struts, railings, bracings of piles, including hoisting and placing in position with necessary nails and spikes and or nuts & bolts as per design and drawings, including applying coal tar of minimum two coats on all sides of new wood work complete as per Specification (excluding the cost of new timbers available at the site of work and the cost of nuts and bolts which are to paid separately).					
		Unit = cum					
		Taking output = 5.508 Cum					
		(considering 10.00 m span bridge)					
		Decking:-					
		66 x 4.200 m x 0.150 m x 0.100 m = 4.1580 Cum					
		Trackway:-					
		12 x 10.000 m x 0.150 m x 0.075 m = 1.3500 Cum					
		Total:- = 5.5080 Cum					
		Wastage @ 2.00 % (+)= 0.1102 Cum					
		Grand Total = 5.6182 Cum					
		A. Sal Wood					
		a) Labour					
		Mate	day	0.91	310.00	282.10	L-19
		Carpenter(2nd class)	day	5.06	395.00	1998.70	L-08
		Mazdoor(unskilled)	day	17.71	310.00	5490.10	L-20
		b) Material					
		Sal wood Scantling	Cum	5.6182		0.00	
		M.S. Spikes	kg	22.47	63.00	1415.61	M-142
		Coal tarring, Rate as per item no. M2.9(ex/c CP & OH)	Sqm	194.45	27.39	5326.37	Rate as per item M2.9
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				2039.06	
		d) Contractor's profit @ 15 % on (a+b+c)				2482.79	
		e) Add Cess @ 1.00 % on (a+b+c+d)				190.35	
		Cost for 5.508 cum = a+b+c+d+e				19225.08	
		Rate per cum = (a+b+c+d+e)/5.508				3490.39	
					say	***3490.40***	
		B. Karai Wood					
		a) Labour					
		Mate	day	0.82	310.00	254.20	L-19
		Carpenter(2nd class)	day	4.55	395.00	1797.25	L-08
		Mazdoor(unskilled)	day	15.93	310.00	4938.30	L-20
		b) Material					
		Karai wood scantling	Cum	5.6182		0.00	
		M.S. Spikes	kg	22.47	63.00	1415.61	M-142

MISCELLANEOUS-2
MISCELLANEOUS ITEMS FOR TIMBER BRIDGES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Coal tarring, Rate as per item no. M2.9(ex/c CP & OH)	Sqm	194.45	27.39	5326.37	Rate as per item M2.9
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				1929.31	
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				2349.16	
		e) Add Cess @ 1.00 % on (a+b+c+d)				180.10	
		Cost for 5.508 cum = a+b+c+d+e				18190.30	
		Rate per cum = (a+b+c+d+e)/5.508				3302.52	
					say	***3302.50***	
		C. Soft Wood					
		a) Labour					
		Mate	day	0.66	310.00	204.60	L-19
		Carpenter(2nd class)	day	4.10	395.00	1619.50	L-08
		Mazdoor(unskilled)	day	12.30	310.00	3813.00	L-20
		b) Material					
		Soft wood scantling	Cum	5.6182		0.00	
		M.S. Spikes	kg	22.47	63.00	1415.61	M-142
		Coal tarring, Rate as per item no. M2.9(ex/c CP & OH)	Sqm	194.45	27.39	5326.37	Rate as per item M2.9
		c) Add GST (multiplying factor) @ on (a+b)				1739.26	
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				2117.75	
		e) Add Cess @ 1.00 % on (a+b+c+d)				162.36	
		Cost for 5.508 cum = a+b+c+d+e				16398.46	
		Rate per cum = (a+b+c+d+e)/5.508				2977.21	
					say	***2977.20***	
M2.17		Charges for fitting fixing of old dismantled beams, deckings, trackways, battens and planks for abutments & wing walls, joist runner, wheel guards, rail post, struts, railings, bracings of piles, including hoisting and placing in position with necessary nails and spikes and or nuts & bolts as per design and drawings, including applying coal tar of minimum two coats on all sides of new wood work complete as per the Specification (excluding the cost of new timbers available at the site of work and the cost of nuts and bolts which are to paid separately).					
		Unit = cum					
		Taking output = 5.508 Cum					
		(considering 10.00 m span bridge)					
		Decking:-					
		66 x 4.200 m x 0.150 m x 0.100 m = 4.1580 Cum					
		Trackway:-					
		12 x 10.000 m x 0.150 m x 0.075 m = 1.3500 Cum					
		Total:- = 5.5080 Cum					
		Wastage @ 2.00 % (+)= 0.1102 Cum					
		Grand Total = 5.6182 Cum					
		A. Sal Wood					
		a) Labour					
		Mate	day	0.72	310.00	223.20	L-19
		Carpenter(2nd class)	day	4.49	395.00	1773.55	L-08
		Mazdoor(unskilled)	day	13.47	310.00	4175.70	L-20
		b) Material					
		Sal wood Scantling	Cum	5.6182		0.00	
		M.S. Spikes	kg	22.47	63.00	1415.61	M-142

MISCELLANEOUS-2
MISCELLANEOUS ITEMS FOR TIMBER BRIDGES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Coal tarring, Rate as per item no. M2.9(ex/c CP & OH)	Sqm	194.45	27.39	5326.37	Rate as per item M2.9
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				1814.48	
		d) Contractor's profit @ 15 % on (a+b+c)				2209.34	
		e) Add Cess @ 1.00 % on (a+b+c+d)				169.38	
		Cost for 5.508 cum = a+b+c+d+e				17107.63	
		Rate per cum = (a+b+c+d+e)/5.508				3105.96	
					say	***3106.00***	
		B. Karai Wood					
		a) Labour					
		Mate	day	0.65	310.00	201.50	L-19
		Carpenter(2nd class)	day	3.59	395.00	1418.05	L-08
		Mazdoor(unskilled)	day	12.57	310.00	3896.70	L-20
		b) Material					
		Karai wood scantling	Cum	5.6182		0.00	
		M.S. Spikes	kg	22.47	63.00	1415.61	M-142
		Coal tarring, Rate as per item no. M2.9(ex/c CP & OH)	Sqm	194.45	27.39	5326.37	Rate as per item M2.9
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				1722.28	
		d) Contractor's profit and overheads @ 0.1405 on (a+b+c)				2097.08	
		e) Add Cess @ 1.00 % on (a+b+c+d)				160.78	
		Cost for 5.508 cum = a+b+c+d+e				16238.37	
		Rate per cum = (a+b+c+d+e)/5.508				2948.14	
					say	***2948.10***	
		C. Soft Wood					
		a) Labour					
		Mate	day	0.46	310.00	142.60	L-19
		Carpenter(2nd class)	day	2.87	395.00	1133.65	L-08
		Mazdoor(unskilled)	day	8.61	310.00	2669.10	L-20
		b) Material					
		Soft wood scantling	Cum	5.6182		0.00	
		M.S. Spikes	kg	22.47	63.00	1415.61	M-142
		Coal tarring, Rate as per item no. M2.9(ex/c CP & OH)	Sqm	194.45	27.39	5326.37	Rate as per item M2.9
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				1501.57	
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				1828.34	
		e) Add Cess @ 1.00 % on (a+b+c+d)				140.17	
		Cost for 5.508 cum = a+b+c+d+e				14157.41	
		Rate per cum = (a+b+c+d+e)/5.508				2570.34	
					say	***2570.30***	
M2.18		Providing of third class local wood piles dressed to heart wood and making shoes with end tappered upto 750 mm from the bottom of the pile, marking of length with chisel in metre and part of a metre run from the bottom of the piles, applying coal tar after verification and approval of the piles and stacking at the work site as per Specification.					
		(i) 300 mm dia to 350 mm dia piles					
		Unit = m					
		Taking output = 10.00 m					

MISCELLANEOUS-2
MISCELLANEOUS ITEMS FOR TIMBER BRIDGES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		a) Labour					
		Mate	day	0.04	310.00	12.40	L-19
		Carpenter(2nd class)	day	0.50	395.00	197.50	L-08
		Mazdoor(unskilled)	day	0.50	310.00	155.00	L-20
		b) Material					
		3rd class local wood piles 300 mm to 350 mm dia	cum	10.10	1495.00	15099.50	M-241
		Applying coal tar, **Rate vide item no. M2.9(ex/c OH & CP)**	Sqm	10.21	27.39	279.67	Item no. M2.9
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				2212.04	
		d) Contractor's profit @ 15 % on (a+b+c)				2693.42	
		e) Add Cess @ 1.00 % on (a+b+c+d)				206.50	
		Cost for 10 m = a+b+c+d+e				20856.03	
		Rate per m = (a+b+c+d+e)/10				2085.60	
					say	***2085.60***	
		(ii) 250 mm dia to 300 mm dia piles					
		Unit = m					
		Taking output = 10.00 m					
		a) Labour					
		Mate	day	0.032	310.00	9.92	L-19
		Carpenter(2nd class)	day	0.40	395.00	158.00	L-08
		Mazdoor(unskilled)	day	0.40	310.00	124.00	L-20
		b) Material					
		3rd class local wood piles 250 mm to	cum	10.10	1015.00	10251.50	M-242
		Applying coal tar, Rate vide item no. M2.9(ex/c OH & CP)	Sqm	8.64	27.39	236.67	Item no. M2.9
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				1514.60	
		d) Contractor's profit @ 15 % on (a+b+c)				1844.20	
		e) Add Cess @ 1.00 % on (a+b+c+d)				141.39	
		Cost for 10 m = a+b+c+d+e				14280.28	
		Rate per m = (a+b+c+d+e)/10				1428.03	
					say	***1428.00***	
		(iii) 200 mm dia to 250 mm dia piles					
		Unit = m					
		Taking output = 10.00 m					
		a) Labour					
		Mate	day	0.032	310.00	9.92	L-19
		Carpenter(2nd class)	day	0.40	395.00	158.00	L-08
		Mazdoor(unskilled)	day	0.40	310.00	124.00	L-20
		b) Material					
		3rd class local wood piles 200 mm to	cum	10.10	725.00	7322.50	M-243
		Applying coal tar, **Rate vide item no. M2.9(ex/c OH & CP)**	Sqm	7.07	27.39	193.66	Item no. M2.9
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				1097.04	
		d) Contractor's profit @ 15 % on (a+b+c)				1335.77	
		e) Add Cess @ 1.00 % on (a+b+c+d)				102.41	
		Cost for 10 m = a+b+c+d+e				10343.29	
		Rate per m = (a+b+c+d+e)/10				1034.33	
					say	***1034.30***	

MISCELLANEOUS-2
MISCELLANEOUS ITEMS FOR TIMBER BRIDGES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
M2.19		Handling and liftng of Sal / Nahar / Nageswar piles by any means from river / cherra bed level, stacking properly, as per Specification.					
		(i) 300 mm dia to 350 mm dia piles					
		Unit = m					
		Taking output = 10.00 m					
		a) Labour					
		Mate	day	0.92	310.00	285.20	L-19
		Mistri(for wooden pile driving/ lifting)	day	1.00	440.00	440.00	L-23
		Mazdoor(skilled)	day	2.00	395.00	790.00	L-22
		Mazdoor(semi-skilled)	day	6.00	355.00	2130.00	L-21
		Mazdoor(unskilled)	day	15.00	310.00	4650.00	L-20
		b) Tools					
		1/2 tonne monkey with necessary chains, pulley and other accessories for handling and driving of wooden piles (hire charges)	day	1.00	2384.00	2384.00	
		Add 1.00% on (a+b) for sundries				106.79	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				1500.43	
		d) Contractor's profit @ 15 % on (a+b+c)				1842.96	
		e) Add Cess @ 1.00 % on (a+b+c+d)				141.29	
		Cost for 10 m = a+b+c+d+e				14270.68	
		Rate per m = (a+b+c+d+e)/10				1427.07	
					say	***1427.10***	
		(ii) 250 mm dia to 300 mm dia piles					
		Unit = m					
		Taking output = 10.00 m					
		a) Labour					
		Mate	day	0.72	310.00	223.20	L-19
		Mistri(for wooden pile driving/ lifting)	day	1.00	440.00	440.00	L-23
		Mazdoor(skilled)	day	1.00	395.00	395.00	L-22
		Mazdoor(semi-skilled)	day	5.00	355.00	1775.00	L-21
		Mazdoor(unskilled)	day	12.00	310.00	3720.00	L-20
		b) Tools					
		1/2 tonne monkey with necessary chains, pulley and other accessories for handling and driving of wooden piles (hire charges)	day	1.00	2384.00	2384.00	
		Add 1.00% on (a+b) for sundries				89.37	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				1255.68	
		d) Contractor's profit @ 15 % on (a+b+c)				1542.34	
		e) Add Cess @ 1.00 % on (a+b+c+d)				118.25	
		Cost for 10 m = a+b+c+d+e				11942.83	
		Rate per m = (a+b+c+d+e)/10				1194.28	
					say	***1194.30***	
		(iii) 200 mm dia to 250 mm dia piles					
		Unit = m					
		Taking output = 10.00 m					
		a) Labour					
		Mate	day	0.44	310.00	136.40	L-19
		Mistri(for wooden pile driving/ lifting)	day	1.00	440.00	440.00	L-23
		Mazdoor(skilled)	day	1.00	395.00	395.00	L-22
		Mazdoor(semi-skilled)	day	3.00	355.00	1065.00	L-21
		Mazdoor(unskilled)	day	7.00	310.00	2170.00	L-20
		b) Tools					

MISCELLANEOUS-2
MISCELLANEOUS ITEMS FOR TIMBER BRIDGES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		1/2 tonne monkey with necessary chains, pulley and other accessories for handling and driving of wooden piles (hire charges)	day	1.00	2384.00	2384.00	
		Add 1.00% on (a+b) for sundries				65.90	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				925.95	
		d) Contractor's profit @ 15 % on (a+b+c)				1137.34	
		e) Add Cess @ 1.00 % on (a+b+c+d)				87.20	
		Cost for 10 m = a+b+c+d+e				8806.79	
		Rate per m = (a+b+c+d+e)/10				880.68	
					say	***880.70***	

MISCELLANEOUS-3
MISCELLANEOUS ITEMS FOR RIVER TRAINING WORKS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
M3.1		Supplying bamboo (1st class) 85 mm to 100 mm dia and making shoe with end tappered upto 300 mm from the bottom of the bamboo as per drawing and specification.					
		Unit = metre					
		Taking output = 100.00 metre					
		a) Labour					
		Mate	day	0.040	310.00	12.40	
		Mazdoor(unskilled)	day	1.000	310.00	310.00	
		b) Material					
		Bamboo (1st Class) 85 mm - 100 mm dia	metre	105.000	22.00	2310.00	
		c) Sundries					
		L.S @ 2.00 % of (a+b)				52.65	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				377.25	
		e) Contractor's profit @ 15 % on (a+b+c+d)				459.34	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				35.22	
		Cost for 100 m = a+b+c+d+e+f				3556.86	
		Rate per metre = (a+b+c+d+e+f)/100				35.57	
					say	***35.60***	
M3.2		Handling and driving bamboo (1st class) 85 mm to 100 mm dia upto the length required by heavy hammer as per drawing and specification.					
		Unit = metre					
		Taking output = 50.00 metre					
		a) Labour					
		Mate	day	0.240	310.00	74.40	
		Mazdoor(unskilled)	day	6.000	310.00	1860.00	
		b) Material					
		Bamboo (1st Class) 85 mm - 100 mm dia				0.00	
		c) Sundries					
		L.S @ 2.00 % of (a+b)				38.69	
		d) Add GST (multiplying factor) @ 0.1405 on (a+c)				277.22	
		e) Contractor's profit @ 15 % on (a+c+d)				337.55	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				25.88	
		Cost for 50.00 m = a+c+d+e+f				2613.73	
		Rate per metre = (a+c+d+e+f)/50.00				52.27	
					say	***52.30***	
M3.3		Providing and fitting, fixing bamboo (1st class) 85 mm to 100 mm dia for horizontal, diagonal bracing, strut etc. with nails/ spikes and binding wire (GI 2.0 mm) as per drawing and specification.					
		Unit = metre					
		Taking output = 100.00 metre					
		a) Labour					
		Mate	day	0.120	310.00	37.20	
		Mazdoor(unskilled)	day	3.000	310.00	930.00	
		b) Material					

MISCELLANEOUS-3
MISCELLANEOUS ITEMS FOR RIVER TRAINING WORKS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Bamboo (1st Class) 85 mm - 100 mm dia	metre	105.000	22.00	2310.00	
		Nails	kg	2.000	63.00	126.00	
		Binding wire (GI, 2.00 mm)	kg	1.500	60.00	90.00	
		c) Sundries					
		L.S @ 2.00 % of (a+b)				69.86	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				500.61	
		e) Contractor's profit @ 15 % on (a+b+c+d)				609.55	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				46.73	
		Cost for 100 m = a+b+c+d+e+f				4719.96	
		Rate per metre = (a+b+c+d+e+f)/100				47.20	
					say	***47.20***	
M3.4		Providing and fitting, fixing brush wood (Tetul, Sheora, Mandar, etc.) tied with GI wire 2.00 mm well packed complete as per drawing and specification.					
		Unit = cum					
		Taking output = 6.00 cum					
		a) Labour					
		Mate	day	0.080	310.00	24.80	
		Mazdoor(unskilled)	day	2.000	310.00	620.00	
		b) Material					
		Brush wood (Tetul, Sheora, Mandar, etc.)	cum	6.000	112.00	672.00	
		Binding wire (GI, 2.00 mm)	kg	0.500	60.00	30.00	
		c) Sundries					
		L.S @ 2.00 % of (a+b)				26.94	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				193.01	
		e) Contractor's profit @ 15 % on (a+b+c+d)				235.01	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				18.02	
		Cost for 6.00 cum = a+b+c+d+e+f				1819.78	
		Rate per cum = (a+b+c+d+e+f)/6.00				303.30	
					say	***303.30***	
M3.5		Providing and fitting, fixing double layer split muli bamboo tatti lining in position as per drawing and specification.					
		Unit = sqm					
		Taking output = 20.00 sqm					
		a) Labour					
		Mate	day	0.120	310.00	37.20	
		Mazdoor(semi-skilled)	day	1.000	355.00	355.00	
		Mazdoor(unskilled)	day	3.000	310.00	930.00	
		b) Material					
		Muli Bamboo 40 mm to 50 mm dia	metre	297.000	3.15	935.55	
		GI. Wires 1.00 mm, etc. L.S @ 2.00 % of (a+b)				45.16	
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				323.56	
		d) Contractor's profit @ 15 % on (a+b+c)				393.97	
		e) Add Cess @ 1.00 % on (a+b+c+d)				30.20	
		Cost for 20.0 sqm = a+b+c+d+e				3050.64	

MISCELLANEOUS-3
MISCELLANEOUS ITEMS FOR RIVER TRAINING WORKS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		Rate per cum = (a+b+c+d+e)/20.00				152.53	
					say	***152.50***	
M3.6		Supplying ballies 100 mm dia well dressed and making shoe with end tappered upto 300 mm from the bottom including marking length and part of a metre as per drawing and specification.					
		Unit = metre					
		Taking output = 100.00 metre					
		i) Sal Ballies					
		a) Labour					
		Mate	day	0.08	310.00	24.80	
		Carpenter(2nd class)	day	1.00	395.00	395.00	
		Mazdoor(unskilled)	day	2.00	310.00	620.00	
		b) Material					
		Sal Ballies 100 mm dia	metre	105.000	315.00	33075.00	
		c) Sundries					
		L.S @ 2.00 % of (a+b)				682.30	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				4888.99	
		e) Contractor's profit @ 15 % on (a+b+c+d)				5952.91	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				456.39	
		Cost for 100.00 metre = a+b+c+d+e+f				46095.39	
		Rate per metre = (a+b+c+d+e+f)/100.00				460.95	
					say	***461.00***	
		ii) 3rd calss local wood ballies					
		a) Labour					
		Mate	day	0.08	310.00	24.80	
		Carpenter(2nd class)	day	1.00	395.00	395.00	
		Mazdoor(unskilled)	day	2.00	310.00	620.00	
		b) Material					
		3rd class local wood Ballies 100 mm dia	metre	105.000	91.95	9654.75	
		c) Sundries					
		L.S @ 2.00 % of (a+b)				213.89	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				1532.64	
		e) Contractor's profit @ 15 % on (a+b+c+d)				1866.16	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				143.07	
		Cost for 100.00 metre = a+b+c+d+e+f				14450.31	
		Rate per metre = (a+b+c+d+e+f)/100.00				144.50	
					say	***144.50***	
M3.7		Handling and driving ballies of 100 mm dia upto the length required by heavy hammer as per drawing and specification.					
		Unit = metre					
		Taking output = 50.00 metre					
		a) Labour					
		Mate	day	0.28	310.00	86.80	
		Mazdoor(unskilled)	day	7.00	310.00	2170.00	
		b) Sundries					
		L.S @ 2.00 % of (a)				45.14	

MISCELLANEOUS-3
MISCELLANEOUS ITEMS FOR RIVER TRAINING WORKS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		c) Add GST (multiplying factor) @ 0.1405 on (a+b)				323.42	
		d) Contractor's profit @ 15 % on (a+b+c)				393.80	
		e) Add Cess @ 1.00 % on (a+b+c+d)				30.19	
		Cost for 50.00 metre = a+b+c+d+e				3049.35	
		Rate per metre = (a+b+c+d+e)/50.00				60.99	
					say	***61.00***	
M3.8		Providing and fitting, fixing ballies of 100 mm dia for horizontal, diagonal bracing, strut etc. with nails / spikes and binding wire (GI 2.0 mm) as per drawing and specification.					
		Unit = metre					
		Taking output = 100.00 metre					
		i) Sal Ballies					
		a) Labour					
		Mate	day	0.08	310.00	24.80	
		Carpenter(2nd class)	day	1.00	395.00	395.00	
		Mazdoor(unskilled)	day	2.00	310.00	620.00	
		b) Material					
		Sal Ballies 100 mm dia	metre	105.000	315.00	33075.00	
		Nails	kg	4.000	63.00	252.00	
		Binding wire (GI, 2.00 mm)	kg	2.000	60.00	120.00	
		c) Sundries					
		L.S @ 2.00 % of (a+b)				682.30	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				4941.26	
		e) Contractor's profit @ 15 % on (a+b+c+d)				6016.55	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				461.27	
		Cost for 100.00 metre = a+b+c+d+e+f				46588.18	
		Rate per metre = (a+b+c+d+e+f)/100.00				465.88	
					say	***465.90***	
		ii) 3rd calss local wood ballies					
		a) Labour					
		Mate	day	0.08	310.00	24.80	
		Carpenter(2nd class)	day	1.00	395.00	395.00	
		Mazdoor(unskilled)	day	2.00	310.00	620.00	
		b) Material					
		3rd class local wood Ballies 100 mm dia	metre	105.000	91.95	9654.75	
		Nails	kg	4.000	63.00	252.00	
		Binding wire (GI, 2.00 mm)	kg	2.000	60.00	120.00	
		c) Sundries					
		L.S @ 2.00 % of (a+b)				221.33	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				1585.95	
		e) Contractor's profit @ 15 % on (a+b+c+d)				1931.07	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				148.05	
		Cost for 100.00 metre = a+b+c+d+e+f				14952.95	
		Rate per metre = (a+b+c+d+e+f)/100.00				149.53	

MISCELLANEOUS-3
MISCELLANEOUS ITEMS FOR RIVER TRAINING WORKS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
					say	***149.50***	
M3.9		Providing and placing gunny / polythene (of minimum wall thickness of 500 micron) bags filled with sand (of minmum qty of 0.034 cum) and properly manually stitched to avoid any leakage of sand as per specification.					
		Unit = No					
		Taking output = 100.00 Nos					
		a) Labour					
		Mate	day	0.08	310.00	24.80	
		Mazdoor(unskilled)	day	2.00	310.00	620.00	
		b) Material					
		Empty gunny/ polythene (of minimum wall thickness of 500 micron) bags	No	100.000	2.15	215.00	
		Sand	Cum	3.570	460.00	1642.20	
		c) Sundries					
		L.S @ 2.00 % of (a+b)				50.04	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				358.56	
		e) Contractor's profit @ 15 % on (a+b+c+d)				436.59	
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				33.47	
		Cost for 100.00 nos = a+b+c+d+e+f				3380.66	
		Rate per No = (a+b+c+d+e+f)/100.00				33.81	
					say	***33.80***	
M3.10		Providing and fixing bitumen or tar drum guard posts including two coats of white synthetic enamel paint over a primer coat in the exposed outside surface above Ground level and applying two coats of coal tar on the outside surface below ground level including bottom before placing the same for a depth of 450 mm below ground level filled with earth as per specification.					
		Unit = No					
		Taking output = 10.00 Nos					
		(considering drum of 600 mm dia and 1000 mm total height out of which 450 mm is below ground level)					
		a) Labour					
		Mate	day	0.08	310.00	24.80	
		Mazdoor(unskilled)	day	2.00	310.00	620.00	
		b) Material					
		i. Bitumen Drum (empty)	No	10.000	305.00	3050.00	
		ii. Compensation of earth taken from private land (for AGL portion)	Cum	1.560	17.05	26.60	
		iii. Applying coal tar, **Rate vide item no. M2.9(ex/c OH & CP)**	Sqm	11.31	27.39	309.80	Item no. M2.9
		iv. Applying white synthetic enamel paint, **Rate vide item no. 10.5 of MoRD**	Sqm	10.37	104.70	1085.74	Item no. 10.5 of MoRD
		iv. Excavation & refilling of earth **Rate vide item no. 11.1 of MoRD**	Cum	1.270	341.70	433.96	Item no. 11.1 of MoRD
		c) Sundries					

MISCELLANEOUS-3
MISCELLANEOUS ITEMS FOR RIVER TRAINING WORKS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)	Remarks/ Ref.
		L.S @ 2.00 % of (a+b)				74.43	
		d) Add GST (multiplying factor) @ 0.1405 on (a+b.i,ii,iii+c)				576.84	
		e) Contractor's profit @ 15 % on (a+b.i,ii,iii+c+d)				702.37	
		f) Add Cess @ 1.00 % on (a+b.i,ii,iii+c+d+e)				53.85	
		Cost for 10.00 nos = a+b+c+d+e				6958.39	
		Rate per No = (a+b+c+d+e)/10.00				695.84	
					say	***695.80***	

Chapter - Miscellaneous - 4

BASES AND SURFACE COURSES (NON-BITUMINOUS & BITUMINOUS) using ORGANOSILANE NANO TECHNOLOGY

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
M-4.1	As per Technical Specification approved by TRRDA.	**Surface Water Proofing with Organosilane Nanotechnology:** Providing and applying waterproofing with organosilane nano technology and nano acrylic co-polymer with water (<1000 ppm TDS) on top compacted subgrade, shoulder(in the ratio of 1.00 kg organosilane nano technology : 1.00 kg nano acrylic co- polymer : 200 litre water) by spraying solution at the rate of 3.00 litre/sqm in two spray application(1.50 litre+1.50 litre) as per Technical Specification approved by TRRDA.				
		Unit =Sqm				
		Taking output = 7000 sqm				
		a) Labour				
		Mate	day	0.20	310.00	62.00
		Mazdoor (Unskilled)	day	3.00	310.00	930.00
		Mazdoor (skilled)	day	2.00	395.00	790.00
		b) Machinery				
		80-100 KN vibratory Roller @ 100 cum per hour	hour	2.56	392.00	1,003.52
		water tanker 6kl capacity 1 trip per hour	hour	2.19	200.00	438.00
		c) Material Terrasil				
		Terrasil				
		Organosilane nano technology @ 0.015 kg per sqm	kg	105.00	466.10	48,940.50
		Zycobond : Nano- acrylic co- polymer @ 0.015 kg per sqm	kg	105.00	152.50	16,012.50
		Water	kl	21.00	133.00	2,793.00
		d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**9,971.22**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**12,141.11**
		f) Add Cess @ 1.00 % on (a+b+c+d+e)				
		cost of 7000 sqm= a+b+c+d+e+f				**93,081.85**
		Rate per sqm= (a+b+c+d+e+f)/7000				**13.30**
					say	***13.30***
M-4.2	As per Technical Specification approved by TRRDA.	**Bases with Organosilane Nano Technology(NON-BITUMINOUS:** Construction of stabilized granular sub-base/ base by providing well graded material (Jhama Brick Aggregate , as per approved Table, mixing with organosilane nanotechnology and nano acrylic co-polymer with water (<1000 ppm TDS), spreading in uniform layers with tractor with attachments on prepared surface, mixing by mix in place method with rotavator at OMC, watering and compacting with vibratory roller to achieve the desired density, complete as per Technical Specification approved by TRRDA.				
		Unit =Cum				
		Taking output = 300 Cum				
		a) Labour				
		Mate	day	0.67	310.00	207.70
		Mazdoor (Unskilled)	day	2.00	310.00	620.00
		Mazdoor (skilled)	day	14.65	395.00	5,786.75
		b) Machinery				
		Hydraulic exavator 0.90 cum bucket capacity @ 100 cum per hour	hour	3.00	1,200.00	3,600.00
		Tipper 5.5 cum capacity, 4 trip per hour	hour	13.64	334.00	4,555.76
		Dozer D-50 for spreading @ 200 cum per hour	hour	1.50	2,370.00	3,555.00

	Tractor with attachment for grading @ 25 cum per hour	hour	12.00	320.00	3,840.00
	80-100 KN vibratory Roller @ 100 cum per hour	hour	3.00	1,395.00	4,185.00
	water tanker 6 kl capacity (Truck Mounted)	hour	3.45	200.00	690.00
	Tractor with Rotavator @ 25 cum per hour	hour	12.00	320.00	3,840.00
	Tractor with ripper @ 60 cum per hour	hour	13.00	223.00	2,899.00
c)	**Material**				
	Cement	t	16.65	5,800.00	96,570.00
	Terrasil organosilane nano technology @ 0.015 kg per sqm	kg	325.23	466.10	151,589.70
	Zycobond : Nano- acrylic co- polymer	kg	325.23	152.50	49,597.58
	soil (Compensation for earth taken from private land)	cum	240.00	133.00	31,920.00
	Jhama Brick Aggragate 40 mm to 22.4 mm	cum	90.00	3,365.00	302,850.00
	Jhama Brick Aggragate 22.4 mm to 2.36 mm	cum	30.00	3,445.00	103,350.00
	Water	kl	82.75	133.00	11,005.75
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**109,683.04**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**133,551.79**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**10,238.97**
	cost of 300 cum= a+b+c+d+e+f				**1,034,136.05**
	Rate per sqm= (a+b+c+d+e+f)/300				**3,447.12**
				say	***3447.10***

M-4.3 **Prime Coat with organosilane nanotechnology**

(i) **Low porosity**

As per Technical Specification approved by TRRDA.

Providing and applying prime coat with organosilane nanotechnology and cationic bitumen emulsion (CSS-1) and with water (<1000 ppm TDS) (in the ratio of 1.00 kg organosilane nanotechnology : 100.00 kg cationic bitumen emulsion (CSS-1) : 200 litre water) by spraying solution at the rate of 1.00 litre/sqm using mechanical means on prepared surface of granular base of low porosity including cleaning of road surface as per Technical Specification approved by TRRDA.

Unit =Sqm
Taking output = 1750 sqm

a)	**Labour**				
	Mate	day	0.06	310.00	18.60
	Mazdoor (Unskilled)	day	1.25	310.00	387.50
	Mazdoor (skilled)	day	0.17	395.00	67.15
b)	**Machinery**				
	Hydraulic broom @ 1250 sqm per hour	hour	1.40	345.00	483.00
	Air compressor 210 cfm	hour	1.40	210.00	294.00
	Bitumen emulsion pressure distributor @ 1750 sqm per hour	hour	1.00	202.00	202.00
	Water tanker 6kl capacity 1 trip per hour	hour	0.19	200.00	38.00
c)	**Material**				
	Bitumen emulsion (CSS-1)	t	0.58	38,830.00	22,521.40
	Terraprime organosilane nano technology @ 0.0033 kg per sqm	kg	5.833	1,016.95	5,931.87
	Water	kl	1.17	133.00	155.61
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**4,228.93**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**5,149.21**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**394.77**
	cost of 1750 sqm= a+b+c+d+e+f				**39,872.04**
	Rate per sqm= (a+b+c+d+e+f)/1750				**22.78**
				say	***22.80***

(ii) **Medium porosity**

Providing and applying prime coat with organosilane nanotechnology and cationic bitumen emulsion (CSS-1) and with water (<1000 ppm TDS) (in the ratio of 1.00 kg organosilane nanotechnology : 100.00 kg cationic bitumen emulsion (CSS-1) : 200 litre water) by spraying solution at the rate of 1.20 litre/sqm using mechanical means on prepared surface of granular base of medium porosity including cleaning of road surface as per Technical Specification approved by TRRDA.

Unit =Sqm
Taking output = 1750 sqm

a)	**Labour**				
	Mate	day	0.07	310.00	21.70
	Mazdoor (Unskilled)	day	1.50	310.00	465.00
	Mazdoor (skilled)	day	0.20	395.00	79.00
b)	**Machinery**				
	Hydraulic broom @ 1250 sqm per hour	hour	1.40	345.00	483.00
	Air compressor 210 cfm	hour	1.40	210.00	294.00
	Bitumen emulsion pressure distributor @ 1750 sqm per hour	hour	1.00	202.00	202.00
	Water tanker 6 kl capacity 1 trip per hour	hour	0.23	200.00	46.00
c)	**Material**				
	Bitumen emulsion (CSS-1)	t	0.70	38,830.00	27,181.00
	Terraprime				
	organosilane nano technology @ 0.0040 kg per sqm	kg	7.00	1,016.95	7,118.65
	Water	kl	1.40	133.00	186.20
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**5,068.76**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**6,171.80**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**473.17**
cost of 1750 sqm= a+b+c+d+e+f					**47,790.27**
Rate per sqm= (a+b+c+d+e+f)/1750					**27.31**
				say	***27.30***

(iii) High porosity

Providing and applying prime coat with organosilane nanotechnology and cationic bitumen emulsion (CSS-1) and with water (<1000 ppm TDS) (in the ratio of 1.00 kg organosilane nanotechnology : 100.00 kg cationic bitumen emulsion (CSS-1) : 200 litre water) by spraying solution at the rate of 1.00 litre/sqm using mechanical means on prepared surface of granular base of high porosity including cleaning of road surface as per Technical Specification approved by TRRDA.

Unit =Sqm
Taking output = 1750 sqm

a)	**Labour**				
	Mate	day	0.09	310.00	27.90
	Mazdoor (Unskilled)	day	2.00	310.00	620.00
	Mazdoor (skilled)	day	0.27	395.00	106.65
b)	**Machinery**				
	Hydraulic broom @ 1250 sqm per hour	hour	1.40	345.00	483.00
	Air compressor 210 cfm	hour	1.40	210.00	294.00
	Bitumen emulsion pressure distributor @ 1750 sqm per hour	hour	1.00	202.00	202.00
	Water tanker 6 kl capacity 1 trip per hour	hour	0.31	200.00	62.00
c)	**Material**				
	Bitumen emulsion (CSS-1)	t	0.93	38,830.00	36,111.90
	Terraprime				
	organosilane nano technology @ 0.0053 kg per sqm	kg	9.333	1,016.95	9,491.19
	Water	kl	1.87	133.00	248.71
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**6,694.45**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**8,151.27**

	f) Add Cess @ 1.00 % on (a+b+c+d+e)				**624.93**
	cost of 1750 sqm= a+b+c+d+e+f				**63,118.01**
	Rate per sqm= (a+b+c+d+e+f)/1750				**36.07**
				say	***36.10***

M-4.4 **Tack Coat with Organosilane Nano technology**

(i) Providing and applying tack coat with organosilane nanotechnology and cationic bitumen emulsion (CRS-1) and with water (<1000 ppm TDS) (in the ratio of 1.40 kg organosilane nanotechnology : 100.00 kg cationic bitumen emulsion (CRS-1) : 200 litre water) by spraying solution at the rate of 1.00 litre/sqm using mechanical means on prepared bituminous surface cleaned with Hydraulic brooms per Technical Specification approved by TRRDA.

As per Technical Specification approved by TRRDA.

Unit =Sqm

Taking output = 1750 sqm

a) Labour				
Mate	day	0.02	310.00	6.20
Mazdoor (Unskilled)	day	0.47	310.00	145.70
Mazdoor (skilled)	day	0.07	395.00	27.65
b) Machinery				
Hydraulic broom @ 1250 sqm per hour	hour	1.40	345.00	483.00
Air compressor 210 cfm	hour	1.40	210.00	294.00
Bitumen emulsion pressure distributor @ 1750 sqm per hour	hour	1.00	202.00	202.00
Water tanker 6kl capacity 1 trip per hour	hour	0.08	200.00	16.00
c) Material				
Bitumen emulsion (CRS-1)	t	0.23	37,082.00	8,640.11
Nanotac				
organosilane nano technology	kg	3.267	1,016.95	3,322.38
Water	kl	0.47	133.00	62.51
d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**1,854.54**
e) Contractor's profit @ 15 % on (a+b+c+d)				**2,258.11**
f) Add Cess @ 1.00 % on (a+b+c+d+e)				**173.12**
cost of 1750 sqm= a+b+c+d+e+f				**17,485.31**
Rate per sqm= (a+b+c+d+e+f)/1750				**9.99**
			say	***10.00***

(ii) Providing and applying tack coat with organosilane nanotechnology and cationic bitumen emulsion (CRS-1) and with water (<1000 ppm TDS) (in the ratio of 1.00 kg organosilane nanotechnology : 100.00 kg cationic bitumen emulsion (CRS-1) : 200 litre water) by spraying solution at the rate of 1.20 litre/sqm using mechanical means on the prepared dry and hungry bituminous surface including cleaning of road surface as per Technical Specification approved by TRRDA.

Unit =Sqm

Taking output = 1750 sqm

a) Labour				
Mate	day	0.01	310.00	3.10
Mazdoor (Unskilled)	day	0.21	310.00	65.10
Mazdoor (skilled)	day	0.03	395.00	11.85
b) Machinery				
Hydraulic broom @ 1250 sqm per hour	hour	1.40	345.00	483.00
Air compressor 210 cfm	hour	1.40	210.00	294.00
Bitumen emulsion pressure distributor @ 1750 sqm per hour	hour	1.00	202.00	202.00
Water tanker 6kl capacity 1 trip per hour	hour	0.09	200.00	18.00
c) Material				
Bitumen emulsion (CRS-1)	t	0.263	37,082.00	9,752.57
Nanotac				
organosilane nano technology	kg	3.675	1,016.95	3,737.29
Water	kl	0.53	133.00	70.49
d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**2,056.55**
e) Contractor's profit @ 15 % on (a+b+c+d)				**2,504.09**

	f) Add Cess @ 1.00 % on (a+b+c+d+e)				**191.98**
	cost of 1750 sqm= a+b+c+d+e+f				**19,390.02**
	Rate per sqm= (a+b+c+d+e+f)/1750				**11.08**
				say	***11.10***

(iii) Providing and applying tack coat with organosilane nanotechnology and cationic bitumen emulsion (CRS-1) and with water (<1000 ppm TDS) (in the ratio of 1.00 kg organosilane nanotechnology : 100.00 kg cationic bitumen emulsion (CRS-1) : 200 litre water) by spraying solution at the rate of 1.00 litre/sqm using mechanical means on the prepared granular surface treated with primer including cleaning of road surface as per Technical Specification approved by TRRDA.

Unit =Sqm

Taking output = 1750 sqm

a)	**Labour**				
	Mate	day	0.01	310.00	3.10
	Mazdoor (Unskilled)	day	0.19	310.00	58.90
	Mazdoor (skilled)	day	0.03	395.00	11.85
b)	**Machinery**				
	Hydraulic broom @ 1250 sqm per hour	hour	1.40	345.00	483.00
	Air compressor 210 cfm	hour	1.40	210.00	294.00
	Bitumen emulsion pressure distributor @ 1750 sqm per hour	hour	1.00	202.00	202.00
	Water tanker 6kl capacity 1 trip per hour	hour	0.08	200.00	16.00
c)	**Material**				
	Bitumen emulsion (CRS-1)	t	0.233	37,082.00	8,640.11
	Nanotac				
	organosilane nano technology	kg	3.267	1,016.95	3,322.38
	Water	kl	0.47	133.00	62.51
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**1,839.68**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**2,240.03**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**171.74**
	cost of 1750 sqm= a+b+c+d+e+f				**17,345.29**
	Rate per sqm= (a+b+c+d+e+f)/1750				**9.91**
				say	***9.90***

(iv) Providing and applying tack coat with organosilane nanotechnology and cationic bitumen emulsion (CRS-1) and with water (<1000 ppm TDS) (in the ratio of 1.00 kg organosilane nanotechnology : 100.00 kg cationic bitumen emulsion (CRS-1) : 200 litre water) by spraying solution at the rate of 1.00 litre/sqm using mechanical means on the prepared non-bituminous surfaces (cement concrete pavement) including cleaning of road surface as per Technical Specification approved by TRRDA.

Unit =Sqm

Taking output = 1750 sqm

a)	**Labour**				
	Mate	day	0.01	310.00	3.10
	Mazdoor (Unskilled)	day	0.23	310.00	71.30
	Mazdoor (skilled)	day	0.03	395.00	11.85
b)	**Machinery**				
	Hydraulic broom @ 1250 sqm per hour	hour	1.40	345.00	483.00
	Air compressor 210 cfm	hour	1.40	210.00	294.00
	Bitumen emulsion pressure distributor @ 1750 sqm per hour	hour	1.00	202.00	202.00
	Water tanker 6kl capacity 1 trip per hour	hour	0.10	200.00	20.00
c)	**Material**				
	Bitumen emulsion (CRS-1)	t	0.292	37,082.00	10,827.94
	Nanotac				
	organosilane nano technology	kg	4.083	1,016.95	4,152.21
	Water	kl	0.58	133.00	77.14
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**2,268.03**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**2,761.59**

	f) Add Cess @ 1.00 % on (a+b+c+d+e)				**211.72**
	cost of 1750 sqm= a+b+c+d+e+f				**21,383.87**
	Rate per sqm= (a+b+c+d+e+f)/1750				**12.22**
				say	***12.20***

M-4.5 **Bituminous Macadam with Organosilane**

As per Technical Specification approved by TRRDA.

Providing and laying bituminous macadam with organosilane nanotechnology by hot mix plant using crushed aggregates of grading as per Table 500.4 premixed with bituminous binder (VG-30) with 0.1% organosilane nanotechnology Zycotherm by weight of bituminous binder , transported to site upto a lead of 1000 m laid over a previously prepared surface with paver finisher to the required grade, level and alignment and rolled to achieve the desired compaction as per Technical Specification Clause 504

Unit =Cum

Taking output = 102.5 cum (225 t)

a)	**Labour**				
	Mate	day	0.52	310.00	161.20
	Mazdoor (Unskilled)	day	10.00	310.00	3,100.00
	Mazdoor (skilled)	day	3.00	395.00	1,185.00
b)	**Machinery**				
	Batch mix HMP 40-60 TPH @40 t per hour actual output	hour	6.00	12,100.00	72,600.00
	Hydraulic broom @ 1250 sqm per hour	hour	1.10	345.00	379.50
	Air compressor 210 cfm	hour	1.10	210.00	231.00
	Paver finisher	hour	6.00	1,050.00	6,300.00
	Generator 125 KVA	hour	6.00	445.00	2,670.00
	Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00
	Tipper 5.5 cum, 10 t capacity	hour	6.21	334.00	2,074.14
	Three wheel 80-100 KN static roller for initial break down rolling	hour	12.00	392.00	4,704.00
	Final and finishing rolling: Vibratory roller 80-100 KN for intermidiate rolling	hour	6.00	1,395.00	8,370.00
c)	**Material**				
i)	Bitumen **(VG-30)**@ 3.3 percent of mix (Weight of mix= 102.5X 2.2=225t)	t	7.43	40,138.00	298,024.65
ii)	**Zycotherm**				
	organosilane nano technology	kg	7.425	1,144.00	8,494.20
iii)	**Aggregate**				
	Total weight of mix = 225 t				
	Total weight of bitumen = 7.425 t				
	Weight of aggregate = 2250-7.425 = 217.575 t				
	Taking density of aggregate = 1.5 t/cum				
	Volume of Aggregate = 145.05 **(19 mm nominal size) as per table 500.4**	cum	145.05	4,720.00	684,636.00
	25-10 mm - 40 percent	cum	58.02		
	10-5 mm - 40 percent	cum	58.02		
	5 mm and below - 20 percent	cum	29.01		
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**154,332.18**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**187,917.28**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**14,406.99**
	cost of 102.50 cum= a+b+c+d+e+f				**1,455,106.14**
	Rate per sqm= (a+b+c+d+e+f)/102.5				**14,196.16**
				say	***14196.20***

Note:

1. Although the rollers are required only for 3 hours as per norms of output, but the same have to be available at site for six hours as the hot mix plant and paver will take six hours for mixing and paving the output of 225 t considered in these analysis. To cater for the idle period of these rollers, their usage rates have been multiply by a factor of 0.65.
2. Quantity of bitumen has been taken for analysis purpose. The actual quantity will depend upon job mix formula.

3 Labour for traffic control, watch and ward and other miscellaneous duties at site, including sundries have been included an administrative overheads of the contractor.

4 As the BM will have to be laid over freshly laid tack coat, provision of hydraulic brrom and 2 mazdoor for the same have been deleted as the same has been included in the cost of tack coat.

5 Analysis is based on 1000 m lead mixed material. Cost of additional cartage may be added as per site requirement.

M-4.6 **Built- up Spray Grout with Organosilane**

(i) Providing, laying and rolling of built-up spray grout layer over prepared base consisting of a two layer composite construction of crushed coarse aggregates using motor grader for aggregates. Key stone chips spreader may be used with application of bituminous binder (Bitumen VG-30 mixed with 0.1% organosilane nanotechnology Zycotherm by weight of bituminous binder) after each layer. and with key aggregates placed on top of the second layer to serve as a base, conforming to line, grades and cross section specified, the compacted layer thickness being 75 mm as per Technical Specification Clause 505.

As per Technical Specification approved by TRRDA.

(A) By Manual Means

Unit =Sqm

Taking output = 800 sqm (60 cum)

a)	**Labour**				
	Mate	day	5.50	310.00	1,705.00
	Mazdoor (Unskilled)	day	100.50	310.00	31,155.00
	Chips spreader	day	10.00	310.00	3,100.00
	Bitumen sprayer	day	2.50	355.00	887.50
	Mazdoor (semi-skilled) for spraying bitumen	day	25.50	355.00	9,052.50
b)	**Machinery**				
	Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	6.00	0.00	0.00
	Three wheel 80-100 KN static roller	hour	6.00	392.00	2,352.00
c)	**Material**				
i)	**Bitumen (VG-30) @ 30 Kg per 10 sqm @ 15 Kg per 10 sqm for each layer**	t	2.40	40,138.00	96,331.20
ii)	**Zycotherm**				
	organosilane nano technology	kg	2.400	1,144.00	2,745.60
iii)	**Aggregate**				
	Crushed stone coarse aggregate passing 53 mm seive and retained on 2.8 mm seive @ 1.00cum per 10 sqm for each layer	cum	80.000	4,135.00	330,800.00
	key aggregate passing 22.4 mm seive and retained on 2.8 mm seive @ 0.13 cum per 10 sqm .	cum	10.40	4,440.00	46,176.00
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**73,664.82**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**89,695.44**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**6,876.65**
cost of 800 sqm= a+b+c+d+e+f					**694,541.72**
Rate per sqm= (a+b+c+d+e+f)/800					**868.18**
				say	***868.20***

(B) By Mechanical Means

Unit =Sqm

Taking output = 3000 sqm (225 cum)

a)	**Labour**				
	Mate	day	0.40	310.00	124.00
	Mazdoor (Unskilled)	day	8.00	310.00	2,480.00
	Mazdoor (skilled)	day	2.00	395.00	790.00
b)	**Machinery**				

	Hydraulic self propelled chip spreader both for aggregates and key aggregates @ 1500 sqm per hour for 3000X 3 sqm	hour	6.00	3,629.00	21,774.00
	Bitumen pressure distributer for 3000X 2 sqm @ 1750 sqm per hour	hour	3.43	202.00	692.86
	Tipper 5.5 cum, 10 t capacity	hour	10.00	334.00	3,340.00
	Three wheel 80-100 KN static roller@ 10 cum per hour	hour	22.50	392.00	8,820.00
	Front end loader 1 cum bucket capacity	hour	5.00	920.00	4,600.00
c)	**Material**				
i)	**Bitumen (VG-30) @ 30 Kg per 10 sqm @ 15 Kg per 10 sqm for each layer**	t	9.00	40,138.00	361,242.00
ii)	**Zycotherm**				
	organosilane nano technology	kg	9.000	1,144.00	10,296.00
iii)	**Aggregate**				
	Crushed stone coarse aggregate passing 53 mm seive and retained on 2.8 mm seive @ 1.00cum per 10 sqm for each layer	cum	300.000	4,135.00	1,240,500.00
	key aggregate passing 22.4 mm seive and retained on 2.8 mm seive @ 0.13 cum per 10 sqm .	cum	39.00	4,440.00	173,160.00
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**256,808.55**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**312,694.11**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**23,973.22**
cost of 3000 sqm= a+b+c+d+e+f					**2,421,294.74**
Rate per sqm= (a+b+c+d+e+f)/3000					**807.10**
				say	***807.10***

M-4.7 **Modified Penetration Macadam with Organosilane**

(i) Construction of penetration macadam over prepared base by providing a layer of compacted crushed coarse aggregate using chips spreader with alternate applications of bituminous binder (Bitumen VG-30 mixed with 0.1% organosilane nanotechnology Zycotherm by weight of bituminous binder) and key aggregates and rolling with a three wheel 80-100 kN static roller to achieve the desired degree of compaction per Technical Specification Clause 506.

(A) 50 mm thick

Unit =Sqm

Taking output = 4500 sqm (225 cum)

As per Technical Specification approved by TRRDA.

a)	**Labour**				
	Mate	day	0.32	310.00	99.20
	Mazdoor (Unskilled)	day	6.00	310.00	1,860.00
	Mazdoor (skilled)	day	2.00	395.00	790.00
b)	**Machinery**				
	Hydraulic self propelled chip spreader both for aggregates and key aggregates @ 1500 sqm per hour for 4500X 2 sqm = 9000 sqm	hour	6.00	3,629.00	21,774.00
	Bitumen pressure distributer for @ 1750 sqm per hour	hour	2.57	202.00	519.14
	Tipper 5.5 t capacity	hour	10.00	334.00	3,340.00
	Three wheel 80-100 KN static roller	hour	22.50	392.00	8,820.00
	Front end loader	hour	6.00	920.00	5,520.00
c)	**Material**				
i)	**Bitumen (VG-30) @ 1.75 Kg per sqm**	t	7.87	40,138.00	315,886.06
ii)	**Zycotherm**				
	organosilane nano technology	kg	7.870	1,144.00	9,003.28
iii)	**Aggregate**				
	40 mm size hand broken metal @ 0.06 cum per sqm	cum	270.000	4,692.00	1,266,840.00

	12 mm size stone chips @ 0.018 cum per sqm	cum	81.00	4,785.00	387,585.00
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**284,096.15**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**345,919.93**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**26,520.53**
cost of 4500 sqm= a+b+c+d+e+f					**2,678,573.29**
Rate per sqm= (a+b+c+d+e+f)/4500					**595.24**
				say	***595.20***

(B) 75 mm thick

Unit =Sqm

Taking output = 4500 sqm (337.5 cum)

a)	**Labour**				
	Mate	day	0.40	310.00	124.00
	Mazdoor (Unskilled)	day	8.00	310.00	2,480.00
	Mazdoor (skilled)	day	2.00	395.00	790.00
b)	**Machinery**				
	Hydraulic self propelled chip spreader both for aggregates and key aggregates @ 1500 sqm per hour for 4500X 2 sqm = 9000 sqm	hour	6.00	3,629.00	21,774.00
	Bitumen pressure distributer for @ 1750 sqm per hour	hour	2.57	202.00	519.14
	Tipper 5.5 t capacity	hour	10.00	334.00	3,340.00
	Three wheel 80-100 KN static roller	hour	33.75	392.00	13,230.00
	Front end loader	hour	6.00	920.00	5,520.00
c)	**Material**				
i)	**Bitumen (VG-30) @ 2.00 Kg per sqm**	t	9.00	40,138.00	361,242.00
ii)	**Zycotherm**				
	organosilane nano technology	kg	9.000	1,144.00	10,296.00
iii)	**Aggregate**				
	40 mm size hand broken metal @ 0.09 cum per sqm	cum	405.000	4,692.00	1,900,260.00
	12 mm size stone chips @ 0.018 cum per sqm	cum	81.00	4,785.00	387,585.00
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**380,356.00**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**463,127.42**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**35,506.44**
cost of 4500 sqm= a+b+c+d+e+f					**3,586,150.00**
Rate per sqm= (a+b+c+d+e+f)/4500					**796.92**
				say	***796.90***

M-4.8 As per Technical Specification approved by TRRDA. (As per PMGSY SOR 2019

Surface Dressing using Bituminous binder with

Providing and laying surface dressing as wearing course consisting of a layer of bituminous binder (Bitumen VG-30 mixed with 0.1% organosilane nanotechnology Zycotherm by weight of bituminous binder) laid on the prepared surface, followed by a cover of crushed stone aggregates of specified size and rolling with three wheel 80-100 kN static roller including cleaning the road surface as per Technical Specification Clause 507.

(A) By Manual Means

Case-I: Nominal chipping size 13.2 mm

Unit =Sqm

Taking output = 900 sqm

a)	**Labour**				
	Mate	day	2.60	310.00	806.00
	Bitumen sprayer	day	1.00	355.00	355.00
	Mazdoor (Unskilled)	day	58.00	310.00	17,980.00
	Mazdoor (semi-skilled)	day	6.00	355.00	2,130.00
	Add: 0.50 % of (a) Labour Sundries			LS	106.36
b)	**Machinery**				
	Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	2.25	198.00	445.50

	Three wheel 80-100 KN static roller	hour	2.25	392.00	882.00
c)	**Material**				
i)	**Bitumen (VG-30) @ 1.00 Kg per sqm**	t	0.90	40,138.00	36,124.20
ii)	**Zycotherm**				
	organosilane nano technology	kg	0.900	1,144.00	1,029.60
iii)	**Aggregate**				
	Crushed stone chipping, 13.2 mm nominal size @ 0.010 cum per Sqm	cum	9.000	4,825.00	43,425.00
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**14,511.35**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**17,669.25**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**1,354.64**
cost of 900 sqm= a+b+c+d+e+f					**136,818.90**
Rate per sqm= (a+b+c+d+e+f)/900					**152.02**
				say	***152.00***

Case-II: Nominal chipping size 9.5 mm

Unit =Sqm

Taking output = 1000 sqm

a)	**Labour**				
	Mate	day	2.60	310.00	806.00
	Bitumen sprayer	day	1.00	355.00	355.00
	Mazdoor (Unskilled)	day	58.00	310.00	17,980.00
	Mazdoor (semi-skilled)	day	6.00	355.00	2,130.00
	Add: 0.50 % of (a) Labour Sundries			LS	106.36
b)	**Machinery**				
	Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	2.00	198.00	396.00
	Three wheel 80-100 KN static roller	hour	2.00	392.00	784.00
c)	**Material**				
i)	**Bitumen (VG-30) @ 10.9 Kg per sqm**	t	0.90	40,138.00	36,124.20
ii)	**Zycotherm**				
	organosilane nano technology	kg	0.900	1,144.00	1,029.60
iii)	**Aggregate**				
	Crushed stone chipping, 9.5 mm nominal size @ 0.008 cum per Sqm	cum	8.000	4,720.00	37,760.00
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**13,694.70**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**16,674.88**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**1,278.41**
cost of 1000 sqm= a+b+c+d+e+f					**129,119.14**
Rate per sqm= (a+b+c+d+e+f)/1000					**129.12**
				say	***129.10***

(B) By Mechanical Means

Case-I: Nominal chipping size 13.2 mm

Unit =Sqm

Taking output = 7500 sqm

a)	**Labour**				
	Mate	day	0.44	310.00	136.40
	Mazdoor (Unskilled)	day	9.00	310.00	2,790.00
	Mazdoor (skilled)	day	2.00	395.00	790.00
b)	**Machinery**				
	Hydraulic broom @ 1250 sqm per hour	hour	6.00	345.00	2,070.00
	Air compressor 210 cfm	hour	6.00	210.00	1,260.00
	Hydraulic self propelled chip spreader @ 1500 sqm per hour	hour	6.00	3,629.00	21,774.00
	Tipper 5.5-10 t capacity for carraige of stone chips from stockpile on the road to chip spreader	hour	6.00	334.00	2,004.00
	Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00
	Bitumen pressure distributor	hour	6.00	202.00	1,212.00
	Three wheel 80-100 KN static roller weight	hour	18.75	392.00	7,350.00
c)	**Material**				
i)	**Bitumen (VG-30) @ 1.00 Kg per sqm**	t	7.50	40,138.00	301,035.00
ii)	**Zycotherm**				
	organosilane nano technology	kg	7.500	1,144.00	8,580.00
iii)	**Aggregate**				

	Crushed stone chipping, 13.2 mm nominal size @ 0.010 cum per Sqm	cum	75.000	4,825.00	361,875.00
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**100,653.69**
e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d+e)**				**122,557.51**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**9,396.08**
cost of 7500 sqm= a+b+c+d+e+f					**949,003.68**
Rate per sqm= (a+b+c+d+e+f)/7500					**126.53**
				say	***126.50***

Case-II: Nominal chipping size 9.5 mm

Unit =Sqm

Taking output = 7500 sqm

a)	**Labour**				
	Mate	day	0.44	310.00	136.40
	Mazdoor (Unskilled)	day	9.00	310.00	2,790.00
	Mazdoor (skilled)	day	2.00	395.00	790.00
b)	**Machinery**				
	Hydraulic broom @ 1250 sqm per hour	hour	6.00	345.00	2,070.00
	Air compressor 210 cfm	hour	6.00	210.00	1,260.00
	Hydraulic self propelled chip spreader @ 1500 sqm per hour	hour	6.00	3,629.00	21,774.00
	Tipper 5.5- 10 t capacity for carraige of stone chips from stockpile on the road to chip spreader	hour	6.00	334.00	2,004.00
	Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00
	Bitumen pressure distributor	hour	6.00	202.00	1,212.00
	Three wheel 80-100 KN static roller	hour	15.00	392.00	5,880.00
c)	**Material**				
i)	**Bitumen (VG-30) @0.9 Kg per sqm**	t	6.75	40,138.00	270,931.50
ii)	**Zycotherm**				
	organosilane nano technology	kg	6.750	1,144.00	7,722.00
iii)	**Aggregate**				
	Crushed stone chipping, 9.5 mm nominal size @ 0.008 cum per Sqm	cum	60.000	4,720.00	283,200.00
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**85,043.23**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**103,549.97**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**7,938.83**
cost of 7500 sqm= a+b+c+d+e+f					**801,821.93**
Rate per sqm= (a+b+c+d+e+f)/7500					**106.91**
				say	***106.90***

M-4.9 (i) Surface Dressing using Bitumen Emulsion with Organosilane Nanotechnology

As per Technical Specification approved by TRRDA.

Providing and laying surface dressing as wearing course consisting of a layer of bitumen emulsion mixed with 0.5% organosilane nanotechnology Nanotac by weight of bituminous emulsion laid on the prepared surface, followed by a cover of crushed stone chippings of specified size and rolling with three wheel 80-100 kN static roller including cleaning the road surface as per Technical Specification Clause 507.

(A) By Manual Means

Case-I: Nominal chipping size 13.2 mm

Unit =Sqm

Taking output = 900 sqm

a)	**Labour**				
	Mate	day	2.36	310.00	731.60
	Bitumen Emulsion sprayer	day	1.00	355.00	355.00
	Mazdoor (Unskilled)	day	58.00	310.00	17,980.00
	Add: 0.50 % of (a) Labour Sundries			LS	95.33
b)	**Machinery**				
	Bitumen Emulsion sprayer capacity 1000 litre fitted with spray set	hour	2.25	202.00	454.50
	Three wheel 80-100 KN static roller	hour	2.25	392.00	882.00
c)	**Material**				

i)	**BitumenEmulsion (RS-1) @ 1.50 Kg per sqm**	t	1.35	37,082.00	50,060.70
ii)	**Nanotac**				
	organosilane nano technology	kg	6.750	1,016.95	6,864.41
iii)	**Aggregate**				
	Crushed stone chipping, 13.2 mm nominal size @ 0.010 cum per Sqm	cum	9.000	4,825.00	43,425.00
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**16,979.22**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**20,674.16**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**1,585.02**
cost of 900 sqm= a+b+c+d+e+f					**160,086.95**
Rate per sqm= (a+b+c+d+e+f)/900					**177.87**
				say	***177.90***

Case-II: Nominal chipping size 9.5 mm

Unit =Sqm

Taking output = 1000 sqm

a)	**Labour**				
	Mate	day	2.36	310.00	731.60
	Bitumen Emulsion sprayer	day	1.00	355.00	355.00
	Mazdoor (Unskilled)	day	58.00	310.00	17,980.00
	Add: 0.50 % of (a) Labour Sundries			LS	95.33
b)	**Machinery**				
	Bitumen Emulsion sprayer capacity 1000 litre fitted with spray set	hour	2.00	202.00	404.00
	Three wheel 80-100 KN static roller	hour	2.00	392.00	784.00
c)	**Material**				
i)	**BitumenEmulsion (RS-1) @ 1.40 Kg per sqm**	t	1.40	37,082.00	51,914.80
ii)	**Nanotac**				
	organosilane nano technology	kg	6.750	1,016.95	6,864.41
iii)	**Aggregate**				
	Crushed stone chipping, 9.5 mm nominal size @ 0.008 cum per Sqm	cum	8.000	4,720.00	37,760.00
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**16,422.92**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**19,996.81**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**1,533.09**
cost of 1000 sqm= a+b+c+d+e+f					**154,841.97**
Rate per sqm= (a+b+c+d+e+f)/1000					**154.84**
				say	***154.80***

(B) By Mechanical Means

Case-I: Nominal chipping size 13.2 mm

Unit =Sqm

Taking output = 7500 sqm

a)	**Labour**				
	Mate	day	0.44	310.00	136.40
	Mazdoor (Unskilled)	day	9.00	310.00	2,790.00
	Mazdoor (skilled)	day	2.00	395.00	790.00
b)	**Machinery**				
	Hydraulic broom @ 1250 sqm per hour	hour	6.00	345.00	2,070.00
	Air compressor 210 cfm	hour	6.00	210.00	1,260.00
	Hydraulic self propelled chip spreader @ 1500 sqm per hour	hour	6.00	3,629.00	21,774.00
	Tipper 5.5-10 t capacity for carraige of stone chips from stockpile on the road to chip spreader	hour	6.00	334.00	2,004.00
	Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00
	Bitumen pressure distributor	hour	6.00	202.00	1,212.00
	Three wheel 80-100 KN static roller weight	hour	18.75	392.00	7,350.00
c)	**Material**				
i)	**BitumenEmulsion (RS-1) @ 1.50 Kg per sqm**	t	11.25	37,082.00	417,172.50
ii)	**Nanotech**				
	organosilane nano technology	kg	6.750	1,016.95	6,864.41

iii)	**Aggregate**				
	Crushed stone chipping, 13.2 mm nominal size @ 0.010 cum per Sqm	cum	75.000	4,825.00	361,875.00
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**116,729.97**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**142,132.24**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**10,896.81**
cost of 7500 sqm= a+b+c+d+e+f					**1,100,577.33**
Rate per sqm= (a+b+c+d+e+f)/7500					**146.74**
				say	***146.70***

Case-II: Nominal chipping size 9.5 mm

Unit =Sqm
Taking output = 7500 sqm

a)	**Labour**				
	Mate	day	0.44	310.00	136.40
	Mazdoor (Unskilled)	day	9.00	310.00	2,790.00
	Mazdoor (skilled)	day	2.00	395.00	790.00
b)	**Machinery**				
	Hydraulic broom @ 1250 sqm per hour	hour	6.00	345.00	2,070.00
	Air compressor 210 cfm	hour	6.00	210.00	1,260.00
	Hydraulic self propelled chip spreader @ 1500 sqm per hour	hour	6.00	3,629.00	21,774.00
	Tipper 5.5-10 t capacity for carraige of stone chips from stockpile on the road to chip spreader	hour	6.00	334.00	2,004.00
	Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00
	Bitumen pressure distributor	hour	6.00	202.00	1,212.00
	Three wheel 80-100 KN static roller weight	hour	15.00	392.00	5,880.00
c)	**Material**				
i)	**BitumenEmulsion (RS-1) @ 1.40 Kg per sqm**	t	10.50	37,082.00	389,361.00
ii)	**Nanotech**				
	organosilane nano technology	kg	6.750	1,016.95	6,864.41
iii)	**Aggregate**				
	Crushed stone chipping, 9.5 mm nominal size @ 0.008 cum per Sqm	cum	60.000	4,720.00	283,200.00
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**101,562.08**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**123,663.58**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**9,480.87**
cost of 7500 sqm= a+b+c+d+e+f					**957,568.36**
Rate per sqm= (a+b+c+d+e+f)/7500					**127.68**
				say	***127.70***

M-4.10

Pre- coating Chips with Organosilane Nanotechnology

As per Technical Specification approved by TRRDA.

Pre-coating chips with 1 percent of paving bitumen (Bitumen VG-30 mixed with 0.1% organosilane nanotechnology Zycotherm by weight of bituminous binder) by weight of chips in a suitable mixer duly heated to 160 oC as per Technical Specification Clause 507.2.5.

Unit =Cum
Taking output = 30 Cum

a)	**Labour**				
	Mate	day	0.60	310.00	186.00
	Mazdoor (Unskilled)	day	15.00	310.00	4,650.00
b)	**Machinery**				
	Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	6.00	198.00	1,188.00
	Mixall 6-10 t capacity	hour	6.00	765.00	4,590.00
c)	**Material**				
i)	**Bitumen (VG-30) @ 1 percent by weight of chips (30X1.6)/100**	t	0.48	40,138.00	19,266.24
ii)	**Zycotherm**				
	organosilane nano technology	kg	0.480	1,144.00	549.12

d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)		**4,275.33**
e) Contractor's profit @ 15 % on (a+b+c+d)		**5,205.70**
f) Add Cess @ 1.00 % on (a+b+c+d+e)		**399.10**
cost of 30 cum= a+b+c+d+e+f		**40,309.49**
Rate per sqm= (a+b+c+d+e+f)/30		**1,343.65**
	say	***1343.60***

M-4.11

20 mm thick Open-Graded Premix Carpet using Bituminous (Bitumen VG-30) Binder with organosilane nanotechnology

As per Technical Specification approved by TRRDA.

Providing , laying and rolling of open-graded premix carpet of 20 mm thickness composed of 13.2 mm to 5.6 mm aggregates using bitumen (Bitumen VG-30 mixed with 0.1% organosilane nanotechnology Zycotherm by weight of bituminous binder) to required line, grade and level to serve as wearing course on a previously prepared base , including mixing in a suitable plant, laying and rolling with a three wheel 80 - 100 kN static roller capacity, finished to required level and grades to be followed by seal coat of either Type A or Type B or Type C or Type D as per Technical Specification Clause 508

Case-I: By Manual Means

Unit = Sqm
Taking output = 500 Sqm (10 cum)

a)	**Labour**				
	Mate	day	1.08	310.00	334.80
	Mazdoor (Unskilled)	day	21.00	310.00	6,510.00
	Mazdoor (Semi-skilled)	day	6.00	355.00	2,130.00
b)	**Machinery**				
	Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	4.00	198.00	792.00
	Mixall 6-10 t capacity	hour	4.00	765.00	3,060.00
	Three wheel 80-100 KN static roller weight	hour	2.00	392.00	784.00
c)	**Material**				
i)	**Bitumen (VG-30) @ 14.60 Kg per 10 Sqm**	t	0.73	40,138.00	29,300.74
ii)	**Zycotherm**				
	organosilane nano technology	kg	0.730	1,144.00	835.12
iii	Crushed stone stone chipping, 13.2 mm to 5.6 mm nominal size @ 0.27 cum per 10 Sqm	cum	13.500	4,526.17	61,103.32
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**14,731.42**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**17,937.21**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**1,375.19**
cost of 500 cum= a+b+c+d+e+f					**138,893.79**
Rate per sqm= (a+b+c+d+e+f)/500					**277.79**
				say	***277.80***

Case-II: By Mechanical Means

Unit = Sqm
Taking output = 4000 Sqm (80 cum)

a)	**Labour**				
	Mate	day	0.52	310.00	161.20
	Mazdoor (Unskilled)	day	10.00	310.00	3,100.00
	Mazdoor (Semi-skilled)	day	3.00	355.00	1,065.00
b)	**Machinery**				
	HMP 30/40 t per hour	hour	6.00	8,900.00	53,400.00
	Electric Generator st 125 KVA	hour	6.00	445.00	2,670.00
	Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00
	Tipper 5.5/10 t capacity	hour	3.64	334.00	1,215.76
	Three wheel 80-100 KN static roller weight	hour	16.00	392.00	6,272.00
	Paver finisher	hour	6.00	1,050.00	6,300.00

	c) Material				
	i) Bitumen (VG-30) @ 14.60 Kg per 10 Sqm	t	5.84	40,138.00	234,405.92
	ii) Zycotherm				
	organosilane nano technology	kg	5.840	1,144.00	6,680.96
	iii Crushed stone chipping, 13.2 mm to 5.6 mm nominal size @ 0.27 cum per 10 Sqm	cum	108.000	4,526.17	488,826.53
	d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**113,751.24**
	e) Contractor's profit @ 15 % on (a+b+c+d)				**138,505.29**
	f) Add Cess @ 1.00 % on (a+b+c+d+e)				**10,618.74**
	cost of 4000 cum= a+b+c+d+e+f				**1,072,492.64**
	Rate per sqm= (a+b+c+d+e+f)/4000				**268.12**
				say	***268.10***

M-4.12 **20 mm thick Open-Graded Premix Carpet using Bitumen Emulsion as per Technical Specification Clause 508.2 with organosilane nanotechnology**

(i) Providing , laying and rolling of open-graded premix carpet of 20 mm thickness composed of 13.2 mm to 5.6 mm aggregates using bitumen emulsion mixed with 0.5% organosilane nanotechnology Nanotac to required line, grade and level to serve as wearing course on a previously prepared base , including mixing in a suitable plant, laying and rolling with a three wheel 80 - 100 kN static roller capacity, finished to required level and grades to be followed by seal coat of either Type A or Type B or Type C or Type D as per Technical Specification Clause 508.2

Unit =Sqm

Taking output = 900 sqm (24.3 cum)

As per Technical Specification approved by TRRDA.

	a) Labour				
	Mate	day	0.80	310.00	248.00
	Mazdoor (Unskilled)	day	18.00	310.00	5,580.00
	Mazdoor (skilled)	day	2.00	395.00	790.00
	b) Machinery				
	Concrete mixer 0.4 / 0.28 cum capacity	hour	6.00	192.00	1,152.00
	Three wheel 80-100 KN static roller	hour	3.60	392.00	1,411.20
	c) Material				
	i) Bitumen Emulsion (RS-1) @21.50 Kg per 10 sqm	t	1.94	37,082.00	71,939.08
	ii) Nanotac				
	organosilane nano technology	kg	9.700	1,016.95	9,864.42
	iii) Aggregate				
	Crushed stone Agrregate 13.2 mm to 5.6 mm @ 0.27 cum per 10 sqm	cum	24.300	4,526.17	109,985.97
	d) Add GST (multiplying factor) @ 0.1405 on (a+b+c)				**28,236.38**
	e) Contractor's profit @ 15 % on (a+b+c+d)				**34,381.06**
	f) Add Cess @ 1.00 % on (a+b+c+d+e)				**2,635.88**
	cost of 900 sqm= a+b+c+d+e+f				**266,223.98**
	Rate per sqm= (a+b+c+d+e+f)/900				**295.80**
				say	***295.80***

M-4.13 **As per Technical Specification approved by TRRDA. (As per PMGSY SOR 2019)**

Mix Seal Surfacing with organosilane nanotechnology

Providing , laying and rolling of close-graded

(A) By Manual Means

i) Type -A

Unit = Sqm
Taking output = 500 Sqm (10 cum)

a)	**Labour**				
	Mate	day	1.40	310.00	434.00
	Mazdoor (Unskilled)	day	21.00	310.00	6,510.00
	Mazdoor (Semi-skilled)	day	7.00	355.00	2,485.00
b)	**Machinery**				
	Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	6.00	198.00	1,188.00
	Mixall 6-10 t capacity	hour	6.00	765.00	4,590.00
	Three wheel 80-100 KN static roller weight	hour	6.00	392.00	2,352.00
c)	**Material**				
i)	**Bitumen (VG-30) @ 22.00 Kg per 10 Sqm**	t	1.10	40,138.00	44,151.80
ii)	**Zycotherm**				
	organosilane nano technology	kg	1.100	1,144.00	1,258.40
iii	Crushed stone aggregates 11.2 mm to 0.9 mm @ 0.27 cum per 10 Sqm	cum	13.500	5,015.00	67,702.50
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**18,359.37**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**22,354.66**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**1,713.86**
cost of 500 cum= a+b+c+d+e+f					**173,099.59**
Rate per sqm= (a+b+c+d+e+f)/500					**346.20**
				say	***346.20***

ii) Type -B

Unit = Sqm
Taking output = 500 Sqm (10 cum)

a)	**Labour**				
	Mate	day	1.40	310.00	434.00
	Mazdoor (Unskilled)	day	21.00	310.00	6,510.00
	Mazdoor (Semi-skilled)	day	7.00	355.00	2,485.00
b)	**Machinery**				
	Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	6.00	198.00	1,188.00
	Mixall 6-10 t capacity	hour	6.00	765.00	4,590.00
	Three wheel 80-100 KN static roller weight	hour	6.00	392.00	2,352.00
c)	**Material**				
i)	**Bitumen (VG-30) @ 19.00 Kg per 10 Sqm**	t	0.95	40,138.00	38,131.10
ii)	**Zycotherm**				
	organosilane nano technology	kg	0.950	1,144.00	1,086.80
iii	Crushed stone aggregates 13.2 mm to 0.9 mm @ 0.27 cum per 10 Sqm	cum	13.500	4,890.00	66,015.00
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**17,252.26**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**21,006.62**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**1,610.51**
cost of 500 cum= a+b+c+d+e+f					**162,661.29**
Rate per sqm= (a+b+c+d+e+f)/500					**325.32**

				say	***325.30***

(B) By Mechanical Means

i) Type -A

Unit = Sqm

Taking output = 4000 Sqm (80 cum)

a)	**Labour**				
	Mate	day	0.52	310.00	161.20
	Mazdoor (Unskilled)	day	10.00	310.00	3,100.00
	Mazdoor (skilled)	day	3.00	395.00	1,185.00
b)	**Machinery**				
	HMP 30/40 t per hour	hour	6.00	8,900.00	53,400.00
	Electric Generator st 125 KVA	hour	6.00	445.00	2,670.00
	Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00
	Tipper 5.5/10 t capacity	hour	3.60	334.00	1,202.40
	Three wheel 80-100 KN static roller weight	hour	18.00	392.00	7,056.00
	Paver finisher	hour	6.00	1,050.00	6,300.00
c)	**Material**				
i)	**Bitumen (VG-30) @ 22.00 Kg per 10 Sqm**	t	8.80	40,138.00	353,214.40
ii)	**Zycotherm**				
	organosilane nano technology	kg	8.800	1,144.00	10,067.20
iii	Crushed stone aggregate 11.2 mm to 0.9 mm @ 0.27 cum per 10 Sqm	cum	108.000	5,015.00	541,620.00
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**138,462.22**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**168,593.76**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**12,925.52**
cost of 4000 cum= a+b+c+d+e+f					**1,305,477.70**
Rate per sqm= (a+b+c+d+e+f)/4000					**326.37**
				say	***326.40***

ii) Type B

Unit = Sqm

Taking output = 4000 Sqm (80 cum)

a)	**Labour**				
	Mate	day	0.52	310.00	161.20
	Mazdoor (Unskilled)	day	10.00	310.00	3,100.00
	Mazdoor (skilled)	day	3.00	395.00	1,185.00
b)	**Machinery**				
	HMP 30/40 t per hour	hour	6.00	8,900.00	53,400.00
	Electric Generator st 125 KVA	hour	6.00	445.00	2,670.00
	Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00
	Tipper 5.5/10 t capacity	hour	3.60	334.00	1,202.40
	Three wheel 80-100 KN static roller weight	hour	18.00	392.00	7,056.00
	Paver finisher	hour	6.00	1,050.00	6,300.00
c)	**Material**				
i)	**Bitumen (VG-30) @ 19.00 Kg per 10 Sqm**	t	7.60	40,138.00	305,048.80
ii)	**Zycotherm**				
	organosilane nano technology	kg	7.600	1,144.00	8,694.40
iii	Crushed stone aggregate 13.2 mm to 0.9 mm @ 0.27 cum per 10 Sqm	cum	108.000	4,890.00	528,120.00
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**129,605.32**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**157,809.47**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**12,098.73**
cost of 4000 cum= a+b+c+d+e+f					**1,221,971.31**
Rate per sqm= (a+b+c+d+e+f)/4000					**305.49**
				say	***305.50***

M-4.14 Seal Coat with organosilane nanotechnology

As per Technical Specification approved by TRRDA.

Providing and laying seal coat using bitumen (Bitumen VG-30 mixed with 0.1% organosilane nanotechnology Zycotherm by weight of bituminous binder) sealing the voids in a bituminous surface laid to the specified levels, grade and cross fall using Type A or Type B or Type C or Type D as per Technical Specification Clause 510

(A) By Manual Means

i) Type -A

Unit = Sqm

Taking output = 1100 sqm

a)	**Labour**				
	Mate	day	1.15	310.00	356.50
	Bitumen Sprayer	*day*	*1.00*	*355.00*	*355.00*
	Mazdoor (Unskilled)	*day*	*22.00*	*310.00*	*6,820.00*
	Mazdoor (Semi-skilled)	day	6.00	355.00	2,130.00
b)	**Machinery**				
	Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	2.20	198.00	435.60
	Three wheel 80-100 KN static roller weight	hour	2.20	392.00	862.40
c)	**Material**				
i)	**Bitumen (VG-30) @ 9.80 Kg per 10 Sqm**	t	1.08	40,138.00	43,349.04
ii)	**Zycotherm**				
	organosilane nano technology	kg	1.080	1,144.00	1,235.52
iii	Crushed stone chipping of 6.7 mm size 100 percent passing 11.2 mm seive and retained on 2.36 mm seive applied @ 0.09 cum per 10 sqm	cum	9.900	4,430.00	43,857.00
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**13,965.85**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**17,005.04**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**1,303.72**
cost of 1100 cum= a+b+c+d+e+f					**131,675.66**
Rate per sqm= (a+b+c+d+e+f)/1100					**119.71**
				say	***119.70***

ii) Type -B

Unit = Sqm

Taking output = 1250 sqm

a)	**Labour**				
	Mate	day	0.85	310.00	263.50
	Mazdoor (Unskilled)	*day*	*15.00*	310.00	*4,650.00*
	Mazdoor (Semi-skilled)	day	2.00	355.00	710.00
b)	**Machinery**				
	Mixall 6/10 t capacity	hour	2.50	765.00	1,912.50
	Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	2.50	198.00	495.00
	Three wheel 80-100 KN static roller weight	hour	2.50	392.00	980.00
c)	**Material**				
i)	**Bitumen (VG-30) @ 6.80 Kg per 10 Sqm**	t	0.85	40,138.00	34,117.30
ii)	**Zycotherm**				
	organosilane nano technology	kg	0.850	1,144.00	972.40
iii	Crushed stone or grit as passing 2.36 mm seive and retained on 180 micron seive applied @ 0.06 cum per 10 sqm.	cum	7.500	2,510.00	18,825.00
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**8,841.06**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**10,765.01**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**825.32**
cost of 1250 cum= a+b+c+d+e+f					**83,357.09**
Rate per sqm= (a+b+c+d+e+f)/1250					**66.69**
				say	***66.70***

iii) Type -C

Unit = Sqm
Taking output = 1100 sqm

a)	**Labour**				
	Mate	day	1.15	310.00	356.50
	Bitumen Sprayer	*day*	*1.00*	*355.00*	*355.00*
	Mazdoor (Unskilled)	*day*	*22.00*	*310.00*	*6,820.00*
	Mazdoor (Semi-skilled)	day	5.00	355.00	1,775.00
b)	**Machinery**				
	Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	2.20	198.00	435.60
	Three wheel 80-100 KN static roller weight	hour	2.20	392.00	862.40
c)	**Material**				
i)	**Bitumen (VG-30) @ 6.50 Kg per 10 Sqm**	t	0.72	40,138.00	28,899.36
ii)	**Zycotherm**				
	organosilane nano technology	kg	0.720	1,144.00	823.68
iii	Crushed stone chipping of 6.7 mm size 100 percent passing 9.5 mm seive and retained on 2.36 mm seive applied @ 0.09 cum per 10 sqm	cum	9.900	4,430.00	43,857.00
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**11,827.93**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**14,401.87**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**1,104.14**
cost of 1100cum= a+b+c+d+e+f					**111,518.48**
Rate per sqm= (a+b+c+d+e+f)/1100					**101.38**
				say	***101.40***

iv) Type -D(with fine sand)

Unit = Sqm
Taking output = 1250 sqm

a)	**Labour**				
	Mate	day	0.85	310.00	263.50
	Mazdoor (Unskilled)	*day*	*15.00*	310.00	*4,650.00*
	Mazdoor (Semi-skilled)	day	2.00	355.00	710.00
b)	**Machinery**				
	Mixall 6/10 t capacity	hour	2.50	765.00	1,912.50
	Three wheel 80-100 KN static roller weight	hour	2.50	198.00	495.00
	Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	2.50	392.00	980.00
c)	**Material**				
i)	**Bitumen (VG-30) @ 6.80 Kg per 10 Sqm**	t	0.85	40,138.00	34,117.30
ii)	**Zycotherm**				
	organosilane nano technology	kg	0.850	1,144.00	972.40
iii	Sand (fine) applied @ 0.06 cum per 10 sqm	cum	7.500	560.00	4,200.00
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**6,786.25**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**8,263.04**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**633.50**
cost of 1250 cum= a+b+c+d+e+f					**63,983.49**
Rate per sqm= (a+b+c+d+e+f)/1250					**51.19**
				say	***51.20***

B)By Mechanical Means

Case-I: Type A

Unit = Sqm
Taking output =7500 Sqm (67.5 cum)

a)	**Labour**				
	Mate	day	0.24	310.00	74.40
	Mazdoor (Unskilled)	day	6.00	310.00	1,860.00
b)	**Machinery**				
	Hydraulic self propelled chip spreader	hour	6.00	3,629.00	21,774.00
	Tipper 5.5/10 t capacity for carraige of stone chips from stockpile on the road to chip spreader	hour	6.00	334.00	2,004.00
	Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00

	Bitumen pressure distributor	hour	6.00	202.00	1,212.00
	Three wheel 80-100 KN static roller weight	hour	15.00	392.00	5,880.00
c)	**Material**				
i)	**Bitumen (VG-30) @ 9.80 Kg per 10 Sqm**	t	7.35	40,138.00	295,014.30
ii)	**Zycotherm**				
	organosilane nano technology	kg	7.350	1,144.00	8,408.40
iii	Crushed stone chipping of 6.7 mm size 100 percent passing 11.2 mm seive and retained on 2.36 mm seive applied @ 0.09 cum per 10 sqm	cum	67.500	4,430.00	299,025.00
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**90,028.48**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**109,620.09**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**8,404.21**
cost of 7500 cum= a+b+c+d+e+f					**848,824.87**
Rate per sqm= (a+b+c+d+e+f)/7500					**113.18**
				say	***113.20***

Note: Since seal coat is provided immediately over the bituminous layer, Hydraulic broom for cleaning the surface has not been catered.

Case - II Type B

Unit = Sqm
Taking output = 5000 Sqm (30 cum)

a)	**Labour**				
	Mate	day	0.16	310.00	49.60
	Mazdoor (Unskilled)	day	4.00	310.00	1,240.00
b)	**Machinery**				
	HMP 30/40 t per hour	hour	2.00	8,900.00	17,800.00
	Electric Generator st 125 KVA	hour	2.00	445.00	890.00
	Front end loader 1 cum bucket capacity	hour	2.00	920.00	1,840.00
	Tipper 5.5/10 t capacity	hour	1.36	334.00	454.24
	Paver finisher	hour	2.00	1,050.00	2,100.00
	Three wheel 80-100 KN static roller weight	hour	10.00	392.00	3,920.00
c)	**Material**				
i)	**Bitumen (VG-30) @ 6.80 Kg per 10 Sqm**	t	3.40	40,138.00	136,469.20
ii)	**Zycotherm**				
	organosilane nano technology	kg	3.400	1,144.00	3,889.60
iii	Crushed stone or grit as passing 2.36 mm seive and retained on 180 micron seive applied @ 0.06 cum per 10 sqm.	cum	30.000	2,510.00	75,300.00
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**34,275.35**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**41,734.20**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**3,199.62**
cost of 5000 cum= a+b+c+d+e+f					**323,161.81**
Rate per sqm= (a+b+c+d+e+f)/5000					**64.63**
				say	***64.60***

Note: Since seal coat is required to provide immediately over the premix carpet on the same day, out of 6 working hours of the HMP, 4.00 hours are proposed to be utilised for the premix carpet and the balance 2.00 hours have been considered for this case.

Case-III: Type C

Unit = Sqm
Taking output =7500 Sqm (67.5 cum)

a)	**Labour**				
	Mate	day	2.00	310.00	620.00
	Mazdoor (Unskilled)	day	5.00	310.00	1,550.00
b)	**Machinery**				
	Hydraulic self propelled chip spreader	hour	6.00	3,629.00	21,774.00
	Tipper 5.5/10 t capacity	hour	6.00	334.00	2,004.00
	Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00
	Bitumen pressure distributor	hour	6.00	202.00	1,212.00
	Three wheel 80-100 KN static roller weight	hour	15.00	392.00	5,880.00
c)	**Material**				

i)	**Bitumen (VG-30) @ 6.5 Kg per 10 Sqm**	t	4.88	40,138.00	195,873.44
ii)	**Zycotherm**				
	organosilane nano technology	kg	4.880	1,144.00	5,582.72
iii	Crushed stone chipping of 6.7 mm size 100 percent passing 9.5 mm seive and retained on 2.36 mm seive applied @ 0.09 cum per 10 sqm	cum	67.500	4,430.00	299,025.00
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**75,735.28**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**92,216.47**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**7,069.93**
cost of 7500 cum= a+b+c+d+e+f					**714,062.84**
Rate per sqm= (a+b+c+d+e+f)/7500					**95.21**
				say	***95.20***

M-4.15

25 mm thick Open-Graded Premix Carpet using Bituminous (Bitumen VG-30) Binder with organosilane nanotechnology

As per Technical Specification approved by TRRDA.

Providing , laying and rolling of open-graded premix carpet of 25 mm thickness composed of 13.2 mm to 5.6 mm aggregates using bitumen (Bitumen VG-30 mixed with 0.1% organosilane nanotechnology Zycotherm by weight of bituminous binder) to required line, grade and level to serve as wearing course on a previously prepared base , including mixing in a suitable plant, laying and rolling with a three wheel 80 - 100 kN static roller capacity, finished to required level and grades to be followed by seal coat of either Type A or Type B or Type C or Type D as per Technical Specification Clause 508

Case - I By Manual Means

Unit = Sqm
Taking output = 400 Sqm (10 cum)

a)	**Labour**				
	Mate	day	1.08	310.00	334.80
	Mazdoor (Unskilled)	day	21.00	310.00	6,510.00
	Mazdoor (Semi-skilled)	day	6.00	355.00	2,130.00
b)	**Machinery**				
	Mixall 6-10 t capacity	hour	4.00	765.00	3,060.00
	Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	4.00	198.00	792.00
	Three wheel 80-100 KN static roller weight	hour	2.00	392.00	784.00
c)	**Material**				
i)	**Bitumen (VG-30) @ 18.25 Kg per 10 Sqm**	t	0.73	40,138.00	29,300.74
ii)	**Zycotherm**				
	organosilane nano technology	kg	0.730	1,144.00	835.12
iii	Crushed stone chipping, 13.2 mm to 5.6 mm nominal size @ 0.34 cum per 10 sqm	cum	13.500	4,526.17	61,103.32
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**14,731.42**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**17,937.21**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**1,375.19**
cost of 400 cum= a+b+c+d+e+f					**138,893.79**
Rate per sqm= (a+b+c+d+e+f)/400					**347.23**
				say	***347.20***

Case -II By Mechanical Means

Unit = Sqm
Taking output = 3200 Sqm (80.0 cum)

a)	**Labour**				
	Mate	day	0.52	310.00	161.20
	Mazdoor (Unskilled)	day	10.00	310.00	3,100.00
	Mazdoor (Semi-skilled)	day	3.00	355.00	1,065.00

b)	**Machinery**				
	HMP 30/40 t per hour	hour	6.00	8,900.00	53,400.00
	Electric Generator st 125 KVA	hour	6.00	445.00	2,670.00
	Front end loader 1 cum bucket capacity	hour	6.00	920.00	5,520.00
	Tipper 5.5/10 t capacity	hour	3.64	334.00	1,215.76
	Paver finisher	hour	6.00	1,050.00	6,300.00
	Three wheel 80-100 KN static roller weight	hour	16.00	392.00	6,272.00
c)	**Material**				
i)	**Bitumen (VG-30) @ 18.25 Kg per 10 Sqm**	t	5.84	40,138.00	234,405.92
ii)	**Zycotherm**				
	organosilane nano technology	kg	5.840	1,144.00	6,680.96
iii	Crushed stone chipping, 13.2 mm to 5.6 mm nominal size @ 0.34 cum per 10 sqm	cum	108.000	4,526.17	488,826.53
d)	**Add GST (multiplying factor) @ 0.1405 on (a+b+c)**				**113,751.24**
e)	**Contractor's profit @ 15 % on (a+b+c+d)**				**129,733.29**
f)	**Add Cess @ 1.00 % on (a+b+c+d+e)**				**10,531.02**
cost of 3200 cum= a+b+c+d+e+f					**1,063,632.92**
Rate per sqm= (a+b+c+d+e+f)/3200					**332.39**
				say	***332.40***