

**D. P. R. FOR DEVELOPMENT OF NANDED CITY ROADS UNDER JNNURM  
RATE ANALYSIS**

Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
<b>Sec 1</b>	<b>Preliminary Works</b>				
<b>1.01</b>	<b>Clearing and Grubbing Road Land .</b>				
	Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth up to 300 mm, removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned, up to a lead of 1000 metres including removal and disposal of top organic soil not exceeding 150 mm in thickness.				
	<b>By Mechanical Means</b>				
	<b>In area of light jungle</b>				
	<b>a) Labour</b>				
	Mate	day	0.160	130.00	20.8
	Mazdoor	day	4.000	120.00	480.0
	<b>b) Machinery</b>				
	Dozer 80 HP with attachment for removal of trees & stumps	hour	10.000	1423.00	14230
	Tractor-trolley	hour	1.000	234.00	234.00
	<b>c) Contractor's profit @ input on (a+b)</b>				1496.48
	<b>Rate per Hectare = a+b+c</b>				16461.28
				<b>say</b>	<b><u>16461</u></b>
<b>1.02</b>	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 45°, 'A' frame painted with 2 coats of yellow paint, complete as per IRC:SP:55-2001				
	<b>Unit = each</b>				
	<b>Taking output = one steel portable barricade</b>				
	<b>a) Labour</b>				
	Mate	day	0.020	130.00	2.60
	Mazdoor	day	0.250	120.00	30.00
	Painter	day	0.500	130.00	65.00
	Welder	day	0.250	130.00	32.50
	<b>b) Material</b>				
	Angle iron 45 x 45 x 5 mm	kg	25.000	30.00	750.00
	MS sheet 300 mm wide, 2.5 m long and 2.6 mm thick	kg	15.000	30.00	450.00
	Paint	litre	0.500	105.00	52.50
	Add 2 per cent of cost of steel for welding consumables, nuts & bolts and drilling holes				1.10
	<b>c) Contractor's profit @ input on (a+b)</b>				138.37
	<b>Rate per barricade = a+b+c</b>				1522.07
				<b>say</b>	<b><u>1522</u></b>
<b>1.03</b>	Supplying and fixing the necessary sign boards as per site requirements and as directed by Engineer.				
	<b>a) Information sign boards</b>				
	As per DSR 2005-06( Page No.183 Sr.No. 772 )	Nos			10000
	Add Corporation Charges @5%				500
	<b>Total</b>				<b><u>10500</u></b>
	<b>b) Cautionary sign board</b>				
	As per DSR 2005-06( Page No.180 Sr.No. 766 )	Nos			3500
	Add Corporation Charges @5%				175
	<b>Total</b>				<b><u>3675</u></b>
	<b>c) Mandatory and directional sign boards</b>				
	As per DSR 2005-06( Page No.181 Sr.No. 769 )	Nos			3275
	Add Corporation Charges @5%				164
	<b>Total</b>				<b><u>3439</u></b>

Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
1.03 d)	<b>Road Delineators</b>				
	Supplying 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.				
	<b>Unit = Each</b>				
	<b>Taking output= 30 Nos.</b>				
	<b>a) Labour</b>				
	Mate	day	0.040	130.00	5.20
	Mazdoor for fixing	day	1.000	120.00	120.00
	<b>b) Material</b>		30.000	550.00	16500.00
	Cost of approved type of delineators from ISI certified firm as per the standard drawing given in IRC - 79	each			1650.00
	Add 10 per cent cost of material for installation				831.26
	<b>c) Contractor's profit @ 10 % on (a+b)</b>				1910.65
	Cost for 30 Nos. delineators = (a+b+ c)				21017.11
	<b>Rate per delineators = (a+b+c) /30</b>			<b>say</b>	<b>701</b>
1.03 e)	<b>Traffic Cone</b>				
	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				
	<b>Unit = Running metre</b>				
	<b>Taking output = 68 Nos.</b>				
	<b>a) Labour</b>				
	Mate	day	0.020	130.00	2.60
	Mazdoor	day	0.500	120.00	60.00
	<b>b) Material</b>				
	Traffic cones with 150 mm reflective sleeve	each	68.000	600.00	40800.00
	<b>c) Machinery</b>				
	Tractor-trolley	hour	0.100	234.00	23.40
	<b>d) Contractor's profit @ input on (a+b+c)</b>				4088.60
	Cost for 68 Nos. = a+b+c+d				44974.60
	<b>Rate per metre = (a+b+c+d)/68</b>				661.39
				<b>say</b>	<b>661</b>
1.04 a)	<b>Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, wood work, steel work, including T&amp;P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead of 1000 metres</b>				
	<b>Unit = cum</b>				
	<b>Taking output = 1.25 cum</b>				
	<b>Brick ,Masonry</b>				
	<b>In cement mortar</b>				
	<b>a) Labour</b>				
	Mate	day	0.030	130.00	3.90
	Mazdoor for dismantling, loading and unloading	day	0.750	120.00	90.00
	<b>b) Machinery</b>				
	Tractor-trolley	hour	0.270	234.00	63.18
	<b>c) Contractor's profit @ input on (a+b)</b>				15.71
	Cost for 1.25 cum = a+b+c				172.79
	<b>Rate per cum = (a+b+c)/ 1.25</b>				138.23
				<b>say</b>	<b>138</b>
1.04 b)	<b>Dismantling of flexible pavements , Cement Concrete Structure and Footpath and disposal of dismantled materials up to a lead of 1000 metres, stacking serviceable and unserviceable materials separately</b>				
	<b>Unit = cum</b>				
	<b>Taking output = 1 cum</b>				

Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
	<b>By Mechanical Means</b>				
	<b>Bituminous course</b>				
	<b>a) Labour</b>				
	Mate	day	0.010	130.00	1.30
	Mazdoor	day	0.300	120.00	36.00
	<b>b) Machinery</b>				
	Tractor-trolley	hour	0.380	234.00	88.92
	Farm tractor with ripper @ 60 cum per hour	hour	0.017	252.00	4.28
	<b>c) Contractor's profit @ input on (a+b)</b>				13.05
	<b>Rate per cum = a+b+c</b>				143.55
				<b>say</b>	<b>144</b>
<b>1.05</b>	Taking one 100 mm bore hole at each foundation location of ROB proper and one each in approaches on each side by using double tube boring machine and carrying out tests to determine Engineering Properties of soil and to ascertain rock levels / qualities of strata at each location and submitting the soil investigation report with necessary interpretation of the test results as directed by Engineer and as per specification.				
	<b>a) Boring in all strata excluding hard rock.</b>				
	As per DSR 2005-06( Page No.213 Sr.No. 16 )	Rmt			1404
	Add Corporation Charges @5%				70.2
	Total				<b>1474</b>
	<b>b) Drilling in hard rock.</b>				
	As per DSR 2005-06( Page No.213 Sr.No. 18 )	Rmt			1857
	Add Corporation Charges @5%				92.85
	Total				<b>1950</b>

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Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
<b>Sec 2</b>	<b>Foundation and Substructures</b>				
<b>2.01</b>	<b>Excavation for Structures</b>				
	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 and backfilling with approved material.				
	<b>Unit = cum</b>				
	<b>Taking output = 10 cum</b>				
	<b>Depth upto 3 m</b>				
	<b>a) Labour</b>				
	Mate	day	0.14	140.00	19.60
	Mazdoor	day	3.50	110.00	385.00
	<b>c) Contractor's profit @ 10% on (a+b)</b>				40.46
	1. Cost of dewatering may be added 10 per cent of labour cost .				40.46
	Cost for 10 cum = a+b+c				485.52
	<b>Rate per cum = (a+b+c)/10</b>				48.55
	The cost of shoring and shuttering, may be added @ 1 per cent on cost of excavation for open foundation.				0.49
	Disposing Of Unsuitable Material Upto 3Km and lift				32.00
	<b>Rate per cum</b>				<b>81.04</b>
				<b>say</b>	<b>81.00</b>
	<b>Depth Above 3 m</b>				
	<b>a) Labour</b>				
	Mate/Supervisor	day	0.18	140.00	25.20
	Mazdoor	day	4.50	110.00	495.00
	<b>b) Contractor's profit @10% on (a)</b>				52.02
	Cost of dewatering may be added where required upto 15 per cent of labour cost.				78.03
	Cost for 10 cum = a+b+c				572.22
	<b>Rate per cum = (a+b+c)/10</b>				57.22
	The cost of shoring and shuttering, may be added @ 1 per cent on cost of excavation for open foundation.				0.57
	Disposing Of Unsuitable Material Upto 3Km and lift				32.00
	<b>Rate per cum</b>				<b>89.80</b>
				<b>say</b>	<b>90.00</b>
<b>2.03</b>	Plain/Reinforced Cement Concrete in Open Foundation complete as per Drawing and Technical Specifications.				
	<b>PCC Grade M15</b>				
	<b>Unit = cum</b>				
	<b>Taking output = 15 cum</b>				
	<b>a) Material</b>				
	Cement	tonne	4.70	3990.00	18753.00
	Coarse sand	cum	6.75	372.99	2517.68
	20 mm Aggregate	cum	8.10	508.13	4115.85
	10 mm Aggregate	cum	5.40	508.13	2743.90
	<b>b) Labour</b>				
	Mate	day	0.86	140.00	120.40
	Mason	day	1.50	195.00	292.50
	Mazdoor	day	20.00	110.00	2200.00
	<b>c) Machinery</b>				
	Concrete mixer (cap. 0.40/0.28 cum)	hour	6.00	150.00	900.00
	Generator 63 KVA	hour	6.00	240.00	1440.00
	<b>Per Cum Basic Cost of Labour, Material &amp; Machinery (a+b+c)</b>		<b>2206.00</b>		
	<b>d) Add Contractors Profit @ 10 %</b>				2370.59
	Cost for 15 cum = a+b+c+d				35453.93
	<b>Rate per cum = (a+b+c+d)/15</b>				2363.60
				<b>say</b>	<b>2364.00</b>

Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
2.04	RCC M30 Pile 1M / 1.2M dia				
	Using Batching Plant, Transit Mixer				
	<i>Unit = cum</i>				
	<i>Taking output = 120 cum</i>				
	<b>a) Material</b>				
	Cement	tonne	53.50	3990.00	213480.96
	Coarse sand	cum	54.00	372.99	20141.46
	20 mm Aggregate	cum	64.80	508.13	32926.82
	10 mm Aggregate	cum	43.20	508.13	21951.22
	Admixture	Kg	172.80	80.00	13824.00
	<b>b) Labour</b>				
	Mate	day	0.88	140.00	123.20
	Mason	day	3.00	195.00	585.00
	Mazdoor	day	18.00	110.00	1980.00
	<b>c) Machinery</b>				
	Batching Plant @ 20 cum/hour	hour	6.00	1440.00	8640.00
	Generator 100 KVA	hour	6.00	450.00	2700.00
	Loader 1 cum capacity	hour	6.00	520.00	3120.00
	Transit Mixer 4 cum capacity for lead upto 1 km.	hour	15.00	600.00	9000.00
	Transit Mixer 4 cum capacity, lead beyond 1 Km, L - lead in Kilometer	tonne.km	300L	6.00	9000.00
	<b>Per Cum Basic Cost of Labour, Material &amp; Machinery (a+b+c)</b>		<b>2813.00</b>		
	Add 5 per cent of cost of material and labour towards cost of forming sump, protective bunds, chiselling and making arrangements for under water concreting with tremie pipe..				15250.63
	<b>d) Contractor's profit @ 10% on (a+b+c)</b>				27770.38
	cost of 120 cum = a+b+c+d				380493.67
	<b>Rate per cum = (a+b+c+d)/120</b>				3170.78
				<b>say</b>	<b>3171.00</b>
	Bored cast-in-situ M30 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and Technical Specifications and removal of excavated earth with all lifts and lead upto 1000 m.				
	<b>Pile diameter-1000 mm</b>				
	<i>Unit = meter</i>				
	<i>Taking output = 10 m</i>				
	<b>a) Materials</b>				
	RCC Grade M30	cum	7.85	3170.78	24890.63
	<b>Rate for concrete may be adopted same as for bottom plug vide item no. 12.11( C ) (IV)</b>				
	Concrete to be cast with a tremie pipe 200mm dia.				1244.53
	<b>b) Machinery( for boring and construction )</b>				
	Hire and running charges of hydraulic piling rig with power unit and complete accessories including shifting from one bore location to another.(Extra 30% added for embedment in rock)	hour	7.80	3525.00	27495.00
	Hire and running charges of light crane for lowering reinforcement cage	hour	0.50	230.00	115.00
	Hire and running charges of Bentonite pump	hour	6.00	Rate included in piling rig	
	Loader 1 cum bucket capacity.	hour	0.40	520.00	208.00
	Tipper 5.5 cum capacity for disposal of muck from pile bore hole	hour	0.40	200.00	80.00
	Bentonite	kg	350.00	20.00	7000.00
	<b>c) Labour</b>				
	Mate/Supervisor	day	0.16	130.00	20.80
	Mazdoor	day	4.00	120.00	480.00
	Mazdoor for breaking pile head, bending bars, cleaning etc.	day	1.00	120.00	120.00
	<b>d) Contractor's profit @10% on (b+c)</b>				3551.88
	Cost for 10 m = a+b+c+d				65205.84
	<b>Rate per metre (a+b+c+d)/10</b>				6520.58
					<b>6521.00</b>

Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
	Bored cast-in-situ M30 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and Technical Specifications and removal of excavated earth with all lifts and lead upto 1000 m.				
	<b>Pile diameter-1200 mm</b>				
	<b>Unit = meter</b>				
	<b>Taking output = 10 m</b>				
	<b>a) Materials</b>				
	RCC Grade M30	cum	10.17	3170.78	32246.84
	<b>Rate for concrete may be adopted same as for bottom plug vide item no. 12.11( C ) (IV)</b>				
	Concrete to be cast with a tremie pipe 200mm dia.				1612.34
	<b>b) Machinery( for boring and construction )</b>				
	Hire and running charges of hydraulic piling rig with power unit and complete accessories including shifting from one bore location to another.(Extra 30% added for embedment in rock)	hour	7.80	3525.00	27495.00
	Hire and running charges of light crane for lowering reinforcement cage	hour	0.50	230.00	115.00
	Hire and running charges of Bentonite pump	hour	6.00	Rate included in piling rig	
	Loader 1 cum bucket capacity.	hour	0.50	520.00	260.00
	Tipper 5.5 cum capacity for disposal of muck from pile bore hole	hour	0.50	200.00	100.00
	Bentonite	kg	385.00	20.00	7700.00
	<b>c) Labour</b>				
	Mate/Supervisor	day	0.18	130.00	23.40
	Mazdoor	day	4.50	120.00	540.00
	Mazdoor for breaking pile head, bending bars, cleaning etc.	day	1.00	120.00	120.00
	<b>d) Contractor's profit @10% on (b+c)</b>				3635.34
	Cost for 10 m = a+b+c+d				73847.92
	<b>Rate per metre (a+b+c+d)/10</b>				7384.79
				<b>say</b>	<b><u>7385.00</u></b>
<b>2.05</b>	Pile Load Test on single Vertical Pile in accordance with IS:2911(Part-IV)				
	<b>Unit = 1 MT</b>				
	<b>Taking output = 1 MT</b>				
	a) Initial load test	tonne	600.00	300.00	180000.00
	Including The cost of pile				7385.00
	Rate per MT=a/600				<b><u>312.00</u></b>
	b) routine load test	tonne	375.00	300.00	112500.00
	Rate per MT=b/375				<b><u>300.00</u></b>
	c) Lateral load test	tonne	20.00	5000.00	100000.00
	Rate per MT=c/20				<b><u>5000.00</u></b>
<b>2.06</b>	Providing and laying 600 mm thick filter media behind abutment as per detailed drawing & specifications complete.				
	<b>Unit = cum</b>				
	<b>Taking output = 10 cum.</b>				
	<b>a) Labour</b>				
	Mate	day	0.32	130.00	41.60
	Mazdoor for filling, watering, ramming etc.	day	7.00	120.00	840.00
	Mazdoor (Skilled)	day	1.00	125.00	125.00
	<b>b) Material</b>				
	Filter media of stone aggregate conforming to clause 2504.2.2. of MoRTH specifications.	cum	12.00	167.65	2011.80
	<b>c) Machinery</b>				
	Water Tanker of 6 KL capacity	hour	0.06	200.00	12.00
	<b>d) Contractor's profit @10% on (a+b+c)</b>				303.04
	cost for 10 cum of Fiter Media = a+b+c+d				3333.44

Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
	Rate per cum = (a+b+c+d)/10				333.34
				say	<b>333.00</b>
<b>2.07</b>	<b>RCC Grade M30 (Pile caps, Foundation)</b>				
	<b>Unit = cum</b>				
	<b>Taking output = 15 cum</b>				
	<b>Using Batching Plant, Transit Mixer</b>				
	<b>a) Material</b>				
	Cement	tonne	48.80	3990.00	194712.00
	Coarse sand	cum	54.00	372.99	20141.46
	20 mm Aggregate	cum	64.80	508.13	32926.82
	10 mm Aggregate	cum	43.20	508.13	21951.22
	<b>b) Labour</b>				
	Mate	day	0.84	140.00	117.60
	Mason	day	3.00	195.00	585.00
	Mazdoor for concreting	day	18.00	120.00	2160.00
	Mazdoor for breaking pile head, bending bars, cleaning etc.	day	1.00	120.00	120.00
	<b>c) Machinery</b>				
	Batching Plant @ 20 cum/hour	hour	6.00	1440.00	8640.00
	Generator 125 KVA	hour	6.00	450.00	2700.00
	Loader (capacity 1 cum)	hour	6.00	520.00	3120.00
	Transit Mixer ( capacity 4.0 cu.m )				
	Lead upto 1 Km	hour	15.00	600.00	9000.00
	Lead beyond 1 Km, L - lead in Kilometer	tonne.km	37.5L	6.00	9000.00
	Formwork @ 4 per cent on cost of concrete i.e. cost of a) Material, b) Labour and c) Machinery				12206.96
	<b>d) Contractor's profit @10% on (a+b+c)</b>				24236.16
	Cost for 15 cum = a+b+c+d				341617.22
	<b>Rate per metre (a+b+c+d)/15</b>				2846.81
				say	<b>2847.00</b>
<b>2.08</b>	<b>RCC Grade M30 (Pier, Abutment)</b>				
	<b>Using Batching Plant, Transit Mixer</b>				
	<b>Unit ; cum</b>				
	<b>Taking Output = 120 cum</b>				
	<b>a) Material</b>				
	Cement	tonne	48.80	3990.00	194712.00
	Coarse sand	cum	54.00	372.99	20141.46
	20 mm Aggregate	cum	64.80	508.13	32926.82
	10 mm Aggregate	cum	43.20	508.13	21951.22
	<b>b) Labour</b>				
	Mate	day	0.84	130.00	109.20
	Mason	day	3.00	130.00	390.00
	Mazdoor	day	18.00	120.00	2160.00
	<b>c) Machinery</b>				
	Batching Plant @ 20 cum/hour	hour	6.00	1440.00	8640.00
	Generator 100 KVA	hour	6.00	450.00	2700.00
	Loader 1 cum capacity	hour	6.00	520.00	3120.00
	Transit Mixer 4 cum capacity for lead upto 1 km.	hour	15.00	600.00	9000.00
	Transit Mixer 4 cum capacity lead beyond 1 Km, L - lead in Kilometer	tonne.km	300L	6.00	9000.00
	Concrete pump	hour	6.00	165.00	990.00
	<b>Per Cum Basic Cost of Labour, Material &amp; Machinery (a+b+c)</b>		<b>2549.00</b>		
	Add 3.5 % for extra lift				96352.20
	<b>d) Formwork @ 14 per cent on cost of concrete i.e. cost of material, labour and machinery</b>				42817.70
	<b>e) Contractor's profit @ 10% on (a+b+c+d)</b>				36999.11
	cost of 120 cum = a+b+c+d+e				482009.71
	<b>Rate per cum = (a+b+c+d+e)/120</b>				4016.75
	<b>add 10% for asthetic finshesh</b>				401.67

Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
	Rate per cum				4418.42
				say	<b>4418.00</b>
<b>2.09</b>	<b>RCC Grade M30 For Pier Caps and pedestal)</b>				
	Using Batching Plant, Transit Mixer				
	<i>Unit = cum</i>				
	<i>Taking output = 120 cum</i>				
	<b>a) Material</b>				
	Cement	tonne	48.80	3990.00	194712.00
	Coarse sand	cum	54.00	372.99	20141.46
	20 mm Aggregate	cum	64.80	508.13	32926.82
	10 mm Aggregate	cum	43.20	508.13	21951.22
	<b>b) Labour</b>				
	Mate	day	0.88	130.00	114.40
	Mason	day	3.00	130.00	390.00
	Mazdoor	day	19.00	120.00	2280.00
	<b>c) Machinery</b>				
	Batching Plant @ 20 cum/hour	hour	6.00	1440.00	8640.00
	Generator 100 KVA	hour	6.00	450.00	2700.00
	Loader	hour	6.00	520.00	3120.00
	Transit Mixer ( capacity 4.0 cu.m )				
	Transit Mixer 4 cum capacity lead upto 1 Km	hour	15.00	600.00	9000.00
	Lead beyond 1 Km, L - lead in Kilometer	tonne.km	300L	6.00	9000.00
	Concrete Pump	hour	6.00	165.00	990.00
	<b>Basic Cost of Labour, Material &amp; Machinery (a+b+c) for 120 cum</b>		<b>305966</b>		
	Add 3.5 % for extra lift				107088.10
	<b>Height 5m to 10m</b>				
	d) Formwork and staging (a+b+c)				42835.24
	<b>e) Contractor's profit @10% on (a+b+c+d)</b>				38086.97
	Cost for 120 cum = a+b+c+d+e				493976.21
	<b>Rate per cum = (a+b+c+d+e)/120</b>				4116.47
	<b>add 10% for asthetic finishesh</b>				411.65
					4528.12
				say	<b>4528.00</b>
<b>2.10</b>	Providing and fixing in position HYSD Fe415 reinforcing bars of various diameters for all RCC works of Superstructure as per detailed design and drawings and schedule including cutting, bending, hooking the bars, binding with 18 SWG including all laps, chairs, spacers etc. and cost of all labour, materials, tools, plants, equipment, supporting as required with all lifts and leads etc. all complete as per specification and as directed by Engineer.				
	As per DSR 2005-06( Page No.205 Sr.No. 874 )	MT			33801.00
	Add Corporation Charges @5%				1690.05
	Total				<b>35491</b>
<b>2.11</b>	Providing and applying 2 coats of Coal tar epoxy paint to all concrete surface in contact with earth .				
	<i>Unit = sqm</i>				
	<i>Taking output = 10 sqm</i>				
	<b>a) Labour</b>				
	Mate	day	0.01	130.00	1.30
	Painter	day	0.25	130.00	32.50
	Mazdoor (Skilled)	day	0.25	125.00	31.25
	<b>b) Material</b>				
	Coal tar epoxy paint of approved quality for cement concrete surface	Litres	5.00	200.00	1000.00
	<b>c) Contractor's profit @ 10% input on (a+b)</b>				106.51
	Cost for 10 sqm (a+b+c)				1171.56
	<b>Rate per sqm (a+b+c)/10</b>				117.16

Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
				<b>say</b>	<b><u>117.00</u></b>
2.12	Providing and applying single coat epoxy phenolic primer of DFT-50 micron and two coats of epoxy phenolic coating of DFT-100 micron each to surfaces of substructure exposed at atmosphere.				
	<b>Unit = sqm</b>				
	<b>Taking output = 10 sqm</b>				
	<b>a) Material</b>				
	Epoxy paint with primer	litre	5.00	200.00	1000.00
	<b>b) Labour</b>				
	Painter	each	0.60	130.00	78.00
	Mazdoor	each	1.00	120.00	120.00
	<b>Add 10% Contractor's profit</b>				119.80
	Rate Per 10 M <sup>2</sup>				1317.80
	Rate Per M <sup>2</sup>				131.78
				<b>Say</b>	<b><u>132.00</u></b>
2.14	Sinking of well foundation in soil and murum etc. which can be removed by grabbing and chiselling with large scale dewatering or in proper setting of wells including all method excepts pneumatic sinking ( Dia 10 m depth 20 M)	Rm			76090.00
	<b>(As per DSR page no.199 and Sr.No.845)</b>				
	Add 60% extra for depth upto 20 m				45654.00
	add corporation charges @5%				6087.20
	Rate per Rmt				<b><u>127831.00</u></b>
2.15	Providing and laying in situ M20 cement concrete in well staining including compacting by vibrating , rodding ,finishing and curing etc complete(excluding reinforcement )as directed by engineer				
	<b>With Batching Plant, Transit Mixer</b>				
	<b>Unit : cum</b>				
	<b>Taking Output = 120 cum</b>				
	<b>a) Material</b>				
	Cement	tonne	41.66	3990.00	166223.40
	Coarse Sand	cum	54.00	372.99	20141.46
	20 mm Aggregate	cum	64.80	508.13	32926.82
	10 mm Aggregate	cum	43.20	508.13	21951.22
	<b>b) Labour</b>				
	Mate	day	0.84	130.00	109.20
	Mason	day	3.00	130.00	390.00
	Mazdoor	day	18.00	120.00	2160.00
	<b>c) Machinery</b>				
	Batching Plant @ 20 cum/hour	hour	6.00	1440.00	8640.00
	Generator 100 KVA	hour	6.00	450.00	2700.00
	Loader 1 cum capacity	hour	6.00	520.00	3120.00
	Transit Mixer 4 cum capacity for lead upto 1 km.	hour	15.00	600.00	9000.00
	Lead beyond 1 km, L-lead in km	tonne.km	300L	6.00	9000.00
	Concrete Pump	hour	6	165.00	990.00
	<b>Per Cum Basic Cost of Labour, Material &amp; Machinery (a+b+c)</b>		<b>2312.00</b>		
	<b>d) Formwork @ 10 per cent on cost of concrete i.e. cost of material, labour and machinery</b>				20233.26
	<b>e) Contractor's profit @ input on (a+b+c+d)</b>				5634.25
	Cost for 120 cum = a+b+c+d+e				303219.61
	<b>Rate per cum = ( a+b+c+d+e )/120</b>				2526.83
				<b>say</b>	<b><u>2527.00</u></b>
2.16	Providing and laying in situ M25 reinforced cement concrete well curbs including necessary shuttering compacting by vibrating finishing and curing etc. complete (excluding reinforcement ) as directed by Engineer				
	<b>Using Batching Plant, Transit Mixer</b>				

Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
	<b>Unit ; cum</b>				
	<b>Taking Output = 120 cum</b>				
	<b>a) Material</b>				
	Cement	tonne	48.38	3990.00	193036.20
	Coarse sand	cum	54.00	372.99	20141.46
	20 mm Aggregate	cum	64.80	508.13	32926.82
	10 mm Aggregate	cum	43.20	508.13	21951.22
	<b>b) Labour</b>				
	Mate	day	0.84	130.00	109.20
	Mason	day	3.00	130.00	390.00
	Mazdoor	day	18.00	120.00	2160.00
	<b>c) Machinery</b>				
	Batching Plant @ 20 cum/hour	hour	6.00	1440.00	8640.00
	Generator 100 KVA	hour	6.00	450.00	2700.00
	Loader 1 cum capacity	hour	6.00	520.00	3120.00
	Transit Mixer 4 cum capacity for lead upto 1 km.	hour	15.00	600.00	9000.00
	Transit Mixer 4 cum capacity lead beyond 1 Km, L - lead in Kilometer	tonne.km	300L	6.00	9000.00
	Concrete Pump	hour	6.00	165.00	990.00
	<b>Per Cum Basic Cost of Labour, Material &amp; Machinery (a+b+c)</b>		<b>2535.00</b>		
	<b>d) Formwork @ 20 per cent on cost of concrete i.e. cost of material, labour and machinery</b>				60832.98
	<b>e) Contractor's profit @ input on (a+b+c+d)</b>				28997.84
	cost of 120 cum = a+b+c+d+e				393995.72
	<b>Rate per cum = (a+b+c+d+e)/120</b>				3283.30
				<b>say</b>	<b>3283.00</b>
<b>2.17</b>	Providing fabricating and setting out mild steel cutting edges for reinforced cement concrete well curbs as shown on the detailed drawing etc. complete as directed by Engineer As per DSR 2006-07( Page No.197 Sr.No. 838 ) add Corporation Charges @5% Rate per MT	MT			36700 1835 38535
				<b>say</b>	<b>38535.00</b>
<b>2.18</b>	Providing and laying in situ M30 reinforced cement concrete well caps/ pile caps including necessary shuttering compacting by vibrating finishing and curing etc. complete (excluding reinforcement ) as directed by Engineer <b>Using Batching Plant, Transit Mixer</b> <b>Unit = cum</b> <b>Taking output = 120 cum</b>				
	<b>a) Material</b>				
	Cement	tonne	48.79	3990.00	194672.10
	Coarse sand	cum	54.00	372.99	20141.46
	20 mm Aggregate	cum	64.80	508.13	32926.82
	10 mm Aggregate	cum	43.20	508.13	21951.22
	<b>b) Labour</b>				
	Mate	day	0.84	130.00	109.20
	Mason	day	3.00	130.00	390.00
	Mazdoor	day	18.00	120.00	2160.00
	<b>c) Machinery</b>				
	Batching Plant @ 20 cum/hour	hour	6.00	1440.00	8640.00
	Generator 100 KVA	hour	6.00	450.00	2700.00
	Loader (capacity 1 cum)	hour	6.00	520.00	3120.00
	Transit Mixer ( capacity 4.0 cu.m )				
	Transit Mixer 4 cum capacity for lead upto 1 km.	hour	15.00	600.00	9000.00
	Lead beyond 1 Km, L - lead in Kilometer	tonne.km	300L	6.00	9000.00
	Concrete Pump	hour	6.00	165.00	990.00
	Formwork @ 3.5 per cent of (a+b+c)				10703.03
	<b>d) Contractor's profit @ 10% on (a+b+c)</b>				24148.43

Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
	cost of 120 cum = a+b+c+d				340652.26
	<b>Rate per cum = (a+b+c+d)/120</b>				2838.77
				<b>say</b>	<b><u>2839.00</u></b>
<b>2.19</b>	Providing and filling in well with sand /rubble and sand /shingle and sand including compaction between the top plug and bottom plug etc.complete as directed by engineer				
	<b>unit= 1 cum</b>				
	<b>Taking output = 1 cum</b>				
	<b>a) Material</b>				
	sand ( assuming 20per cent voids)	cum	1.20	372.99	447.59
	<b>b) Labour</b>				
	Mate	day	0.01	130.00	1.30
	Mazdoor	day	0.30	120.00	36.00
					3.73
	<b>Rate per cum</b>				513.05
				<b>say</b>	<b><u>513.00</u></b>
<b>2.20</b>	Providing and laying in situ M15 reinforced cement concrete for the bottom plugs of well in dry under water including compacting by vibrating finishing and curing etc. complete (excluding reinforcement ) as directed by Engineer				
	<b>Using Batching Plant, Transit Mixer</b>				
	<b>Unit ; cum</b>				
	<b>Taking Output = 120 cum</b>				
	<b>a) Material</b>				
	Cement	tonne	33.04	3990.00	131829.60
	Coarse sand	cum	54.00	372.99	20141.46
	20 mm Aggregate	cum	64.80	508.13	32926.82
	10 mm Aggregate	cum	43.20	508.13	21951.22
	Admixture	Kg	148.80	80.00	11904.00
	<b>b) Labour</b>				
	Mate	day	0.88	130.00	114.40
	Mason	day	3.00	130.00	390.00
	Mazdoor	day	18.00	120.00	2160.00
	<b>c) Machinery</b>				
	Batching Plant @ 20 cum/hour	hour	6.00	1440.00	8640.00
	Generator 100 KVA	hour	6.00	450.00	2700.00
	Loader 1 cum capacity	hour	6.00	520.00	3120.00
	Transit Mixer 4 cum capacity for lead upto 1 km.	hour	15.00	600.00	9000.00
	Transit Mixer 4 cum capacity, lead beyond 1 Km, L - lead in Kilometer	tonne.km	300L	6.00	9000.00
	<b>Per Cum Basic Cost of Labour, Material &amp; Machinery (a+b+c)</b>		<b>2116.00</b>		
	Add 5 per cent of cost of material and labour towards cost of forming sump, protective bunds, chiselling and making arrangements for under water concreting with tremie pipe..				6724.70
	<b>d) Contractor's profit @10% on (a+b+c)</b>				26060.22
	cost of 120 cum = a+b+c+d				286662.42
	<b>Rate per cum = (a+b+c+d)/120</b>				2388.85
				<b>say</b>	<b><u>2389.00</u></b>
<b>2.21</b>	Providing and laying in situ M15 reinforced cement concrete for the Top plugs of well including compacting by vibrating finishing and curing etc. complete (excluding reinforcement ) as directed by Engineer				
	<b>PCC Grade M15</b>				
	<b>Unit = cum</b>				
	<b>Taking output = 120 cum</b>				
	<b>a) Material</b>				
	Cement	tonne	33.04	3990.00	131829.60
	Coarse sand	cum	54.00	372.99	20141.46

Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
	20 mm Aggregate	cum	64.80	508.13	32926.82
	10 mm Aggregate	cum	43.20	508.13	21951.22
	Admixture	Kg	148.80	80.00	11904.00
	<b>b) Labour</b>				
	Mate	day	0.86	130.00	111.80
	Mason	day	1.50	130.00	195.00
	Mazdoor	day	20.00	120.00	2400.00
	<b>c) Machinery</b>				
	Batching Plant @ 20 cum/hour	hour	6.00	1440.00	8640.00
	Generator 100 KVA	hour	6.00	450.00	2700.00
	Loader 1 cum capacity	hour	6.00	520.00	3120.00
	Transit Mixer 4 cum capacity for lead upto 1 km.	hour	15.00	600.00	9000.00
	Transit Mixer 4 cum capacity, lead beyond 1 Km, L - lead in Kilometer	tonne.km	300L	6.00	9000.00
	<b>Per Cum Basic Cost of Labour, Material &amp; Machinery (a+b+c)</b>		<b>15520.00</b>		
	<b>d) Contractor's profit @10% on (a+b+c)</b>				16699.64
	Cost for 15 cum = a+b+c+d				270619.54
	<b>Rate per cum = (a+b+c+d)/120</b>				2255.16
				<b>say</b>	<b>2255.00</b>
<b>2.22</b>	Providing and installing 6 mm MS liner for upper 2.5m depth of bored-cast-in-situ concrete piles including applying protective coating as per drawing and specification and as directed by Engineer (excluding reinforcement).				
	<b>Unit = MT</b>				
	<b>Mild steel liner in pile ( 6 mm)</b>				
	<b>Unit - 1 MT</b>				
	<b>a)Material</b>				
	Steel Plate	MT	1.05	24960.0	26208.00
	<b>b)Labour</b>				
	Mate	day	1.24	130.0	161.20
	Fitter	day	6.00	130.0	780.00
	Blacksmith	day	5.00	130.0	650.00
	Welder	day	5.00	130.0	650.00
	Mazdoor	day	10.00	120.0	1200.00
	Electrodes , cutting gas and other consumable @5% of a)				1310.40
	Transportation	MT	1.00	1000.0	1000.00
	Erection	MT	1.00	2500.0	2500.00
	<b>c) contractors Profit @10%</b>				3095.96
	<b>Rate per MT(a+b+c)</b>				<b>37555.56</b>
				<b>say</b>	<b>37556.00</b>

**D. P. R. FOR DEVELOPMENT OF NANDED CITY ROADS UNDER JNNURM  
RATE ANALYSIS**

Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
<b>Sec 3</b>	<b>SuperStructure</b>				
<b>3.01/3.06</b>	High tensile steel wires/strands including all accessories for stressing, stressing operations and grouting complete as per drawing and Technical Specifications <b>Unit = 1 MT</b> <b>Taking output = 0.282 MT</b> Details of cost for 12T13 strand 30 m long cable (weight = 0.282 MT)				
	<b>a) Material</b>				
	H.T. Strand @ 9.42 kg/m including 2 per cent for wastage and extra length for jacking	tonne	0.29	44000.00	12656.16
	Sheathing duct ID 66 mm along with 5 per cent extra length 30 x 1.05 = 31.5 m.	metre	31.50	125.00	3937.50
	Tube anchorage set complete with bearing plate, permanent wedges etc	each	2.00	2000.00	4000.00
	Cement for grouting including 3 per cent wastage @ 3.00 kg/m = 3 x 1.03 x 30 = 92.7 kg (say, = 93 kg)	tonne	0.093	3870.00	359.91
	Add 0.50 per cent cost of material for Spacers, Insulation tape and miscellaneous items				1047.68
	<b>b) Labour</b>				
	<b>i) For making and fixing cables, anchorages</b>				
	Mate	day	0.16	130.00	20.80
	Blacksmith	day	1.00	130.00	130.00
	Mazdoor	day	3.00	120.00	360.00
	<b>ii) For prestressing</b>				
	Mate/Supervisor	day	0.05	130.00	6.50
	Prestressing operator / Fitter	day	0.25	130.00	32.50
	Mazdoor	day	1.00	120.00	120.00
	<b>iii) For grouting</b>				
	Mate/Supervisor	day	0.05	130.00	6.50
	Mason	day	0.25	130.00	32.50
	Mazdoor	day	1.00	120.00	120.00
	<b>c) Machinery</b>				
	Stressing jack with pump	hour	2.50	83.00	207.50
	Grouting pump with agitator	hour	1.00	50.00	50.00
	Generator 33 KVA.	hour	3.50	240.00	840.00
	<b>d) Contractor's profit @ input on (a+b+c)</b>				2392.75
	Cost for 0.282 MT (a+b+c+d)				26320.30
	<b>Rate per MT = (a+b+c+d)/0.282</b>				93334.41
				<b>say</b>	<b>93334.00</b>
<b>3.02</b>	<b>PSC Grade M-40 Precast Girder</b> <b>Unit = 1 cum</b> <b>Taking output = 120 cum</b>				
	<b>a) Material</b>				
	Cement	tonne	51.60	3990.00	205884.00
	Coarse sand	cum	54.00	372.99	20141.46
	20 mm Aggregate	cum	64.80	508.13	32926.82
	10 mm Aggregate	cum	43.20	508.13	21951.22
	Admixture @ 0.4 per cent of cement	kg	223.20	80.00	17856.00
	<b>b) Labour</b>				
	Mate	day	0.94	130.00	122.20
	Mason	day	3.50	130.00	455.00
	Mazdoor	day	20.00	120.00	2400.00
	<b>c) Machinery</b>				
	Batching Plant @ 20 cum/hour	hour	6.00	1440.00	8640.00
	Generator 100 KVA	hour	6.00	450.00	2700.00
	Loader	hour	6.00	520.00	3120.00
	Transit Mixer ( capacity 4.0 cu.m )				
	Transit Mixer 4 cum capacity lead upto1 Km	hour	15.00	600.00	9000.00
	Lead beyond 1 Km, L - lead in Kilometer	tonne.km	300*5	6.00	9000.00
	<b>Basic Cost of Labour, Material &amp; Machinery (a+b+c) for 120 cum</b>		<b>334197.00</b>		
	<b>For formwork and staging add the following:</b>				

Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
	For T-beam & slab 23-33 per cent of cost of concrete.				
	<b>Height Above 10m</b>				
	Formwork and staging (a+b+c) 33%				110284.91
	(e) Placement of girders in position over pier caps including placement of sand jacks, channel, levelling etc.				
	Add for(Loading and machinery hire charges )construction at precast yard @ 10%				33419.70
	Add for transportation and Launching of Girder in position @ 10%				33419.70
	<b>f) Contractor's profit @ input on (a+b+c+d+e)</b>				43630.15
	Cost for 120 cum = a+b+c+d+e+f				554951.16
	<b>Rate per cum = (a+b+c+d+e+f)/120</b>				4624.59
				<b>say</b>	<b>4625.00</b>
<b>3.03</b>	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				
	<b>POT Cum PTFE Bearing</b>				
	<b>1) 90 Tonne Capacity</b>	each.	1.00	9900.00	9900.00
	<b>Contractor's profit @ 10%</b>				990.00
	cost for 90 tonnes capacity bearing				<b>10890.00</b>
	<b>1) 125 Tonne Capacity</b>	each.	1.00	13750.00	13750.00
	<b>Contractor's profit @ 10%</b>				1375.00
	cost for 100 tonnes capacity bearing				<b>15125.00</b>
	<b>1) 260 Tonne Capacity</b>	each.	1.00	28600.00	28600.00
	<b>Contractor's profit @ 10%</b>				2860.00
	cost for 260 tonnes capacity bearing				<b>31460.00</b>
<b>3.04</b>	<b>RCC Grade M-40 ( Deck Slab and Diaphragm)</b>				
	<b>Unit = 1 cum</b>				
	<b>Taking output = 120 cum</b>				
	<b>a) Material</b>				
	Cement	tonne	51.60	3990.00	205884.00
	Coarse sand	cum	54.00	372.99	20141.46
	20 mm Aggregate	cum	64.80	508.13	32926.82
	10 mm Aggregate	cum	43.20	508.13	21951.22
	Admixture @ 0.4 per cent of cement	kg	223.20	80.00	17856.00
	<b>b) Labour</b>				
	Mate	day	0.94	130.00	122.20
	Mason	day	3.50	130.00	455.00
	Mazdoor	day	20.00	120.00	2400.00
	<b>c) Machinery</b>				
	Batching Plant @ 20 cum/hour	hour	6.00	1440.00	8640.00
	Generator 100 KVA	hour	6.00	450.00	2700.00
	Loader	hour	6.00	520.00	3120.00
	Transit Mixer ( capacity 4.0 cu.m )				
	Transit Mixer 4 cum capacity lead upto1 Km	hour	15.00	600.00	9000.00
	Lead beyond 1 Km, L - lead in Kilometer	tonne.km	300L	6.00	9000.00
	Concrete Pump	hour	6.00	165.00	990.00
	<b>Basic Cost of Labour, Material &amp; Machinery (a+b+c) for 120 cum</b>		<b>335187.00</b>		
	add for lift 3.5%				129047.00
	<b>For formwork and staging add the following:</b>				
	For solid slab/voided slab super-structure, 18-28 per cent of cost of concrete (a+b+c)				
	<b>Above 10m</b>				
	<b>D) Formwork and staging per cent of (a+b+c)</b>				93852.28

Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
	<b>e) Contractor's profit @ input on (a+b+c+d)</b>				35401.95
	Cost for 120 cum = a+b+c+d+e				593487.92
	<b>Rate per cum = (a+b+c+d+e)/120</b>				4945.73
				<b>say</b>	<b>4946.00</b>
<b>3.05</b>	<b>RCC Grade M-40 ( Box Girder)</b>				
	<b>Unit = 1 cum</b>				
	<b>Taking output = 120 cum</b>				
	<b>a) Material</b>				
	Cement	tonne	51.60	3990.00	205884.00
	Coarse sand	cum	54.00	372.99	20141.46
	20 mm Aggregate	cum	64.80	508.13	32926.82
	10 mm Aggregate	cum	43.20	508.13	21951.22
	Admixture @ 0.4 per cent of cement	kg	223.20	80.00	17856.00
	<b>b) Labour</b>				
	Mate	day	0.94	130.00	122.20
	Mason	day	3.50	130.00	455.00
	Mazdoor	day	20.00	120.00	2400.00
	<b>c) Machinery</b>				
	Batching Plant @ 20 cum/hour	hour	6.00	1440.00	8640.00
	Generator 100 KVA	hour	6.00	450.00	2700.00
	Loader	hour	6.00	520.00	3120.00
	Transit Mixer ( capacity 4.0 cu.m )				
	Transit Mixer 4 cum capacity lead upto1 Km	hour	15.00	600.00	9000.00
	Lead beyond 1 Km, L - lead in Kilometer	tonne.km	300L	6.00	9000.00
	Concrete Pump	hour	6.00	165.00	990.00
	<b>Basic Cost of Labour, Material &amp; Machinery (a+b+c) for 120 cum</b>		<b>335187.00</b>		
	Add 3.5% for extra lift				129047.00
	<b>For formwork and staging add the following:</b>				
	For cast-in-situ box girder, segmental construction and balanced cantilever, 36 58 per cent of cost of concrete.				
	d) Formwork and staging 58 per cent of (a+b+c)				194408.29
	<b>e) Contractor's profit @ input on (a+b+c+d)</b>				45457.55
	Cost for 120 cum = a+b+c+d+e				704099.53
	<b>Rate per cum = (a+b+c+d)/120</b>				5867.50
				<b>say</b>	<b>5867.00</b>
<b>3.08</b>	Providing and applying 3 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.				
	<b>Unit = sqm</b>				
	<b>Taking output = 10 sqm</b>				
	<b>a) Labour</b>				
	Mate	day	0.01	130.00	1.30
	Painter	day	0.25	130.00	32.50
	Mazdoor (Skilled)	day	0.25	125.00	31.25
	<b>b) Material</b>				
	Water based paint of approved quality for cement concrete surface	Litres	5.00	125.00	625.00
	<b>C) Contractor's profit @ input on (a+b)</b>				69.01
	Cost for 10 sqm (a+b+c)				759.06
	<b>Rate per sqm (a+b+c)/10</b>				75.91
	<b>add rate for 1 coat</b>				37.95
	<b>Rate per sqm</b>				113.86
				<b>say</b>	<b>114.00</b>
<b>3.10</b>	Providing and laying in-situ RCC M30 grade concrete in waist slab including centering, shuttering, mixing in mechanised batch mix plant, compaction, curing and dewatering if necessary, excluding reinforcement as per specification and as directed by Engineer.				
	<b>RCC Grade M30 For waist slab</b>				
	<b>Using Batching Plant, Transit Mixer</b>				
	<b>Unit = cum</b>				
	<b>Taking output = 120 cum</b>				
	<b>a) Material</b>				
	Cement	tonne	48.80	3990.00	194712.00

Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
	Coarse sand	cum	54.00	372.99	20141.46
	20 mm Aggregate	cum	64.80	508.13	32926.82
	10 mm Aggregate	cum	43.20	508.13	21951.22
	<b>b) Labour</b>				
	Mate	day	0.88	130.00	114.40
	Mason	day	3.00	130.00	390.00
	Mazdoor	day	19.00	120.00	2280.00
	<b>c) Machinery</b>				
	Batching Plant @ 20 cum/hour	hour	6.00	1440.00	8640.00
	Generator 100 KVA	hour	6.00	450.00	2700.00
	Loader	hour	6.00	520.00	3120.00
	Transit Mixer ( capacity 4.0 cu.m )				
	Transit Mixer 4 cum capacity lead upto1 Km	hour	15.00	600.00	9000.00
	Lead beyond 1 Km, L - lead in Kilometer	tonne.km	300L	6.00	9000.00
	Concrete Pump	hour	6.00	165.00	990.00
	<b>Basic Cost of Labour, Material &amp; Machinery (a+b+c) for 120 cum</b>		<b>304976</b>		
	Add 3.5 % for extra lift				10674.16
	<b>Height 5m to 10m</b>				
	d) Formwork and staging (a+b+c) @ 4.5%				13723.92
	<b>e) Contractor's profit @10% on (a+b+c+d)</b>				25534.45
	Cost for 120 cum = a+b+c+d+e				355898.43
	<b>Rate per cum = (a+b+c+d+e)/120</b>				2965.82
				<b>say</b>	<b>2966.00</b>
<b>3.11</b>	Providing and fixing 150*100 mm non skidding precast chequered tiles 25 mm thick of approved quality in traffic island and where ever necessary in city suburban limit over 18 mm thick C.M 1:3 including curing etc.complete as per drawing and as directed by Engineer.				
	<b>Unit = 10 Sqm</b>				
	<b>a) Material</b>				
	Chequered Tile	Sqm	11.00	130.00	1430.00
	Cement Mortar 1:3	Sqm	0.18	2467.74	444.19
					<b>1874.19</b>
	<b>Cement Mortar 1:3 (sub Analysis)</b>				
	<b>Unit =Cum</b>				
	<b>Taking Output =1cum</b>				
	<b>Material</b>				
	Cement	MT	0.51	3990.00	2034.90
	Sand	Cum	1.05	372.99	391.64
	Mate	day	0.04	130.00	5.20
	Mazdoor	day	0.30	120.00	36.00
	<b>Total = (A+B)</b>				<b>2467.74</b>
	<b>b) Labour</b>				
	Mason	day	2.16	130.00	280.80
	Mazdoor	day	2.16	120.00	259.20
					<b>540.00</b>
	<b>Sundries</b>				15.00
	<b>c) Contractor's profit @ input on (c)</b>				55.50
	<b>Rate per 10 sqm = a+b+c</b>				2484.69
	<b>Rate per sqm = (a+b+c)/10</b>				<b>260.89</b>
				<b>say</b>	<b>261</b>

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Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
Sec 4	Miscellaneous Items				
4.01	RCC Grade M-40 ( Crash Barrier)				
	<i>Unit = 1 cum</i>				
	<i>Taking output = 120 cum</i>				
	<b>a) Material</b>				
	Cement	tonne	51.60	3990.00	205884.00
	Coarse sand	cum	54.00	372.99	20141.46
	20 mm Aggregate	cum	64.80	508.13	32926.82
	10 mm Aggregate	cum	43.20	508.13	21951.22
	Admixture @ 0.4 per cent of cement	kg	223.20	80.00	17856.00
	<b>b) Labour</b>				
	Mate	day	0.94	130.00	122.20
	Mason	day	3.50	130.00	455.00
	Mazdoor	day	20.00	120.00	2400.00
	<b>c) Machinery</b>				
	Batching Plant @ 20 cum/hour	hour	6.00	1440.00	8640.00
	Generator 100 KVA	hour	6.00	450.00	2700.00
	Loader	hour	6.00	520.00	3120.00
	Transit Mixer ( capacity 4.0 cu.m )				
	Transit Mixer 4 cum capacity lead upto1 Km	hour	15.00	600.00	9000.00
	Lead beyond 1 Km, L - lead in Kilometer	tonne.km	300L	6.00	9000.00
	<b>Basic Cost of Labour, Material &amp; Machinery (a+b+c) for 120 cum</b>		<b>334197.00</b>		
	add for lift 3.5%				140362.74
	<b>e) Contractor's profit @ input on (a+b+c+d)</b>				25917.72
	Cost for 120 cum = a+b+c+d+e				500477.16
	<b>Rate per cum = (a+b+c+d+e)/120</b>				4170.64
				<b>say</b>	<b>4171.00</b>
	<i>Unit = Linear metre</i>				
	<i>Taking output = 10 m</i>				
	<b>a) M 40 grade concrete</b>				
		cum	6.457	4171.00	26932.15
	<b>b) Labour</b>				
	Mate	day	0.040	130.00	5.20
	Mazdoor	day	1.000	120.00	120.00
	<b>c) Material</b>				
	HYSD steel reinforcement including dowel bars	tonne	0.280	35491.00	9937.48
	Pre-moulded asphalt filler board	sqm	0.320	700.00	224.00
	<b>e) Contractor's profit @ input on (b+c+d)</b>				1028.67
	Cost for 10 metre = a+b+c+d+e				38247.50
	<b>Rate per metre = (a+b+c+d+e)/10</b>				3824.75
				<b>say</b>	<b>3825.00</b>
4.02	Providing 100mm dia PVC pipe in footpath / crash barrier for utility				
	<b>Unit - m</b>				
	1) Cost of 100mm dia PVC pipe	M	1.000	125.00	125.00
	2) Labour for laying - 5%				6.25
	<b>Add 10% Contractor's profit</b>				12.50
	<b>Rate per m</b>				<b>143.75</b>
				<b>say</b>	<b>144.00</b>
4.03	Kerb M-25				
	With Batching Plant, Transit Mixer				
	<i>Unit: cum</i>				
	<i>Taking Output = 120 cum</i>				
	<b>a) Material</b>				
	Cement	tonne	48.38	3990.00	193036.20
	Coarse sand	cum	54.00	372.99	20141.46
	20 mm Aggregate	cum	64.80	508.13	32926.82
	10 mm Aggregate	cum	43.20	508.13	21951.22

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Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
	Cost of Water	Kl	270.00	100.00	27000.00
	<b>b) Labour</b>				
	Mate	day	0.84	130.00	109.20
	Mason	day	3.00	130.00	390.00
	Mazdoor	day	18.00	120.00	2160.00
	<b>c) Machinery</b>				
	Kerb Casting Machine @ 60meter/hour	Hour	6.00	200.00	1200.00
	Batching Plant @ 20 cum/hour	hour	6.00	1440.00	8640.00
	Transit Mixer 4 cum capacity for lead upto 1 km.	hour	15.00	600.00	9000.00
	<b>Per Cum Basic Cost of Labour, Material &amp; Machinery (a+b+c)</b>		<b>2638.00</b>		<b>316555.00</b>
	<b>d) Contractors Profit @ 10 % (b+c)</b>				21453.54
	cost of 120 cum = a+b+c+d				338008.54
	<b>Rate per cum (a+b+c+d)/120</b>				2816.74
				<b>say</b>	<b>2817.00</b>
<b>4.06</b>	Providing and fixing in position 100mm dia drainage spout with GI grating				
	<b>Unit - Each</b>				
	<b>a) Material</b>				
	Cost of MS grating including hopper	No.	1.00	100.00	100.00
	Cost of 100mm dia GI pipe	M	1.00	135.00	135.00
	Cost of anti-corrosive / bituminous paint	LS			50.00
	<b>b) Labour</b>				
	Mason	day	0.10	130.00	13.00
	Mazdoor	day	0.20	120.00	24.00
	<b>Add Contractor's Profit @10%</b>				32.20
	<b>Total</b>			<b>Say</b>	<b>354.00</b>
<b>4.07/4.08</b>	Providing and fixing 150mm dia runner and downtake PVC pipe				
	150mm dia PVC pipe	m	1	148	148
	Fixture, clamps, etc.	LS		25	25
	Bends	No.	0.5	135	67.5
	Labour for fixing	LS		50	50
	Add Contractor's Profit @10%				29.05
	<b>Rate per m</b>				319.55
				<b>Say</b>	<b>320.00</b>
<b>4.09</b>	Providing and constructing catch pit 0.90 m x 0.45 m x 1.2 m deep in BB masonry including excavation, backfilling in soil, 100 mm thick M-15 grade PCC below and covered with 100 mm thick RCC M-25 slab, reinforcement, M.S. covering, smooth finish from inside etc. complete as per drawing and as directed by Engineer.				
	Unit = Nos				
	AS per DSR 2005-06 Page No. 126 Sr.No.538	No	1.00	1850.00	1942.50
	Deduct PCC M15 Rate		0.06	1692.00	93.06
	Deduct RCC Cover M25 Rate		0.03	2929.00	88.97
	<b>Total</b>				1760.47
	Excavation of Catchpit		0.94	61.00	57.10
	Add Rate of Concrete PCC M15		0.06	1895.00	104.23
	Add rates of Concrete RCC Cover M25		0.03	2492.00	75.69
	Add for Steel		0.0010	35491.00	35.93
	<b>Rate Per No</b>				<b>2033.00</b>
<b>4.10</b>	Providing and fixing precast concrete 300 mm dia. pipes, type NP3, granular and concrete bedding below pipe, encasing pipe with M-30 concrete, including cost of all materials, labour, etc. complete with all lifts and leads etc. as per specifications and as directed by Engineer.				

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Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
	<b>Unit = metre</b>				
	<b>Taking output = 12.5 metres ( 5 pipes of 2.5 m length each )</b>				
	<b>1000 mm dia</b>				
	<b>a) Labour</b>				
	Mate	day	0.180	130.00	23.40
	Mason	day	0.500	130.00	65.00
	Mazdoor	day	4.000	120.00	480.00
	<b>b) Material</b>				
	Sand at site	cum	0.070	372.99	26.11
	Cement at site	tonne	0.050	3990.00	199.50
	RCC pipe NP-3 300 mm dia /prestressed concrete pipe including collar at site	metre	12.500	312.00	3900.00
	Granular material passing 5.6 mm sieve for bedding	cum	4.500	480.13	2160.59
	<b>c) Encasement of pipes with M30 Concrete</b>	cum	0.094	2505.00	235.97
	<b>d) Contractor's profit @ input on (a+b+c)</b>				709.06
	Cost for 12.5 metres = a+b+c+d				7799.62
	<b>Rate per metre = (a+b+c+d)/12.5</b>				623.97
				<b>say</b>	<b><u>624.00</u></b>
	<b>Strip Seal Expansion Joint</b>				
4.11	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.				
	<b>Unit = Running meter</b>				
	<b>Taking output = 12 m</b>				
	<b>a) Labour</b>				
	Mate	day	0.05	130.00	6.50
	Mazdoor	day	1.00	120.00	120.00
	Mazdoor (Skilled)	day	0.25	125.00	31.25
	<b>b) Material</b>				
	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	6500.00	78000.00
	Add 5 per cent of cost of material for anchorage reinforcement, welding and other incidentals.				3907.89
	<b>c) Contractor's profit @ input on (a+b)</b>				8206.56
	Cost for 12 m = (a+b+c)				90272.20
	<b>Rate per m = (a+b+c)/12</b>				7522.68
				<b>say</b>	<b><u>7523.00</u></b>
4.12	Providing and applying primer coat using bituminous emulsion or cut back primer over prepared surface of granular base with emulsion preheated to a temperature between 20°C - 60°C and applying a uniform coat with the aid of self propelled bitumen pressure sprayer with self heating arrangement and spraying bar with nozzles of constant volume for pressure system at 10 kg/10 sqm including all materials, labour, machinery etc. complete with all leads and lifts as directed by Engineer and as per specification.				
	<b>Unit = sqm</b>				
	<b>Taking output = 3500 sqm</b>				
	<b>a) Labour</b>				
	Mate	day	0.080	130.00	10.40
	Mazdoor	day	2.000	120.00	240.00
	<b>b) Machinery</b>				
	Mechanical broom @ 1250 sqm per hour	hour	2.800	230.00	644.00
	Air compressor 250 cfm	hour	2.800	206.00	576.80

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Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
	Emulsion pressure distributor @ 1750 sqm per hour	hour	2.000	692.00	1384.00
	Water tanker 6 KL capacity	hour	1.000	200.00	200.00
	<b>c) Material</b>				
	Bitumen emulsion @ 1 kg per sqm	tonne	3.500	25426.10	88991.35
	Add Lead Charges for asphalt for 625 Km@Rs2.9/T.				6343.75
	<b>d) Contractor's profit @ input on (a+b+c)</b>				9839.03
	Cost for 3500 sqm = a+b+c+d				108229.33
	<b>Rate per sqm = (a+b+c+d)/3500</b>				30.92
				<b>say</b>	<b><u>31.00</u></b>
4.13	Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor at the rate of 0.50 kg per sqm on the prepared bituminous/granular surface cleaned with mechanical broom.				
	<b>Unit = sqm</b>				
	<b>Taking output = 3500 sqm</b>				
	<b>a) Labour</b>				
	Mate	day	0.080	130.00	10.40
	Mazdoor	day	2.000	120.00	240.00
	<b>b) Machinery</b>				
	Mechanical broom @ 1250 sqm per hour	hour	2.800	230.00	644.00
	Air compressor 250 cfm	hour	2.800	206.00	576.80
	Emulsion pressure distributor @ 1750 sqm per hour	hour	2.000	692.00	1384.00
	<b>c) Material</b>				
	Bitumen emulsion @ 0.5 kg per sqm	tonne	1.750	25426.10	44495.68
	Add Lead Charges for asphalt for 625 Km@Rs2.9/T.				3171.88
	<b>d) Contractor's profit @ input on (a+b+c)</b>				5052.28
	Cost for 3500 sqm = a+b+c+d				55575.03
	<b>Rate per sqm = (a+b+c+d)/3500</b>				15.88
				<b>say</b>	<b><u>16.00</u></b>
4.14	Providing and laying 6 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 0.005cum 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 deg. C, protruding 1 mm to 4 mm over mastic surface, all complete as per clause 515.				
	<b>Unit = sqm</b>				
	<b>Taking output = 145 sqm (2 tonnes)(0.869 cum) assuming a density of 2.3 tonnes/cum.</b>				
	<b>a) Labour</b>				
	Mate	day	0.49	130.00	63.70
	Mazdoor	day	11.00	120.00	1320.00
	Mazdoor (Skilled)	day	1.25	125.00	156.25
	<b>b) Machinery</b>				
	Mechanical broom @ 1250 sqm per hour	hour	0.06	230.00	13.80
	Air compressor 250 cfm	hour	0.06	206.00	12.36
	Mastic cooker 1 tonne capacity	hour	6.00	40.00	240.00
	Bitumen boiler 1500 litres capacity	hour	6.00	128.00	768.00
	Tractor for towing and positioning of mastic cooker and bitumen boiler	hour	1.00	234.00	234.00
	<b>c) Material</b>				
	Base mastic (without coarse aggregates) = 60 per cent				

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Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
	Coarse aggregate(3.35mm to 9.5 mm size) = 40 per cent . Proportion of material required for mastic asphalt with coarse aggregates (based on mix design done by CRR I for a specific case)				
	i) Bitumen 80/100 or 60/70 or 30/40 @ 10.2 per cent by weight of mix. $2 \times 14.0/100 = 0.204$ add Lead Charges for Bitumen 625 Km	tonne	0.280	25426.10	7119.31
	ii) Crusher stone dust @ 31.9 per cent by weight of mix = $2 \times 31.9/100 = 0.638$ tonnes = $0.638/1.625 = 0.39$	cum	0.39	480.13	187.25
	iii) Lime stone dust filler with calcium carbonate content not less than 80 per cent by weight @ 17.92 per cent by weight of mix = $2 \times 17.92/100 = 0.36$	tonne	0.36	5000.00	1800.00
	iv) Coarse aggregates 9.5 mm to 3.35 mm size @ 40 per cent by weight of mix = $2 \times 40/100 = 0.8$ MT = $0.8/1.456 = 0.55$	cum	0.55	508.13	279.47
	v) Pre-coated stone chips of 9.5 mm nominal size for skid resistance = $72.46 \times 0.005/10 = 0.036$	cum	0.036	480.13	17.28
	vi) Bitumen for coating of chips @ 2 per cent by weight = $0.036 \times 1.456 \times 2/100 = 0.001048$ MT = 1.05kg	kg	1.05	25.43	26.70
	<b>#REF!</b>				1047.89
	Cost for 145 sqm = a+b+c+d				13793.51
	<b>Rate per sqm = (a+b+c+d)/145</b>				95.13
				<b>say</b>	<b><u>95.00</u></b>
	Providing and laying 12 mm thick mastic asphalt wearing course on b) top of deck slab				
	a) for 6 mm thick				13793.51
	<b>rate per sqm</b>				
	<b>b) for 12 mm thick mastic asphalt</b>				
	<b>rate per sqm (a)/72.5)</b>				<b><u>190.26</u></b>
				<b>say</b>	<b><u>190.00</u></b>
4.15	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 @ 4.5 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 MoRTH specification clause No. 507 complete in all respects.				
	<b>Unit = cum</b>				
	<b>Taking output = 195 cum (450 tonnes)</b>				
	<b>a) Labour</b>				
	Mate	day	0.840	130.00	109.20
	Mazdoor working with HMP, mechanical broom, paver, roller, asphalt cutter and assistance for setting out lines, levels and layout of construction	day	16.000	120.00	1920.00
	Skilled mazdoor for checking line & levels	day	5.000	125.00	625.00
	<b>b) Machinery</b>				
	Batch mix HMP @ 75 tonne per hour	hour	6.000	7150.00	42900.00
	Paver finisher hydrostatic with sensor control @ 75 cum per hour	hour	6.000	1725.00	10350.00
	Generator 250 KVA	hour	6.000	1285.00	7710.00
	Front end loader 1 cum bucket capacity	hour	6.000	520.00	3120.00
	Tipper 10 tonne capacity	tonne.km	450 x 3	1.60	2160.00

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Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
	smooth wheeled roller 8-10 tonnes for initial break down rolling.	hour	6.00x0.65*	297.00	1158.30
	Vibratory roller 8 tonnes for intermediate rolling.	hour	6.00x0.65*	994.00	3876.60
	Finish rolling with 6-8 tonnes smooth wheeled tandem roller.	hour	6.00x0.65*	738.00	2878.20
<b>c)</b>	<b>Materials</b>				
	Bitumen @ 4.5 per cent of weight of mix	tonne	20.250	25426.10	514878.53
	Aggregate				
	Add Lead Charges for asphalt for 625 Km@Rs2.9/T.				37968.75
	Total weight of mix = 450 tonnes				
	Weight of bitumen = 19.13 tonnes				
	Weight of aggregate = 450 -19.13 = 430.87 tonnes				
	<b>Taking density of aggregate = 1.5 ton/cum</b>				
	Volume of aggregate = 287.25 cum				
	<b>Grading - II19 mm (Nominal Size)</b>				
	25 - 10 mm 30 per cent	cum	86.160	508.13	43780.48
	10 - 5 mm 28 per cent	cum	80.430	508.13	40868.90
	5 mm and below 40 per cent	cum	114.900	508.13	58384.14
	Filler @ 2 per cent of weight of aggregates.	tonne	8.620	480.13	4138.72
<b>d)</b>	<b>Contractor's profit @ on (a+b+c)</b>				62965.46
	Cost for 195 cum = a+b+c+d				839792.27
	<b>Rate per cum = (a+b+c+d)/195 (For Grading-II)</b>				4306.63
				<b>say</b>	<b>4307.00</b>
<b>4.16</b>	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 @ 5.5 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 MORTH specification clause No. 509 complete in all respects				
	<b>Unit = cum</b>				
	<b>Taking output = 191 cum (450 tonnes)</b>				
<b>a)</b>	<b>Labour</b>				
	Mate	day	0.840	130.00	109.20
	Mazdoor working with HMP, mechanical broom, paver, roller, asphalt cutter and assistance for setting out lines, levels and layout of construction	day	16.000	120.00	1920.00
	Skilled mazdoor for checking line & levels	day	5.000	125.00	625.00
<b>b)</b>	<b>Machinery</b>				
	Batch mix HMP @ 75 tonne per hour	hour	6.000	7150.00	42900.00
	Paver finisher hydrostatic with sensor control @ 75 cum per hour	hour	6.000	1725.00	10350.00
	Generator 250 KVA	hour	6.000	1285.00	7710.00
	Front end loader 1 cum bucket capacity	hour	6.000	520.00	3120.00
	Tipper 10 tonne capacity	tonne.km	450 x 3	1.60	2160.00
	Smooth wheeled roller 8-10 tonnes for initial break down rolling.	hour	6.00x0.65*	297.00	1158.30
	Vibratory roller 8 tonnes for intermediate rolling.	hour	6.00x0.65*	994.00	3876.60
	Finish rolling with 6-8 tonnes smooth wheeled tandem roller.	hour	6.00x0.65*	738.00	2878.20
<b>c)</b>	<b>Material</b>				
	i) Bitumen@ 5.5 per cent of weight of mix	tonne	24.750	25426.10	629295.98
	Add Lead Charges for asphalt for 625 Km@Rs2.9/T.				44859.38
	<b>ii) Aggregate</b>				
	Total weight of mix = 450 tonnes				
	Weight of bitumen = 24.75 tonnes				
	Weight of aggregate = 450 -24.75 = 425.25 tonnes				
	<b>Taking density of aggregate = 1.5 ton/cum</b>				
	Volume of aggregate = 285 cum				

**D. P. R. FOR DEVELOPMENT OF NANDED CITY ROADS UNDER JNNURM  
RATE ANALYSIS**

Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
	<b>Grading - II-13 mm (Nominal Size)</b>				
	13.2 - 10 mm 30 per cent	cum	85.500	508.13	43445.12
	10 - 5 mm 25 per cent	cum	71.250	508.13	36204.26
	5 mm and below 43 per cent	cum	122.550	508.13	62271.33
	Filler @ 2 per cent of weight of aggregates.	tonne	8.620	480.13	4138.72
	<b>for Grading-II(13 mm nominal size)</b>				
	<b>d) Contractor's profit @ on (a+b+c)</b>				75096.27
	Cost for 191 cum = a+b+c+d				972118.34
	<b>Rate per cum = (a+b+c+d)/191 (For Grading-II)</b>				5089.62
				<b>say</b>	<b>5090.00</b>
<b>b)</b>	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 (PMB 40) Modified bituminous binder @ 5.5 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 MORTH specification clause No. 509 complete in all respects				
	<b>Unit = cum</b>				
	<b>Taking output = 191 cum (450 tonnes)</b>				
	<b>a) Labour</b>				
	Mate	day	0.840	130.00	109.20
	Mazdoor working with HMP, mechanical broom, paver, roller, asphalt cutter and assistance for setting out lines, levels and layout of construction	day	16.000	120.00	1920.00
	Skilled mazdoor for checking line & levels	day	5.000	125.00	625.00
	<b>b) Machinery</b>				
	Batch mix HMP @ 75 tonne per hour	hour	6.000	7150.00	42900.00
	Paver finisher hydrostatic with sensor control @ 75 cum per hour	hour	6.000	1725.00	10350.00
	Generator 250 KVA	hour	6.000	1285.00	7710.00
	Front end loader 1 cum bucket capacity	hour	6.000	520.00	3120.00
	Tipper 10 tonne capacity	tonne.km	450 x 3	1.60	2160.00
	Smooth wheeled roller 8-10 tonnes for initial break down rolling.	hour	6.00x0.65*	297.00	1158.30
	Vibratory roller 8 tonnes for intermediate rolling.	hour	6.00x0.65*	994.00	3876.60
	Finish rolling with 6-8 tonnes smooth wheeled tandem roller.	hour	6.00x0.65*	738.00	2878.20
	<b>c) Material</b>				
	i) Modified Bitumen @ 5.5 per cent of weight of mix ( PMB 40)	tonne	24.750	28959.32	716743.17
	Add Lead Charges for asphalt for 625 Km @ Rs2.9/T.				44859.38
	<b>ii) Aggregate</b>				
	Total weight of mix = 450 tonnes				
	Weight of bitumen = 24.75 tonnes				
	Weight of aggregate = 450 - 24.75 = 425.25 tonnes				
	<b>Taking density of aggregate = 1.5 ton/cum</b>				
	Volume of aggregate = 285 cum				
	<b>Grading - II-13 mm (Nominal Size)</b>				
	13.2 - 10 mm 30 per cent	cum	85.500	508.13	43445.12
	10 - 5 mm 25 per cent	cum	71.250	508.13	36204.26
	5 mm and below 43 per cent	cum	122.550	508.13	62271.33
	Filler @ 2 per cent of weight of aggregates.	tonne	8.620	480.13	4138.72
	<b>for Grading-II(13 mm nominal size)</b>				
	<b>d) Contractor's profit @ on (a+b+c)</b>				83840.98
	Cost for 191 cum = a+b+c+d				1068310.26
	<b>Rate per cum = (a+b+c+d)/191 (For Grading-II)</b>				5593.25
				<b>say</b>	<b>5593.00</b>

**D. P. R. FOR DEVELOPMENT OF NANDED CITY ROADS UNDER JNNURM  
RATE ANALYSIS**

Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
4.17	Providing & fixing discontinuous M25 PCC precast kerb stones of size 600 x 300 x 1200 mm at a spacing of 1200 mm c/c on road side parallel to the retaining wall of reinforced structure at a distance of 1000 mm from the face of retaining wall including transportation, excavation etc. complete with all leads as per specification and as directed by Engineer.				
	Unit = Nos				
	<b>Rate of M25 Concrete</b>	Cum	0.216	2816.74	608.42
	Sr.No.4.03				
	Rate Per Nos				<u>608</u>
4.19	Providing traffic lane line strips 10 cm wide with approved road marking paint in two coats as per specification and as directed by Engineer.				
	a) With hot applied thermoplastic paint for yellow edge line	Sqm			600
	As per DSR 2005-06( Page No.185 Sr.No. 778 )				30
	Add Corporation Charges @5%				<u>630</u>
	Total				
	b) With hot applied thermoplastic paint for white strips.	Sqm			600
	As per DSR 2005-06( Page No.185 Sr.No. 778 )				30
	Add Corporation Charges @5%				<u>630</u>
	Total				
4.20	Providing & fixing in position 100 mm Dia. A.C. pipes as weep holes in Abutments and Return Walls completed in all respect as per specification and as directed by Engineer.				
	As per DSR 2005-06( Page No.196 Sr.No. 834 )	Nos			57
	Add Corporation Charges @5%				2.85
	Total				<u>60</u>
4.21	Providing, fitting and fixing mild steel railing complete as per drawing and Technical Specification				
	<b>Unit = 1 RM</b>				
	<b>Taking output = 2 x 50 m span = 100 m</b>				
	<b>a) Material:</b>				
	1) ISMC 100 = 2.806 x 1.05 = 2.946 MT	tonne	2.95	25000.00	73650.00
	2) MS Flat = 0.964 x 1.05 = 1.012 MT	tonne	1.01	25000.00	25300.00
	3) MS bars = 0.17 x 1.05 = 0.180 MT	tonne	0.18	25000.00	4500.00
	4) MS bolts, nuts and washers	tonne	0.15	31500.00	4725.00
	Add @ 5 per cent 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.				5408.75
	Add for cost of concrete for fixing vertical posts in the performed recess @ 1 per cent of cost of material.				1081.75
	Add for electricity charges, welding and drilling equipment, electrodes and other consumables @ 1 per cent of cost of material.				1081.75
	<b>b) Labour</b>				
	Mate	day	2.80	130.00	364.00
	Mazdoor (Skilled)	day	30.00	125.00	3750.00
	Mazdoor	day	40.00	120.00	4800.00
	<b>#REF!</b>				12466.13
	Cost for 100 m steel railing = a+b+c				137127.38
	<b>Rate per metre (a+b+c)/100</b>				1371.27
				<b>say</b>	<u><b>1371.00</b></u>

**D. P. R. FOR DEVELOPMENT OF NANDED CITY ROADS UNDER JNNURM  
RATE ANALYSIS**

Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
4.22	Providing & fixing 20 mm thick compressible fibre board in expansion joint complete as per drawing & Technical Specification.				
	<b>Unit = Running meter</b>				
	<b>Taking output = 12 m</b>				
	<b>a) Labour</b>				
	For carrying, placing & fixing.				
	Mate	day	0.008	130.00	1.04
	Mazdoor	day	0.10	120.00	12.00
	Mazdoor (Skilled)	day	0.10	125.00	12.50
	<b>b) Material</b>				
	20 mm thick compressible fibre board 12 m long x 25 cm deep.	sqm	3.00	945.00	2835.00
	Area = 12 x 0.25 = 3 sqm				
	<b>c) Contractor's profit @ input on (a+b)</b>				286.05
	Cost for 12 m = (a+b+c)				3146.59
	<b>Rate per m = (a+b+c)/12</b>				262.22
				<b>say</b>	<b><u>262.00</u></b>
4.23	<b>M30 FACIA PANNEL</b>				
	<b>Using Batching Plant, Transit Mixer</b>				
	<b>Unit = cum</b>				
	<b>Taking output = 120 cum</b>				
	<b>a) Material</b>				
	Cement	tonne	48.80	3990.00	194712.00
	Coarse sand	cum	54.00	372.99	20141.46
	20 mm Aggregate	cum	64.80	508.13	32926.82
	10 mm Aggregate	cum	43.20	508.13	21951.22
	<b>b) Labour</b>				
	Mate	day	0.84	130.00	109.20
	Mason	day	3.00	130.00	390.00
	Mazdoor	day	18.00	120.00	2160.00
	<b>c) Machinery</b>				
	Batching Plant @ 20 cum/hour	hour	6.00	1440.00	8640.00
	Generator 100 KVA	hour	6.00	450.00	2700.00
	Loader 1 cum capacity	hour	6.00	520.00	3120.00
	Transit Mixer 4 cum capacity for lead upto 1 km.	hour	15.00	600.00	9000.00
	Transit Mixer 4 cum capacity lead beyond 1 Km, L - lead in Kilometer	tonne.km	300L	6.00	9000.00
	<b>Per Cum Basic Cost of Labour, Material &amp; Machinery (a+b+c)</b>		<b>2541.00</b>		
	<b>d) Formwork @ 3.5 per cent of cost of concrete i.e. cost of material, labour and machinery</b>				10669.77
	<b>f) Contractor's profit @ input on (a+b+c+d+e)</b>				24050.10
	cost of 120 cum = a+b+c+d+e+f				339570.57
	<b>Rate per cum (a+b+c+d+e+f)/120</b>				2829.75
				<b>say</b>	<b><u>2830.00</u></b>
4.24	Construction of RCC railing of M30 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 1000 mm, leaving adequate space between vertical post for expansion, complete as per approved drawings and technical specifications.				
	<b>Unit = 1 RM</b>				
	<b>Taking output = 2 x 24 m span = 48 m.</b>				
	<b>a) Material</b>				
	<b>Using Batching Plant, Transit Mixer and Concrete Pump</b>				
	<b>Unit = cum</b>				
	<b>Taking output = 120 cum</b>				

**D. P. R. FOR DEVELOPMENT OF NANDED CITY ROADS UNDER JNNURM  
RATE ANALYSIS**

Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
	<b>a) Material</b>				
	Cement	tonne	48.80	3990.00	194712.00
	Coarse sand	cum	54.00	372.99	20141.46
	20 mm Aggregate	cum	64.80	410.53	26602.37
	10 mm Aggregate	cum	43.20	410.53	17734.91
	<b>b) Labour</b>				
	Mate	day	0.84	130.00	109.20
	Mason	day	3.00	130.00	390.00
	Mazdoor	day	18.00	120.00	2160.00
	<b>c) Machinery</b>				
	Batching Plant @ 20 cum/hour	hour	6.00	1440.00	8640.00
	Generator 100 KVA	hour	6.00	450.00	2700.00
	Loader	hour	6.00	520.00	3120.00
	Transit Mixer ( capacity 4.0 cu.m )				
	Transit Mixer 4 cum capacity lead upto1 Km	hour	15.00	600.00	9000.00
	Lead beyond 1 Km, L - lead in Kilometer	tonne.km	300L	6.00	9000.00
	<b>Basic Cost of Labour, Material &amp; Machinery (a+b+c) for 120 cum</b>		<b>294310.00</b>		2452.58
	Cement concrete M30 Grade Refer relevant item of concrete	cum	4.250	2452.58	10423.48
	No. of vertical posts = $(12 + 2)2 = 28$ Nos., External area of vertical post $0.25 \times 0.275 = 0.069$ sqm, Concrete in vehicle posts = $0.069 \times 28 = 1.932$ cum, Hand rail in 3 tiers = $3 \times 24 = 72$ m, External area = $0.170 \times 0.175 = 0.03$ sqm, Concrete in hand rails = $0.03 \times 72 = 2.16$ cum, Total Concrete = $1.932 + 2.16 = 4.092$ cum. (Refer MoRTH SD / 202).				
	Add 12 per cent of above cost for form work.				1250.82
	HYSD bar reinforcement Rate	tonne	0.87	25000.00	21625.00
	<b>c) Contractor's profit @ input on (a+b)</b>				25270.70
	<b>Rate for 48 m (a+b+c)</b>				58570.00
	<b>Rate per metre (a+b+c)/48</b>				1220.21
				<b>say</b>	<b>1220.00</b>
<b>4.25</b>	Back filling behind abutment, wing wall and return wall complete as per drawing and Technical Specification				
	<b>Unit = cum</b>				
	<b>Taking output = 10 cum</b>				
	<b>Granular material</b>				
	<b>a) Labour</b>				
	Mate	day	0.28	130.00	36.40
	Mazdoor	day	7.00	120.00	840.00
	<b>b) Material</b>				
	Granular material	cum	12.00	44.00	528.00
	<b>c) Machinery</b>				
	Plate compactor/power rammer	hour	2.50	75.00	187.50
	Water Tanker	hour	0.05	200.00	10.00
	<b>d) Contractor's profit @ input on (a+b+c)</b>				160.19
	Cost for 10 cum of granular backfill = a+b+c+d				1762.09
	<b>Rate per cum = (a+b+c+d)/10</b>				176.21
				<b>say</b>	<b>176.00</b>
<b>4.26</b>	Providing and fixing Neoprene bearing as per standard specification etc.complete( as per IRC-83 Part-11)				
	As per DSR 2005-06 (Sr.No. 878 Page.No. 206)	cu.centimeter			1.23
	Add Corporation Charges @ 5%				0.0615
	<b>Rate per cu.centimeter</b>				<b>1.29</b>

**D. P. R. FOR DEVELOPMENT OF NANDED CITY ROADS UNDER JNNURM  
RATE ANALYSIS**

Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
Sec 5	<b>Solid Approaches / Reinforced Earth Retaining Wall</b>				
5.02	<b>PCC M30 For Facia Element</b>				
	<b>Using Batching Plant, Transit Mixer</b>				
	<b>Unit : cum</b>				
	<b>Taking Output = 120 cum</b>				
	<b>a) Material</b>				
	Cement	tonne	48.80	3990.00	194712.00
	Coarse sand	cum	54.00	372.99	20141.46
	20 mm Aggregate	cum	64.30	508.13	32672.76
	10 mm Aggregate	cum	43.20	508.13	21951.22
	<b>b) Labour</b>				
	Mate	day	0.84	130.00	109.20
	Mason	day	3.00	130.00	390.00
	Mazdoor	day	18.00	120.00	2160.00
	<b>c) Machinery</b>				
	Batching Plant @ 20 cum/hour	hour	6.00	1440.00	8640.00
	Generator 100 KVA	hour	6.00	450.00	2700.00
	Loader 1 cum capacity	hour	6.00	520.00	3120.00
	Transit Mixer 4 cum capacity for lead upto 1 km.	hour	15.00	600.00	9000.00
	Transit Mixer 4 cum capacity lead beyond 1 Km, L - lead in Kilometer	tonne.km	300L	6.00	9000.00
	<b>Per Cum Basic Cost of Labour, Material &amp; Machinery (a+b+c)</b>		<b>2539.00</b>		
	<b>d) Formwork @ 3.50 per cent of cost of concrete i.e. cost of material, labour and machinery</b>				10660.88
	<b>#REF!</b>				24049.21
	cost of 120 cum = a+b+c+d+e				339306.73
	<b>Rate per cum (a+b+c+d+e)/120</b>				2827.56
				<b>say</b>	<b>2828.00</b>
5.03	<b>M30 FACIA PANNEL</b>				
	<b>Using Batching Plant, Transit Mixer</b>				
	<b>Unit = cum</b>				
	<b>Taking output = 120 cum</b>				
	<b>a) Material</b>				
	Cement	tonne	48.80	3990.00	194712.00
	Coarse sand	cum	54.00	372.99	20141.46
	20 mm Aggregate	cum	64.80	508.13	32926.82
	10 mm Aggregate	cum	43.20	508.13	21951.22
	<b>b) Labour</b>				
	Mate	day	0.84	130.00	109.20
	Mason	day	3.00	130.00	390.00
	Mazdoor	day	18.00	120.00	2160.00
	<b>c) Machinery</b>				
	Batching Plant @ 20 cum/hour	hour	6.00	1440.00	8640.00
	Generator 100 KVA	hour	6.00	450.00	2700.00
	Loader 1 cum capacity	hour	6.00	520.00	3120.00
	Transit Mixer 4 cum capacity for lead upto 1 km.	hour	15.00	600.00	9000.00
	Transit Mixer 4 cum capacity lead beyond 1 Km, L - lead in Kilometer	tonne.km	300L	6.00	9000.00
	<b>Per Cum Basic Cost of Labour, Material &amp; Machinery (a+b+c)</b>		<b>2541.00</b>		
	<b>d) Formwork @ 3.5 per cent of cost of concrete i.e. cost of material, labour and machinery</b>				10669.77
	<b>f) Contractor's profit @ input on (a+b+c+d+e)</b>				24050.10
	cost of 120 cum = a+b+c+d+e+f				339570.57
	<b>Rate per cum (a+b+c+d+e+f)/120</b>				2829.75
				<b>say</b>	<b>2830.00</b>

**D. P. R. FOR DEVELOPMENT OF NANDED CITY ROADS UNDER JNNURM  
RATE ANALYSIS**

Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
	<b>Facing elements of RCC M30</b>				
	<i>Unit = sqm</i>				
	<i>Taking output = 75 sqm</i>				
	<b>a) Labour</b>				
	Mate	day	0.180	130.00	23.40
	Mazdoor	day	3.000	120.00	360.00
	Mazdoor skilled	day	1.500	125.00	187.50
	<b>b) Machinery</b>				
	Light crane with lifting capacity upto 3 tonne	hour	6.000	230.00	1380.00
	<b>c) Material</b>				
	Pre-cast RCC M-35 facing elements of size as per design and 18 cm thick for 75 sqm. (Refer Item 12.8 (H))	cum	13.500	2830.00	38205.00
	HYSD steel @ 5 kg / sqm (Refer Item 12.6)	tonnes	0.380	34042.00	12935.96
	Add 2 per cent 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.				1022.82
	<b>#REF!</b>				195.09
	Cost for 75 sqm = a+b+c+d				54309.77
	<b>Rate per sqm = (a+b+c+d)/ 75</b>				724.13
				<b>say</b>	<b><u>724.00</u></b>
	<b>With reinforcing elements of synthetic geogrids</b>				
	<i>Unit = sqm</i>				
	<i>Taking output = 300 sqm</i>				
	<b>a) Labour</b>				
	Mate	day	0.360	130.00	46.80
	Mazdoor	day	6.000	120.00	720.00
	Mazdoor skilled	day	3.000	125.00	375.00
	<b>b) Material</b>				
	Synthetic Geogrids as per clause 3102.8 and approved design and specifications.	sqm	300.000	300.00	90000.00
	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.				9000.00
	<b>#REF!</b>				10014.18
	Cost of 300 sqm of Synthetic geogrids = a+b+c				110155.98
	<b>Rate per sqm = (a+b+c)/ 300</b>				367.19
				<b>say</b>	<b><u>367.00</u></b>
			<b>Total of 5.03</b>	<b>say</b>	<b><u>1091.00</u></b>
<b>5.04</b>	Providing and laying in-situ RCC M-30 grade friction slab / coping beam on top of facia wall concrete, necessary shuttering, centering, compaction by vibrating, curing, joints etc.complete in all respect with cast in-situ expansion gap at 50 m interval as directed by Engineer and as per specification and drawing, excluding reinforcement.				
	<b>Using Batching Plant, Transit Mixer and Concrete Pump</b>				
	<i>Unit = cum</i>				
	<i>Taking output = 120 cum</i>				
	<b>a) Material</b>				
	Cement	tonne	48.80	3990.00	194712.00
	Coarse sand	cum	54.00	372.99	20141.46
	20 mm Aggregate	cum	64.80	508.13	32926.82
	10 mm Aggregate	cum	43.20	508.13	21951.22
	<b>b) Labour</b>				

**D. P. R. FOR DEVELOPMENT OF NANDED CITY ROADS UNDER JNNURM  
RATE ANALYSIS**

Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
	Mate	day	0.84	130.00	109.20
	Mason	day	3.00	130.00	390.00
	Mazdoor	day	18.00	120.00	2160.00
	<b>c) Machinery</b>				
	Batching Plant @ 20 cum/hour	hour	6.00	1440.00	8640.00
	Generator 100 KVA	hour	6.00	450.00	2700.00
	Loader 1 cum capacity	hour	6.00	520.00	3120.00
	Transit Mixer 4 cum capacity for lead upto 1 km.	hour	15.00	600.00	9000.00
	Transit Mixer 4 cum capacity lead beyond 1 Km, L - lead in Kilometer	tonne.km	300L	6.00	9000.00
	<b>Per Cum Basic Cost of Labour, Material &amp; Machinery (a+b+c)</b>		<b>2541.00</b>		
	Add for lift 3.5%				26680.50
	<b>d) Formwork @ 3.5 per cent of cost of concrete i.e. cost of material, labour and machinery</b>				10669.77
	<b>e) Contractor's profit @ input on (a+b+c+d)</b>				26718.15
	cost of 120 cum = a+b+c+d+e				368919.12
	<b>Rate per cum (a+b+c+d+e )/120</b>				3074.33
				<b>say</b>	<b>3074.00</b>
<b>5.06 / 5.07</b>	Providing earth work in embankment by using mechanical means with approved material obtained from borrow areas having 4 days soaked CBR equal to or more than 6%, laying in layers not exceeding 200 mm, breaking clods, dressing to the required lines, curves grades, and watering to OMC and compacting to 95% modified proctor density with vibratory roller having minimum 80 - 100 kN static weight including all lifts and leads etc. complete as directed by Engineer and as per specification.				
	As per DSR 2005-06( Page No.205 Sr.No. 874 )	Cum			45.00
	Add lead charges for 18 Km				102.00
	Royalty charges for murrum	cum			35.10
	Rate per cum				182.10
	Add Corporation Charges @5%				9.11
	Total				<b>191.00</b>
<b>5.08</b>	Construction of granular sub-base (structural Layer)by providing close graded Material, mixing in a mechanical mix plant at OMC, carriage of mixed Material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per clause 401				
	<b>Unit = cum</b>				
	<b>Taking output = 225 cum (450 tonne)</b>				
	<b>a) Labour</b>				
	Mate	day	0.400	130.00	52.00
	Mazdoor skilled	day	2.000	125.00	250.00
	Mazdoor	day	8.000	120.00	960.00
	<b>b) Machinery</b>				
	Electric generator 125 KVA	hour	6.000	450.00	2700.00
	Water tanker 6 KL capacity 5 km lead with one trip per hour	hour	4.500	200.00	900.00
	Front end loader 1 cum bucket capacity	hour	6.000	520.00	3120.00
	Tipper 10 tonne	tonne.km	450	1.60	2160.00
	Motor Grader 110 HP	hour	6.000	1545.00	9270.00
	Vibratory roller 8-10 t	hour	6.000	994.00	5964.00
	<b>c) Material</b>				
	Close graded Granular sub-base Material as per table 400-1				

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Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
	<b>For Grading-II Material</b>				
	26.5 mm to 9.5 mm @ 35 per cent	cum	100.800	508.13	51219.50
	9.5 mm to 2.36 mm @ 25 per cent	cum	72.000	508.13	36585.36
	2.36 mm below @ 40 per cent	cum	115.200	480.13	55310.98
	Cost of water	KL	27.000	100.00	2700.00
	<b>Rate per cum for grading-II Material</b>				
	<b>d) Contractor's profit @ input on (a+b)</b>				2537.60
	Cost for 225 cum = a+b+c+d				173729.44
	<b>Rate per cum = (a+b+c+d)/225</b>				772.13
				<b>say</b>	<b><u>772.00</u></b>
<b>5.09</b>	Construction of granular sub-base( drainage layer) 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 clause 401.				
	<b>Unit = cum</b>				
	<b>Taking output = 300 cum</b>				
	<b>a) Labour</b>				
	Mate	day	0.400	130.00	52.00
	Mazdoor skilled	day	2.000	125.00	250.00
	Mazdoor	day	8.000	120.00	960.00
	<b>b) Machinery</b>				
	Mortar Grader 110 HP @ 50 cum per hour	hour	6.000	1545.00	9270.00
	Vibratory roller 8 -10 tonne	hour	6.000	994.00	5964.00
	Water tanker 6 KL capacity	hour	3.000	200.00	600.00
	<b>c) Material</b>				
	For coarse graded Granular sub-base Materials per table 400-2				
	<b>For Grading-II Material</b>				
	26.5 mm to 4.75 mm @ 75 per cent	cum	288.000	508.13	146341.44
	2.36 mm below @ 25 per cent	cum	96.000	480.13	46092.48
	Cost of water	KL	18.000	100.00	1800.00
	<b>Rate per cum for grading-II Material</b>				
	<b>d) Contractor's profit @ input on (a+b)</b>				1709.60
	Cost for 300 cum = a+b+c+d				213039.52
	<b>Rate per cum = (a+b+c+d)/300</b>				745.64
				<b>say</b>	<b><u>746.00</u></b>
<b>5.10</b>	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.				
	<b>Unit = cum</b>				
	<b>Taking output = 450 cum (990 tonne)</b>				
	<b>a) Labour</b>				
	Mate	day	1.120	130.00	145.60
	Mazdoor skilled	day	6.000	125.00	750.00
	Mazdoor	day	22.000	120.00	2640.00
	<b>b) Machinery</b>				
	Front end loader 1 cum bucket capacity	hour	6.000	520.00	3120.00

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Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
	Cement concrete batch mix plant @ 75 cum per hour	hour	6.000	2000.00	12000.00
	Electric generator 100 KVA	hour	6	450	2700.00
	Paver with electronic sensor	hour	6	1850	11100.00
	Vibratory roller 8-10 t capacity	hour	8.000	994.00	7952.00
	Water tanker 6 KL capacity	hour	8.000	200.00	1600.00
	Tipper	tonne.km	990 x 5	1.60	7920.00
	Add 10 per cent of cost of carriage to cover cost of loading and unloading				792.00
	<b>c) Material</b>				
	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	508.13	205792.65
	Coarse Sand as per IS: 383 @ 0.45 cum/cum of concrete	cum	203.000	372.99	75716.97
	Cement @ 150 kg/cum of concrete	tonne	67.500	3870.00	261225.00
	Cost of water	KL	48.000	100.00	4800.00
	<b>d) Contractor's profit on (a+b+c)</b>				5071.96
	Cost for 205 cum = a+b+c+d				603326.18
	<b>Rate per cum = (a+b+c+d)/450</b>				1340.72
				<b>say</b>	<b><u>1341.00</u></b>
<b>5.13</b>	Construction of un-reinforced, dowel jointed, plain cement concrete pavement over a prepared sub base with 43 grade cement @ 350 kg per cum, 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				
	<b>Unit = cum</b>				
	<b>Taking output = 1050 cum (2415 tonne)</b>				
	<b>a) Labour</b>				
	Mate	day	2.000	130.00	260.00
	Mazdoor skilled	day	15.000	125.00	1875.00
	Mazdoor	day	35.000	120.00	4200.00
	<b>b) Machinery</b>				
	Road Sweeper @ 1250 sqm per hour	hour	2.800	230.00	644.00
	Front end loader 1 cum bucket capacity	hour	18.000	520.00	9360.00
	Cement concrete batch mix plant @ 175 cum per hour (effective output)	hour	6.000	3500.00	21000.00
	Electric generator 250 KVA	hour	6.000	1285.00	7710.00
	Slip form paver with electronic sensor	hour	6.000	9500.00	57000.00
	Water tanker 6 KL capacity	hour	36.000	200.00	7200.00
	Transit truck agitator 5 cum capacity.	tonne.km	2415x5	1.60	19320.00
	Add 10 per cent of cost of carriage to cover cost of loading and unloading				1932.00
	Concrete joint cutting machine .	hour	12.00	200.00	2400.00
	Texturing machine .	hour	12.00	50.00	600.00
	<b>c) Material</b>				
	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	508.13	480182.85
	Sand as per IS: 383 and conforming to clause 602.2.4 @ 0.45 cum/cum of concrete	cum	473	372.99	176424.27

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Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
	Cement 43 grade @ 350 kg/cum of concrete Rate	tonne	368	3870	1424160.00
	32 mm mild steel dowel bars of grade S 240	tonne	9.45	25000	236250.00
	16 mm deformed steel tie bars of grade S 415	tonne	1.17	25000	29250.00
	Separation Membrane of impermeable plastic sheeting 125 micron thick	sqm	3675	50	183750.00
	Pre moulded Joint filler, 25 mm thick for expansion joint.	sqm	16.33	8000	130640.00
	Joint sealant	kg	875	80	70000.00
	Sealant primer	kg	116.67	285	33250.95
	Plastic sheath, 1.25 mm thick for dowel bars	sqm	46.67	200	9334.00
	Curing compound	liter	1850	70	129500.00
	Super plastisizer admixture IS marked as per 9103-1999 @ 0.5 per cent by weight of cement	Kg	2070	80	165600.00
	Cost of water	KL	216	100	21600.00
	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.				30899.42
	<b>contrators profit @ 10%</b>				259773.54
	<b>Cost for 1050cum = a+b+c+d</b>				3514116.03
	<b>Rate per cum = (a+b+c+d)/1050</b>				3346.78
				<b>say</b>	<b><u>3347.00</u></b>
	<b>Wet Mix Macadam</b>				
<b>5.16</b>	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 in sub- base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density.				
	<b>Unit = cum</b>				
	<b>Taking output = 225 cum (495 tonnes)</b>				
	<b>a) Labour</b>				
	Mate	day	0.480	130.00	62.40
	Mazdoor skilled	day	2.000	125.00	250.00
	Mazdoor	day	10.000	120.00	1200.00
	<b>b) Machinery</b>	hour			
	Wet mix plant of 75 tonne hourly capacity	hour	9.000	1296.00	11664.00
	Electric generator 125 KVA	hour	6.000	450.00	2700.00
	Front end loader 1 cum capacity	hour	6.000	520.00	3120.00
	Paver finisher	hour	6.000	629.00	3774.00
	Vibratory roller 8 - 10 tonne	hour	6x0.65	994.00	3876.60
	Water tanker 6 KL capacity	hour	3.000	200.00	600.00
	Tipper	tonne.km	495 x 3	1.60	2376.00
	Add 10 per cent of cost of carriage to cover cost of loading and unloading				237.60
	<b>c) Material ( Table 400-11)</b>				
	45 mm to 22.4 mm@ 30 per cent	cum	89.100	508.13	45274.38
	22.4 mm to 2.36 mm @ 40 per cent	cum	118.800	508.13	60365.84
	2.36 mm to 75 micron@ 30 per cent	cum	89.100	480.13	42779.58
	Cost of water	KL	18.000	100.00	1800.00
	<b>d) Contractor's profit @ input on (a+b)</b>				2986.06
	Cost for 225 cum = a+b+c+d				183066.47
	<b>Rate per cum = (a+b+c+d)/225</b>				813.63

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Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
				<b>say</b>	<b><u>814.00</u></b>
	<b>Analysis for 1200 mm dia NP4 Pipe</b>				
5.17	<b>Laying Reinforced Cement Concrete Pipe NP4 / Prestressed Concrete Pipe on First Class Bedding in Single Row .</b>				
	Laying Reinforced cement concrete pipe NP4/prestressed concrete pipe 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 .				
	<b>Unit = metre</b>				
	<b>Taking output = 12.5 metres ( 5 pipes of 2.5 m length each )</b>				
	<b>1200 mm dia</b>				
	<b>a) Labour</b>				
	Mate	day	0.280	130.00	36.40
	Mason	day	1.000	130.00	130.00
	Mazdoor	day	6.000	120.00	720.00
	<b>b) Material</b>				
	Sand at site	cum	0.090	372.99	33.57
	Cement at site	tonne	0.070	3870.00	270.90
	RCC pipe NP-4/prestressed concrete pipe including collar at site	metre	12.500	9350.00	116875.00
	Granular material passing 5-6 mm sieve for class bedding	cum	5.000	480.13	2400.65
	<b>d) Contractor's profit @ on (a+b+c)</b>				11776.14
	Cost for 12.5 metres = a+b+c+d				132242.66
	<b>Rate per metre= (a+b+c+d)/12.5</b>				10579.41
				<b>say</b>	<b><u>10579.00</u></b>
5.18	Providing and fixing gabion of required section including boxes of size 1.5 m x 1m x 1m or as per shown in approved drawing made of mechanically woven hexagonal shape wire mesh of type 10 cm x 12 cm. Edges mechanically salvaged made of heavily (Zinc+PVC) coated GI wire as per BS 433 mesh wire 3.4 mm dia and feed with supplying and providing 20 to 50 Kg weight traps stones and Geotextile including conveying with all leads and lifts and placing at required line,level,slope section laying of geotextile between wall and backfill as per specification and approved drawing and as directed by Engineer.				
	As per Maharashtra State PWD Coastal Engineering Division Mumbai (DSR 2005-06) ( Ref: Item.No. Rd 23 Page No. 10)	cum			1426
	Trap stones	cum			258.17
	Geotextile	m <sup>2</sup> /m <sup>3</sup>			90
	<b>Rate per cum</b>				1774.17
	Add Corporation Charges @ 5%				88.7085
	<b>Rate per cum</b>				1862.9
				<b>say</b>	<b><u>1863.00</u></b>

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<b>Sr No</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Rate Rs</b>	<b>Cost Rs</b>
<b>5.20</b>	Ground Improvement by removing unsuitable soil and backfilling with murrum with approved material obtained from borrow areas having 4 days soaked CBR equal to or more than 6%, laying in layers not exceeding 200 mm, breaking clods, dressing to the required lines, curves grades, and watering to OMC and compacting to 95% modified proctor density with vibratory roller having minimum 80 - 100 kN static weight including all lifts and leads etc. complete as directed by Engineer and as per specification. including Excavation ,dewatering etc complete				
	Excavation including dewatering	cum			85
	Backfilling with murrum	cum			33
	Lead charges for murrum 18 Km	cum			102.0
	Royalty charges for murrum	cum			35.1
	Rate per cum				254.1
				<b>say</b>	<b>254.00</b>