ग्रामीण कार्य विभाग

Rural Works Department, Govt of Bihar

BIHAR RURAL ROADS PROJECT

Bihar RuralRoad Development Agency (BRRDA)

YEAR (2021 -22)

DETAILED PROJECT REPORT

Amarpur Taradih to Rajavar Path ke RCC High Leval Bridge Ch-5+000KM

STATE :- BIHAR
DISTRICT :-Banka
BLOCK :-Amarpur

LENGTH OF APPROACH ROAD	=	200.00 M.
TOTAL COST OF CONSTRUCTION	=	रु 11.53 Lacs
GST @ 12%	=	रु 1.38 Lacs
LABOUR CESS @ 1 %	=	रु 0.12 Lacs
TOTAL COST OF PROJECT	=	रु 13.03 Lacs

Submitted By:
Executive Engineer
RWD (w) Division, Banka-1
Banka

PREPARED BY:

MIGO ENGICON PVT.LTD.
D-402,SAI ENCLAVE,
VSY PATH,SAGUNA MORE
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YEAR (2021-22)

SUMMARY OF COST ESTIMATE FOR THE PROJECT

NAME OF ROAD : **Amarpur Taradih to Rajavar Path ke RCC High Leval Bridge Ch-5+000KM**

DISTRICT : Banka

BLOCK : Amarpur

LENGTH OF APPROCH : 200.00 m

Sl. No.	DESCRIPTION	AMOUNT (RS.)
1	PREPARATORY WORKS ,SITE CLEARANCE	0.072
2	EARTHWORK	2.955
3	GSB (G-I)	3.929
4	WBM (G-III)	2.210
5	PRIME COAT	0.415
6	TACK COAT	0.138
7	MSS	1.810
	TOTAL COST OF CONSTRUCTION=	11.529
	12% GST	1.383
	1% LABOUR CESS=	0.115
	TOTAL PROJECT COST OF CONST. =	**13.027**

Junior Engineer
Banka-1

Assistant Engineer
Banka-1

Executive Engineer
Banka-1

RURAL WORKS DEPARTMENT

(Rural Works Department, Govt. of Bihar)

NAME OF R Amarpur Taradih to Rajavar Path ke RCC High Leval Bridge Ch-5+000KM

BLOCK **Amarpur** **LENGTH OF APPROACH ROAD (M)** **200.00**

DISTRICT **Banka**

Sl. No.	MORD Ref.No	Item Description	Unit	Length	Width	Height	Quantity	Rate	Amount (in Rs.)
		SUB HEAD : PREPARATORY WORKS ,SITE CLEARANCE , DISMANTLING							
1	**201 (I-A)**	Clearing and Grubbing Road Land (By manual means) including uprooting wild vegetation , grass ,bushes ,shrubs , saplings and trees of girth upto 300mm , removals of stumps of such trees cut earlier & disposal of unserviceable materials & stacking of serviceable materials to be used or auctioned upto a lead of 1000 m including removal and disposal of top organic soil not exeeding 150mm in thickness as per technical specification - clause 201.1 and direction of E/I	Ha	200	6.000	-	0.12	59627.69	7155.32
2	**301.5**	Construction of Embankment with material obtained from borrow pits with a lift upto 1.5 m , transporting to the 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 Technical Specification Clause 301.5 .							
		100% of Embankment Material	Cum				1089	236.65	257712.33
3	**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 with lead upto 1000 m as per Technical Specification Clause 303.1.							
		ii) Earthen shoulder							
		Adjacent to WBM	2	200	1.275	0.075	38.25		
		Adjacent to GSB	2	200	1.500	0.2	120.00		
				Cum	**Total Quantity =**		**158.25**	238.65	37766.13
		Sub Head : PAVEMENT LAYERS - GSB & WBM ITEMS							
4	**401**	**Granular Sub-base with Well Graded Material (Table 400.1)** **By Mix in Place Method** **For Grading I Material** 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 Technical Specification Clause	Cum	200	4.05	0.200	162.00		
		Add for Extra Widening @ 2% of total Vol.	Cum				3.24		
			Cum				165.24	2377.64	392881.23
5	**405**	**WBM Grading 3 (By Manual Means)** 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, crushable screening to fill-up the interstices of coarse aggregate, watering and compacting to the required density Grading 3 as per Technical Specification Clause	Cum	200	3.75	0.075	56.25		
		Add for Extra Widening @ 2% of total Vol.	Cum				1.13		
			Cum				57.38	3852.51	221037.96
		SUB HEAD : BITUMINOUS ITEMS							
6	**502 (I)**	**Prime Coat (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- 1.0 kg/sqm using mechanical means as per Technical Specification Clause 502.	Sqm	200	3.75	-	750.00		
		Add for Extra Widening @ 2% of Total Area	Sqm				15.00		
			Sqm				765.00	54.22	41479.07
7	**503 (I)**	**Tack Coat** Providing and applying tack coat with bitumen emulsion (RS) using emulsion distributor @ 0.2 to 0.25 kg per sq m on the prepared bituminous surface cleaned with hydraulic broom as per technical specification clause 503.	Sqm	200	3.75	-	750.00		
		Add for Extra Widening @ 2% of Total Area	Sqm				15.00		
			Sqm				765.00	18.09	13837.56

RURAL WORKS DEPARTMENT

(Rural Works Department, Govt. of Bihar)

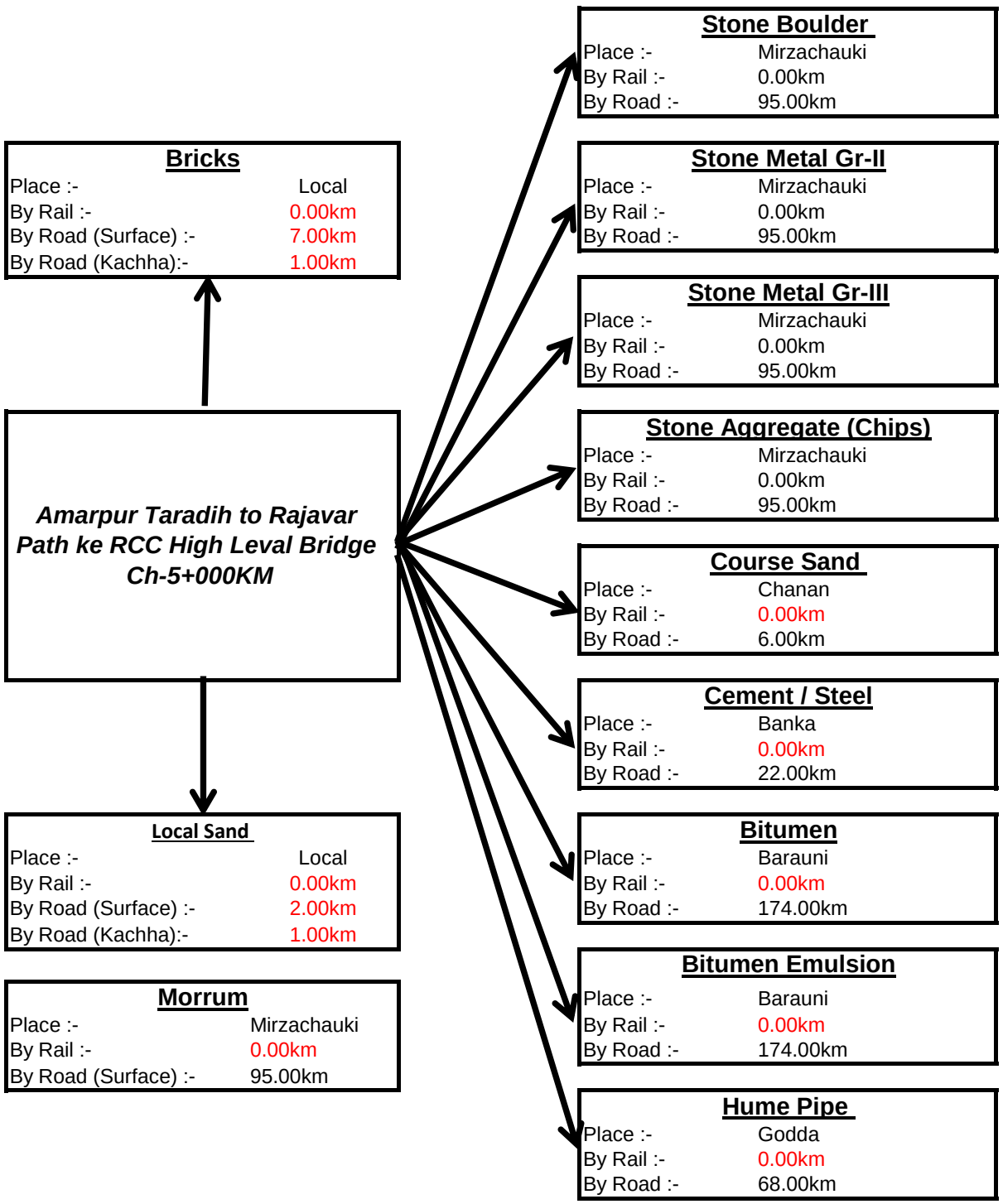
NAME OF R Amarpur Taradih to Rajavar Path ke RCC High Leval Bridge Ch-5+000KM

BLOCK **Amarpur** **LENGTH OF APPROACH ROAD (M)** **200.00**

DISTRICT **Banka**

Sl. No.	MORD Ref.No	Item Description	Unit	Length	Width	Height	Quantity	Rate	Amount (in Rs.)
8	508 (II)	**Mix Seal Surfacing Type B** 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 penetration 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 8-10 kN static roller and finishing to required level and grades as per Technical Specification Clause 509 Type B	Sqm	200	3.75	-	750.00		
		Add for Extra Widening @ 2% of Total Area	Sqm				15.00		
			Sqm				765.00	236.60	180999.00
								TOTAL COST OF APPROACH ROAD =	**1152868.60**

QUARY CHART



J.E
Banka-1

A.E.
Banka-1

E.E.
Banka-1

S.E.
RWD (w) Circle, Bhagalpur

Analysis for Carriage by Road & Rail

Name of Road:-- Amarpur Taradih to Rajavar Path ke RCC High Leval Bridge Ch-5+000KM

District:- Banka **Block :-** Amarpur

Sl No	Item with Source	Unit	Source Up to	Carriage Cost & Lead in Km														Loading & Unloading Cost	Carriage Cost by Rail Head	Total `
				Pucka / Surface							Katcha									
1	Stone Metal Gr-I & Gr-II	Cum	Mirzachauki	8.00/4.59	x	10.10	x	95.00 Km	=	Rs 1672.33	8.00/4.59	x	19.22	x	0.00 Km	=	Rs 0.00	105.12		Rs. 1777.45
2	Stone Metal Gr-III & GSB	Cum	Mirzachauki	8.00/4.99	x	10.10	x	95.00 Km	=	Rs 1538.28	8.00/4.99	x	19.22	x	0.00 Km	=	Rs 0.00	105.12		Rs. 1643.40
3	Stone Aggregate / Chips	Cum	Mirzachauki	8.00/4.99	x	10.10	x	95.00 Km	=	Rs 1538.28	8.00/4.99	x	19.22	x	0.00 Km	=	Rs 0.00	105.12		Rs. 1643.40
4	Stone Boulder	Cum	Mirzachauki	8.00/4.80	x	10.10	x	95.00 Km	=	Rs 1599.17	8.00/4.80	x	19.22	x	0.00 Km	=	Rs 0.00	105.12		Rs. 1704.29
5	Course Sand	Cum	Chanan	8.00/4.99	x	7.94	x	6.00 Km	=	Rs 76.38	8.00/4.99	x	19.22	x	0.00 Km	=	Rs 0.00	113.86		Rs. 190.24
6	Local Sand	Cum	Local	8.00/4.99	x	7.94	x	2.00 Km	=	Rs 25.46	8.00/4.99	x	19.22	x	1.00 Km	=	Rs 30.81	113.86		Rs. 170.13
7	Brick	1000 Nos	Local	8.00/2.00	x	7.94	x	7.00 Km	=	Rs 222.32	8.00/2.00	x	19.22	x	1.00 Km	=	Rs 76.88	478.10		Rs. 777.30
8	Cement	MT	Banka	8.00/8.00	x	7.94	x	22.00 Km	=	Rs 174.68	8.00/8.00	x	19.22	x	0.00 Km	=	Rs 0.00	348.16		Rs. 522.84
9	Steel	MT	Banka	8.00/8.00	x	7.94	x	20.00 Km	=	Rs 158.80	8.00/8.00	x	19.22	x	0.00 Km	=	Rs 0.00	371.53		Rs. 530.33
10	Bitumen Emulsion	MT	Barauni	8.00/8.00	x	7.94	x	174.00 Km	=	Rs 1381.56	8.00/8.00	x	19.22	x	0.00 Km	=	Rs 0.00	397.73		Rs. 1779.29
11	Bitumen	MT	Barauni	8.00/8.00	x	7.94	x	174.00 Km	=	Rs 1381.56	8.00/8.00	x	19.22	x	0.00 Km	=	Rs 0.00	397.73		Rs. 1779.29
12	Hume Pipe (1000 mm)	m	Godda	8.00/10.00	x	7.94	x	68.00 Km	=	Rs 431.94	8.00/10.00	x	19.22	x	0.00 Km	=	Rs 0.00	77.60		Rs. 509.54
14	Structural Steel	MT	Local	8.00/8.00	x	7.94	x	20.00 Km	=	Rs 158.80	8.00/8.00	x	19.22	x	0.00 Km	=	Rs 0.00	371.53		Rs. 530.33

Cost of Haulage Excluding Loading & Unloading as per SOR

Type of Road	` Per Ton. Km by Tipper	` Per Ton. Km by Truck
For Surface Road	10.10	7.94
Unsurface Gravel Road	12.10	9.55
Kachha Road	24.30	19.22

* **Subjected to Verification of Lead**

YEAR (2021-22)

Analysis for Carriage by Road

Name of Road:-- Amarpur Taradih to Rajavar Path ke RCC High Leval Bridge Ch-5+000KM

Block :- Amarpur
District:- Banka

Sl No	Item	Unit	Carriage Cost By Road (Per cum)		Minimum Carriage Cost (Addopted in DPR)
1	Stone Metal Gr-I & Gr-II	Cum	1777.45		1777.45
2	Stone Metal Gr-III / GSB	Cum	1643.40		1643.40
3	Stone Aggregate / Chips	Cum	1643.40		1643.40
4	Stone Boulder	Cum	1704.29		1704.29
5	Course Sand	Cum	190.24		190.24
6	Binding Material (Moorum)	Cum	2946.02		2946.02
7	Local Sand	Cum	170.13		170.13
8	Brick	1000 Nos	777.30		777.30
9	Cement	MT	522.84		522.84
10	Steel	MT	530.33		530.33
11	Bitumen Emulsion	MT	1779.29		1779.29
12	Bitumine (Barauni)	MT	1779.29		1779.29
13	Hume Pipe (1000 mm)	Pipe	509.54		509.54
14	Structural Steel	MT	530.33		530.33

Junior Engineer
Banka-1

Asstt. Engineer
Banka-1

Executive Engineer
Banka-1

Summary of Carriage Cost

Sl. No.	Materials	Unit	Amount (Rs.)
1	Gr-III	Cum	1643.40
2	Stone Metal Below 40 mm	Cum	1643.40
3	Stone Chips	Cum	1643.40
4	Screening Materials	Cum	1643.40
5	Gr-II	Cum	1777.45
6	Stone Metal above 40 mm	Cum	1777.45
7	Binding Material (Moorum)	Cum	2946.02
8	Coarse Sand	Cum	190.24
10	Local sand	Cum	170.13
11	Boulder	Cum	1704.29
12	Cement	Ton	522.84
14	Bitumen (S-90)	Ton	1779.29
15	Bitumen Emulsion SS & RS	Ton	1779.29
16	Steel	Ton	530.33
17	Structural Steel	Ton	530.33

BASIC RATES
(A) Labour

Sl. No.	Description of Labour	Unit	Rate (Rs.)
L-01	Bhisti	day	306.00
L-02	Bitumen Sprayer	day	322.00
L-03	Blacksmith	day	369.00
L-04	Blaster	day	508.00
L-05	Carpenter 1st Class	day	413.00
L-06	Chips spreader	day	369.00
L-07	Chiseller	day	388.00
L-08	Dresser (Skilled)	day	391.00
L-09	Driller	day	369.00
L-10	Electrician	day	391.00
L-11	Fitter	day	420.00
L-12	Mason (1st class)	day	413.00
L-13	Mason (2nd Class)	day	369.00
L-14	Mate	day	325.00
L-15	Mazdoor (Unskilled)	day	306.00
L-16	Mazdoor (Semi skilled)	day	318.00
L-17	Mazdoor (Skilled)	day	388.00
L-18	Painter (Ist class)	day	391.00
L-19	Plumber	day	391.00
L-20	Surveyor	day	373.00
L-21	White Washer	day	388.00
L-02 B	Welder	day	434.00

BASIC RATES (B) Material				
Sl. No.	**Description**	**Unit**	**Basic Rate as per SOR**	**Final Rate (Including GST)**
M-056	AC pipe 100 mm	m	40.63	40.63
M-057	Aggregate - For 37.5 mm Maximum size - 22.4 mm to 5.6 mm	cum	581.99	581.99
M-058	Aggregate - For 37.5 mm Maximum size - 45 mm to 22.5 mm	cum	532.52	532.52
M-059	Aggregate - For 37.5 mm Maximum size - Below 5.6 mm	cum	251.35	251.35
M-060	Aggregate - For 53 mm Maximum size - 22.5 mm to 5.6 mm	cum	581.99	581.99
M-061	Aggregate - For 53 mm Maximum size - 63 mm to 45 mm	cum	480.64	480.64
M-062	Aggregate - For 53 mm Maximum size - Below 5.6 mm	cum	251.35	251.35
M-063	Aggregate - Grading I (40 mm nominal Size) 10 mm - 5 mm	cum	582.80	582.80
M-064	Aggregate - Grading I (40 mm nominal Size) 25 mm – 10 mm	cum	667.20	667.20
M-065	Aggregate - Grading I (40 mm nominal Size) 37.25 mm - 25 mm	cum	532.52	532.52
M-066	Aggregate - Grading I (40 mm nominal Size) 5 mm and below	cum	251.35	251.35
M-067	Aggregate - Grading II (19 mm nominal Size) 10 mm - 5 mm	cum	582.80	582.80
M-068	Aggregate - Grading II (19 mm nominal Size) 25 mm – 10 mm	cum	667.20	667.20
M-069	Aggregate - Grading II (19 mm nominal Size) 5 mm and below	cum	251.35	251.35
M-070	Crushed Stone chipping 13.2 mm nominal size		470.04	470.04
M-071	Aggregate 10 mm	cum	668.80	668.80
M-072	Aggregate 20 mm	cum	604.91	604.91
M-073	Aggregate 40 mm	cum	494.15	494.15
M-074	Aggregate- Crushable type such as moorum or Gravel for Grading I	cum	165.26	165.26
M-075	Aggregate- Crushable type such as moorum or Gravel for Grading II	cum	165.26	165.26
M-076	Aggregate- Crushable type such as moorum or Gravel for Grading III	cum	165.26	165.26
M-077	Aggregate-Grading I 90 mm to 45 mm	cum	448.91	448.91
M-078	Aggregate-Grading II 63 mm to 45 mm	cum	480.64	480.64
M-079	Aggregate-Grading III 53 mm to 22.4 mm	cum	581.99	581.99

BASIC RATES (B) Material				
Sl. No.	**Description**	**Unit**	**Basic Rate as per SOR**	**Final Rate (Including GST)**
M-080	Aggregates 22.4 mm to 2.36 mm for wet mix macadam	cum	532.52	532.52
M-081	Aggregates 45 mm to 22.4 mm for wet mix macadam	cum	479.11	479.11
M-082	Binding Material	cum	165.26	165.26
M-072	Binding wire	kg	59.01	59.01
M-083	Bitumen (Crumb Rubber Modified)	tonne		-
M-084	Bitumen (Natural Rubber Modified)	tonne		-
M-085	Bitumen VG-30 (S-65) (Barauni) (Excluding The Cost Of Empty Drum @ Rs. 778.18 / Per MT)	t	44,745.82	44,745.82
M-086	Bitumen VG-10 (S-90) (Barauni) (Excluding The Cost Of Empty Drum @ Rs. 778.18 / Per MT)	t	43,945.82	43,945.82
M-087	Bitumen Emulsion (RS-1) (Patna) (Excluding The Cost Of Empty Drum @ Rs. 778.18 / Per MT)	t	45,110.82	45,110.82
M-088	Bitumen Emulsion (SS-1) (Patna) (Excluding The Cost Of Empty Drum @ Rs 778.18 / Per MT)	t	48,045.82	48,045.82
M-089	Bituminous sealant	litre	24.51	24.51
M-090	Bond stone (400 mm x 150 mm x 150 mm)	No.	10.57	10.57
M-091	Brick 1st Class	No.	6.075	6.08
M-092	Cement (OPC - 43 Grade) (Excluding the cost of empty bag @ Rs. 3.58 / Per Bag) (OPC 43 grade)	t	4,852.40	4,852.40
M-093	Cement Primer	litre	115.16	115.16
M-092	**Compensation for earth taken from private land (Including royality @ Rs. 22.0 per cum & compensation @ Rs. 1.65 per cum)**	cum	34.81	34.81
M-094	Corrosion Resistant Structural Steel Grating	kg	44.79	44.79
M-095	Crushed Sand or Grit Passing 2.36 mm and retained on 180 micron	cum	119.10	119.10
M-096	Crushed Stone Aggregate 26.5 mm to 75 micron	cum	553.36	553.36
M-097	Crushed Stone chipping 13.2 mm to 0.09mm	cum	697.55	697.55
M-098	Crushed Stone Chipping 6.7 mm size 100% passing 11.2 mm and retained on 2.36 mm	cum	461.52	461.52
M-099	Crushed Stone Chipping 6.7 mm size 100% passing 9.5 mm and retained on 2.36 mm	cum	461.52	461.52
M-100	Crushed Stone chipping 9.5 mm nominal size	cum	668.80	668.80
M-101	Crushed Stone Coarse Aggregate Passing 53 mm and retained on 2.8 mm	cum	524.27	524.27

BASIC RATES (B) Material				
Sl. No.	**Description**	**Unit**	**Basic Rate as per SOR**	**Final Rate (Including GST)**
M-090	Curing compound	litre	122.56	122.56
M-102	Debonding strips	m	45.00	45.00
M-103	Epoxy Paint	litre	568.30	568.30
M-104	Epoxy Primer	Kg	116.35	116.35
M-105	Farmyard manure	cum	775.57	775.57
M-106	Fevicol adhesive	kg	125.00	125.00
M-107	Filter media	cum	512.06	512.06
M-108	Fine aggregate/Crushed sand 2.36 mm to 75 micron	cum	119.10	119.10
M-109	GI Pipe 100 mm dia	m	211.02	211.02
M-110	Granular material (Natural occuring, soil gravel mixture / quarry waste, kankar, laterite, dhandla	cum	82.26	82.26
M-111	Indigo	kg	416.00	416.00
M-112	Joint filler board	sqm	957.49	957.49
M-113	Jute rope 12 mm dia	m	34.20	34.20
M-114	Lime	t	3,615.82	3,615.82
M-115	MS clamps	Nos.	34.68	34.68
M-116	MS Sheet Tube (47 mm x 47 mm x 12 SWG Sheet)	kg	44.93	44.93
M-117	MS Sheet 1.6 mm thick	sqm	416.00	416.00
M-118	MS Sheet 2 mm thick	sqm	832.00	832.00
M-119	Plasticizer	litre	156.84	156.84
M-120	Polythene sheet (125 micron)	sqm	14.68	14.68
M-121	RCC Pipe NP3 (1200 mm dia)	m	3,901.83	3,901.83
M-122	RCC Pipe NP3 (1000 mm dia)	m	2,744.50	2,744.50
M-123	RCC Pipe NP3 (600 mm dia)	m	667.90	667.90
M-124	RCC Pipe NP4 (1200 mm dia)	m	3,921.34	3,921.34

BASIC RATES (B) Material				
Sl. No.	**Description**	**Unit**	**Basic Rate as per SOR**	**Final Rate (Including GST)**
M-125	RCC Pipe NP4 (1000 mm dia)	m	2,758.22	2,758.22
M-126	RCC Pipe NP4 (600 mm dia)	m	1,582.72	1,582.72
M-127	Sand (Coarse)	cum	175.80	175.80
M-128	Sand (Fine)	cum	141.85	141.85
M-178	**Strip Seal Expansion Joint**	Meter	8,389.05	8,389.05
M-129	**Steel Reinforcement (HYSD Bars) fe 500**	t	48,456.50	48,456.50
M-130	**Steel Reinforcement (MS Round Bars)**	t	48,456.50	48,456.50
M-131	**Steel Reinforcement (TMT Bars)**	t	48,456.50	48,456.50
M-132	Stone Boulder of size 150 mm and below	cum	355.68	355.68
M-133	Stone for Random Rubble Masonry	cum	697.55	697.55
M-134	Stone Screening - Type B 11.2 mm for Grading-2	cum	397.73	397.73
M-135	Stone Screening - Type B 11.2 mm for Grading-3	cum	397.73	397.73
M-136	Stone spall	cum	355.68	355.68
M-137	Water	kl	40.00	40.00
M-138	Well graded Granular Base Material - Grading A 2.36 mm below	cum	236.71	236.71
M-139	Well graded Granular Base Material - Grading A 26.5 mm to 4.75 mm	cum	553.36	553.36
M-140	Well graded Granular Base Material - Grading A 53 mm to 26.5 mm	cum	511.44	511.44
M-141	Well graded Granular Base Material - Grading B 2.36 mm below	cum	236.71	236.71
M-142	Well graded Granular Base Material - Grading B 26.5 mm to 4.75 mm	cum	553.36	553.36
M-143	Well graded Granular Base Material - Grading C 2.36 mm below	cum	236.71	236.71
M-144	Well graded Granular Base Material - Grading C 9.5 mm to 4.75 mm	cum	582.80	582.80
M-145	Well Graded Material for Sub-Base - Grading I 2.36 mm below	cum	236.71	236.71
M-146	Well Graded Material for Sub-Base - Grading I 53 mm to 9.5 mm	cum	620.62	620.62
M-147	Well Graded Material for Sub-Base - Grading I 9.5 mm to 2.36 mm	cum	514.58	514.58

BASIC RATES (B) Material				
Sl. No.	**Description**	**Unit**	**Basic Rate as per SOR**	**Final Rate (Including GST)**
M-148	Well Graded Material for Sub-Base - Grading II 2.36 mm below	cum	236.71	236.71
M-149	Well Graded Material for Sub-Base - Grading II 26.5 mm to 9.5 mm	cum	657.85	657.85
M-150	Well Graded Material for Sub-Base - Grading II 9.5 mm to 2.36 mm	cum	514.58	514.58
M-151	Well Graded Material for Sub-Base - Grading III 2.36 mm below	cum	236.71	236.71
M-152	Well Graded Material for Sub-Base - Grading III 4.75 mm to 2.36 mm	cum	304.29	304.29
M-153	Well Graded Material for Sub-Base - Grading III 9.5 mm to 4.75 mm	cum	635.73	635.73
M-106	Paint (Synthetic Enamel)	litre	226.28	226.28
M-102	MS Sheet Tube (47 mm x 47 mm x 12 SWG Sheet)	kg	44.93	44.93
M-101	MS Flat / Structural Steel	t	38,649.00	38,649.00
M-103	MS Sheet 1.6 mm thick	sqm	416.00	416.00
M-159	Sand Bag (Cost of sand & Empty Cement Bag)	Each	7.46	7.46
M-071	Bentonite	Kg	3.55	3.55
	Admixture	Kg	152.14	152.14
M-68	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	Nos.	137.10	137.10
M-66	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.	Cubic cm	0.59	0.59
M-059	Crushed Stone chipping 13.2 mm nominal size	cum	470.04	470.04
RCD	Hot Applied Thermoplastic compound (Sp. Gravity - 2.10)	Liter	188.53	188.53
RCD	Reflectorising Glass Beads	Kg	64.78	64.78
	Stone spall	cum	355.68	355.68

BASIC RATES
(C) USAGE RATES OF PLANT & MACHINERY

Sr. No.	Description of		Output of Machine		Usage Rates in Rs.	
	Machine	Activity	Unit	Output	Unit	Rate
PM-001	Air Compressor 170/250 cfm	Supplying compressed air	cfm	250.00	per hour	416.00
PM-002	Batching and mixing plant @ 30 cum capacity	Concrete Mixing	Cum/h	20.00	per hour	23,729.00
PM-002	Batch mix HMP 40-60 TPH	BM, DBM, SDBC, PM	t/h	50.00	per hour	23,729.00
PM-003	Batch type HMP 30/40 TPH	BM, DBM, SDBC, PM	t/h	35.00	per hour	23,729.00
PM-004	Bitumen boiler oil fired	Heating of bitumen				
	200 litre		litre / h	400.00	per hour	606.00
	1500 litre		litre / h	2000.00	per hour	606.00
PM-005	Bitumen emulsion pressure distributor	Applying bitumen tack coat	sqm/h	1750.00	per hour	1,645.00
PM-006	Concrete mixer 0.28/0.4 cum	Mixing of ingradients	cum/h	2.50	per hour	86.30
PM-007	Crane upto 3.5T	Lifting of materials			per hour	1,289.30
PM-008	Dozer D 50	Spreding/cutting/ cleaning	cum/h	200.00	per hour	3,274.00
			cum/h	150.00		3,274.00
PM-009	Electric generator set, 125 KVA	Electricity generation	KVA	100.00	per hour	2,653.00
PM-010	Electric generator set, 100 KVA	Electricity generation	KVA	100.00	per hour	1,995.00
PM-011	Electric generator set, 63 KVA	Electricity generation	KVA	50.00	per hour	1,062.00
	Electric generator set, 33 KVA	Electricity generation	KVA	50.00	per hour	562.00
PM-012	Emulsion Sprayer	Spraying of Emulsion		1750.00	per hour	1,209.90
PM-013	Front end-loader 1 cum bucket capacity @ 45 cum/hour	Loading Aggregates	cum/h	45.00	per hour	1,594.00
PM-013	Mechanical Hydraulic broom	Surface cleaning	cum/h	1250.00	per hour	572.00
PM-014	Hydraulic Excavator 1.0 cum	Surface cleaning	sqm/h	1250.00	per hour	2,702.00
PM-015	Hydraulic Chip spreader	Surface Dressing	cum/h	60/60/60	per hour	2,146.00
PM-016	Jack Hammer with tractor	Surface Dressing	sqm/h	1500.00	per hour	1,289.30

BASIC RATES
(C) USAGE RATES OF PLANT & MACHINERY

Sr. No.	Description of		Output of Machine		Usage Rates in Rs.	
	Machine	Activity	Unit	Output	Unit	Rate
PM-017	Joint Cutting Machine with 2-3 blades (for Rigid Pavment)	Pavement breaking & rock drilling	cum/h	05. to 1	per hour	317.00
PM-018	Mixall 6-10 t capacity		h		per hour	3,702.00
PM-019	Motor Grader 3.35 mtr. Blade	Cleaning/ Spreding/ GSB/ WMM	Cum/h	200.00	per hour	2,786.00
				50.00		573.20
PM-020	Needle vibrator	Scarifier & levelling	cum/h	50.00	per hour	347.00
PM-021	Paver finisher Machanical 100 TPH	paving of WMM/ Paving of DLC	cum/h	40-30	per hour	1,583.00
PM-022	Plate compactor	Laying/spreading	t/h	75.00	per hour	352.00
PM-023	Plate vibrator	Compaction	cum/h		per hour	469.70
PM-024	Screed vibrator	Compaction	cum/h		per hour	102.64
PM-025	Smooth wheeled 80-100 kN tandem roller	Compaction	cum/h		per hour	901.00
PM-026	Stone crusher (Integrated) of 200 TPH	Compaction of Sub-base/ Asphalt	cum/h	30.00	per hour	13,431.00
PM-027	Smooth wheel Roller 80-100 kN	soil ,BM/ compection	t/h	200.00	per hour	901.00
		Compaction/ Rolling			per hour	901.00
		Earth:- Embankment or sub-grade	cum/h	80/70		901.00
		Sub-base G-I	cum/h	10.00		901.00
		Sub-base G-II/G-III	cum/h	8.00		901.00
		WMM	cum/h	16.00		901.00
		BUSG	cum/h	10.00		901.00
		BM 50/75 mm	cum/h	12.00		901.00
		Premix 20 mm	sqm/h	250.00		901.00

BASIC RATES
(C) USAGE RATES OF PLANT & MACHINERY

Sr. No.	Description of		Output of Machine		Usage Rates in Rs.	
	Machine	Activity	Unit	Output	Unit	Rate
		Seal Coat	sqm/h	500.00		901.00
		Surface Dressing 1st Coat	sqm/h	400.00		901.00
		Surface Dressing 2ndCoat	sqm/h	500.00		901.00
PM-028	Tipper 5.5 cum	Transportation of materials	cum/trip	5.50	per hour	1,183.00
PM-029	Tractor with Disc Harrows	Pulverisation of soil	cum/h	80.00	per hour	612.00
PM-030	Tractor with ripper @ 60 cum per hour	Ripping Pavements, uprooting trees	cum/h	60.00	per hour	591.40
PM-031	Tractor with trolley/with Grading equipment	Transportation of materials	t/trip	3 to 5	per hour	549.10
PM-032	Tractor with Rotavator	Rate of Tractor+ /Rotevator	cum/h	25.00	per hour	573.20
PM-033	Truck 10 t capacity	Carriage	cum/trip	5.50	per hour	934.30
PM-034	Vibratory roller 80-100 kN	Compaction of soil WMM	cum/h	100.00	per hour	2,156.00
		Compaction of BM	cum/h	60.00		2,156.00
PM-035	Water tanker 6 kl capacity (Truck Mounted)	Carriage of water	litre / h	12000.00	per hour	612.00
PM-036	Wet mix plant 60 TPH	Wet Mix	cum/h	25.00	per hour	1,822.30
P& M-36	Pilling Rig with Bantonite Pump	0.75 m dia to 1.2 m dia boring attahment	RM/Hour	2 to 3	per hour	8,220.00
P& M-37	Front End loader 1 cum bucket capacit	Soil loading/Aggregate looding	cum/hour	60/25	per hour	1,403.00
P& M-36	Transit Mixer 4/4.5 cum	Transportation of Concrete Mix to site	cum/hour	4.5	per hour	1,406.00
	Concrete Pump of 45 & 30 cum capacit	Pumping of concrete	cum/hour	33/22	per hour	387.20
	Road marking machine @ 80 sqm per hour		sqm/h	100	per hour	141.80

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount (in Rs)
			Haulage BY TIPPER				
1	1.10	(i)	**Haulage excluding Loading & Unloading**				
			Haulage of materials by tipper excluding cost of loading, unloading and stacking.				
			Unit = t.km				
			Taking output 10 t load and lead 10 km = 100 t.km				
			Case-I : Surfaced Road				
			Speed with load: 25 km per hour				
			Speed while returning empty: 35 km per hour				
		a)	**Machinery**				
			Tipper 10 t capacity				
			Haulage with load	hour	0.40	1183.00	473.20
			Empty return trip	hour	0.29	1183.00	343.07
		b)	Overheads @ 12% on (a)				**97.95**
		c)	Contractor's profit @ 10% on (a+b)				**91.42**
			Cost for 100 t-km = a+b+c				1005.64
			Rate per cum = (a+b+c) /100				**10.06**
			Rate Per Km.	**Cum**			**10.10**
2	1.10	(ii)	**Haulage excluding Loading & Unloading**				
			Haulage of materials by tipper excluding cost of loading, unloading and stacking.				
			Unit = t.km				
			Taking output 10 t load and lead 10 km = 100 t.km				
			Case-II: Unsurfaced Gravel Road.				
			Speed with load: 20 km/hour				
			Speed for empty return trip: 30 km/hour				
		a)	**Machinery**				
			Tipper 10 t capacity				
			Haulage with load	hour	0.50	1183.00	591.50
			Empty return trip	hour	0.33	1183.00	390.39
		b)	Overheads @ 12% on (a)				**117.83**
		c)	Contractor's profit @ 10% on (a+b)				**109.97**
			Cost for 100 t-km = a+b+c				1209.69
			Rate per cum = (a+b+c) /100				**12.10**
			Rate Per Km.	**Cum**			**12.10**
3	1.10	(iii)	**Haulage excluding Loading & Unloading**				
			Haulage of materials by tipper excluding cost of loading, unloading and stacking.				
			Unit = t.km				
			Taking output 10 t load and lead 10 km = 100 t.km				
			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**				
			Tipper 10 t capacity				
			Haulage with load	hour	1.00	1183.00	1183.00
			Empty return trip	hour	0.67	1183.00	792.61
		b)	Overheads @ 12% on (a)				**237.07**
		c)	Contractor's profit @ 10% on (a+b)				**221.27**
			Cost for 100 t-km = a+b+c				2433.95
			Rate per cum = (a+b+c) /100				**24.34**
			Rate Per Km.	**Cum**			**24.30**
4	1.1	RCD	**Loading and Unloading of Stone Boulder/Stone aggregates/Sand/Kanker/Moorum.**				
			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		1 Min		
			ii) Loading by front end loader 1 cum bucket capacity @ 25 cum per hour		13 Min		
			iii) Maneuvering, reversing, dumping and turning for return		2 Min		
			iv) Waiting time, unforeseen contingencies etc		4 Min		

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount (in Rs)
			Total		**20 Min**		
			a) Machinery				
			Tipper 5.5 tonnes capacity	hour	0.330	1183.00	390.39
			Front end-loader 1 cum bucket capacity @ 25 cum/hour	hour	0.330	1403.00	462.99
			b) Overheads @ 12% on (a)				102.41
			c) Contractor's profit @ 10% on (a+b)				95.58
			Cost for 5.5 cum = a+b+c				1051.36
			Rate per cum = (a+b+c)/ 5.5				191.16
			Unloading will be by tipping.			***say***	***191.20***
5	**1.2**	**RCD**	**Loading and Unloading of Boulders by Manual Means**				
			Unit = cum				
			Taking output = 5.5 cum				
			a) Labour				
			Mate	day	0.110	325.00	35.75
			Mazdoor for loading and unloading	day	0.750	306.00	229.50
			b) Machinery				
			Tipper 5.5 tonne capacity	hour	0.750	1183.00	887.25
			c) Overheads @ 12% on (a+b)				69.15
			d) Contractor's profit @ 10% on (a+b+c)				122.17
			Cost for5.5 cum = a+b+c+d				1343.82
			Rate per cum = (a+b+c+d)/5.5				244.33
			Loading & Unloding will be by Truck			***say***	***244.30***
6	**1.1**		**Loading and Unloading Lime, Aggregate, Stone Boulder, Brick Aggregate, Kankar, Building Rubbish, Crushed Slag, Stone for Masonry Work by Manual Means**				
		(i)	Loading of lime, Aggregates, Stone boulder, Brick aggregate, Kankar, Building Rubbish, Crushed Slag Stone for masonary work by manual means including a lead upto 30m				
			Unit = cum				
			Taking output = 5.5 cum				
		a)	**Labour**				
			Mate	day	0.02	325.00	6.50
			Mazdoor (Unskilled)	day	0.5	306.00	153.00
		b)	**Machinery**				
			Truck 10 t capacity	hour	0.5	934.30	467.15
		c)	**Overheads @ 12% on (a+b)**				**75.20**
		d)	**Contractors Profit @ 10% on (a+b+c)**				**70.18**
			Cost for 5.5 cum = a+b+c				772.03
			Rate per cum = (a+b+c)/5.5	**cum**			**140.37**
7		**(ii)**	Loading of Earth, Sand, Moorum, Manure, Flyash by manual means including a lead up to 30m				
			Unit = cum				
			Taking output = 5.5 cum				
		a)	**Labour**				
			Mate	day	0.01	325.00	3.25
			Mazdoor (Unskilled)	day	0.25	306.00	76.50
		b)	**Machinery**				
			Truck 10 t capacity	hour	0.25	934.30	233.58
		c)	**Overheads @ 12% on (a+b)**				**37.60**
		d)	**Contractors Profit @ 10% on (a+b+c)**				**35.09**
			Cost for 5.5 cum = a+b+c				386.02
			Rate per cum = (a+b+c)/5.5	**cum**			**70.18**
8		**(iii)**	**Unoading of lime, Aggregates, Stone boulder, Brick aggregate, Kankar, Building Rubbish, Crushed Slag Stone for masonary work by manual means including a lead upto 30m**				
			Unit = cum				
			Taking output = 5.5 cum				
		a)	**Labour**				
			Mate	day	0.01	325.00	3.25
			Mazdoor (Unskilled)	day	0.25	306.00	76.50
		b)	**Machinery**				
			Truck 10 t capacity	hour	0.25	934.30	233.58
		c)	**Over Heads @ 12% on (a+b)**				**37.60**

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount (in Rs)
		d)	**Contractors Profit @ 10% on (a+b+c)**				**35.09**
			Cost for 5.5 cum = a+b+c				386.02
			Rate per cum = (a+b+c)/5.5	**cum**			**70.18**
			Total loading and unloading by mechanical means Truck	**cum**			**210.55**
9		(iv)	Unoading of Earth, Sand, Moorum, Manure, Flyash by manual means including a lead up to 30m				
			Unit = cum				
			Taking output = 5.5 cum				
		a)	**Labour**				
			Mate	day	0.005	325.00	1.63
			Mazdoor (Unskilled)	day	0.125	306.00	38.25
		b)	**Machinery**				
			Truck 10 t capacity	hour	0.166	934.30	155.09
		c)	**Over Heads @ 12% on (a+b)**				**23.40**
		d)	**Contractors Profit @ 10% on (a+b+c)**				**21.84**
			Cost for 5.5 cum = a+b+c				240.20
			Rate per cum = (a+b+c)/5.5	**cum**			**43.67**
			Loading & Unloding will be by Tipping.				
10	1.2		Loading and Unloading 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,				
			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 @ 45 cum per	Min	7.330		
		iii	Waiting time, unforeseen contingencies, etc.	Min	2.000		
			Total	Min	10.330		
		a)	**Machinery**				
			Tipper 10 t capacity	hour	0.172	1183.00	203.48
			Front end-loader 1 cum bucket capacity @ 45 cum per hour	hour	0.122	1403.00	171.17
		b)	Overheads @ 12.0 %				44.96
		C	Contractors Profit @ 10.0 %				**41.96**
			Cost for 5.5 cum = a+b+C				461.56
			Rate per cum = (a+b)/5.5				83.92
			Unloading of Earth, Sand, Lime, Moorum, Aggregate, Stone				
			Unit = cum				
			Taking output = 5.5 cum				
			Placing tipper at unloading point excluding time for haulage and				
			Time required for				
		i	Positioning of tipper at loading point	Min	1.000		
		ii	Manoeuvering, reversing, dumping and turning for return	Min	2.000		
		iii	Waiting time, unforeseen contingencies, etc.	Min	2.000		
			Total	Min	5.000		
		a)	**Machinery**				
			Tipper 10 t capacity	hour	0.080	1183.00	94.64
		b)	Overheads @ 12 % on (a)				11.36
		C	Contractors Profit @ 10.0 % on (b)				10.60
			Cost for 5.5 cum = a+b				116.60
			Rate per cum = (a+b)/5.5				21.20
			Total loading and unloading by mechanical means				***105.12***
12		(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				
		i)	Positioning of tipper at unloading point	Min	1.00		

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount (in Rs)
		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**				
			Truck 10 t capacity	hour	0.08	1,183.00	94.64
		b)	**Over Heads @ 12% on (a)**				**11.36**
		c)	**Contractors Profit @ 10% on (a+b)**				**10.60**
			Cost for 5.5 cum = a+b				116.60
			Rate per cum = (a+b)/5.5				**21.20**
			Unloading of Earth, Sand, Lime, Moorum, Aggregate, Stone				
			SAY	**Cum**			**21.20**
13	**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	325.00	3.25
			Mazdoor (Unskilled)	day	0.25	306.00	76.50
		b)	**Machinery**				
			Truck 10 t capacity	hour	0.33	934.30	308.32
		c)	**Over Heads @ 12% on (a+b)**				**46.57**
		d)	**Contractors Profit @ 10% on (a+b+c)**				**43.46**
			Cost for 2000 Nos. = a+b+c				478.10
			Rate for 1000 bricks = (a+b+c)/2				**239.05**
			SAY	**no.**			**239.05**
14		**(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	325.00	3.25
			Mazdoor (Unskilled)	day	0.25	306.00	76.50
		b)	**Machinery**				
			Truck 10 t capacity	hour	0.33	934.30	308.32
		c)	**Over Heads @ 12% on (a+b)**				**46.57**
		d)	**Contractors Profit @ 10% on (a+b+c)**				**43.46**
			Cost for 2000 Nos. = a+b+c				478.10
			Rate for 1000 bricks = (a+b+c)/2				**239.05**
			SAY	**no.**			**239.05**
15			**Loading and Unloading of Cement or steel by Manual Means and stacking**				
		(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	325.00	19.50
			Mazdoor (Unskilled)	day	1.50	306.00	459.00
		b)	**Machinery**				
			Truck 10 t capacity	hour	1.00	934.30	934.30
		c)	Over Heads @ 12% on (a+b)				**169.54**
		d)	Contractors Profit @ 10% on (a+b+c)				**158.23**
			Cost for 10 t = a+b+c				1740.57
			Rate per tonnes = (a+b+c)/10				**174.06**
			SAY	**t**			***174.10***
16		**(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	325.00	19.50
			Mazdoor (Unskilled)	day	1.50	306.00	459.00

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount (in Rs)
		b)	**Machinery**				
			Truck 10 t capacity	hour	1.00	934.30	934.30
		c)	**Over Heads @ 12% on (a+b)**				**169.54**
		d)	**Contractors Profit @ 10% on (a+b+c)**				**158.23**
			Cost for 10 t = a+b+c				1740.57
			Rate per tonne = (a+b+c)/10				**174.06**
			SAY	**t**			**174.06**
17	**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**				
			Mate	day	0.07	325.00	22.75
			Mazdoor (Unskilled)	day	1.80	306.00	550.80
		b)	**Machinery**				
			Truck 10 t capacity	hour	1.00	934.30	934.30
		c)	**Over Heads @ 12% on (a+b)**				**180.94**
		d)	**Contractors Profit @ 10% on (a+b+c)**				**168.88**
			Cost for 10 t = a+b+c				1857.67
			Rate per tonnes = (a+b+c)/10				**185.77**
			SAY	**t**			**185.77**
18		**(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	325.00	22.75
			Mazdoor (Unskilled)	day	1.80	306.00	550.80
		b)	**Machinery**				
			Truck 10 t capacity	hour	1.00	934.30	934.30
		c)	**Over Heads @ 12% on (a+b)**				**180.94**
		d)	**Contractors Profit @ 10% on (a+b+c)**				**168.88**
			Cost for 10 t = a+b+c				1857.67
			Rate per t = (a+b+c)/10				**185.77**
			SAY	**t**			**185.77**
19	**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	325.00	19.50
			Mazdoor (Unskilled)	day	1.60	306.00	489.60
		b)	**Machinery**				
			Truck 10 t capacity	hour	1.25	934.30	1167.88
		c)	**Over Heads @ 12% on (a+b)**				**201.24**
		d)	**Contractors Profit @ 10% on (a+b+c)**				**187.82**
			Cost for 10 t = a+b+c				2066.03
			Rate per tonnes = (a+b+c)/10				**206.60**
			SAY	**t**			**206.60**
20		**(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	325.00	16.25
			Mazdoor (Unskilled)	day	1.20	306.00	367.20
		b)	**Machinery**				
			Truck 10 t capacity	hour	1.25	934.30	1167.88

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount (in Rs)
		c)	**Over Heads @ 12% on (a+b)**				**186.16**
		d)	**Contractors Profit @ 10% on (a+b+c)**				**173.75**
			Cost for 10 t = a+b+c				1911.23
			Rate per t = (a+b+c)/10				**191.12**
		Note :-	The rate is inclusive of the self weight of drum				
			SAY	**t**			**191.12**
21	**1.10**		**Haulage excluding Loading & Unloading**				
			Haulage of materials by tipper excluding cost of Loading, Unloading and stacking				
			Unit = 1km				
			Taking output 10t load and lead 10km = 100t_km				
			Case - I Surfaced Road				
			Speed with load : 25km per hour				
			Speed while returning empty : 35km per hour				
		a)	**Machinery**				
			Truck 10 t capacity				
			Haulage with load	hour	0.4	934.30	373.72
			Empty return trip	hour	0.29	934.30	270.95
		b)	**Over Heads @ 12% on (a)**				**77.36**
		c)	**Contractors Profit @ 10% on (a+b)**				**72.20**
			Cost for 100t_km = a+b+c				794.23
			Cost for 1 t_km = a+b+c/100				**7.94**
			SAY				**7.94**
			Case - II Unsurfaced Road				
			Speed with load : 20km per hour				
			Speed while returning empty : 30km per hour				
		a)	**Machinery**				
			Truck 10 t capacity				
			Haulage with load	hour	0.5	934.30	467.15
			Empty return trip	hour	0.33	934.30	308.32
		b)	**Over Heads @ 12% on (a)**				**93.06**
		c)	**Contractors Profit @ 10% on (a+b)**				**86.85**
			Cost for 100t_km = a+b+c				955.38
			Cost for 1 t_km = a+b+c/100				**9.55**
			SAY				**9.55**
			Case - III Kutcha Track and Track in River Bed / Nallah Bed and Choe Bed				
			Speed with load : 10km per hour				
			Speed while returning empty : 15km per hour				
		a)	**Machinery**				
			Truck 10 t capacity				
			Haulage with load	hour	1	934.30	934.30
			Empty return trip	hour	0.67	934.30	625.98
		b)	**Over Heads @ 12% on (a)**				**187.23**
		c)	**Contractors Profit @ 10% on (a+b)**				**174.75**
			Cost for 100t_km = a+b+c				1922.27
			Cost for 1 t_km = a+b+c/100				**19.22**
			SAY				**19.22**
1	**2.2**	**201**	**Clearing and Grubbing Road Land**				
	(I)		Clearing and Grubbing Road Land including uprooting wild vegetation , grass,bushes,shurbs,saplings and trees of girth upto 300mm, removal of stumps of such trees cut earlier and unseviceable materials & stacking of serviceable materials to be used or auctioned upto a lead of 1000m including removal and disposal of top organic soil not exceeding 150mm in thickness as per technical specification(clause201.1)				
			By Manual Means				
		(A)	In area of non-thorny jungle				
		a)	Labour				
			Mate	day	6.00	325.00	1,950.00
			Mazdoor (Unskilled)	day	150.00	306.00	45,900.00
		b)	Machinery				
			Tractor with trolley	hour	1.00	549.10	549.10
		c)	**Over Heads @ 12% on (a+b)**				**5807.89**

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount (in Rs)
		d)	**Contractors Profit @ 10% on (a+b+c)**				**5420.70**
			Rate per hectare = a+b+c+d				59,627.69
			SAY	**Ha.**			**59,627.69**
			EARTHWORK				
5	**3.4**	**301.5**	**Construction of Embankment with Material Obtained from Borrow Pits**				
		(A)	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 Technical Specification Clause 301.5				
			Unit = cum				
			Taking output = 100 cum				
		a)	**Labour**				
			Mate	day	0.04	325.00	13.00
			Mazdoor (Unskilled)	day	1.00	306.00	306.00
		b)	**Machinery**				
			Hydraulic Excavator 0.9 cum bucket capacity @ 60 cum per hour	hour	1.67	2702.00	4,512.34
			Truck 10 t capacity	hour	4.50	1,183.00	5,323.50
			Add 10 % of the cost of carriage by tipper				532.35
			Dozer D-50 for spreading @ 100 cum per hour	hour	0.50	3,274.00	1,637.00
			Tractar mounted grader arrangement for grading @ 100 cum per hour	hour	1.00	573.20	573.20
			Water tanker 6 kl capacity	hour	2.00	612.00	1,224.00
			Three wheel 80-100 kN Static Roller @ 80 cum per hour	hour	1.25	901.00	1,126.25
		c)	**Material**				
			Water	kl	12.00	40.00	480.00
			Royality & Compensation for earth taken from private land	cum	100.00	34.81	3,481.00
		d)	**Over Heads @ 12% on (a+b+c)**				**2305.04**
		e)	**Contractors Profit @ 10% on (a+b+c+d)**				**2151.37**
			Rate for 100 cum = a+b+c+d+e				23,665.04
			Rate per cum = (a+b+c+d+e)/100				236.65
			SAY	**cum**			**236.65**
6	**3.14**	**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 with lead upto 1000 m as per Technical Specification Clause 303.1.				
			Unit = cum				
			Taking output = 100 cum				
		a)	**Labour**				
			Mate	day	0.04	325.00	13.00
			Mazdoor (Unskilled)	day	1.00	306.00	306.00
		b)	**Machinery**				
			Hydraulic excavator 0.9 cum bucket capacity @ 60 cum per hour	hour	1.67	2702.00	4,512.34
			Truck 10 t capacity, 4 trips per hour	hour	4.50	1183.00	5,323.50
			Add 10 % of the cost of carriage to cover loading & unloading	cum			532.35
			Dozer D-50 for spreading @ 100 cum per hour	hour	0.50	3274.00	1,637.00
			Tractar mounted grader arrangement for grading @ 100 cum per hour	hour	1.00	573.20	573.20
			Water tanker with 6 kl capacity	hour	2.00	612.00	1,224.00
			Three wheel 80-100 kN Static Roller @80 cum per hour	hour	1.43	901.00	1,288.43
		c)	**Material**				
			Water	kl	12.00	40.00	480.00
			Royality & Compensation for earth taken from private land	cum	100.00	34.81	3,481.00
		d)	**Over Heads @ 12% on (a+b+c)**				**2324.50**
		e)	**Contractors Profit @ 10% on (a+b+c+d)**				**2169.53**
			Rate for 100 cum = a+b+c+d+e				23,864.85
			Rate per cum = (a+b+c+d+e)/100				238.65
			Total Cost	**cum**			**238.65**

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount (in Rs)
			PAVEMENT CRUST LAYERS				
7	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 Technical Specification Clause 401.				
			For Grading I Material				
			Unit = cum				
			Taking output = 300 cum				
		a)	**Labour**				
			Mate	day	0.48	325.00	156.00
			Mazdoor (Skilled)	day	2.00	388.00	776.00
			Mazdoor (Unskilled)	day	10.00	306.00	3,060.00
		b)	**Machinery**				
			Motor Grader 110 HP @ 50 cum per hour	hour	6.00	2,786.00	16,716.00
			Three wheel 80-100 kN Static Roller	hour	30.00	901.00	27030
			Tractor with Rotavator 25 cum per hour	hour	12.00	573.20	6,878.40
			Water tanker 6 kl capacity	hour	5.00	612.00	3,060.00
		c)	**Material**				
			Coarse graded granular sub-base material as per Table 400.2				
			53 mm to 9.5 mm @ 50 per cent	cum	180.00	620.62	1,11,711.60
			9.5 mm to 2.36 mm @ 20 per cent	cum	72.00	514.58	37,049.76
			2.36 mm below @ 30 per cent (Coarse Sand)	cum	108.00	175.80	18,986.40
			Water	kl	18.00	40.00	720.00
		d)	Overheads @ 12 % on (a+b+c)				27137.30
		e)	Contractor's profit @ 10% on (a+b+c+d)				25328.15
			Cost for 300 cum = a+b+c+d+e				2,78,609.61
			Rate per cum = (a+b+c+d+e)/300				**928.70**
			Add for Carriage Cost				
			53 mm to 9.5 mm @ 50 per cent		0.60	1643.40	986.04
			9.5 mm to 2.36 mm @ 20 per cent		0.24	1643.40	394.416
			2.36 mm below @ 30 per cent (Coarse Sand)		0.36	190.24	68.4864
			Total Cost per Cum				**2377.64**
			Total Cost	**CUM**			**2,377.64**
9	4.7 (3-A)	405	**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 Technical Specification Clause 405.				
		(A)	**By Manual Means**				
			Unit = cum				
			Taking output = 360 cum				
		a)	**Labour**				
			Mate	day	10.08	325.00	3,276.00
			Mazdoor (Skilled)	day	2.00	388.00	776.00
			Mazdoor (Unskilled)	day	250.00	306.00	76,500.00
		b)	**Machinery**				
			Three wheel 80-100 kN static roller @ 8 cum per hour	hour	45.00	901.00	40,545.00
			Water tanker 6 kl capacity	hour	24.00	612.00	14,688.00
		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	581.99	2,53,514.84
			Stone Screening				
			Type B 11.2 mm for Grading 3 @ 0.18 cum per 10 sqm	cum	86.40	397.73	34,363.87
			Water	kl	144.00	40.00	5,760.00
		d)	**Over Heads @ 12% on (a+b+c)**				**51530.85**

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount (in Rs)
		e)	**Contractors Profit @ 10% on (a+b+c+d)**				**48095.46**
		f)	**CARRIAGE**				
			GR-III	Cum	435.60	1643.40	715865.04
			Stone Screening	Cum	86.40	1643.40	141989.76
			Cost for 360 cum = a+b+c+d+e+f				13,86,904.82
			Rate per cum = (a+b+c+d+e+f)/360				**3,852.51**
			SAY	**cum**			**3852.51**
		(B)	**By Mechanical Means**				
			Unit = cum				
			Taking output = 360 cum				
		a)	**Labour**				
			Mate	day	0.68	325.00	221.00
			Mazdoor (Skilled)	day	2.00	388.00	776.00
			Mazdoor (Unskilled)	day	15.00	306.00	4590.00
		b)	**Machinery**				
			Tractor mounted grader arrangement 110 HP @ 50 cum per hour for spreading	hour	14.40	549.10	7907.04
			Three wheel 80-100 kN static roller @ 8 cum per hour	hour	45.00	901.00	40545.00
			Water tanker 6 kl capacity	hour	24.00	612.00	14688.00
		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	581.99	253514.84
			Stone Screening				
			Type B 11.2 mm for **Grading 3** @ 0.18 cum per 10 sqm	cum	86.40	397.73	34363.87
			Water	kl	144.00	40.00	5760.00
		d)	**Over Heads @ 12% on (a+b+c)**				**43483.89**
		e)	**Contractors Profit @ 10% on (a+b+c+d)**				**40584.96**
		f)	**CARRIAGE**				
			GR-III	Cum	435.60	1643.40	715865.04
			Stone Screening	Cum	86.40	1643.40	141989.76
			Cost for 360 cum = a+b+c+d+e+f				1304289.41
			Rate per cum = (a+b+c+d+e+f)/360				**3623.03**
			SAY	**cum**			**3623.03**
			BITUMINOUS ITEMS				
10	**5.1**	**502**	**Prime Coat (Low Porosity)**				
	(I)		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 0.70-1.0 kg/sqm using mechanical means as per Technical Specification Clause 502				
			Unit = sqm				
			Taking output = 1750 sqm				
		a)	**Labour**				
			Mate	day	0.04	325.00	13.00
			Mazdoor (Unskilled)	day	1.00	306.00	306.00
		b)	**Machinery**				
			Hydraulic broom @ 1250 sqm per hour	hour	1.40	572.00	800.80
			Air compressor 210 cfm	hour	1.40	416.00	582.40
			Bitumen emulsion pressure distributor @ 1750 sqm per hour	hour	1.00	1,645.00	1,645.00
			Water tanker 6 kl capacity 1 trip per hour	hour	0.50	612.00	306.00
		c)	**Material**				
			Bitumen emulsion (SS-1) @ 0.85 kg per sqm	t	1.48	48,045.82	71,107.81
			Water	kl	3.00	40.00	120.00
		d)	**Over Heads @ 12% on (a+b+c)**				**8985.72**
		e)	**Contractors Profit @ 10% on (a+b+c+d)**				**8386.67**
		f)	**CARRIAGE**				
			Bitumen	ton	1.48	1779.29	2633.35
			Cost of 1750 sqm = a+b+c+d+e+f				94,886.76
			Rate per sqm = (a+b+c+d+e+f)/1750				**54.22**
			SAY	**sqm**			**54.22**
11		**(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- 1.2 kg/sqm using mechanical means as per Technical Specification Clause 502.				
			Unit = sqm				

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount (in Rs)
			Taking output = 1750 sqm				
		a)	**Labour**				
			Mate	day	0.10	325.00	32.50
			Mazdoor (Unskilled)	day	2.00	306.00	612.00
		b)	**Machinery**				
			Hydraulic broom @ 1250 sqm per hour	hour	1.40	2702.00	3782.80
			Air compressor 210 cfm	hour	1.40	416.00	582.40
			Bitumen emulsion pressure distributor @ 1750 sqm per hour	hour	1.00	1645.00	1645.00
			Water tanker 6 kl capacity 1 trip per hour	hour	0.50	612.00	306.00
		c)	**Material**				
			Bitumen emulsion (SS-1) @ 1.05 kg per sqm	t	1.83	48045.82	87923.85
			Water	kl	3.00	40.00	120.00
		d)	**Over Heads @ 12% on (a+b+c)**				**11400.55**
		e)	**Contractors Profit @ 10% on (a+b+c+d)**				**10640.51**
		f)	**CARRIAGE**				
			Bitumen	ton	1.83	1779.29	**3256.10**
			Cost of 1750 sqm = a+b+c+d+e+f				120301.71
			Rate per sqm = (a+b+c+d+e+f)/1750				**68.74**
			SAY	**sqm**			**68.74**
11	**5.2 (I)**	**503**	**Tack Coat**				
			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 Technical Specification Clause 503.				
			Unit = sqm				
			Taking output = 1750 sqm				
		a)	Labour				
			Mate	day	0.04	325.00	13.00
			Mazdoor (Unskilled)	day	1.00	306.00	306.00
		b)	Machinery				
			Hydraulic broom @ 1250 sqm per hour	hour	1.40	572.00	800.80
			Air compressor 210 cfm	hour	1.40	416.00	582.40
			Emulsion pressure distributor @1750 sqm per hour	hour	1.00	1,645.00	1,645.00
		c)	Material				
			Bitumen emulsion (RS-1) @ 0.225 kg per sqm	t	0.48	45,110.82	21,653.19
		d)	**Over Heads @ 12% on (a+b+c)**				**3000.05**
		e)	**Contractors Profit @ 10% on (a+b+c+d)**				**2800.04**
		f)	**CARRIAGE**				
			Bitumen	ton	0.48	1779.29	854.06
			Cost of 1750 sqm = a+b+c+d+e+f				31,654.54
			Rate per sqm = (a+b+c+d+e+f)/1750				**18.09**
			SAY	**sqm**			**18.09**
12	**5.9**	**508**	**Mix Seal Surfacing Type B**				
	(II)		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 penetration 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 8-10 kN static roller and finishing to required level and grades as per Technical Specification Clause 509 **Type B**				
			Case - II By Mechanical Means				
		(I)	**Bitumen (VG -30)**				
			Unit = sqm				
			Taking output = 4000 sqm (80 cum)				
		a)	**Labour**				
			Mate	day	0.52	325.00	169.00
			Mazdoor (Unskilled)	day	10.00	306.00	3,060.00
			Mazdoor (Unskilled) for Waste Plastic	day	2.00	306.00	612.00
			Mazdoor (Skilled)	day	3.00	388.00	1,164.00
		b)	**Machinery**				
			HMP 30/40 t per hour	hour	6.00	23,729.00	1,42,374.00
			Electric generator set 125 KVA	hour	6.00	2,653.00	15,918.00
			Front end loader 1 cum bucket capacity	hour	6.00	1,594.00	9,564.00
			Tipper 5.5 10 t capacity	hour	3.64	1,183.00	4,306.12
			Paver finisher	hour	6.00	1,583.00	9,498.00
			Three wheel 80-100 kN static roller	hour	18.00	901.00	16,218.00
		c)	**Material**				
			Bitumen (S-90) @ 22 kg per 10 sqm replaced by 8% by Waste Plastic i.e. 22 x 0.92=20.24kg per 10 sqm	t	8.10	43,945.82	3,55,961.14

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount (in Rs)
			Processed Waste Plastic i.e 8% of 14.60 kg bitumen = 1.168 kg per 10 sqm	t	0.70	53,550.00	37,485.00
			Stone crushed aggregates 13.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	cum	108.00	470.04	50,764.32
		d)	Overheads @ 6 % on (a+b+c)				38,825.61
		e)	Contractor's profit @ 10% on (a+b+c+d)				68,591.92
			Cost of 4000 sqm = a+b+c+d				754511.12
			Rate per sqm = (a+b+c+d)/4000				188.63
			Carriage Cost				
			Bitumen (S-90)	ton	0.00203	1779.29	3.60
			Stone chips	cum	0.02700	1643.40	44.37
			Rate per sqm with carriage				**236.60**
			Total Cost	***sqm***			**236.60**