सत्यमेव जयते
हिमाचल प्रदेश सरकार

GOVERNMENT OF HIMACHAL PRADESH

PUBLIC WORKS DEPARTMENT

ANALYSIS OF RATES

2021

PMGSY

ROAD WORKS

FOREWORD

Roads arethe lifeline of any economy and a very vital infrastructure for the rapid economic growth of any State. In fact, the development of important sectors of economy such as Agriculture, Horticulture, Industry, Mining, Forestry and Tourism depends upon the availability of a good extensive road network. Activities of social development such as education, health, food security etc. also depend upon an efficient road network. So the primary objective and aim of the Public Works Department is to provide connectivity by way of providing good all weather roads to all the habitations in the State in addition to meeting adequate standards of comforts to the road users.

Himachal Pradesh is a hill state and given its difficult terrain, to provide road connectivity to its people is a challenging task. As per the guidelines of PMGSY, Himachal Pradesh Public Works Department has taken up this challenge boldly to provide connectivity to the villages by way of constructing good quality of rural roads connecting distant habitations to the mainstream.

Till now, Schedule of Rates 2016 was in operation in HPPWD for PMGSY road and bridge works. However, it was decided in the year 2019 to revise the PMGSY Schedule of Rates by Ministry of Rural Roads Development, Govt. of India. Accordingly, a technical committee of PWD officers was constituted and accordingly Standard Schedule of Rates for PMGSY works has been prepared. This document will also be extensively used by all the branches of HPPWD and other Govt. agencies in the State. The basic rates of labour, material and machinery, as applicable in Himachal Pradesh, have been taken into consideration for the analysis of different items in this Schedule of Rates.

I wish to place on record the efforts made by HPPWD officers and officials in bringing out this document in the present form.

Principal Secretary (PWD)
to the Govt. of Himachal Pradesh.
Shimla 171002

ACKNOWLEDGMENT

I take this as an opportunity to place on record the untiring efforts put in by designated committee of this department for coordinating all the activities associated with bringing out this updated Schedule of Rates 2021 for PMGSY Road & Bridge Works. Sincere and dedicated work of all members of the committee constituted for finalizing and recommending the data input, all staff involved in collection, compilation of market rates, preparation of input data and carrying out the job of comparison of printing material are sincerely acknowledged.

At last, I acknowledge my specific thanks to Sh. Sewak Ram Sharma Circle Head Draughtsman (Retd.) for his sincere and hard work to prepare the schedule of rates in a time bound manner.

I hope the user agencies shall find HP Schedule of Rates-2021 for PMGSY works a useful document in the pursuit of their professional activities.

(Er. Ajay Gupta)
Engineer-in-chief (Project)
HP.PWD. Shimla-2.

PREFACE

Schedule of rates for PMGSY road works was made applicable in Himachal Pradesh Public Works Department in the year 2016. Since then, there has been considerable increase in labour wages and cost of materials. This escalation in prices has been responsible in the ever widening gap between estimated cost and the actual cost of construction.

It was decided at Government level to revise the PMGSY Schedule of Rates in the year 2019 and a technical committee of following officers was constituted:-

1.	Engineer-in-Chief (Project) HP.PWD. Shimla-2.	Chairman.
2.	Chief Architect, HP.PWD. Shimla-2.	Member.
3.	Superintending Engineer (PMGSY)HP.PWD. Shimla-2.	Member.
4.	Superintending Engineer (D-III) HP.PWD. Shimla-2.	Member.
5.	Superintending Engineer (QC&D) HP.PWD. Shimla-2.	Member Secy.
6.	Executive Engineer (R & B) HP.PWD. Shimla-2.	Member.
7.	Executive Engineer (QC&D)HP.PWD. Shimla-2.	Member.
8.	Joint Controller (F&A HPPWD Shimla-2.	Member.
9.	Planning Officer (R & B) HP.PWD. Shimla-2.	Member.
10.	Assistant Engineer (QC&D) HP.PWD. Shimla-2.	Member.

Accordingly, SOR for PMGSY Road and Bridge works was prepared and submitted to the Director (Project-1) NRIDA New Delhi during 2/2020 for scrutiny /approval. Thereafter, observations as raised by NRIDA from time to time have been attended by the department. Now, the Joint Director (PROJECT-I) NRIDA vide letter No. P-17023/5/2005-P-I/2324/2344 dated 03-12-2021 has intimated that the justification worked out for schedule of rates has been summarily examined and found to be in order. It has further been advised to use bitumen DURAPAVE EMULSION CSS1 (H) OR CSS2 to reduce the rate of bitumen emulsion and to amend the proposal of SOR 2021 and finalize the same at State end. It has specifically been apprised that the State Government being the executing agency of PMGSY, is competent and responsible for fixation of rates. As such, the competent authority

may prepare SOR for 2021 based on Standard Data Book using the rates of Labour, Material and Machinery provided to NRIDA.

Accordingly, the document has been amended and approved by the designated committee of the department.

The new schedule of rates 2021 is compatible with Book of specification (BOS) for Rural Roads & Standard Data Book Published by Indian Road Congress.

Though every care has been taken to include all relevant items of the works of roads and bridges (PMGSY works), however, in case rates for some additional items of work are required; the same may be derived / analyzed on the basis of Standard Data Book for PMGSY works and same may be adopted after approval from the competent authority.

CONTENTS

BASIC APPROACH AND GENERAL CONDITIONS AND ASSUMPTIONS FOR THE PREPARATION OF SCHEDULE OF RATES BASED ON STANDARD DATA BOOK

The basic approach for the preparation of Standard Data Book for analysis of rates/schedule of rates for Rural Roads is indicated as under:

1 Description of items: The description of items is given briefly and linked with the relevant Clauses of the Ministry of Rural Development's (MORD) Specifications wherever feasible, which may be referred for detailed description, provisions and interpretation.

2 Use of Machinery

2.1. The Standard Data Book is based on the assumption that Rural Roads in our country are to be constructed with intermediate technology, i.e., manual means with medium input of machinery, wherever required to ensure the required quality of work.

2.2. For rolling, use of static roller has been generally considered. However, use of vibratory pneumatic type roller has been considered wherever required as per provisions of MORD Specifications.

3 Working Conditions

3.1. Rates have been analysed for average working conditions prevailing in the country.

3.2. Average achievable outputs of machines and labour have been considered taking into account the job and management factors.

3.3. However, the output of machineries and labour reduces substantially in hilly areas as the altitude increases. Therefore, for hilly areas reduced outputs have been considered as indicated in the preamble of Chapter 8.

4 Overheads: The overheads are considered as 2.5% (per cent) for items of road works as approved by the Government of India Ministry of Rural Development New Delhi. This is assumed to include interalia the following elements:

i. Site accommodation, setting up plant, access road, water supply, electricity and general site arrangements.

ii. Site office infrastructure.

iii. Expenditure on

(a) Corporate office of the Contractor

(b) Site supervision by the Contractor

(c) Preparation of "as built" drawings

iv. Mobilization /demobilization of resources.

v. Labour camps with minimum amenities, required as per labour laws.

vi. Light vehicles for site supervision including administrative and managerial requirements.

vii. Setting up of laboratories for quality control, field and laboratory testing for control of quality of various items of work and documentation of test results as per requirements of the MORD Specifications.

viii. Minor T& P including needle vibrators required for concrete work.

ix. Survey instruments and the task of setting out of works including verification of line and dimensions (but excluding construction of bench marks and reference pillars which are separate items under setting out).

x. Taking of trial pits and bore holes, where required as per the MORD Specifications.

xi. Watch and ward.

xii. Arrangement for traffic and traffic management during construction.

xiii. Expenditure on safeguarding environment during construction.

xiv. Sundries.

xv. Financing expenditure of the Contractor.

xvi. Work insurance/compensation.

5 Contractor's Profit: Contractor's profit is considered @ 10 per cent uniformly and is added on Overheads also.

6 General:

6.1. The Clause numbers refer to the MORD Specifications for Rural Roads and Cross Drainage Works.

6.2. Additional assumptions made for analyzing different items have been indicated in respective Chapters in the form of preamble and notes/footnotes wherever required.

6.3. For some of the items, certain size/specifications have been assumed. If size/specifications other than the same are adopted, corresponding modifications may be made in the inputs of analysis.

6.4. In the rate analysis of some items, the quantities of sub-items involved in that analysis, like excavation for foundation, foundation concrete, masonry work, painting, lettering, etc. have been given. For rate analysis of such sub-items, reference may be made to relevant Chapters dealing with the sub-items.

6.5. The sources of all materials and samples of materials are required to be approved by the Engineer before start of such work.

6.6. For pipe culverts NP2 and NP3 pipes have been considered.

6.7 For reinforcing steel both HYSD and TMT Bars confirming to IS:1786 have been considered

6.8 Quality control of works shall be governed by the relevant MORD Specifications.

7 Basic Inputs

7.1. The Standard Data Book is based on the requirements of basic inputs of materials, labour and machineries for various items.

7.2. The rates for material and labour for the area where the project is located are to be ascertained from local authorities / enquiries to prepare SOR for the area. However, the usage charges of machineries shall be considered as given in Chapter B of this Data Book.

7.3. The basic rates of materials, such as, stone boulders, stone for masonry, stone ballast (hand broken/machine broken), crushed aggregate, stone dust, moorum, gravel, lime, manure, sludge, quarry sweep, kankar, bricks, brick ballast, crushed slag, etc. at quarry/ crusher sites shall be fixed by the respective States for various zones from time to time.

7.4. While preparing estimates / Detailed Notice Inviting Tender/Analysis of rates, only the basic rates fixed by respective States for concerned zones should be adopted.

7.5. The cost of materials should include the cost at source and the cost of their carriage upto the work site.

7.6. Although market rates for supply of aggregates at site are generally adopted for estimation purpose, rates for crushing of aggregates have also been analyzed as most Contractors prefer to crush their own aggregates in case of larger sized projects. The cost of materials shall be evaluated considering the cost at crushing plants and its carriage up to the work site. These should be compared with rates for own crushing and carriage by the construction agency and lesser of the rates should be adopted for estimation purpose.

8 Plants and Equipment:

8.1. Keeping in view the job and managerial factors and the age factor of machines, the output of plant and equipment is taken approximately 70 per cent of the rated capacity given by manufacturer under ideal conditions.

8.2. The requirement of machinery has been worked out assuming working period of 6 hours per shift of 8 hours.

8.3. Certain equipment, like, road rollers, are required to be available at site for complete period of the shift, though from the consideration of their output, they may be required only for 3 to 4 hours. This is necessitated to match with the output of other associated machines, like, HMP, Pavers, etc. In such cases, the hire charges of road rollers have been multiplied with a factor of 0.65 to account for the idle period wherever considered appropriate.

8.4. Though electrically operated equipment, like, concrete mixers and vibrators have been provided, diesel operated equipment can be used where electricity is not available.

8.5. Wherever electric generator has not been provided to run a plant or equipment, it is assumed that it is fitted with a diesel engine.

8.6. For small jobs where loading and unloading is required to be done manually, tractor-trolley has been considered for carriage instead of tipper.

8.7. Output of plant/equipment is considered for the compacted quantities.

8.8. A water tanker of 6 kl capacity which is commonly used at construction sites has been considered.

8.9. The usage charges for machines include ownership charges, cost of repair and maintenance including replacement of tyres and running and operating charges which includes crew, fuel and lubricants.

9 Labour:

9.1. For labour, the general classification is mazdoor, bhisti, etc. for unskilled labour and mason, fitter, blacksmith, etc. for skilled labour.

9.2. One mate has been provided for 25 labours for all items of works.

9.3. The labour wages should be as per rates fixed by State Government and the labour rates for the tribal areas / hard areas may be enhanced as notified by the State Government time to time.

10 Materials:

10.1. Quantities of materials considered in the rate analysis are approximate for the purpose of estimation and include normal wastages. Actual consumption would depend on mix design.

10.2. The rates of material should include basic cost at locations of stone crushers/ factory/ rail head and cost of its carriage to the site of work/plant including loading, unloading and stacking.

10.3. The supply of materials will be taken either at the location of mixing plant or at the work site as per requirement of use.

10.4. Contractor will make his own arrangements for borrowing earth. However, compensation for earth taken from private land has been included in the rate analysis for construction of embankment/ sub-grade with borrowed earth.

10.5. Credit for Dismantled Material: The dismantled materials should be examined and a realistic assessment made for credit for such materials, which can be utilized for works or auctioned.

10.6. The basic rates should be exclusive of GST.

11 Items of Culverts:

Items in Chapters 11, 12 & 13 on Foundation, Substructure and Superstructure cover both minor bridge works as well as slab culverts as per Chapter 1200 of MORD Specifications. Items of pipe culverts are, however, covered separately in Chapter 9.

12 Concrete Items:

12.1. For concrete work, the grades of concrete covered by the Data Book in accordance with MORD Specifications are:-

i) PCC M-15 grade to M-25 for structures (For lean concrete under foundation M-10 can be used).

ii) RCC grade M-20, M-25 and M-30 for structures

iii) Design mix concrete M-25 and M-30 for concrete pavement

12.2. The analysis of rates accounts for input of materials by weight and use of ordinary mixer.

12.3. Use of vibrators for all concreting work has been included in the items.

12.4. Ten per cent extra cement may be provided for concreting under water, where required.

12.5. Quantities of cement in various grades of cement concrete are to be as per nominal mix / design mix. Grade of cement may also be adopted as per mix design.

12.6. Quantities of cement in various grades of cement concrete for structures have been taken as per IRC: 21:2000 & IRC: 78:2000.

12.7. Steel reinforcement for cement concrete work is required to be provided separately. The rate for the same has been analyzed separately.

12.8. As per the MORD Specifications, the type of superstructure envisaged for rural roads are RCC slabs and box culverts not exceeding 15 m span as well brick/stone masonry arches and composite girder type of superstructure. RCC arches provided for in IRC:SP:20 have also been analysed.

13 The MORD Specifications includes specifications for the items of turfing with sods and seeding and mulching in Chapter 1600 of Hill Road Construction only. However, in view of the importance of these items for erosion control in all locations, these have also been analyzed in Chapter 3 of this document.

14 While preparing the DPRs, prevailing market rates can be taken.

15 Privileged Document:

The Standard Data Book is for Department use only. It should not be produced in any court of law as reference/authority and to that extent it is a privileged document.

CHAPTER - A									
BASIC RATE OF LABOUR									
	Preamble:								
1	These rates are exclusive of contractor's profit and overheads and do not take into account one day's paid holiday after six working days. (The rates adopted in rate-analysis are 7/6th of there basic rates so as to include the effect of one holiday after every six working days)								
2	For employment of departmental labour on muster-rolls, the rates given below may be considered as maximum rates up to which an Executive Engineer can authorise employment of labour. If in a certain locality, prevailing conditions necessitate payment of higher rates of wages, the Superintending Engineer shall increase the rates suitably for a specifies period, not exceeding 3 months after which the rates should be reviewed again and revised downwards of the conditions so warrant.								
3	The labour wages should be as per rates fixed by State Government and the labour rates for the tribal areas / hard areas may be enhanced as notified by the State Government time to time.								

ANNEXURE-A

CHAPTER - A

BASIC RATES OF LABOUR

Sr. No.	Description of Labour	Unit	Rate including 1/6th Paid Holiday (Rs.)
1	Bhisti	day	350.00
2	Bitumen Sprayer	day	350.00
3	Blacksmith	day	403.67
4	Blaster	day	403.67
5	Carpenter 1st Class	day	505.17
6	Chips spreader	day	350.00
7	Chiseller	day	421.17
8	Dresser (Skilled)	day	350.00
9	Driller	day	350.00
10	Electrician	day	403.67
11	Fitter	day	403.67
12	Mason (1st class)	day	505.17
13	Mason (2nd Class)	day	421.17
14	Mate	day	350.00
15	Mazdoor (Unskilled)	day	350.00
16	Mazdoor (Semi skilled)	day	350.00
17	Mazdoor (Skilled)	day	350.00
18	Painter (Ist class)	day	403.67
19	Plumber	day	365.17
20	Surveyor	day	505.17
21	White Washer	day	369.83
22	Driver	day	421.17

Rates approved by the Government of Himachal Pradesh vide notification No. Fin-(PR)B(7)-33/2010 dated 16-04-2021.

CHAPTER - B									
BASIC RATES (USAGE RATE OF PLANT AND MACHINERY)									
	Preamble:								

ANNEXURE-B

CHAPTER - B

USAGE RATES OF PLANT & MACHINERY

Sr.No.	Description of machinery		Output of Machine		Usage Rates in Rs.	
	Machine	Activity	Unit	Output	Unit	Av. Rate
1	Air Compressor 210 cfm	Supplying compressed air	cfm	210	per hour	488.00
2	Batch mix HMP 40-60 TPH	BM, DBM, SDBC, PM	t/h	50	per hour	15000.00
3	Batch type HMP 30/40 TPH	BM, DBM, SDBC, PM	t/h	35	per hour	14488.00
4	Bitumen boiler oil fired	Heating of bitumen				
	200 litre		litre / h	400	per hour	445.00
	1000 litre		litre / h	2000	per hour	1408.00
5	Bitumen emulsion pressure distributor	Applying bitumen tack coat	sqm/h	1750	per hour	1569.00
6	Concrete mixer 0.28/0.4 cum	Mixing of ingradients	cum/h	2.50	per hour	350.00
7	Crane upto 8T	Lifting of materials			per hour	680.00
8	Dozer D 50	Dozing cutting	cum/h	200.00	per hour	3142.00
			cum/h	100.00		1740.00
9	Electric generator set, 125 KVA	Electricity generation	KVA	100.00	per hour	1160.00
10	Emulsion Sprayer with Tractor	Spraying of Emulsion			per hour	1296.00
11	Front end-loader 1 cum bucket capacity @ 45 cum/hour	Loading Aggregates	cum/h	45.00	per hour	1281.00
		Loading Soil	cum/h	100.00		1321.00
12	Hydraulic broom with tractor	Surface cleaning	sqm/h	1250	per hour	528.00
13	Hydraulic Excavator 0.9 cum	Excavation	cum/h	100.00	per hour	1080.00
14	Hydraulic self propelled chip spreader	Surface Dressing	sqm/h	1500	per hour	1200.00
15	Jack Hammer with tractor	Pavement breaking & rock drilling	cum/h	05. to 1	per hour	700.00
16	Joint Cutting Machine with 2-3 blades	Cutting of Joints	h		per hour	1227.00
17	Mixall 6-10 t capacity	Mixing of bituminous	t/h	8.00	per hour	1776.00
18	Motor Grader	Scarifier & levelling	cum/h	200.00	per hour	3513.00
				50.00		2318.00

Sr.No.	Description of machinery		Output of Machine		Usage Rates in Rs.	
	Machine	Activity	Unit	Output	Unit	Av. Rate
19	Needle vibrator	Vibrating cement concrete mix	cum/h	3.50	per hour	100.00
20	Paver finisher	Laying/spreading	t/h	75.00	per hour	4300.00
21	Plate compactor	Compaction	cum/h		per hour	100.00
22	Plate vibrator	Compaction	cum/h		per hour	100.00
23	Screed vibrator	Compaction	cum/h		per hour	100.00
24	Smooth wheeled 80-100 kN tandem roller	Compaction of Sub-base/ Asphalt	cum/h	30.00	per hour	1432.00
25	Stone crusher (Integrated) of 200 TPH	Crushing of Spalls	t/h	200.00	per hour	4780.00
26	Three wheel 80-100 kN Static Roller	Compaction/ Rolling			per hour	1100.00
		Earth:- Embankment or	cum/h	80/70		1100.00
		Sub-base G-I	cum/h	10.00		1100.00
		Sub-base G-II/G-III	cum/h	8.00		1100.00
		WMM	cum/h	16.00		1100.00
		BUSG	cum/h	10.00		1100.00
		BM 50/75 mm	cum/h	12.00		1100.00
		Premix 20 mm	sqm/h	250.00		1100.00
		Seal Coat	sqm/h	500.00		1100.00
		Surface Dressing 1st Coat	sqm/h	400.00		1100.00
		Surface Dressing 2ndCoat	sqm/h	500.00		1100.00
27	Tipper 5.5 cum/10 t	Carriage	cum/trip	5.50	per hour	570.00
28	Tractor with Disc Harrows	Pulverisation of soil	cum/h	80.00	per hour	431.00
29	Tractor with ripper @ 60 cum per hour	Ripping Pavements,	cum/h	60.00	per hour	687.00
30	Tractor with trolley	Transportation of materials	t/trip	3 to 5	per hour	581.00
31	Tractor with Rotavator	Scarifier	cum/h	25.00	per hour	688.00
32	Tractor Mount Grader	Spreading	cum/h	26.00	per hour	700.00

Sr.No.	Description of machinery		Output of Machine		Usage Rates in Rs.	
	Machine	Activity	Unit	Output	Unit	Av. Rate
33	Truck 10 t capacity	Carriage	cum/trip	5.50	per hour	589.00
34	Vibratory roller 80-100 kN	Compaction of soil WMM	cum/h	100.00	per hour	1800.00
		Compaction of BM	cum/h	60.00		1800.00
35	Water tanker 6 kl capacity (Truck Mounted)	Carriage of water	litre / h	12000	per hour	500.00
36	Wet mix plant (Pug Mill)	Wet Mix	cum/h	25	per hour	1500.00
37	Grout pump with agitator and accessories		hour			682.00
38	Concrete Pump		hour			240.00
39	Epoxy Injection gun		hour			809.00
40	Stressing jack with pump		hour			328.00
41	Grouting pump with agitator		hour			680.00
42	i) Hire charges for jack of 40 tonne lifting capacity.		Day			546.00
43	Mastic cooker 1 tonne capacity		hour			109.00
44	Trailer 35 tonne capacity for transporting to site.		tonne.km			2202.00
45	Trailor 30 tonne capacity during placement.		hour			2224.00
46	Transit Mixer 4.0/4.5 cum		hour			1601.00
47	Transit Mixer 30 cum		hour			1464.00
48	Integrated Stone Crusher 100THP	100 TPH	hour			15044.00
49	Integrated Stone Crusher 200 HP	200 TPH	hour			20872.00
50	Hire and running charges of hydraulic piling rig with power unit and complete accessories including shifting from one bore location to another.		hour			8327.00
51	Batch mix HMP @ 75 tonne per hour		Per hour			16800.00
52	Generator 250 KVA		Per hour			1850.00
53	Air compressor 250 cfm		Per hour			500.00
54	Drum mix plant for cold mixes of appropriate capacity but not less than 75 tonnes/hour.		Per hour			1888.00
55	Pneumatic tyred roller 12-15 tonnes		Per hour			960.00
56	Road marking machine @ 60 sqm per hour		Per hour			105.00

CHAPTER - C

BASIC RATE OF MATERIALS

	Preamble:
1	All the rates in this Chapter are for the materials ex-PWD store except where specified otherwise.
2	These rates are exclusive of carriage, contractor's profit, overheads and GST.
3	The rates are for the purpose of ananlysis the rates of items of work and not for obtaining supplies from open market. Supplies shall be obtained either through controller of stores, HP or after calling tender or quotations as may be required under rules and order in force.
4	The rates shall not be issued for issuing materials from Government Stores.

CHAPTER - C

BASIC RATES OF MATERIAL

Sr. No.	Description	Unit	Av. Rate
1	Aggregate - Grading I (40 mm nominal Size) 37.25 mm - 25 mm	cum	1298.00
2	Aggregate - Grading I (40 mm nominal Size) 5 mm and below	cum	1227.00
3	Aggregate - Grading II (19 mm nominal Size) 10 mm - 5 mm	cum	1298.00
4	Aggregate - Grading II (19 mm nominal Size) 25 mm – 10 mm	cum	1298.00
5	Aggregate - Grading II (19 mm nominal Size) 5 mm and below	cum	1298.00
6	Aggregate 10 mm	cum	1298.00
7	Aggregate 20 mm	cum	1298.00
8	Aggregate 40 mm	cum	954.00
9	Aggregate- Crushable type such as moorum or Gravel for Grading I	cum	952.00
10	Aggregate- Crushable type such as moorum or Gravel for Grading II	cum	952.00
11	Aggregate- Crushable type such as moorum or Gravel for Grading III	cum	952.00
12	Aggregate-Grading I 90 mm to 45 mm	cum	900.00
13	Aggregate-Grading II 63 mm to 45 mm	cum	1000.00
14	Aggregate-Grading III 53 mm to 22.4 mm	cum	1000.00
15	Aggregates 22.4 mm to 2.36 mm for wet mix macadam	cum	1000.00
16	Aggregates 45 mm to 22.4 mm for wet mix macadam	cum	1000.00
17	Aluminium sheeting (1.5 mm thick)	sqm	400.00
18	Angle Iron 50 mm x 50 mm x 6 mm	Kg	70.00
19	Binding Material for road	cum	500.00
20	Binding wire	kg	80.00
21	Bitumen (Cold Mix emulsion)	tonne	52305.00
22	Bitumen (VG-10)	t	40159.00
23	Bitumen Emulsion (RS-1)	t	46453.00
24	Bitumen Emulsion (Durapave EmulsionCSS-1(H))	t	48356.00
25	Bitumen emulsion (MS)	t	46239.00
26	Bond stone (400 mm x 150 mm x 150 mm)	No.	25.00
27	Brick 1st Class	No.	7.00
28	Cement	t	6875.00

Sr. No.	Description	Unit	Av. Rate
29	Crushed Sand or Grit Passing 2.36 mm and retained on 180 micron	cum	1093.00
30	Crushed Stone Aggregate 26.5 mm to 75 micron	cum	1145.00
31	Crushed Stone chipping 13.2 mm nominal size	cum	1220.00
32	Crushed Stone Chipping 6.7 mm size 100% passing 11.2 mm and retained on 2.36 mm	cum	1231.00
33	Crushed Stone Chipping 6.7 mm size 100% passing 9.5 mm and retained on 2.36 mm	cum	1231.00
34	Crushed Stone chipping 9.5 mm nominal size	cum	1227.00
35	Crushed Stone Coarse Aggregate Passing 53 mm and retained on 2.8 mm	cum	1130.00
36	Electric Detonator	each	16.00
37	Filter media	cum	600.00
38	Fine aggregate/Crushed sand 2.36 mm to 75 micron	cum	900.00
39	Fuel wood	Qtl	550.00
40	Gelatine 80 per cent	kg	98.00
41	Graded stone aggregate	cum	1029.00
42	Hand Broken Metal 40 mm size	cum	1022.00
43	Key Aggregates passing 22.4 mm and retained on 2.8 mm	cum	1117.00
44	Lime	t	11793.00
45	Loose stone for filling	cum	600.00
46	RCC Pipe NP2 (1200 mm dia) i/c collars	m	4596.00
47	RCC Pipe NP2 (1000 mm dia) i/c collars	m	3242.00
48	RCC Pipe NP2 (900 mm dia) i/c collars	m	2625.00
49	RCC Pipe NP3 (900 mm dia) i/c collars	m	5141.00
50	Road marking paint	litre	300.00
51	Sand (Coarse)	cum	1156.00
52	Sand (Fine)	cum	1167.00
53	Steel Reinforcement (HYSD Bars)	t	59875.00
54	Steel Reinforcement (MS Round Bars)	t	58000.00
55	Steel Reinforcement (TMT Bars)	t	59875.00
56	Stone Boulder of size 150 mm and below (minimum 25 kg net)	cum	700.00
57	Stone Chips 12 mm size	cum	1268.00
58	Stone Chips 13.2 mm to 5.6 mm	cum	1277.00
59	Stone Crushed Aggregate 11.2 mm to 0.09 mm	cum	1345.00

Sr. No.	Description	Unit	Av. Rate
60	Stone for Coarse Rubble Masonry 1st Sort	cum	800.00
61	Stone for Coarse Rubble Masonry 2nd Sort	cum	800.00
62	Stone for Random Rubble Masonry	cum	700.00
63	Stone for Stone Set Pavement (300 mm x 200 mm x 150 mm)	No.	21.00
64	Stone Screening - Type A 13.2 mm for Grading-1	cum	1274.00
65	Stone Screening - Type A 13.2 mm for Grading-2	cum	1274.00
66	Steel (ISMC) 100 mm	t	55110.00
67	Stone Screening - Type B 11.2 mm for Grading-2	cum	1274.00
68	Stone Screening - Type B 11.2 mm for Grading-3	cum	1274.00
69	Water	kl	102.00
70	Well graded Granular Base Material - Grading A 2.36 mm below	cum	1004.00
71	Well graded Granular Base Material - Grading A 26.5 mm to 4.75 mm	cum	959.00
72	Well graded Granular Base Material - Grading A 53 mm to 26.5 mm	cum	916.00
73	Well graded Granular Base Material - Grading B 2.36 mm below	cum	932.00
74	Well graded Granular Base Material - Grading B 26.5 mm to 4.75 mm	cum	924.00
75	Well graded Granular Base Material - Grading C 2.36 mm below	cum	906.00
76	Well graded Granular Base Material - Grading C 2.36 mm below	cum	927.00
77	Well Graded Material for Sub-Base - Grading I 2.36 mm below	cum	899.00
78	Well Graded Granular sub-base material of Grading-I as per table 400.1 of Specification.	cum	985.00
79	Well Graded Granular sub-base material of Grading-II as per table 400.1 of Specification.	cum	924.00
80	Well Graded Granular sub-base material of Grading-III as per table 400.1 of Specification.	cum	914.00
81	Well Graded Gravel/Soil aggregate base material of Grading-A as per table 400.2 of Specification.	cum	920.00
82	Well Graded Gravel/Soil aggregate base material of Grading-B as per table 400.2 of Specification.	cum	938.00
83	Well Graded Gravel/Soil aggregate base material of Grading-C as per table 400.2 of Specification.	cum	946.00
84	Well Graded Gravel/Soil aggregate surface course material as per table 400.3 of Specification.	cum	922.00
85	Well Graded Gravel/Soil aggregate base material of nominal maximum size 80 mm as per table 2.3 of IRC SP 77-2008.	cum	929.00

Sr. No.	Description	Unit	Av. Rate
86	Well Graded Gravel/Soil aggregate base material of nominal maximum size 40 mm as per table 2.3 of IRC SP 77-2008.	cum	935.00
87	Well Graded Gravel/Soil aggregate base material of nominal maximum size 20 mm as per table 2.3 of IRC SP 77-2008.	cum	936.00
88	Well Graded Gravel/Soil aggregate base material of nominal maximum size 10 mm as per table 2.3 of IRC SP 77-2008.	cum	910.00
89	Well Graded Gravel/Soil aggregate base material of nominal maximum size 5 mm as per table 2.3 of IRC SP 77-2008.	cum	958.00
90	Apoxy Primer	Ltr.	206.00
91	Apoxy Paint	Ltr.	374.00
92	Steel paint	Ltr.	293.00
93	1.6 mm thick MS Sheet strengthed by 25mmX5mm MS flat iron on logo and middle plate angle iron 25mm X 25 mm X 5 mm on bottom plate painting with steve enameled paint on both sides as per MORD specification.	Per Sqm	1451.00
94	PVC pipe 100 mm dia.	Per rmt.	200.00
95	G.I.Wire	Per Kg.	82.00
96	Granular material (Natural occuring, soil gravel mixture / quarry waste, Kankar, laterite, dhandla.	Per Cum	376.00
97	1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications	Per Sqm	1554.00
98	Cement Primer as per specifications	Ltr.	149.00
99	Paint conforming to requirement of Clause 1701.3.8	Ltr.	312.00
100	Compensation for earth taken from private land	Cum	63.00
101	Corrosion resistant structural steel grating including 5 per cent wastage	Kg	151.00
102	G I pipe 100 mm dia	Mtr.	837.00
103	MS tubes	Kg	91.00
104	Angle iron	kg	70.00
105	Wire mesh 50mm x 50mm size of 3mm wire	kg	155.00
106	Epoxy	kg	213.00
107	Accelerator compound for guniting @ 4 per cent of weight of cement	kg	156.00
108	Nipples	each	155.00

Sr. No.	Description	Unit	Av. Rate
109	Pre-packed polymer concrete based on epoxy system complete with curing compound, intiator and promoter including 5 per cent wastage.	kg	17.00
110	Epoxy resin-hardener mix for prime coat	kg	1804.00
111	Epoxy mortar	kg	2738.00
112	Epoxy resin -hardener mix for seal coat.	kg	1784.00
113	Quick setting compound	kg	106.00
114	Acrylic polymer bonding coat	Litre	289.00
115	Pre-packed cement based polymer mortar of strength 45 Mpa at 28 days	kg	17.00
116	Epoxy resin with pot life not less than 60-90 minutes and satisfying testing as per clause 2803.9	kg	1796.00
117	HTS strand including 5 per cent wastage and extra length for jacking	tonne	138583.00
118	HDPE pipes 90 mm dia including 5 per cent wastage	metre	264.00
119	HDPE pipes 75mm dia including 5 per cent wastage	metre	218.00
120	Tube anchorage set complete with bearing plate, permanent wedges etc	each	481.00
121	MS plates for deviator (where deviator blocks are not provided)	tonne	58919.00
122	v) Wooden packing	cum	60000.00
123	MS Bolt and nuts	kg	85.00
124	Polyester trinagular synthetic fibres	kg	427.00
125	Galvanised steel wire crates of mesh size 100 mm x 100 mm woven with 4mm dia. GI wire in rolls of required size.	sqm	190.00
126	Permeable synthetic geotextile including 5 per cent for overlap and wastage	sqm	180.00
127	4mm GI wire crates woven in mesh size of 100 mm x 100 mm.	sqm	190.00
128	Admixture @ 0.4 per cent of cement	kg	160.00
129	H.T. Strand @ 9.42 kg/m including 2 per cent for wastage and extra length for jacking	tonne	138583.00
130	Sheathing duct ID 66 mm along with 5 per cent extra length 40 x 1.05 = 42 m.	metre	245.00
131	i) Bitumen 80/100 or 60/70 or 30/40 @ 10.2 per cent by weight of mix. 2 x 10.2/100 = 0.204	tonne	40159.00
132	ii) Crusher stone dust @ 31.9 per cent by weight of mix = 2 x 31.9/100 = 0.638 tonnes = 0.638/1.625 = 0.39	cum	1156.00
133	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 x 17.92/100 = 0.36	tonne	7725.00
134	Pre-coated stone chips of 9.5 mm nominal size for skid resistance = 72.46x0.005/10 = 0.036	cum	1100.00

Sr. No.	Description	Unit	Av. Rate
135	Corrosion resistant Structural steel including 5 per cent wastage	Kg	115.00
136	GI pipe 100mm dia	metre	800.00
137	GI bolt 10 mm Dia	each	10.00
138	Galvanised MS flat clamp	each	180.00
139	LDO for steam curing	Litre	60.00
140	Helical pipes 600mm diameter	metre	7000.00
141	Tie rods 20mm diameter	each	120.00
142	Galvanised M.S plate 200 mm wide,12 mm thick @ 94.20 kg/sqm including 5 per cent wastage	kg	80.00
143	Copper plate - 12m long x 250 mm wide	kg	900.00
144	20 mm thick compressible fibre board 12 m long x 25 cm deep.	sqm	500.00
145	Premoulded joint filler 12 m long,20 mm thick and 300 mm deep.	sqm	1900.00
147	Polymer modified bitumen	kg	61.26
148	Galvanised structural steel plate 200 mm wide,6 mm thick, 12 m long (2.4 sqm) @ 47.10 kg/sqm including 5 per cent wastage	kg	110.00
149	Supply of elastomeric slab seal expansion joint assembly manufactured by using chloroprene, elastomer for elastomeric slab unit conforming to clause 915.1 of IRC: 83 (part II), complete as per approved drawings and standard specification conforming to clause 2606 of MoRT&H Specification	metre	8500.00
150	Galvanised angle sections 100mm x 100mm of 12mm thickness weldable structural steel as per IS: 2062.	kg	105.00
151	Preformed continuous chloroprene elastomer or closed cell foam sealing element with high tear strength, vulcanised in a single operation for the full length of a joint to ensure water tightness.	metre	19300.00
152	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	22000.00
153	Supply of a modular strip/box seal joint assembly comprising of edge beams, central beam,2 modules chloroprene seal, anchorage elements, support and control system, all steel sections protected against corrosion and installed by the manufacturer or his authorised representative.	metre	25000.00
154	Supply of a modular box/box seal joint assembly containing 3 modules/cells and comprising of edge beams, two central beams, chloroprene seal, anchorage elements, support and control system, all steel sections protected against corrosion and installed by the manufacturer or his authorised representative.	metre	30000.00
155	Cast steel rocker bearing assembly of 250 tonne design load capacity duly painted complete with all its components as per drawing and specifications	each.	75000.00

Sr. No.	Description	Unit	Av. Rate
156	Forged steel roller bearing of 250 tonne design load capacity duly painted complete with all its components as per drawing and specifications	each.	110000.00
157	PTFE sliding plate bearing assembly of 80 tonnes design load capacity duly painted complete with all its components as per drawing and Technical Specifications	each.	180000.00
158	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.	each.	90000.00
159	Supply of sliding plate bearing of 80 tonne design capacity complete as per drawings and Technical Specifications.	each.	55000.00
160	Pot type bearing assembly consisting of a metal piston supported by a disc, PTFE pads providing sliding surfaces against stainless steel mating together with cast steel assemblies / fabricated structural steel assemblies duly painted with all components as per clause 2006 and complete as per drawings and Technical Specifications.	each.	180000.00
161	Bitumen VG-10	t	40159.00
162	Bitumen VG-30	t	40960.00
163	Bitumen (Durapave Emulsion CSS-2)	t	48688.00
.	NEW ITEMS:		
164	Hot applied thermoplastic compound	Litre	165.00
165	Reflectorising glass beads	kg	95.00
166	Polythene sheet 125 micron	sqm	7.00
167	Bituminous sealant 800 ml per joint for 23 joints	litre	225.00
168	Jute rope 12 mm dia including 5 per cent wastage	m	12.00
169	Debonding strips 3.75 m (length) x 10 mm (width) x 5 mm (thick) cut-out of rubber filler board or similar material including 5 per cent wastage	m	12.00
170	Polythene sheathing, covering 2/3rd dowel bars (20x23) and tight fit including 5 per cent wastage	No.	10.00
171	Plasticizer 0.5 per cent by weight of cement	litre	170.00
172	Corrugated sheet,3 mm thick, "W" beam section railing,4.5 m in length	kg	61.00
173	Channel post 150 x 75 x 5 mm,1.8 m long,3 Nos @ 16.4 kg per metre	kg	61.00
174	Spacer 150 x 75 x 5 mm channel 0.33 m long,3 Nos @ 16.4 kg per metre	kg	61.00
175	Delineators from ISI certified firm as per the standard drawing given in IRC - 79	each	399.00
176	Inter-locking blocks of approved shape, thickness and size		
i)	80 mm thick	sqm	925.36
ii)	60 mm thick	sqm	753.20
177	Edge blocks	m	138.80

					CHAPTER - 1					
	LOADING, UNLOADING, CARRIAGE, CRUSHING OF MATERIALS AND SETTING OUT									
	Preamble:									
1	The rate analysis of loading and unloading of various items include stacking.									
2	The rate analysis for loading and unloading has been given both by manual and mechanical means. Means of loading/unloading appropriate to the work and site is to be adopted.									
3	The rate analysis for haulage of materials has been made in terms of tonne-kilometre (t.km) for ease of adoption depending upon the lead in km and load in tonnes.									
4	The cost of carriage will vary depending upon the riding surface of the road. Provision has accordingly been made considering surfaced roads, unsurfaced gravel roads and katcha tracks.									
5	Analysis for carriage of materials is exclusive of the loading, unloading and stacking and this has to be added as applicable.									
6	Carriage of materials if done by boats shall be paid at the same rates as given for carriage of materials by road.									

CHAPTER - 1

LOADING, UNLOADING, CARRIAGE CRUSHING OF MATERIALS AND SETTING OUT

Notes:

1 Rates are for net quantities after deduction of voids.

2 Part of km beyond 1 km will be payable for the full km.

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
1	**1.1**		**Loading and Unloading of Lime, Aggregate, Stone Boulder, Brick Aggregate, Kankar, Building Rubbish, Crushed Slag, Stone for Masonry Work by Manual Means**				
			(i) Loading of Lime, Aggregate, Stone Boulder, Brick Aggregate, Kankar, Building Rubbish, Crushed Slag, Stone for Masonry Work by manual means including a lead upto 30 m				
			Unit = cum				
			Taking output = 5.5 cum				
			a) Labour				
			Mate	day	0.02	350.00	7.00
			Mazdoor (Unskilled)	day	0.50	350.00	175.00
			b) Machinery				
			Truck	hour	0.50	589.00	294.50
							476.50
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				59.56
							536.06
			Add 1% labour cess on a+b+c.				5.36
			Cost for 5.5 cum =				541.42
			Rate per cum =				98.44
			Add 12% GST				11.81
							110.25
							Say Rs. 110.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			(ii) Loading of Earth, Sand, Moorum, Manure, Flyash by manual means including a lead upto 30 m				
			Unit = cum				
			Taking output = 5.5 cum				
			a) Labour				
			Mate	day	0.01	350.00	3.50
			Mazdoor (Unskilled)	day	0.25	350.00	87.50
			b) Machinery				
			Truck	hour	0.25	589.00	147.25
							238.25
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				29.78
							268.03
			Add 1% labour cess on a+b+c.				2.68
			Cost for 5.5 cum = a+b+c+d				270.71
			Rate per cum = (a+b+c+d)/5.5				49.22
			Add 12% GST				5.91
							55.13
						Say Rs.	**55.00**
			(iii) Unloading lime aggregate, stone boulder, brick aggregate, kankar, building rubbish, crushed slag, stone for masonary work by manual means including a lead upto 30 m				
			Unit = cum				
			Taking output = 5.5 cum				
			a) Labour				
			Mate	day	0.01	350.00	3.50
			Mazdoor (Unskilled)	day	0.25	350.00	87.50
			b) Machinery				
			Truck	hour	0.25	589.00	147.25

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
							238.25
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				29.78
							268.03
			Add 1% labour cess on a+b+c.				2.68
			Cost for 5.5 cum =				270.71
			Rate per cum =				49.22
			Add 12% GST				5.91
							55.13
							Say Rs. 55.00
			(iv) Unloading of Earth, Sand, Moorum, Manure, Flyash by manual means including a lead upto 30 m				
			Unit = cum				
			Taking output = 5.5 cum				
			a) Labour				
			Mate	day	0.005	350.00	1.75
			Mazdoor (Unskilled)	day	0.125	350.00	43.75
			b) Machinery				
			Truck	hour	0.166	589.00	97.77
							143.27
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				17.91
							161.18
			Add 1% labour cess on a+b+c.				1.61
			Cost for 5.5 cum =				162.80
			Rate per cum =				29.60
			Add 12% GST				3.55
							33.15
							Say Rs. 33.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
2	**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, Building Rubbish, Crushed Slag, Stone for Masonry Work by mechanical means including a lead upto 30 m Placing tipper at loading point, loading with front end loader excluding time for haulage and return trip.				
			Unit = cum				
			Taking output = 5.5 cum				
			Time required for				
			i) Positioning of tipper at loading point	Min	1.00		
			ii) Loading by front end loader 1 cum bucket capacity @ 45 cum per hour	Min	7.33		
			iii) Waiting time, unforeseen contingencies, etc.	Min	2.00		
			Total	**Min**	**10.33**		
			a) Machinery				
			(i) Tipper 10 t capacity	hour	0.172	570.00	98.04
			(ii) Front end-loader 1 cum bucket capacity @ 45 cum per hour	hour	0.122	1,321.00	161.16
							259.20
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				32.40
							291.60
			Add 1% labour cess on a+b+c.				2.92
			Cost for 5.5 cum = a+b+c				294.52

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Rate per cum = (a+b+c) /5.5				53.55
			Add 12% GST				6.43
							59.97
						Say Rs.	**60.00**
			(ii) Loading of Earth, Sand, Moorum, Manure, Flyash by mechanical means including a lead upto 30 m.				
			Placing tipper at loading point, loading with front end loader excluding time for haulage and return trip.				
			Unit = cum				
			Taking output = 5.5 cum				
			Time required for				
			i) Positioning of tipper at loading point	Min	1.00		
			ii) Loading by front end loader 1 cum bucket capacity @ 100 cum per hour	Min	3.30		
			iii) Waiting time, unforeseen contingencies, etc.	Min	2.00		
			Total	**Min**	**6.30**		
			a) Machinery				
			(i) Tipper 10 t capacity	hour	0.105	570.00	59.85
			(ii) Front end-loader 1 cum bucket capacity @ 100 cum per hour	hour	0.055	1,321.00	72.66
							132.51
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				16.56
							149.07
			Add 1% labour cess on a+b+c.				1.49
			Cost for 5.5 cum = a+b+c				150.56
			Rate per cum =				27.37
			Add 12% GST				3.28
							30.66
						Say Rs.	**31.00**

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			(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		
			ii) Manoeuvering, reversing, dumping and turning for return	Min	2.00		
			iii) Waiting time, unforeseen contingencies, etc.	Min	2.00		
			Total	**Min**	**5.00**		
			a) Machinery				
			Tipper 10 t capacity	hour	0.08	570.00	45.60
							45.60
			b) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a)				5.70
							51.30
			Add 1% labour cess on a+b.				0.51
			Cost for 5.5 cum				51.81
			Rate per cum =				9.42
			Add 12% GST				1.13
							10.55
						Say Rs. 11.00	
3	**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				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Mate	day	0.01	350.00	3.50
			Mazdoor (Unskilled)	day	0.25	350.00	87.50
			b) Machinery				
			Truck	hour	0.33	589.00	194.37
							285.37
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				35.67
							321.04
			Add 1% labour cess on a+b+c.				3.21
			Cost for 2000 Nos. =				324.25
			Rate for 1000 bricks =				162.13
			Add 12% GST				19.46
							181.58
							Say Rs. 182.00
			(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	350.00	3.50
			Mazdoor (Unskilled)	day	0.25	350.00	87.50
			b) Machinery				
			Truck	hour	0.33	589.00	194.37
							285.37
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				35.67
							321.04
			Add 1% labour cess on a+b+c.				3.21
			Cost for 2000 Nos. =				324.25
			Rate for 1000 bricks =				162.13
			Add 12% GST				19.46
							181.58

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
							Say Rs. 182.00
4	**1.4**		**Loading and Unloading of Cement by Manual Means**				
			(i) Loading of Cement by manual means including a lead upto 30 m Unit = t Taking output = 10 t				
			a) Labour				
			Mate	day	0.06	350.00	21.00
			Mazdoor (Unskilled)	day	1.50	350.00	525.00
			b) Machinery				
			Truck	hour	1.00	589.00	589.00
							1,135.00
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				141.88
							1,276.88
			Add 1% labour cess on a+b+c.				12.77
			Cost for 10 t =				1,289.64
			Rate per tonnes =				128.96
			Add 12% GST				15.48
							144.44
							Say Rs. 144.00
			(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	350.00	21.00
			Mazdoor (Unskilled)	day	1.50	350.00	525.00
			b) Machinery				
			Truck	hour	1.00	589.00	589.00
							1,135.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				141.88
							1,276.88
			Add 1% labour cess on a+b+c.				12.77
			Cost for 10 t =				1,289.64
			Rate per tonne =				128.96
			Add 12% GST				15.48
							144.44
							Say Rs. 144.00
5	**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	350.00	24.50
			Mazdoor (Unskilled)	day	1.80	350.00	630.00
			b) Machinery				
			Truck	hour	1.00	589.00	589.00
							1,243.50
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				155.44
							1,398.94
			Add 1% labour cess on a+b+c.				13.99
			Cost for 10 t =				1,412.93
			Rate per tonnes =				141.29
			Add 12% GST				16.96
							158.25
							Say Rs. 158.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			(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	350.00	24.50
			Mazdoor (Unskilled)	day	1.80	350.00	630.00
			b) Machinery				
			Truck	hour	1.00	589.00	589.00
							1,243.50
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				155.44
							1,398.94
			Add 1% labour cess on a+b+c.				13.99
			Cost for 10 t =				1,412.93
			Rate per t =				141.29
			Add 12% GST				16.96
							158.25
							Say Rs. 158.00
6	**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	350.00	21.00
			Mazdoor (Unskilled)	day	1.60	350.00	560.00
			b) Machinery				
			Truck	hour	1.25	589.00	736.25
							1,317.25
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				164.66
							1,481.91

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Add 1% labour cess on a+b+c.				14.82
			Cost for 10 t =				1,496.73
			Rate per t =				149.67
			Add 12% GST				17.96
							167.63
							Say Rs. 168.00
			(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	350.00	17.50
			Mazdoor (Unskilled)	day	1.20	350.00	420.00
			b) Machinery				
			Truck	hour	1.25	589.00	736.25
							1,173.75
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				146.72
							1,320.47
			Add 1% labour cess on a+b+c.				13.20
			Cost for 10 t =				1,333.67
			Rate per t =				133.37
			Add 12% GST				16.00
							149.37
							Say Rs. 149.00
		Note:	*The rate is inclusive of the self weight of drum*				
7	**1.7**	**100**	**Loading and Unloading of Timber by Manual Means**				
			(i) Loading of Timber by manual means including a lead upto 30 m				
			Unit = t				
			Taking output = 5 t				
			a) Labour				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Mate	day	0.04	350.00	14.00
			Mazdoor (Unskilled)	day	1.00	350.00	350.00
			b) Machinery				
			Truck	hour	1.00	589.00	589.00
							953.00
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				119.13
							1,072.13
			Add 1% labour cess on a+b+c.				10.72
			Cost for 5 t =				1,082.85
			Rate per t =				216.57
			Add 12% GST				25.99
							242.56
						Say Rs.	**243.00**
			(ii) Unloading of Timber by manual means including a lead upto 30 m Unit = t Taking output = 5 t				
			a) Labour				
			Mate	day	0.04	350.00	14.00
			Mazdoor (Unskilled)	day	1.00	350.00	350.00
			b) Machinery				
			Truck	hour	1.00	589.00	589.00
							953.00
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				119.13
							1,072.13
			Add 1% labour cess on a+b+c.				10.72
			Cost for 5 t =				1,082.85
			Rate per t =				216.57
			Add 12% GST				25.99
							242.56
						Say Rs.	**243.00**

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Note: *Density of wood has been assumed as 900 kg per cum. If the density is less the output may be reduced proportionately*				
8	**1.8**		**Loading and Unloading of C.C. Blocks, Kerb, etc.**				
			(i) Loading with care C.C. Blocks, km Stone, 200 m Stone, Boundary Pillar, Kerb, Channel, Bond Stone, etc. by manual means including a lead upto 30 m				
			Unit = cum				
			Taking output = 5.5 cum				
			a) Labour				
			Mate	day	0.08	350.00	28.00
			Mazdoor (Unskilled)	day	2.00	350.00	700.00
			b) Machinery				
			Truck	hour	1.50	589.00	883.50
							1,611.50
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				201.44
							1,812.94
			Add 1% labour cess on a+b+c.				18.13
			Cost for 5.5 cum =				1,831.07
			Rate per cum =				332.92
			Add 12% GST				39.95
							372.87
							Say Rs. 373.00
			(ii) Unloading with care C.C. Blocks, km Stone, 200 m Stone, Boundary Pillar, Kerb, Channel, Bond Stone, etc. by manual means including a lead upto 30 m				
			Unit = cum				
			Taking output = 5.5 cum				
			a) Labour				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Mate	day	0.08	350.00	28.00
			Mazdoor (Unskilled)	day	2.00	350.00	700.00
			b) Machinery				
			Truck	hour	1.50	589.00	883.50
							1,611.50
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				201.44
							1,812.94
			Add 1% labour cess on a+b+c.				18.13
			Cost for 5.5 cum =				1,831.07
			Rate per cum =				332.92
			Add 12% GST				39.95
							372.87
							Say Rs. 373.00
9	**1.9**		**Loading and Unloading of Hume Pipes**				
			(i) Loading of RCC Hume pipes by mechanical means including a lead upto 30 m				
			A. 900/1000 / 1200 mm dia Hume pipe				
			Unit = per pipe				
			Taking output = 9 pipes				
			a) Labour				
			Mate	day	0.02	350.00	7.00
			Mazdoor (Unskilled)	day	0.50	350.00	175.00
			b) Machinery				
			Truck	hour	0.33	589.00	194.37
			Crane	hour	0.33	680.00	224.40
							600.77
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				75.10
							675.87
			Add 1% labour cess on a+b+c.				6.76

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Cost for 9 pipes =				682.62
			Rate per pipe =				75.85
			Add 12% GST				9.10
							84.95
							Say Rs. 85.00
			B. 750 mm dia Hume pipe				
			Unit = per pipe				
			Taking output = 15 pipes				
			a) Labour				
			Mate	day	0.02	350.00	7.00
			Mazdoor (Unskilled)	day	0.50	350.00	175.00
			b) Machinery				
			Truck	hour	0.33	589.00	194.37
			Crane	hour	0.33	680.00	224.40
							600.77
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				75.10
							675.87
			Add 1% labour cess on a+b+c.				6.76
			Cost for 15 pipes =				682.62
			Rate per pipe =				45.51
			Add 12% GST				5.46
							50.97
							Say Rs. 51.00
			C. 600/500/300 mm dia Hume pipe				
			Unit = per pipe				
			Taking output = 21 pipe				
			a) Labour				
			Mate	day	0.02	350.00	7.00
			Mazdoor (Unskilled)	day	0.50	350.00	175.00
			b) Machinery				
			Truck	hour	0.33	589.00	194.37
			Crane	hour	0.33	680.00	224.40

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
							600.77
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				75.10
							675.87
			Add 1% labour cess on a+b+c.				6.76
			Cost for 21 pipes =				682.62
			Rate per pipe =				32.51
			Add 12% GST				3.90
							36.41
							Say Rs. 36.00
			(ii) Unloading of RCC Hume pipe by manual means including a lead upto 30 m				
			A. 900/1000/1200 mm dia RCC Hume pipes				
			Unit = per pipe				
			Taking output = 5 pipes				
			a) Labour				
			Mate	day	0.04	350.00	14.00
			Mazdoor (Unskilled)	day	1.00	350.00	350.00
			b) Machinery				
			Truck	hour	2.00	589.00	1,178.00
			c) Material				
			Wooden sleepers 250mm x 250mm x125mm hire charges 3 nos sleeper	hour	2.00	25.00	50.00
			Crow bars 2 nos not less than 40 mm dia (hire-charges)	hour	2.00	1.00	2.00
							1,594.00
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				199.25
							1,793.25

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Add 1% labour cess on a+b+c.				17.93
			Cost for 5 pipes =				1,811.18
			Rate per pipe =				362.24
			Add 12% GST				43.47
							405.70
						Say Rs.	**406.00**
			B. 750 mm dia Hume pipe				
			Unit = per pipe				
			Taking output = 6 pipes				
			a) Labour				
			Mate	day	0.04	350.00	14.00
			Mazdoor (Unskilled)	day	1.00	350.00	350.00
			b) Machinery				
			Truck	hour	2.00	589.00	1,178.00
			c) Materials			-	
			Wooden sleepers 250mm x250mm x 125mm hire charges 3 nos. sleeper	hour	2.00	25.00	50.00
			Crow bars 2 nos not less than 40 mm dia	hour	2.00	1.00	2.00
							1,594.00
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				199.25
							1,793.25
			Add 1% labour cess on a+b+c.				17.93
			Cost for 6 pipes =				1,811.18
			Rate per pipe =				301.86
			Add 12% GST				36.22
							338.09
						Say Rs.	**338.00**
			C. 600/500/300 mm dia Hume pipe				
			Unit = per pipe				
			Taking output = 8 pipes				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			a) Labour				
			Mate	day	0.04	350.00	14.00
			Mazdoor (Unskilled)	day	1.00	350.00	350.00
			b) Machinery			-	
			Truck	hour	2.00	589.00	1,178.00
			c) Materials			-	
			Wooden sleepers 250mm x 250mm x 125mm hire charges 3 nos. sleeper	hour	2.00	25.00	50.00
			Crow bars 2 nos not less than 40 mm dia	hour	2.00	1.00	2.00
							1,594.00
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				199.25
							1,793.25
			Add 1% labour cess on a+b+c.				17.93
			Cost for 8 pipes =				1,811.18
			Rate per pipe =				226.40
			Add 12% GST				27.17
							253.57
						Say Rs.	**254.00**
			(iii) Unloading of RCC Hume pipes by mechanical means including a lead upto 30 m				
			A. 900/1000/1200 mm dia Hume pipe				
			Unit = per pipe				
			Taking output = 9 pipes				
			a) Labour				
			Mate	day	0.02	350.00	7.00
			Mazdoor (Unskilled)	day	0.50	350.00	175.00
			b) Machinery				
			Truck	hour	0.20	589.00	117.80
			Crane	hour	0.20	680.00	136.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
							435.80
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				54.48
							490.28
			Add 1% labour cess on a+b+c.				4.90
			Cost for 9 pipes =				495.18
			Rate per pipe =				55.02
			Add 12% GST				6.60
							61.62
							Say Rs. 62.00
			B. 750 mm dia Hume pipe				
			Unit = per pipe Taking output = 15 pipes				
			a) Labour				
			Mate	day	0.02	350.00	7.00
			Mazdoor (Unskilled)	day	0.50	350.00	175.00
			b) Machinery				
			Truck	hour	0.20	589.00	117.80
			Crane	hour	0.20	680.00	136.00
							435.80
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				54.48
							490.28
			Add 1% labour cess on a+b+c.				4.90
			Cost for 15 pipes =				495.18
			Rate per pipe =				33.01
			Add 12% GST				3.96
							36.97
							Say Rs. 37.00
			C. 600/500/300 mm dia Hume pipe				
			Unit = per pipe Taking output = 21 pipes				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			a) Labour				
			Mate	day	0.02	350.00	7.00
			Mazdoor (Unskilled)	day	0.50	350.00	175.00
			b) Machinery				
			Truck	hour	0.20	589.00	117.80
			Crane	hour	0.20	680.00	136.00
							435.80
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				54.48
							490.28
			Add 1% labour cess on a+b+c.				4.90
			Cost for 21 pipes =				495.18
			Rate per pipe =				23.58
			Add 12% GST				2.83
							26.41
							Say Rs. 26.00
10	**1.10**		**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	570.00	228.00
			Empty return trip	hour	0.29	570.00	165.30
							393.30
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				49.16
							442.46
			Add 1% labour cess on a+b+c.				4.42
			Cost for 100 t.km =				446.89
			Rate per t.km =				4.47

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Add 12% GST				0.54
							5.01
							Say Rs. 5.00
			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	570.00	285.00
			Empty return trip	hour	0.33	570.00	188.10
							473.10
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				59.14
							532.24
			Add 1% labour cess on a+b+c.				5.32
			Cost for 100 t.km =				537.56
			Rate per t.km =				5.38
			Add 12% GST				0.65
							6.02
							Say Rs. 6.00
			Case-III Katcha Track and Track in River				
			Speed with load: 10 km per hour				
			Speed while returning empty: 15 km per hour				
			a) Machinery				
			i) Tipper 10 t capacity				
			Haulage with load	hour	1.00	570.00	570.00
			Empty return trip	hour	0.67	570.00	381.90
							951.90
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				118.99

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
							1,070.89
			Add 1% labour cess on a+b+c.				10.71
			Cost for 100 t.km = a+b+c				1,081.60
			Rate per t.km = (a+b+c)/100				10.82
			Add 12% GST				1.30
							12.11
						Say Rs.	**12.00**
11	**1.11**		**Haulage excluding Loading & Unloading** Haulage of materials by truck excluding cost of loading, unloading and stacking. I) Hume pipe 900/1000/1200 mm dia Unit =per pipe Taking output 8 t load and lead 10 km = 9 pipes **Case-I : Surfaced Road** Speed with load: 25 km per hour Speed while returning empty: 35 km per hour				
			a) Machinery				
			Truck 8 t capacity				
			Haulage with load	hour	0.40	570.00	228.00
			Empty return trip	hour	0.29	570.00	165.30
							393.30
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				49.16
							442.46
			Add 1% labour cess on a+b+c.				4.42
			Cost for 9 pipe =				446.89
			Rate per pipe =				49.65
			Add 12% GST				5.96
							55.61
						Say Rs.	**56.00**
			Haulage excluding Loading & Unloading Haulage of materials by truck excluding cost of loading, unloading and stacking.				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			II) Hume pipe 750 mm dia				
			Unit =per pipe				
			Taking output 8 t load and lead 10 km = 15 pipes				
			Case-I : Surfaced Road				
			Speed with load: 25 km per hour				
			Speed while returning empty: 35 km per hour				
			a) Machinery				
			Truck 8 t capacity				
			Haulage with load	hour	0.40	570.00	228.00
			Empty return trip	hour	0.29	570.00	165.30
							393.30
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				49.16
							442.46
			Add 1% labour cess on a+b+c.				4.42
			Cost for 15 pipe =				446.89
			Rate per pipe =				29.79
			Add 12% GST				3.58
							33.37
						Say Rs.	**33.00**
			III) Hume pipe 600/500/300 mm dia				
			Unit =per pipe				
			Taking output 8 t load and lead 10 km = 21 pipes				
			Case-I : Surfaced Road				
			Speed with load: 25 km per hour				
			Speed while returning empty: 35 km per hour				
			a) Machinery				
			Truck 8 t capacity				
			Haulage with load	hour	0.40	570.00	228.00
			Empty return trip	hour	0.29	570.00	165.30
							393.30

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				49.16
							442.46
			Add 1% labour cess on a+b+c.				4.42
			Cost for 21 pipe =				446.89
			Rate per pipe =				21.28
			Add 12% GST				2.55
							23.83
							Say Rs. 24.00
			Case-II: Unsurfaced Gravel Road				
			Speed with load: 20 km/hour				
			Speed for empty return trip: 30 km/hour				
			Taking output 8 t load and lead 10 km=9 pipe				
			I) Hume pipe 900/1000/1200 mm dia				
			a) Machinery				
			Truck 8 t capacity				
			Haulage with load	hour	0.50	570.00	285.00
			Empty return trip	hour	0.33	570.00	188.10
							473.10
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				59.14
							532.24
			Add 1% labour cess on a+b+c.				5.32
			Cost for 9 pipe =				537.56
			Rate per pipe =				59.73
			Add 12% GST				7.17
							66.90
							Say Rs. 67.00
			Taking output 8 t load and lead 10 km=15 pipe				
			II) Hume pipe 750 mm dia				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			a) Machinery				
			Truck 8 t capacity				
			Haulage with load	pipe/km	0.50	570.00	285.00
			Empty return trip	pipe/km	0.33	570.00	188.10
							540.10
			b) d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a)				67.51
							607.61
			Add 1% labour cess on a+b.				6.08
			Cost for 15 pipe =				613.69
			Rate per pipe =				40.91
			Add 12% GST				4.91
							45.82
						Say Rs.	**46.00**
			Taking output 8 t load and lead 10 km=21 pipe				
			III) Hume pipe 600/500/300 mm dia				
			a) Machinery				
			Truck 8 t capacity				
			Haulage with load	pipe/km	0.50	570.00	285.00
			Empty return trip	pipe/km	0.33	570.00	188.10
							519.10
			b) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a)				64.89
							583.99
			Add 1% labour cess on a+b.				5.84
			Cost for 21 pipe = a+b+c				589.83
			Rate per pipe = (a+b+c)/21				28.09
			Add 12% GST				3.37
							31.46

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)

Say Rs. 31.00

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

Taking output 8 t load and lead 10 km=9 pipe

I) Hume pipe 900/1000/1200 mm dia

a) Machinery

Truck 8 t capacity

Haulage with load	pipe/km	1.00	570.00	570.00
Empty return trip	pipe/km	0.67	570.00	381.90
				951.90
b) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a)				118.99
				1,070.89
Add 1% labour cess on a+b.				10.71
Cost for 9 pipe =				1,081.60
Rate per pipe =				120.18
Add 12% GST				14.42
				134.60

Say Rs. 135.00

Taking output 8 t load and lead 10 km=15 pipe

II) Hume pipe 750 mm dia

a) Machinery

Truck 8 t capacity

Haulage with load	pipe/km	1.00	570.00	570.00
Empty return trip	pipe/km	0.67	570.00	381.90
				1,086.90
b) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a)				135.86

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
							1,086.90
			Add 1% labour cess on a+b.				10.87
			Cost for 15 pipe =				1,097.77
			Rate per pipe =				73.18
			Add 12% GST				8.78
							81.97
							Say Rs. 82.00
			Taking output 8 t load and lead 10 km=21 pipe				
			III) Hume pipe 600/500/300 mm dia				
			a) Machinery				
			Truck 8 t capacity				
			Haulage with load	pipe/km	1.00	570.00	570.00
			Empty return trip	pipe/km	0.67	570.00	381.90
							1,033.90
			b) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a)				129.24
							1,033.90
			Add 1% labour cess on a+b.				10.34
			Cost for 21 pipe =				1,044.24
			Rate per pipe =				49.73
			Add 12% GST				5.97
							55.69
							Say Rs. 56.00

CHAPTER - 2

SITE CLEARANCE

	Preamble:
1	Unless otherwise stated, the rates include sorting and disposal of unserviceable material and stacking of serviceable material with all lifts and upto a lead of 1000 m.
2	The rates include Tools & Plants (T&P) and scaffolding required for items of dismantling.
3	Carriage of dismantled materials, bushes, branches of tree, etc. has been catered with a tractor-trolley of 3 tonnes capacity with manual loading and unloading @ 2 trips per hour within a lead of 1000 m. This will be economical for such works as compared with a tipper.
4	In case where lead for disposal is more than 1000 m, extra cost of carriage is required to be added based on tonne-kilometerage as per Chapter 1 for the purpose of justification.
5	All minor Tools & Plants (T&P) items required for dismantling have been considered to have been included in overhead charges.

CHAPTER – 2

SITE CLEARANCE

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
12	2.2	201	**Clearing and Grubbing Road Land** Clearing and grubbing road land including uprooting wild vegetation, grass, bushes, shrubs, saplings and trees of girth upto 300 mm, removal of stumps of such trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned, upto a lead of 1000 m including removal and disposal of top organic soil not exceeding 150 mm in thickness as per Technical Specification Clause 201.				
			(I) By Mechanical Means				
			(A) **In area of non-thorny jungle**				
			a) Labour				
			Mate	day	0.16	350.00	56.00
			Mazdoor (Unskilled)	day	4.00	350.00	1,400.00
			b) Machinery				
			Dozer D 50 with attachment or suitable machinery for removal of trees & stumps	hour	10.00	3,142.00	31,420.00
			Tractor with Trolley	hour	1.00	581.00	581.00
							33,457.00
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				4,182.13
							37,639.13

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Add 1% labour cess on a+b+c.				376.39
			Rate per hectare =				38,015.52
			Add 12% GST				4,561.86
							42,577.38
							Say Rs. 42,577.00
			(B) **In area of thorny jungle**				
			a) Labour				
			Mate	day	0.24	350.00	84.00
			Mazdoor (Unskilled)	day	6.00	350.00	2,100.00
			b) Machinery				
			Dozer D 50 with attachment for removal of trees & stumps	hour	12.00	3,142.00	37,704.00
			Tractor with trolley	hour	1.50	581.00	871.50
							40,759.50
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				5,094.94
							45,854.44
			Add 1% labour cess on a+b+c.				458.54
			Rate per hectare =				46,312.98
			Add 12% GST				5,557.56
							51,870.54
							Say Rs. 51,871.00

CHAPTER-3

EARTHWORK, EROSION CONTROL AND DRAINAGE

	Preamble:
1	The rates have been analysed using mechanical means. Manual means for certain items have also been provided which can be used for areas inaccessible to machines and also for small jobs.
2	In the rate analyses of earthwork, compacted volume of earth has been considered.
3	Cutting of earth by dozer has been proposed where the cut earth can be utilized for filling for embankment within a lead upto 100 m.
4	Where lead for transporting of earth is more than 100 m, excavator and tipper have been provided.
5	The rate caters for disposal of unsuitable soil only upto a distance of 1 km. The cost of transportation beyond the initial lead of 1 km will be paid separately based on tonne-kilometerage for the purpose of justification.
6	The replacement of unsuitable soil by suitable soil shall be provided separately in the estimate. The rate analysis for removal of unsuitable soil does not provide for replacement by suitable soil.
7	Earth excavated from drains can be used in roadway berms. Hence carriage for disposal of same is not provided.
8	For widening of existing pavement less than 1.8 m, the rates for all items of this Chapter may be increased by 30 per cent.

Chapter – 3
EARTHWORK, EROSION CONTROL AND DRAINAGE

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
13	3.4	301.5	**Construction of Embankment with Material Obtained from Borrow Pits**				
			Construction of embankment with approved material obtained from borrow pits with a lift upto 1.5 m, transporting to site, spreading, grading to required slope and compacting to meet requirement of Tables 300.1 and 300.2 with a lead upto 1000 m as per Technical Specification Clause 301.5				
			Unit = cum				
			Taking output = 100 cum				
			a) **Labour**				
			Mate	day	0.04	350.00	14.00
			Mazdoor (Unskilled)	day	1.00	350.00	350.00
			b) **Machinery**				
			Hydraulic Excavator 0.9 cum bucket capacity @ 60 cum per hour	hour	1.67	1,080.00	1,803.60
			Tipper 5.5 cum with 10 t capacity	hour	4.50	570.00	2,565.00
			Loading of earth as per item 1.1 (ii)	cum	100.00	55.00	5,500.00
			Unloading of earth as per item 1.1 (iv)	cum	100.00	33.00	3,300.00
			Dozer D-50 for spreading @ 200 cum per hour	hour	0.50	3,142.00	1,571.00
			Motor grader for grading @ 200 cum per hour	hour	0.50	2,230.00	1,115.00
			Water tanker 6 kl capacity	hour	2.00	500.00	1,000.00
			Three wheel 80-100 kN Static Roller @ 80 cum per hour	hour	1.25	1,100.00	1,375.00
			c) **Material**				
			Water	kl	12.00	102.00	1,224.00
			Compensation for earth taken from private land	cum	100.00	63.00	6,300.00
							26,117.60
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d)				3,264.70
							29,382.30
			e) Add 1% labour cess on a+b+c.				293.82
			Cost for 100 cum = a+b+c+d+e+f				29,676.12
			Rate per cum = (a+b+c+d+e+f)/100				296.76

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Add 12% GST				35.61
							332.37
							Say Rs. 332.00
14	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	350.00	14.00
			Mazdoor (Unskilled)	day	1.00	350.00	350.00
			b) Machinery				
			Hydraulic excavator 0.9 cum bucket capacity @ 100 cum per hour	hour	1.00	1,080.00	1,080.00
			Tipper 5.5 cum capacity, 4 trips per hour	hour	4.50	570.00	2,565.00
			Add rate for loading as per item 1.1 (ii)	cum	100.00	43.32	4,331.82
			Add rate for unloading as per item 1.1 (iv)	cum	100.00	26.05	2,604.98
			Dozer D-50 for spreading @ 200 cum per hour	hour	0.50	3,142.00	1,571.00
			Motor grader for grading @ 200 cum per hour	hour	0.50	3,513.00	1,756.50
			Water tanker with 6 kl capacity	hour	2.00	500.00	1,000.00
			Three wheel 80-100 kN Static Roller @ 70 cum per hour	hour	1.43	1,100.00	1,573.00
			c) Material				
			Water	kl	12.00	102.00	1,224.00
			Compensation for earth taken from private land	cum	100.00	63.00	6,300.00
							24,370.30
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				3,046.29
							27,416.59

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			e) Add 1% labour cess on a+b+c+d.				274.17
			Cost for 100 cum = a+b+c+d+e				27,690.75
			Rate per cum = (a+b+c+d)/100				276.91
			Add 12% GST				33.23
							310.14
						Say Rs.	**310.00**
15	3.15	303	**(ii) Compacting original ground supporting subgrade**				
			Loosening of the ground upto a level of 300 mm below the subgrade level, watered, graded and compacted in layers to meet requirement of Tables 300.1 and 300.2 for subgrade construction as per Technical Specification Clause 303.5.2.				
			Unit = cum				
			Taking output = 600 cum				
			a) **Labour**				
			Mate	day	0.24	350.00	84.00
			Mazdoor (Unskilled)	day	6.00	350.00	2,100.00
			b) **Machinery**				
			Tractor with ripper attachment	hour	10.00	687.00	6,870.00
			Motor grader for grading	hour	6.00	3,513.00	21,078.00
			Water tanker 6 kl capacity	hour	4.00	500.00	2,000.00
			Three wheel 80-100 kN Static Roller @ 70 cum per hour	hour	8.60	1,100.00	9,460.00
			c) **Material**				
			Water	kl	24.00	102.00	2,448.00
							44,040.00
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				5,505.00
							49,545.00
			e) Add 1% labour cess on a+b+c+d.				495.45
			Cost for 600 cum = a+b+c+d+e				50,040.45
			Rate per cum = (a+b+c+d+e)/600				83.40
			Add 12% GST				10.01
							93.41
						Say Rs.	**93.00**
16	3.15	301.4	**Compacting Original Ground**				
			(i) Compacting original ground supporting embankment				
			Loosening, Levelling and				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Unit = cum				
			Taking output = 600 cum				
			a) **Labour**				
			Mate	day	0.08	350.00	28.00
			Mazdoor (Unskilled)	day	2.00	350.00	700.00
			b) **Machinery**				
			Tractor with ripper attachment	hour	6.00	687.00	4,122.00
			Three wheel 80-100 kN Static Roller	hour	7.50	1,100.00	8,250.00
			Water tanker 6 kl capacity	hour	4.00	500.00	2,000.00
			c) **Material**				
			Water	kl	24.00	102.00	2,448.00
							17,548.00
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				2,193.50
							19,741.50
			d) Add 1% labour cess on a+b+c.				197.42
			Cost for 600 cum = a+b+c+d+e+f				19,938.92
			Rate per sqm = (a+b+c+d+e+f)/600				33.23
			Add 12% GST				3.99
							37.22
						Say Rs.	**37.00**
17	3.19	307	**(i)** Surface Drains in Soil Construction of unlined surface drains of average cross-sectional area 0.40 sqm in soil to specified lines, grades, levels and dimensions. Excavated material to be used in embankment with a lift upto 3m and lead of 50 m (average lead 25 m) as per Technical Specification Clause 307.				
			Unit = m				
			Taking output = 10 m				
			(A) **Manual Means**				
			a) Labour				
			Mate	day	0.08	350.00	28.00
			Mazdoor (Unskilled)	day	2.00	350.00	700.00
							728.00
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				91.00
							819.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			d) Add 1% labour cess on a+b+c.				8.19
			Cost for 10 m = a+b+c+d				827.19
			Rate per m = (a+b+c+d)/10				82.72
			Add 12% GST				9.93
							92.65
						Say Rs.	**93.00**
			(B) **Mechanical Means**				
			a) Labour				
			Mate	day	0.01	350.00	3.50
			Mazdoor (Unskilled)	day	0.25	350.00	87.50
			b) Machinery				
			Hydraulic excavator 0.9 cum bucket capacity @ 100 cum per hour	hour	0.04	1,080.00	43.20
							134.20
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				16.78
							150.98
			d) Add 1% labour cess on a+b+c.				1.51
			Cost for 10 m = a+b+c+d				152.48
			Rate per m = (a+b+c+d)/10				15.25
			Add 12% GST				1.83
							17.08
						Say Rs.	**17.00**
			(ii) Surface Drains in Ordinary Rock				
			Construction of unlined surface drain of average cross-sectional area 0.4 sqm in ordinary rock to specified lines, grades, levels and dimensions as per approved design and Technical Specification Clause 307. Excavated material to be used in embankment at site.				
			Unit = m				
			Taking output = 10 m				
			(A) **Manual Means**				
			a) Labour				
			Mate	day	0.12	350.00	42.00
			Mazdoor (Unskilled)	day	3.00	350.00	1,050.00
							1,092.00
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				136.50
							1,228.50

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			d) Add 1% labour cess on a+b+c.				12.29
			Cost for 10 m = a+b+c+d				1,240.79
			Rate per m = (a+b+c+d)/10				**124.08**
			Add 12% GST				14.89
							138.97
			(B) **Mechanical Means**				**Say Rs. 138.97**
			a) Labour				
			Mate	day	0.02	350.00	7.00
			Mazdoor (Unskilled)	day	0.50	350.00	175.00
			b) Machinery				
			Hydraulic excavator 0.9 cum bucket capacity @ 40 m per hour	hour	0.10	1,080.00	108.00
							290.00
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				36.25
							326.25
			d) Add 1% labour cess on a+b+c.				3.26
			Cost for 10 m = a+b+c+d+e				329.51
			Rate per m = (a+b+c+d+e)/10				32.95
			Add 12% GST				3.95
							36.91
							Say Rs. 37.00
			(iii) Surface Drains in Hard Rock				
			Rate per m may be worked out based on quantity of hard rock as per design.				
			For rate of hard rock cutting, refer relevant item in this Chapter				
			Unit = m				
			Taking output = 10 m				
			(A) **Manual Means**				
			a) Labour				
			Mate	day	0.30	350.00	105.00
			Mazdoor (Unskilled)	day	3.25	350.00	1,137.50
			Chiseller	day	4.00	421.17	163.43
			Blacksmith	day	0.30	403.67	5.93
							1,411.86
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				176.48
							1,588.34
			d) Add 1% labour cess on a+b+c.				15.88

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Cost for 10 m = a+b+c+d				1,604.23
			Rate per m = (a+b+c+d)/10				160.42
			Add 12% GST				19.25
							179.67
						Say Rs.	**180.00**
			(B) **Mechanical Means**				
			a) Labour				
			Mate	day	0.03	350.00	10.50
			Mazdoor (Unskilled)	day	0.75	350.00	262.50
			b) Machinery				
			Hydraulic excavator 0.9 cum bucket capacity @ 40 m per hour	hour	0.30	1,080.00	324.00
							597.00
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				74.63
							671.63
			d) Add 1% labour cess on a+b+c.				6.72
			Cost for 10 m = a+b+c+d				678.34
			Rate per m = (a+b+c+d)/10				67.83
			Add 12% GST				8.14
							75.97
						Say Rs.	**76.00**

CHAPTER – 4

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

Preamble:		
1	Quantities of materials provided are approximate and are meant for the purpose of estimating only. Actual quantities shall be as per mix design.	
2	For construction of sub-base, two alternatives as under have been provided.	
	a.	Mix in place method
	b.	Plant mix method
3	Construction of shoulders: - Earthen, Hard and Paved shoulders have been considered, the rates applicable are for subgrade, sub-base and different layers of pavement respectively.	
4	In the case of improvement of subgrade with lime stabilization, soil is assumed to be available at the site and has not been provided for. Only lime has been catered. In the case of lime stabilization of sub-base, soil has been provided to form the sub-base.	
5	While providing for the rate of materials, detailed local enquires should be made and prevailing market rates ascertained from concerned suppliers in the area keeping in view the location of crushing plants and lead involved.	
6	The quantities considered in the output are the compacted quantities. The quantities of aggregates provided in the rate analysis under the head material are the uncompacted quantities.	
7	The extra Cost of Carriage, including loading, unloading is required to be added based on Tonne - Kilometerage as per Chapter -I for the purpose of justification.	

Chapter – 4
GRANULAR SUB-BASES, BASES (NON-BITUMINOUS) AND SHOULDERS

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
18	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 Tractor mount 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.				
			(i) **For Grading I Material**				
			Unit = cum				
			Taking output = 300 cum				
			a) Labour				
			Mate	day	0.48	350.00	168.00
			Mazdoor (Skilled)	day	2.00	350.00	700.00
			Mazdoor (Unskilled)	day	10.00	350.00	3,500.00
			b) Machinery				
			Tractor mount Grader 110 @ 25 cum per hour	hour	12.00	700.00	8,400.00
			Three wheel 80-100 kN static roller @ 10 cum per hour	hour	30.00	1,100.00	33,000.00
			Tractor with Rotavator 25 cum per hour	hour	12.00	688.00	8,256.00
			Water tanker 6 kl capacity	hour	5.00	500.00	2,500.00
			c) Material				
			Well graded granular sub-base material as per Table 400.1	cum	360.00	985.00	3,54,600.00
			Water	kl	30.00	102.00	3,060.00
							4,14,184.00
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				51,773.00
							4,65,957.00
			e) Add 1% labour cess on a+b+c+d.				4,659.57

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Cost for 300 cum = a+b+c+d+e				4,70,616.57
			Rate per cum = (a+b+c+d+e)/300				1,568.72
			Add 12% GST				188.25
							1,756.97
						Say Rs.	**1,757.00**
			(ii) **For Grading II Material**				
			Unit = cum				
			Taking output = 300 cum				
			a) Labour				
			Mate	day	0.48	350.00	168.00
			Mazdoor (Skilled)	day	2.00	350.00	700.00
			Mazdoor (Unskilled)	day	10.00	350.00	3,500.00
			b) Machinery				
			Tractor mount Grader 110 @ 25 cum per hour	hour	12.00	700.00	8,400.00
			Three wheel 80-100 kN static roller @ 10 cum per hour	hour	30.00	1,100.00	33,000.00
			Tractor with Rotavator 25 cum per hour	hour	12.00	688.00	8,256.00
			Water tanker 6 kl capacity	hour	5.00	500.00	2,500.00
			c) Material				
			Well graded granular sub-base material as per Table 400.1	cum	360.00	924.00	3,32,640.00
			Water	kl	30.00	102.00	3,060.00
							3,92,224.00
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				49,028.00
							4,41,252.00
			e) Add 1% labour cess on a+b+c+d.				4,412.52
			Cost for 300 cum = a+b+c+d+e				4,45,664.52
			Rate per cum =				1,485.55
			Add 12% GST				178.27
							1,663.81
						Say Rs.	**1,664.00**
			(iii) **For Grading III Material**				
			Unit = cum				
			Taking output = 300 cum				
			a) Labour				
			Mate	day	0.48	421.17	202.16

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Mazdoor (Skilled)	day	2.00	350.00	700.00
			Mazdoor (Unskilled)	day	10.00	350.00	3,500.00
			b) Machinery				
			Tractor mount Grader 110 @ 25 cum per hour	hour	12.00	700.00	8,400.00
			Three wheel 80-100 kN static roller @ 10 cum per hour	hour	30.00	1,100.00	33,000.00
			Tractor with Rotavator 25 cum per hour	hour	12.00	688.00	8,256.00
			Water tanker 6 kl capacity	hour	5.00	500.00	2,500.00
			c) Material				
			Well graded granular sub-base material as per Table 400.1	cum	360.00	914.00	3,29,040.00
			Water	kl	30.00	102.00	3,060.00
							3,88,658.16
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				48,582.27
							4,37,240.43
			e) Add 1% labour cess on a+b+c+d.				4,372.40
			Cost for 300 cum = a+b+c+d+e				4,41,612.83
			Rate per cum =				1,472.04
			Add 12% GST				176.65
							1,648.69
							Say Rs. 1,649.00
18	4.1	401	**(B)** Plant Mix Method				
			Construction of granular sub-base by providing well graded material, mixing in a mechanical mix plant at OMC, carriage of mixed material to work site upto lead of 1000 m spreading in uniform layers with motor grader on prepared surface and compacting with smooth wheel roller to achieve the desired density, complete as per Technical Specification Clause 401				
			(i) **For Grading I Material** Unit = cum Taking output = 225 cum (450 t)				
			a) Labour				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Mate	day	0.40	350.00	140.00
			Mazdoor (Skilled)	day	2.00	350.00	700.00
			Mazdoor (Unskilled)	day	8.00	350.00	2,800.00
			b) Machinery				
			Wet mix plant @ 60 t capacity per hour	hour	7.50	1,500.00	11,250.00
			Water tanker 6 kl capacity 5 km lead with one trip per hour	hour	4.00	500.00	2,000.00
			Front end loader 0.9 cum bucket capacity 25 cum per hour	hour	9.00	1,281.00	11,529.00
			Tipper 5.5 cum @ 3 trips per hour	hour	13.60	570.00	7,752.00
			Motor grader 110 HP @ 50 cum per hour	hour	4.50	2,318.00	10,431.00
			Three wheel 80-100 kN static roller 10 cum per hour	hour	22.50	1,100.00	24,750.00
			c) Material				
			Well graded granular sub-base material as per Table 400.1				
			53 mm to 9.5 mm @ 50 per cent	cum	144.00	924.00	1,33,056.00
			9.5 mm to 2.36 mm @ 20 per cent	cum	57.00	985.00	56,145.00
			2.36 mm below @ 30 per cent	cum	86.40	899.00	77,673.60
			Water	kl	24.00	102.00	2,448.00
							3,40,674.60
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				42,584.33
							3,83,258.93
			e) Add 1% labour cess on a+b+c+d.				3,832.59
			Cost for 225 cum = a+b+c+d+e				3,87,091.51
			Rate per cum =				1,720.41
			Add 12% GST				206.45
							1,926.86
							Say Rs. 1,927.00
			(ii) **For Grading II Material**				
			Unit = cum				
			Taking output = 225 cum (450 t)				
			a) Labour				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Mate	day	0.40	350.00	140.00
			Mazdoor (Skilled)	day	2.00	350.00	700.00
			Mazdoor (Unskilled)	day	8.00	350.00	2,800.00
			b) Machinery				
			Wet mix plant @ 60 t capacity per hour	hour	7.50	1,500.00	11,250.00
			Water tanker 6 kl capacity 5 km lead with one trip per hour	hour	4.00	500.00	2,000.00
			Front end loader 0.9 cum bucket capacity 25 cum per hour	hour	9.00	1,281.00	11,529.00
			Tipper 5.5 cum, 3 trips per hour	hour	13.60	570.00	7,752.00
			Motor grader 110 HP @ 50 cum per hour	hour	4.50	2,318.00	10,431.00
			Three wheel 80-100 kN static roller 10 cum output	hour	22.50	1,100.00	24,750.00
			c) Material				
			Well graded granular sub-base material as per Table 400.1				
			26.5 mm to 9.5 mm @ 35 per cent	cum	100.80	959.00	96,667.20
			9.5 mm to 2.36 mm @ 25 per cent	cum	72.00	927.00	66,744.00
			2.36 mm below @ 40 per cent	cum	115.20	899.00	1,03,564.80
			Water	kl	24.00	102.00	2,448.00
							3,40,776.00
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				42,597.00
							3,83,373.00
			e) Add 1% labour cess on a+b+c+d.				3,833.73
			Cost for 225 cum = a+b+c+d+e				3,87,206.73
			Rate per cum =				1,720.92
			Add 12% GST				206.51
							1,927.43
							Say Rs. 1,927.00
			(iii) **For Grading III Material**				
			Unit = cum				
			Taking output = 225 cum (450 t)				
			a) Labour				
			Mate	day	0.40	350.00	140.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Mazdoor (Skilled)	day	2.00	350.00	700.00
			Mazdoor (Unskilled)	day	8.00	350.00	2,800.00
			b) Machinery				
			Wet mix plant @ 60 t capacity per hour	hour	7.50	1,500.00	11,250.00
			Water tanker 6 kl capacity 5 km lead with one trip per hour	hour	4.00	500.00	2,000.00
			Front end loader 0.9 cum bucket capacity 25 cum per hour	hour	9.00	1,281.00	11,529.00
			Tipper 5.5 cum, 3 trips per hour	hour	13.60	570.00	7,752.00
			Motor grader 110 HP @ 50 cum per hour	hour	4.50	2,318.00	10,431.00
			Three wheel 80-100 kN static roller 10 cum output	hour	22.50	1,100.00	24,750.00
			c) Material				
			Well graded granular sub-base material as per Table 400.1				
			9.5 mm to 4.75 mm @ 35 per cent	cum	100.80	927.00	93,441.60
			4.75 mm to 2.36 mm @ 12.5 per cent	cum	36.00	914.00	32,904.00
			2.36 mm below @ 52.5 per cent	cum	151.20	899.00	1,35,928.80
			Water	kl	24.00	102.00	2,448.00
							3,36,074.40
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				42,009.30
							3,78,083.70
			e) Add 1% labour cess on a+b+c+d.				3,780.84
			Cost for 225 cum = a+b+c+d+e				3,81,864.54
			Rate per cum =				1,697.18
			Add 12% GST				203.66
							1,900.84
							Say Rs. 1,901.00
19	4.2	402	**i) Gravel/Soil-Aggregate Base (Table 400.2) Grading A**				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Construction of gravel/soil-aggregate base by providing well graded material, spreading in uniform layers with Tractor mount grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with three wheel 80-100 kN static roller to achieve the desired density, complete as per Technical Specifications Clause 402				
			Unit = cum				
			Taking output = 300 cum				
			a) **Labour**				
			Mate	day	0.40	350.00	140.00
			Mazdoor (Skilled)	day	2.00	350.00	700.00
			Mazdoor (Unskilled)	day	8.00	350.00	2,800.00
			b) **Machinery**				
			Tractor mount grader @ 25 cum per hour	hour	12.00	700.00	8,400.00
			Three wheel 80-100 kN static roller @ 10 cum per hour	hour	30.00	1,100.00	33,000.00
			Water tanker 6 kl capacity	hour	5.00	295.00	1,475.00
			Tractor with Rotavator 25 cum per hour	hour	12.00	688.00	8,256.00
			c) **Material**				
			For well graded granular sub-base materials as per Table 400.2	cum	360.00	920.00	3,31,200.00
			Water	kl	30.00	102.00	3,060.00
							3,89,031.00
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				48,628.88
							4,37,659.88
			e) Add 1% labour cess on a+b+c+d.				4,376.60
			Cost for 300 cum = a+b+c+d+e				4,42,036.47
			Rate per cum = (a+b+c+d+e)/300				1,473.45
			Add 12% GST				176.81
							1,650.27
							Say Rs. 1,650.00
			ii) Gravel/Soil-Aggregate Base (Table 400.2) Grading B				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Construction of granular sub-base by providing well graded material, spreading in uniform layers with Tractor mount grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with three wheel 80-100 kN static roller capacity to achieve the desired density, complete as per Technical Specification Clause 402				
			Unit = cum				
			Taking output = 300 cum				
			a) **Labour**				
			Mate	day	0.40	350.00	140.00
			Mazdoor (Skilled)	day	2.00	350.00	700.00
			Mazdoor (Unskilled)	day	8.00	350.00	2,800.00
			b) **Machinery**				
			Tractor mount grader @25 cum per hour	hour	12.00	700.00	8,400.00
			Three wheel 80-100 kN static roller @ 10 cum per hour	hour	30.00	1,100.00	33,000.00
			Water tanker 6 kl capacity	hour	5.00	500.00	2,500.00
			Tractor with Rotavator 25 cum per hour	hour	12.00	688.00	8,256.00
			c) **Material**				
			For well graded granular sub-base materials as per Table 400.2	cum	360.00	938.00	3,37,680.00
			Water	kl	30.00	102.00	3,060.00
							3,96,536.00
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				49,567.00
							4,46,103.00
			e) Add 1% labour cess on a+b+c+d.				4,461.03
			Cost for 300 cum = a+b+c+d+e				4,50,564.03
			Rate per cum = (a+b+c+d+e)/300				1,501.88
			Add 12% GST				180.23
							1,682.11
							Say Rs. 1,682.00
			iii) Gravel/Soil-Aggregate Base (Table 400.2) Grading C				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Construction of granular sub-base by providing well graded material, spreading in uniform layers with Tractor mount grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with three wheel 80-100 kN static roller capacity to achieve the desired density, complete as per Technical Specification Clause 402				
			Unit = cum				
			Taking output = 300 cum				
			a) **Labour**				
			Mate	day	0.40	421.17	168.47
			Mazdoor (Skilled)	day	2.00	350.00	700.00
			Mazdoor (Unskilled)	day	8.00	350.00	2,800.00
			b) **Machinery**				
			Tractor mount grader @ 25 cum per hour	hour	12.00	700.00	8,400.00
			Three wheel 80-100 kN static roller @ 10 cum per hour	hour	30.00	1,100.00	33,000.00
			Water tanker 6 kl capacity	hour	5.00	500.00	2,500.00
			Tractor with Rotavator 25 cum per hour	hour	12.00	688.00	8,256.00
			c) **Material**				
			For well graded granular sub-base materials as per Table 400.2	cum	360.00	946.00	3,40,560.00
			Water	kl	30.00	102.00	3,060.00
							3,99,444.47
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				49,930.56
							4,49,375.03
			e) Add 1% labour cess on a+b+c+d.				4,493.75
			Cost for 300 cum = a+b+c+d+e				4,53,868.78
			Rate per cum = (a+b+c+d+e)/300				1,512.90
			Add 12% GST				181.55
							1,694.44
							Say Rs. 1,694.00
20	4.7	405	**Water Bound Macadam Sub-base/base**				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			1) WBM Grading 1 Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing, rolling with three wheel 80-100 kN static roller in stages to proper grade and camber, applying and brooming, stone screening/binding materials to fill-up the interstices of coarse aggregate, watering and compacting to the required density Grading 1 as per Technical Specification Clause 404.				
			(A) **By Manual Means**				
			Unit = cum				
			Taking output = 360 cum				
			a) Labour				
			Mate	day	10.08	350.00	3,528.00
			Mazdoor (Skilled)	day	2.00	350.00	700.00
			Mazdoor (Unskilled)	day	250.00	350.00	87,500.00
			b) Machinery				
			Three wheel 80-100 kN static roller @ 10 cum per hour	hour	36.00	1,100.00	39,600.00
			Water tanker 6 kl capacity	hour	24.00	500.00	12,000.00
			c) Material (Refer Tables 400.7, 8, 9 and 10)				
			Aggregate				
			Grading 1 90 mm to 45 mm @ 1.21 cum per 10 sqm for compacted thickness of 100 mm	cum	435.60	900.00	3,92,040.00
			Stone Screenings				
			Type A 13.2 mm for Grading-1 @ 0.27 cum per 10 sqm	cum	97.20	1,220.00	1,18,584.00
			Binding Material				
			Binding Material @ 0.08 cum per 10 sqm for grading 1 material	cum	28.80	82.00	2,361.60
			Water	kl	144.00	102.00	14,688.00
							6,71,001.60
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				83,875.20

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
							7,54,876.80
			e) Add 1% labour cess on a+b+c+d.				7,548.77
			Cost for 360 cum = a+b+c+d+e				7,62,425.57
			Rate per cum =				2,117.85
			Add 12% GST				254.14
							2,371.99
							Say Rs. 2,372.00
			(B) **By Mechanical Means**				
			Unit = cum				
			Taking output = 360 cum				
			a) Labour				
			Mate	day	0.68	350.00	238.00
			Mazdoor (Skilled)	day	2.00	350.00	700.00
			Mazdoor (Unskilled)	day	15.00	350.00	5,250.00
			b) Machinery				
			Motor grader 110 HP @ 50 cum per hour for spreading	hour	7.20	2,318.00	16,689.60
			Three wheel 80-100 kN static roller @ 10 cum per hour	hour	36.00	1,100.00	39,600.00
			Water tanker 6 kl capacity	hour	24.00	500.00	12,000.00
			c) Material (Refer Tables 400.7, 8, 9 and 10)				
			Aggregate				
			Grading 1 90 mm to 45 mm @ 1.21 cum per 10 sqm for compacted thickness of 100 mm	cum	435.60	900.00	3,92,040.00
			Stone Screening				
			Type A 13.2 mm for Grading-1 @ 0.27 cum per 10 sqm	cum	97.20	1,220.00	1,18,584.00
			Binding Material				
			Binding Material @ 0.08 cum per 10 sqm for Grading 2 material	cum	28.80	82.00	2,361.60
			Water	kl	144.00	102.00	14,688.00
							6,01,913.20
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				75,239.15
							6,77,152.35
			e) Add 1% labour cess on a+b+c+d.				6,771.52
			Cost for 360 cum = a+b+c+d+e				6,83,923.87

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Rate per cum =				1,899.79
			Add 12% GST				227.97
							2,127.76
							Say Rs. 2,128.00
			2) WBM Grading 2				
			Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing, rolling with smooth wheel roller 80-100 kN in stages to proper grade and camber, applying and brooming, stone screening/ binding materials to fill-up the interstices of coarse aggregate, watering and compacting to the required density grading 2 as per Technical Specification Clause 405.				
			(A) **By Manual Means**				
			Unit = cum				
			Taking output = 360 cum				
			a) Labour				
			Mate	day	10.08	350.00	3,528.00
			Mazdoor (Skilled)	day	2.00	350.00	700.00
			Mazdoor (Unskilled)	day	250.00	350.00	87,500.00
			b) Machinery				
			Three wheel 80-100 kN static roller @ 8 cum per hour	hour	45.00	1,100.00	49,500.00
			Water tanker 6 kl capacity	hour	24.00	500.00	12,000.00
			c) Material (Refer Tables 400.7, 8, 9 and 10)				
			Aggregate				
			Grading 2 63 mm to 45 mm @ 0.91 cum per 10 sqm for compacted thickness of 75 mm	cum	435.60	1,000.00	4,35,600.00
			Stone Screening				
			Type B 11.2 mm for Grading 2 @ 0.20 cum per 10 sqm	cum	96.01	1,274.00	1,22,316.74
			Binding Material				
			Binding Material @ 0.06 cum per 10 sqm for Grading 2 material	cum	28.80	82.00	2,361.60
			Water	kl	144.00	45.00	6,480.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
							7,19,986.34
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				89,998.29
							8,09,984.63
			e) Add 1% labour cess on a+b+c+d.				8,099.85
			Cost for 360 cum = a+b+c+d+e				8,18,084.48
			Rate per cum =				2,272.46
			Add 12% GST				272.69
							2,545.15
							Say Rs. 2,545.00
			(B) **By Mechanical Means**				
			Unit = cum				
			Taking output = 360 cum				
			a) Labour				
			Mate	day	0.68	350.00	238.00
			Mazdoor (Skilled)	day	2.00	350.00	700.00
			Mazdoor (Unskilled)	day	15.00	350.00	5,250.00
			b) Machinery				
			Motor grader 110 HP @ 50 cum per hour for spreading	hour	7.20	2,318.00	16,689.60
			Three wheel 80-100 kN static roller @ 8 cum per hour	hour	45.00	1,100.00	49,500.00
			Water tanker 6 kl capacity	hour	24.00	500.00	12,000.00
			c) Material (Refer Tables 400.7, 8, 9 and 10)				
			Aggregate				
			Grading 2 63 mm to 45 mm @ 0.91 cum per 10 sqm for compacted thickness of 75 mm	cum	435.60	1,000.00	4,35,600.00
			Stone Screening				
			Type B 11.2 mm for Grading 2 @ 0.20 cum per 10 sqm	cum	96.01	1,274.00	1,22,316.74
			Binding Material				
			Binding Material @ 0.06 cum per 10 sqm for Grading 2 material	cum	28.80	82.00	2,361.60
			Water	kl	144.00	102.00	14,688.00
							6,59,343.94
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				82,417.99

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
							7,41,761.93
			e) Add 1% labour cess on a+b+c+d.				7,417.62
			Cost for 360 cum = a+b+c+d+e				7,49,179.55
			Rate per cum =				2,081.05
			Add 12% GST				249.73
							2,330.78
							Say Rs. 2,331.00

Note: Type A Screening can be used in Grading 2

3) WBM Grading 3

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

(A) **By Manual Means**

Unit = cum

Taking output = 360 cum

a)	**Labour**				
	Mate	day	10.08	350.00	3,528.00
	Mazdoor (Skilled)	day	2.00	350.00	700.00
	Mazdoor (Unskilled)	day	250.00	350.00	87,500.00
b)	**Machinery**				
	Three wheel 80-100 kN static roller @ 8 cum per hour	hour	45.00	1,100.00	49,500.00
	Water tanker 6 kl capacity	hour	24.00	500.00	12,000.00
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	1,000.00	4,35,600.00
	Stone Screening				
	Type B 11.2 mm for Grading 3 @ 0.18 cum per 10 sqm	cum	86.40	1,274.00	1,10,073.60
	Water	kl	144.00	102.00	14,688.00
					7,13,589.60

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				89,198.70
							8,02,788.30
			e) Add 1% labour cess on a+b+c+d.				8,027.88
			Cost for 360 cum = a+b+c+d+e				8,10,816.18
			Rate per cum =				2,252.27
			Add 12% GST				270.27
							2,522.54
			Rate per cum =				**2,523.00**
			(B) **By Mechanical Means**				
			Unit = cum				
			Taking output = 360 cum				
			a) Labour				
			Mate	day	0.68	350.00	238.00
			Mazdoor (Skilled)	day	2.00	350.00	700.00
			Mazdoor (Unskilled)	day	15.00	350.00	5,250.00
			b) Machinery				
			Motor grader 110 HP @ 50 cum per hour for spreading	hour	7.20	2,318.00	16,689.60
			Three wheel 80-100 kN static roller @ 8 cum per hour	hour	45.00	1,100.00	49,500.00
			Water tanker 6 kl capacity	hour	24.00	500.00	12,000.00
			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	1,000.00	4,35,600.00
			Stone Screening				
			Type B 11.2 mm for Grading 3 @ 0.18 cum per 10 sqm	cum	86.40	1,274.00	1,10,073.60
			Water	kl	144.00	102.00	14,688.00
							6,44,501.20
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				80,562.65
							7,25,063.85
			e) Add 1% labour cess on a+b+c+d.				7,250.64
			Cost for 360 cum = a+b+c+d+e				7,32,314.49
			Rate per cum =				2,034.21
			Add 12% GST				244.10

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Rate per cum				2,278.31
							Say Rs. 2,278.00
21	**4.9**	**406**	**Wet Mix Macadam** Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the material with water at OMC in mechanical mixer (Pug Mill), carriage of mixed material by tipper to site, laying in uniform layers in sub-base/base course on a well prepared sub-base and compacting with smooth wheel roller of 80 to 100kN weight to achieve the desired density including lighting, barricading and maintenance of diversion, etc as per Tables 400.11 & 400.12 and Technical Specification Clause 406.				
			By Mechanical Means with 1 km lead				
			Unit = cum				
			Taking output = 100 cum				
			a) Labour				
			Mate	day	0.40	350.00	140.00
			Dresser (Skilled) for alignment	day	8.00	350.00	2,800.00
			Mazdoor (Skilled)	day	2.00	350.00	700.00
			b) Machinery				
			Front end loader 1 cum capacity	hour	4.00	1,321.00	5,284.00
			Wet mix plant (Pug Mill)	hour	4.00	1,500.00	6,000.00
			Tipper/Dumper (10-t) capacity	hour	5.00	570.00	2,850.00
			Motor Grader @ 50 cum per hour	hour	2.00	2,318.00	4,636.00
			Water tanker 6 kl capacity	hour	1.33	500.00	665.00
			Three wheel 80-100 kN static roller @ 16 cum per hour	hour	6.25	1,100.00	6,875.00
			c) Material				
			Coarse aggregate 45 mm to 22.4 mm @ 30 per cent	cum	39.90	1,000.00	39,900.00
			Aggregates 22.4 mm to 2.36 mm @ 40 per cent	cum	53.20	1,000.00	53,200.00
			Fine aggregate/Crushed sand 2.36 mm to 75 micron @ 30 per cent	cum	39.90	1,145.00	45,685.50
			Water	kl	8.00	102.00	816.00
							1,69,551.50
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				21,193.94
							1,90,745.44
			e) Add 1% labour cess on a+b+c+d.				1,907.45
			Cost for 100 cum = a+b+c+d+e				1,92,652.89

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Rate per cum = (a+b+c+d+e)/100				1,926.53
			Add 12% GST				231.18
			Rate per cum				2,157.71
							Say Rs. 2,158.00

CHAPTER-5

BASES AND SURFACE COURSES (BITUMINOUS)

	Preamble:
1	Various alternatives for machines and materials have been provided. The one that suits a particular situation and design may be adopted.
2	The outputs considered for construction equipment are for compacted quantities of relevant items and not for loose quantities.
3	In case of prime coat and tack coat, average quantities of binder indicated in specifications have been taken.
4	Tack coat and prime coat, wherever provided, are required to be measured and paid separately.
5	Cleaning of surface is a part of the item of prime coat and tack coat. As such cleaning of surface has not been provided for bituminous courses as the same is already catered in prime/tack coat. However, for those cases where such coats are not required to be done, cleaning of surface shall be included and paid.
6	Rolling of bituminous courses is required to be done as per Clause 504.3.6 of MORD Specifications. Provision in the analysis has been made accordingly. It has been observed during actual practice at work sites, that the availability of road roller is generally inadequate. As compaction is the key to good construction, this point is being specifically highlighted to ensure that adequate number of road rollers as per provision in the rate analysis are deployed at site.
7	Spreading of bituminous materials shall be done by mechanical means except in areas where a mechanical paver cannot have access.
8	Hot Mazdoor is the one who work for Bitumen heating/spreading or spreading of hot bituminous mix. He will be paid the same wages. However, he will be provided safety kits containing normally gumboots, hand gloves, dark goggles, barnol, country soap, coconut oil, tarring outfits, etc. For this purpose, additional 0.5 per cent sundries have been provided in the analysis of rates in addition to the normal sundries covered by overheads.
9	Where the proposed aggregates fail to pass the stripping value test, an approved adhesion agent shall be added to the binder as per Clause 507.2.4 with the approval of the Engineer and cost of the adhesion agent shall be added under the subhead of materials.
10	The Factor for usage of rollers has been taken as 0.65 in case of Bituminous Macadam only.
11	Rate analysis has been given separately using various types of bitumen to facilitate preparation of Standard Schedule of Rates.
12	The extra Cost of Carriage, including loading, unloading is required to be added based on Tonne - Kilometerage as per Chapter -I for the purpose of justification.

CHAPTER – 5

BASES AND SURFACE COURSES (BITUMINOUS)

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
22	5.1	502	**Prime Coat**				
			(i) Low porosity				
			Providing and applying primer coat with bitumen emulsion (Durapave Emulsion CSS-1(H)) 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	350.00	14.00
			Mazdoor (Unskilled)	day	1.00	350.00	350.00
			b) **Machinery**				
			Hydraulic broom @ 1250 sqm per hour	hour	1.40	528.00	739.20
			Air compressor 210 cfm	hour	1.40	488.00	683.20
			Bitumen emulsion pressure distributor @ 1750 sqm per hour	hour	1.00	1,569.00	1,569.00
			Water tanker 6 kl capacity 1 trip per hour	hour	0.50	500.00	250.00
			c) **Material**				
			Bitumen emulsion (SS-1) @ 0.85 kg per sqm	t	1.48	48,356.00	71,566.88
			Water	kl	3.00	102.00	306.00
							75,478.28
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				9,434.79
							84,913.07
			e) Add 1% labour cess on a+b+c+d.				849.13
			Cost of 1750 sqm = a+b+c+d+e				85,762.20
			Rate per sqm = (a+b+c+d+e)/1750				49.01
			Add 12% GST				5.88
			Rate per sqm				54.89

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)

Say Rs. 55.00

23 5.2 503 **Tack Coat**

(i) Providing and applying tack coat with Bitumen emulsion (RS-1) using emulsion distributor at the rate of 0.20 to 0.25 kg per sqm on the prepared bituminous surface cleaned with Hydraulic broom as per Technical Specification Clause 503.

Unit = sqm

Taking output = 1750 sqm

a)	**Labour**				
	Mate	day	0.04	350.00	14.00
	Mazdoor (Unskilled)	day	1.00	350.00	350.00
b)	**Machinery**				
	Hydraulic broom @ 1250 sqm per hour	hour	1.40	528.00	739.20
	Air compressor 210 cfm	hour	1.40	488.00	683.20
	Emulsion pressure distributor @1750 sqm per hour	hour	1.00	950.00	950.00
c)	**Material**				
	Bitumen emulsion (RS-1) @ 0.225 kg per sqm	t	0.39	46,453.00	18,116.67
					20,853.07
d)	Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				2,606.63
					23,459.70
e)	Add 1% labour cess on a+b+c+d.				234.60
Cost of 1750 sqm = a+b+c+d+e					23,694.30
Rate per sqm = (a+b+c+d+e)/1750					13.54
	Add 12% GST				1.62
	Rate per sqm				15.16

Say Rs. 15.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			(ii) Providing and applying tack coat with Bitumen emulsion (RS-1) using emulsion distributor at the rate of 0.25 to 0.30 kg per sqm on the prepared dry and hungry bituminous surface cleaned with Hydraulic broom as per Technical Specification Clause 503.				
			Unit = sqm				
			Taking output = 1750 sqm				
			a) **Labour**				
			Mate	day	0.04	350.00	14.00
			Mazdoor (Unskilled)	day	1.00	350.00	350.00
			b) **Machinery**				
			Hydraulic broom @ 1250 sqm per hour	hour	1.40	528.00	739.20
			Air compressor 210 cfm	hour	1.40	488.00	683.20
			Emulsion pressure distributor @1750 sqm per hour	hour	1.00	1,569.00	1,569.00
			c) **Material**				
			Bitumen emulsion (RS-1) @ 0.275 kg per sqm	t	0.48	46,453.00	22,297.44
							25,652.84
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				3,206.61
							28,859.45
			e) Add 1% labour cess on a+b+c+d.				288.59
			Cost of 1750 sqm = a+b+c+d+e				29,148.04
			Rate per sqm = (a+b+c+d+e)/1750				16.66
			Add 12% GST				2.00
			Rate per sqm				18.65
							Say Rs. 19.00
			(iii) Providing and applying tack coat with Bitumen emulsion (RS-1) using emulsion distributor at the rate of 0.25 to 0.30 kg per sqm on the prepared granular surfaces treated with primer & cleaned with Hydraulic broom as per Technical Specification Clause 503.				
			Unit = sqm				
			Taking output = 1750 sqm				
			a) **Labour**				
			Mate	day	0.04	350.00	14.00
			Mazdoor (Unskilled)	day	1.00	350.00	350.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			b) **Machinery**				
			Hydraulic broom @ 1250 sqm per hour	hour	1.40	528.00	739.20
			Air compressor 210 cfm	hour	1.40	488.00	683.20
			Emulsion pressure distributor @1750 sqm per hour	hour	1.00	1,569.00	1,569.00
			c) **Material**				
			Bitumen emulsion (RS-1) @ 0.275 kg per sqm	t	0.48	46,453.00	22,297.44
							25,652.84
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				3,206.61
							28,859.45
			e) Add 1% labour cess on a+b+c+d.				288.59
			Cost of 1750 sqm = a+b+c+d+e				29,148.04
			Rate per sqm = (a+b+c+d+e)/1750				16.66
			Add 12% GST				2.00
			Rate per sqm				18.65
							Say Rs. 19.00
			(iv) Providing and applying tack coat with Bitumen emulsion (RS-1) using emulsion pressure distributor at the rate of 0.30 to 0.35 kg per sqm on the prepared non-bituminous surfaces (cement concrete pavement) cleaned with Hydraulic broom as per Technical Specification Clause 503.				
			Unit = sqm				
			Taking output = 1750 sqm				
			a) **Labour**				
			Mate	day	0.04	350.00	14.00
			Mazdoor (Unskilled)	day	1.00	350.00	350.00
			b) **Machinery**				
			Hydraulic broom @ 1250 sqm per hour	hour	1.40	528.00	739.20
			Air compressor 210 cfm	hour	1.40	488.00	683.20
			Emulsion pressure distributor @1750 sqm per hour	hour	1.00	1,569.00	1,569.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			c) **Material**				
			Bitumen emulsion (RS-1) @ 0.325 kg per sqm	t	0.57	46,453.00	26,478.21
							29,833.61
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				3,729.20
							33,562.81
			e) Add 1% labour cess on a+b+c+d.				335.63
			Cost of 1750 sqm = a+b+c+d+e				33,898.44
			Rate per sqm = (a+b+c+d+e) / 1750				19.37
			Add 12% GST				2.32
			Rate per sqm				21.70
						Say Rs.	**22.00**
24	5.9	508	**20mm thick Open-Graded Premix Carpet using Bituminous (penetration grade / modified bitumen) Binder** Providing, laying and rolling of open-graded premix carpet of 20 mm thickness composed of 13.2 mm to 5.6 mm aggregates either using penetration grade bitumen or emulsion to required line, grade and level to serve as wearing course on a previously prepared base, including mixing in a suitable plant, laying and rolling with a three wheel 80-100 kN static roller capacity, finished to required level and grades to be followed by seal coat of either Type A or Type B or Type C as per Technical Specification Clause 508. **Case - II By Mechanical Means** **(I) Bitumen (VG-10)** Unit = sqm Taking output = 4000 sqm (80 cum)				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			a) **Labour**				
			Mate	day	0.52	350.00	182.00
			Mazdoor (Unskilled)	day	10.00	350.00	3,500.00
			Mazdoor (Skilled)	day	3.00	350.00	1,050.00
			b) **Machinery**				
			HMP 30/40 t per hour	hour	6.00	14,488.00	86,928.00
			Electric generator set 125 KVA	hour	6.00	1,160.00	6,960.00
			Front end loader 1 cum bucket capacity	hour	6.00	1,281.00	7,686.00
			Tipper 5.5 10 t capacity	hour	3.64	570.00	2,074.80
			Paver finisher	hour	6.00	4,300.00	25,800.00
			Three wheel 80-100 kN static roller	hour	16.00	1,100.00	17,600.00
			c) **Material**				
			Bitumen (VG-10) @ 14.60 kg per 10 sqm	t	5.84	40,159.00	2,34,528.56
			Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.27 cum per 10 sqm	cum	108.00	1,220.00	1,31,760.00
							5,18,069.36
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				64,758.67
							5,82,828.03
			e) Add 1% labour cess on a+b+c+d.				5,828.28
			Cost of 4000 sqm = a+b+c+d+e				5,88,656.31
			Rate per sqm = (a+b+c+d+e)/4000				147.16
			Add 12% GST				17.66
			Rate per sqm				164.82
							Say Rs. 165.00
24	5.10	508.2	**20 mm thick Open Graded Premix Carpet using Bitumen Emulsion as per Technical Specification Clause 508.2**				
			Unit = sqm				
			Taking output = 900 sqm (24.3 cum)				
			a) Labour				
			Mate	day	0.80	350.00	280.00
			Mazdoor (Unskilled)	day	18.00	350.00	6,300.00
			Mazdoor (Skilled)	day	2.00	350.00	700.00
			b) Machinery				
			Concrete mixer 0.4/0.28 cum capacity	hour	6.00	350.00	2,100.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Three wheel 80-100 kN static roller	hour	3.60	1,100.00	3,960.00
			c) Material				
			Bitumen emulsion (MS) @ 21.50 kg per 10 sqm	t	1.94	46,239.00	89,703.66
			Crushed stone aggregates 13.2 mm to 5.6 mm @ 0.27 cum per 10 sqm	cum	24.30	1,220.00	29,646.00
							1,32,689.66
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				16,586.21
							1,49,275.87
			e) Add 1% labour cess on a+b+c+d.				1,492.76
			Cost of 900 sqm = a+b+c+d+e				1,50,768.63
			Rate per sqm = (a+b+c+d+e)/900				167.52
			Add 12% GST				20.10
			Rate per sqm				187.62
							Say Rs. 188.00
25	5.12	510	**Seal Coat**				
			Providing and laying seal coat sealing the voids in a bituminous surface laid to the specified levels, grade and cross fall using Type A, Type B and Type C as per Technical Specification Clause 510				
		A.	**By Manual Means**				
		Case - I :	**Type A**				
		(I)	**Bitumen (VG-10)**				
			Unit = sqm				
			Taking output = 7500 sqm (67.5				
			a) Labour				
			Mate	day	0.24	350.00	84.00
			Mazdoor (Unskilled)	day	6.00	350.00	2,100.00
			b) Machinery				
			Hydraulic self propelled chips spreader	hour	6.00	1,200.00	7,200.00
			Tipper 5.5 cum capacity	hour	6.00	570.00	3,420.00
			Front end loader 1 cum bucket capacity	hour	6.00	1,321.00	7,926.00
			Bitumen pressure distributor	hour	6.00	1,569.00	9,414.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Three wheel 80-100 kN static roller	hour	15.00	1,100.00	16,500.00
			c) Material				
			Bitumen (VG-10) @ 9.80 kg per 10 sqm	t	7.35	40,159.00	2,95,168.65
			Crushed stone chipping of 6.7 mm size 100 per cent passing 11.2 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum per 10 sqm	cum	67.50	1,231.00	83,092.50
							4,24,905.15
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				53,113.14
							5,61,110.79
			e) Add 1% labour cess on a+b+c+d.				5,611.11
			Cost of 7500 sqm = a+b+c+d+e				5,66,721.90
			Rate per sqm = (a+b+c+d+e)/7500				75.56
			Add 12% GST				9.07
			Rate per sqm				84.63
			Say Rs.			**Say Rs. 85.00**	
			(II) Bitumen (Durapave Emulsion CSS-2)				
			Unit = sqm				
			Taking output = 7500 sqm (67.5 cum)				
			a) Labour				
			Mate	day	0.24	350.00	84.00
			Mazdoor (Unskilled)	day	6.00	350.00	2,100.00
			b) Machinery				
			Concrete Mixer	hour	18.00	350.00	6,300.00
			Three wheel 80-100 kN static roller	hour	15.00	1,100.00	16,500.00
			c) Material				
			Bitumen (Durapave Emulsion CSS-2) @ 9.80 kg per 10 sqm	t	7.35	48,688.00	3,57,856.80
			Crushed stone chipping of 6.7 mm size 100 per cent passing 11.2 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum per 10 sqm	cum	67.50	1,231.00	83,092.50
							4,65,933.30

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				58,241.66
							5,24,174.96
			e) Add 1% labour cess on a+b+c+d.				5,241.75
			Cost of 7500 sqm = a+b+c+d+e				5,29,416.71
			Rate per sqm = (a+b+c+d+e)/7500				70.59
			Add 12% GST				8.47
			Rate per sqm				79.06
			Say Rs.			**Say Rs.**	**79.00**
			B. By Manual Means				
			Case - I : Type B				
			(I) Bitumen (VG-10)				
			Unit = sqm				
			Taking output = 5000 sqm (30 cum)				
			a) **Labour**				
			Mate	day	0.16	350.00	56.00
			Mazdoor (Unskilled)	day	4.00	350.00	1,400.00
			b) **Machinery**				
			HMP of 30/40 t per hour	hour	2.00	15,000.00	30,000.00
			Electric generator set 125 KVA	hour	2.00	1,160.00	2,320.00
			Front end loader 1 cum bucket capacity	hour	2.00	1,281.00	2,562.00
			Tipper 5.5 10 t capacity	hour	1.36	570.00	775.20
			Paver finisher	hour	2.00	4,300.00	8,600.00
			Three wheel 80-100 kN static roller	hour	10.00	1,100.00	11,000.00
			c) **Material**				
			Bitumen (VG-10) @ 6.80 kg per 10 sqm	t	3.40	40,159.00	1,36,540.60
			Crushed sand defined as passing 2.36 mm sieve and retained on 180 micron sieve applied @ 0.06 cum per 10 sqm	cum	30.00	1,093.00	32,790.00
							2,26,043.80
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				28,255.48
							2,54,299.28

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			e) Add 1% labour cess on a+b+c+d.				
							2,542.99
			Cost of 5000 sqm = a+b+c+d+e				2,56,842.27
			Rate per sqm = (a+b+c+d+e)/5000				51.37
			Add 12% GST				6.16
			Rate per sqm				57.53
						Say Rs.	**58.00**
			By Mechanical Means				
			(I) Bitumen (Durapave Emulsion CSS-2)				
			Unit = sqm				
			Taking output = 5000 sqm (30 cum)				
			a) **Labour**				
			Mate	day	0.16	350.00	56.00
			Mazdoor (Unskilled)	day	4.00	350.00	1,400.00
			b) **Machinery**				
			Concrete Mixer	hour	8.00	350.00	2,800.00
			Three wheel 80-100 kN static roller	hour	10.00	1,100.00	11,000.00
			c) **Material**				
			Bitumen(Durapave Emulsion CSS-2) @ 6.80 kg per 10 sqm	t	3.40	48,688.00	1,65,539.20
			Crushed sand defined as passing 2.36 mm sieve and retained on 180 micron sieve applied @ 0.06 cum per 10 sqm	cum	30.00	1,093.00	32,790.00
							2,13,585.20
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				26,698.15
							2,40,283.35
			e) Add 1% labour cess on a+b+c+d.				2,402.83
			Cost of 5000 sqm = a+b+c+d+e				2,42,686.18
			Rate per sqm = (a+b+c+d+e)/5000				48.54
			Add 12% GST				5.82
			Rate per sqm				54.36
						Say Rs.	**54.00**
			B. By Manual Means				
			Case - I : Type C				
			(I) Bitumen (VG-10)				
			Unit = sqm				
			Taking output = 7500 sqm (67.5				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			a) Labour				
			Mate	day	0.20	350.00	70.00
			Mazdoor (Unskilled)	day	5.00	350.00	1,750.00
			b) Machinery				
			Hydraulic self propelled chips spreader	hour	6.00	1,200.00	7,200.00
			Tipper 5.5 cum capacity	hour	6.00	570.00	3,420.00
			Front end loader 1 cum bucket capacity	hour	6.00	1,281.00	7,686.00
			Bitumen pressure distributor	hour	6.00	1,569.00	9,414.00
			Three wheel 80-100 kN static roller	hour	15.00	1,100.00	16,500.00
			c) Material				
			Bitumen (VG 10) @ 6.50 kg per 10 sqm	t	4.88	40,159.00	1,95,975.92
			Crushed stone chipping of 6.7 mm size 100 per cent passing 9.5 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum per 10 sqm	cum	67.50	1,231.00	83,092.50
							3,25,108.42
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				40,638.55
							3,65,746.97
			e) Add 1% labour cess on a+b+c+d.				3,657.47
			Cost of 7500 sqm = a+b+c+d+e				3,69,404.44
			Rate per sqm = (a+b+c+d+e)/7500				49.25
			Add 12% GST				5.91
			Rate per sqm				55.16
			Say Rs.			**Say Rs. 55.00**	
			(I) Bitumen (Durapave Emulsion CSS-2)				
			Unit = sqm				
			Taking output = 7500 sqm (67.5				
			a) Labour				
			Mate	day	0.20	350.00	70.00
			Mazdoor (Unskilled)	day	5.00	350.00	1,750.00
			b) Machinery				
			Concrete Mixer	hour	18.00	350.00	6,300.00
			Three wheel 80-100 kN static	hour	15.00	1,100.00	16,500.00
			c) Material				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Bitumen (Durapave Emulsion CSS-2) @ 6.50 kg per 10 sqm	t	4.88	48,688.00	2,37,597.44
			Crushed stone chipping of 6.7 mm size 100 per cent passing 9.5 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum per 10 sqm	cum	67.50	1,231.00	83,092.50
							3,45,309.94
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				43,163.74
							3,88,473.68
			e) Add 1% labour cess on a+b+c+d.				3,884.74
			Cost of 7500 sqm = a+b+c+d+e				3,92,358.42
			Rate per sqm = (a+b+c+d+e)/7500				52.31
			Add 12% GST				6.28
			Rate per sqm				58.59
			Say Rs.			**Say Rs. 59.00**	
26	***5.6***	**507**	**Dense Graded Bituminous Macadam**				
		MORTH	Providing and laying dense graded bituminous macadam with 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.0 to 4.5 per cent by weight of total mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specification clause No. 507 complete in all respects.				
			Unit = cum				
			Taking output = 195 cum (450 tonnes)				
			a) Labour				
			Mate	day	0.84	350.00	294.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Mazdoor working with HMP, mechanical broom, paver, roller, asphalt cutter and assistance for setting out lines, levels and layout of construction	day	16.00	350.00	5,600.00
			Skilled mazdoor for checking line &	day	5.00	350.00	1,750.00
			b) Machinery				
			Batch mix HMP @ 75 tonne per hour	hour	6.00	16,800.00	1,00,800.00
			Paver finisher hydrostatic with sensor control @ 75 cum per hour	hour	6.00	4,300.00	25,800.00
			Generator 250 KVA	hour	6.00	1,160.00	6,960.00
			Front end loader 1 cum bucket capacity	hour	6.00	1,281.00	7,686.00
			Tipper 10 tonne capacity	tonne. km	450 x L	5.00	2,250.00
			Add 10 per cent of cost of carriage to cover cost of loading and unloading				225.00
			Smooth wheeled roller 8-10 tonnes for initial break down rolling.	hour	6.00x0.65*	1,432.00	5,584.80
			Vibratory roller 8 tonnes for intermediate rolling.	hour	6.00x0.65*	1,800.00	7,020.00
			Finish rolling with 6-8 tonnes smooth wheeled tandem roller.	hour	6.00x0.65*	1,432.00	5,584.80
			c) Materials				
			Bitumen @ 4.25 per cent of weight of mix	tonne	19.13	40,159.00	7,68,241.67
			Aggregate				
			Total weight of mix = 450 tonnes				
			Weight of bitumen = 19.13 tonnes				
			Weight of aggregate = 450 -19.13 = 430.87 tonnes				
			Taking density of aggregate = 1.5				
			Volume of aggregate = 287.25 cum				
			Grading - I40 mm (Nominal Size)				
			37.5 - 25 mm 22 per cent	cum	63.19	1,298.00	82,020.62
			25 - 10 mm 13 per cent	cum	37.34	1,298.00	48,467.32
			10 -4.75 mm 19 per cent	cum	54.58	1,298.00	70,844.84
			4.75 mm and below 44 per cent	cum	126.39	1,298.00	1,64,054.22
			Filler @ 2 per cent of weight of aggregates.	tonne	8.62	6,875.00	59,262.50
			or				
			Grading - II19 mm (Nominal Size)				
			25 - 10 mm 30 per cent	cum	86.16	1,298.00	1,11,835.68
			10 - 5 mm 28 per cent	cum	80.43	1,298.00	1,04,398.14
			5 mm and below 40 per cent	cum	114.90	1,298.00	1,49,140.20

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Filler @ 2 per cent of weight of aggregates.	tonne	8.62	6,875.00	59,262.50
			* Any one of the alternative may be adopted as per approved design				
		(i)	For Grading I (40 mm nominal size)				1362445.77
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				1,70,305.72
							15,32,751.49
			Add 1% labour cess .				15,327.51
			Cost of 195 cum				15,48,079.01
			Rate per cum /195				7,938.87
			Add 12% GST				952.66
			Rate per cum				8,891.53
							Say Rs. 8,891.50
		(ii)	For GradingII(19 mm nominal size)				13,62,432.79
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				1,70,304.10
							15,32,736.89
			Add 1% labour cess .				15,327.37
			Cost of 195 cum				15,48,064.26
			Rate per cum /195				7,938.79
			Add 12% GST				952.65
			Rate per cum				8,891.45
							Say Rs. 8,891.40
27	***5.7***	**508**	**Semi-Dense Bituminous Concrete**				
			Providing and laying semi dense bituminous concrete with 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.5 to 5 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. 508 complete in all respects				
			Unit = cum				
			Taking output = 195 cum (450 tonnes)				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			a) Labour				
			Mate	day	0.840	350.00	294.00
			Mazdoor working with HMP, mechanical broom, paver, roller, asphalt cutter and assistance for setting out lines, levels and layout of construction	day	16.000	350.00	5600.00
			Skilled mazdoor for checking line & levels	day	5.000	350.00	1750.00
			b) Machinery				
			Batch mix HMP @ 75 tonne per hour	hour	6.000	16,800.00	100800.00
			Paver finisher hydrostatic with sensor control @ 75 cum per hour	hour	6.000	4,300.00	25800.00
			Generator 250 KVA	hour	6.000	1,160.00	6960.00
			Front end loader 1 cum bucket capacity	hour	6.000	1,281.00	7686.00
			Tipper 10 tonne capacity	tonne. km	450 x L	5.00	2250.00
			Add 10 per cent of cost of carriage to cover cost of loading and unloading				225.00
			Smooth wheeled roller 8-10 tonnes for initial break down rolling.	hour	6.00x0.65*	1,432.00	5584.80
			Vibratory roller 8 tonnes for intermediate rolling.	hour	6.00x0.65*	1,800.00	7020.00
			Finish rolling with 6-8 tonnes smooth wheeled tandem roller	hour	6.00x0.65*	1,432.00	5584.80
			c) Material				
			* Grading I: 13 mm (Nominal Size)				
			i) Bitumen@ 4.5 per cent of weight of mix	tonne	20.250	40,159.00	813219.75
			ii) Aggregate				
			Total weight of mix = 450 tonnes				
			Weight of bitumen = 20.25 tonnes				
			Weight of aggregate = 450-20.25 = 429.75 tonnes				
			Taking density of aggregate = 1.5 ton/cum				
			Volume of aggregate = 286.5 cum				
			13.2 - 10 mm20 per cent	cum	57.300	1,220.00	69906.00
			10 - 5 mm 38 per cent	cum	108.870	1,298.00	141313.26
			5 mm and below 40 per cent	cum	114.600	1,298.00	148750.80
			Filler @ 2 per cent of weight of aggregates.	tonne	8.620	6,875.00	59262.50
			or				
			Grading II: 10 mm (Nominal Size)				
			Bitumen@5 per cent of weight of mix weight of mix = 450 tonne	tonne	22.500	40,159.00	903577.50
			Aggregate				
			Total weight of mix = 450 tonnes				
			Weight of bitumen = 22.5 tonnes				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Weight of aggregate = 450 -22.50 = 427.50 tonnes				
			Taking density of aggregate = 1.5 ton/cum				
			Volume of aggregate = 285 cum				
			9.5 - 4.75 mm@ 57 per cent	cum	162.450	1,298.00	210860.10
			4.75 and below@ 41 per cent	cum	116.850	1,298.00	151671.30
			Filler @ 2 per cent of weight of aggregates.	tonne	8.620	6,875.00	59262.50
			*Any one of the alternative may be adopted as per approved design				
		(i)	for Grading I (13 mm nominal size)				1402006.91
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				1,75,250.86
							15,77,257.77
			Add 1% labour cess .				15,772.58
			Cost of 195 cum				15,93,030.35
			Rate per cum /195				8,169.39
			Add 12% GST				980.33
			Rate per cum				9,149.71
						Say Rs.	**9,149.70**
	5.7	**(ii)**	for GradingII(10 mm nominal size)				1494926.00
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				1,86,865.75
							16,81,791.75
			Add 1% labour cess .				16,817.92
			Cost of 195 cum				16,98,609.67
			Rate per cum /195				8,710.82
			Add 12% GST				1,045.30
			Rate per cum				9,756.12
						Say Rs.	**9,756.10**
28	***5.8***	**507**	**Bituminous Concrete**				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Providing and laying bituminous concrete with 100-120 TPH batch type hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 5.4 to 5.6 per cent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 507 complete in all respects				
			Unit = cum				
			Taking output = 191 cum (450 tonnes)				
			a) Labour				
			Mate	day	0.840	350.00	294.00
			Mazdoor working with HMP, mechanical broom, paver, roller, asphalt cutter and assistance for setting out lines, levels and layout of construction	day	16.000	350.00	5600.00
			Skilled mazdoor for checking line & levels	day	5.000	350.00	1750.00
			b) Machinery				
			Batch mix HMP @ 75 tonne per hour	hour	6.000	16,800.00	100800.00
			Paver finisher hydrostatic with sensor control @ 75 cum per hour	hour	6.000	4,300.00	25800.00
			Generator 250 KVA	hour	6.000	1,160.00	6960.00
			Front end loader 1 cum bucket capacity	hour	6.000	1,281.00	7686.00
			Tipper 10 tonne capacity	tonne. km	450 x L	5.00	2250.00
			Add 10 per cent of cost of carriage to cover cost of loading and unloading				225.00
			Smooth wheeled roller 8-10 tonnes for initial break down rolling.	hour	6.00x0.65*	1,432.00	5584.80
			Vibratory roller 8 tonnes for intermediate rolling.	hour	6.00x0.65*	1,800.00	7020.00
			Finish rolling with 6-8 tonnes smooth wheeled tandem roller.	hour	6.00x0.65*	1,432.00	5584.80
			c) Material				
			i) Bitumen@5.5 per cent of weight of mix	tonne	24.750	40,159.00	993935.25

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			ii) Aggregate				
			Total weight of mix = 450 tonnes				
			Weight of bitumen = 22.5 tonnes				
			Weight of aggregate = 450 -24.75 = 425.25 tonnes				
			Taking density of aggregate = 1.5 ton/cum				
			Volume of aggregate = 285 cum				
			* Grading - I-19 mm (Nominal Size)				
			20 - 10 mm 35 per cent	cum	99.750	1,298.00	129475.50
			10 - 5 mm 23 per cent	cum	65.550	1,298.00	85083.90
			5 mm and below 40 per cent	cum	114.000	1,298.00	147972.00
			Filler @ 2 per cent of weight of aggregates.	tonne	8.620	6,875.00	59262.50
			or				
			Grading - II-13 mm (Nominal Size)				
			13.2 - 10 mm30 per cent	cum	85.500	1,220.00	104310.00
			10 - 5 mm 25 per cent	cum	71.250	1,298.00	92482.50
			5 mm and below43 per cent	cum	122.550	1,298.00	159069.90
			Filler @ 2 per cent of weight of aggregates.	tonne	8.620	6,875.00	59262.50
			*Any one of the alternative may be adopted as per approved design				
		(i)	for Grading-I (13 mm nominal size)				1585283.75
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				1,98,160.47
							17,83,444.22
			Add 1% labour cess .				17,834.44
			Cost of 191 cum				18,01,278.66
			Rate per cum /191				9,430.78
			Add 12% GST				1,131.69
			Rate per cum				10,562.47
							Say Rs. 10,562.50
	5.8	**(ii)**	for Grading-II(10 mm nominal size)				1578614.75
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				1,97,326.84
							17,75,941.59
			Add 1% labour cess .				17,759.42
			Cost of 191 cum				17,93,701.01
			Rate per cum /191				9,391.10
			Add 12% GST				1,126.93
			Rate per cum				10,518.04
							Say Rs. 10,518.00
29	***5.14***	**515**	**Mastic Asphalt**				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Providing and laying 25 mm thick mastic asphalt wearing course with paving grade bitumen meeting the requirements given in table 500-29, prepared by using mastic cooker and laid to required level and slope after cleaning the surface, including providing antiskid surface with bitumen precoated finegrained hard stone chipping of 13.2 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 is not less than 1000C, protruding 1 mm to 4 mm over mastic surface, all complete as per clause 515.				
			Unit = sqm				
			Taking output = 35.00 sqm (0.87 cum)				
			a) Labour				
			Mate	day	0.440	350.00	154.00
			Mazdoor	day	10.000	350.00	3500.00
			Mazdoor skilled	day	1.000	350.00	350.00
			b) Machinery				
			Mechanical broom @ 1250 sqm per hour	hour	0.060	528.00	31.68
			Air compressor 250 cfm	hour	0.060	488.00	29.28
			Mastic cooker 1 tonne capacity	hour	6.000	109.00	654.00
			Bitumen boiler 1500 litres capacity	hour	6.000	1,408.00	8448.00
			Tractor for towing and positioning of mastic	hour	1.000	581.00	581.00
			c) Material				
			Base mastic (without coarse aggregates) = 60 per cent				
			Coarse aggregate (6.3mm to 13.2 mm) = 40 per cent .				
			Proportion of material required for mastic asphalt				
			I) Bitumen 85/25 or 30/40 @ 10.2 per cent by weight of mix. 2 x 10.2/100 = 0.204	tonne	0.204	40,960.00	8355.84
			ii) Fine aggregate passing 2.36mm and retained on 0.075mm sieve @ 31.9 per cent by weight of mix = 2 x 31.9/100 = 0.638 tonnes = 0.638/1.625 = 0.39	cum	0.390	900.00	351.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			iii) Lime stone dust filler with calcium content not less than 80 per cent by weight @ 17.92 per cent by weight of mix = 2 x 17.92/100 = 0.36	tonne	0.360	7,725.00	2781.00
			iv) Coarse aggregates 6.3 mm to 13.2 mm @ 40 per cent by weight of mix = 2 x 40/100 = 0.8 MT = 0.8/1.456 = 0.55	cum	0.550	1,277.00	702.35
			v) Pre-coated stone chips of 13.2 mm nominal size for skid resistance = 35 x 0.005/10 = 0.018	cum	0.018	1,277.00	22.99
			vi) Bitumen for coating of chips @ 2 per cent by weight = 0.018 x 1.456 x 2/100 = 0.0005 MT = 0.5kg	kg	0.500	40.96	20.48
							25981.62
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				3,247.70
							29,229.32
			Add 1% labour cess .				292.29
			Cost of 35.00 sqm				29,521.61
			Rate per sqm /35				843.47
			Add 12% GST				101.22
			Rate per sqm				944.69
						Say Rs.	**944.70**
30	***5.18***	**519**	**Bituminous Cold Mix (Including Gravel Emulsion)**				
			Providing, laying and rolling of bituminous cold mix on prepared base consisting of a mixture of unheated mineral aggregate and emulsified or cutback bitumen, including mixing in a plant of suitable type and capacity, transporting, laying, compacting and finishing to specified grades and levels.				
			Unit = cum				
			Taking output = 205 cum (450 tonne)				
		(i)	**Using bitumen emulsion and 9.5 mm or 13.2 mm size aggregate**				
			Composition of mix (450 tonne) is assumed to be as under:-				
			Bitumen Emulsion 8 per cent By weight of total mix				
			Filler 2 per cent				
			Total aggregates 90 per cent				
			Proportion of aggregates				
			19 mm to 9.5 mm25 per cent				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			9.5 mm to 6 mm29 per cent				
			6 mm to 0.075 mm 36 per cent				
			a) Labour				
			Mate	day	0.840	350.00	294.00
			Mazdoor	day	16.000	350.00	5600.00
			Mazdoor skilled	day	5.000	350.00	1750.00
			b) Machinery				
			Drum mix plant for cold mixes of appropriate capacity but not less than 75 tonnes/hour.	hour	6.000	1,888.00	11328.00
			Electric generator 125 KVA	hour	6.000	1,160.00	6960.00
			Front end loader 1 cum bucket capacity	hour	6.000	1,281.00	7686.00
			Tipper 10 tonne capacity	tonne.	450 x L	5.00	2250.00
			Add 10 per cent of cost of carriage to cover cost of loading and unloading				225.00
			Paver finisher	hour	6.000	4,300.00	25800.00
			Pneumatic tyred roller 12-15 tonnes	hour	6.00x0.65*	1,800.00	7020.00
			Smooth wheeled steel tandem roller 6-8 tonnes	hour	6.00x0.65*	1,432.00	5584.80
			c) Material				
			Bitumen emulsion @ 8 per cent	tonne	36.000	52,305.00	1882980.00
			Filler (lime)@ 2 per cent	tonne	9.000	6,875.00	61875.00
			Aggregates size 19 to 9.5 mm - 450 x 0.25 x 1/1.5	cum	75.000	1,227.00	92025.00
			Aggregates size 9.5 to 6 mm - 450 x 0.29 x 1/1.5	cum	87.000	1,231.00	107097.00
			Aggregates size 6 to 0.075 mm - 450 x 0.36 x 1/1.5	cum	108.000	900.00	97200.00
							2315674.80
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				2,89,459.35
							26,05,134.15
			Add 1% labour cess .				26,051.34
			Cost of 205 cum				26,31,185.49
			Rate per sqm /205				12,835.05
			Add 12% GST				1,540.21
			Rate per sqm				14,375.26
						Say Rs.	**14,375.30**
			(Applicable to cases I to IV)				
		Note	1.Density of aggregates has been assumed 1.5 gms/cc				
			2. Tack coat where provided will be measured and paid separately.				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			*3. Though the rollers are required only for 3.5 hours each as per norms of output, but these are required to be available at site for 6 hours as the drum mix plant and the paver would take 6 hours for mixing and paving. To cater for the idle period, their usage rates have been multiplied by a factor of 0.65				
	5.18	**(ii)**	Using bitumen emulsion and 19 mm or 26.5 mm nominal size aggregate				
			Composition of mix (450 tonne) is assumed to be as under:-				
			Bitumen Emulsion 8 per cent				
			Filler2 per cent				
			Total aggregates 90 per cent				
			Proportion of aggregates				
			37.5 mm to 19 mm25 per cent				
			19 mm to 6 mm 30 per cent				
			6 mm to 0.075 mm 35 per cent				
			a) Labour				
			Mate	day	0.840	350.00	294.00
			Mazdoor	day	16.000	350.00	5600.00
			Mazdoor skilled	day	5.000	350.00	1750.00
			b) Machinery				
			Drum mix plant for cold mixes 60-90 tonne per hour producing average output of 75 tonnes per hour	hour	6.000	1,888.00	11328.00
			Electric generator 125 KVA	hour	6.000	1,160.00	6960.00
			Front end loader 1 cum bucket capacity	hour	6.000	1,281.00	7686.00
			Tipper 10 tonne capacity	tonne. km	450 x L	5.00	2250.00
			Add 10 per cent of cost of carriage to cover cost of loading and unloading				225.00
			Paver finisher	hour	6.000	4,300.00	25800.00
			Pneumatic tyred roller 12-15 tonnes	hour	6.00x0.65*	1,800.00	7020.00
			Smooth wheeled steel tandom roller 6-8 tonnes	hour	6.00x0.65*	1,432.00	5584.80
			c) Material				
			Bitumen emulsion @ 8 per cent	tonne	36.000	52,305.00	1882980.00
			Filler (lime)@ 2 per cent	tonne	9.000	6,875.00	61875.00
			Aggregates size 37.5 to 19 mm - 450 x 0.25 x 1/1.5	cum	75.000	1,298.00	97350.00
			Aggregates size 19 to 6 mm - 450 x 0.3 x 1/1.5	cum	90.000	1,298.00	116820.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Aggregates size 6 to 0.075 mm - 450 x 0.35 x 1/1.5	cum	105.000	900.00	94500.00
							2328022.80
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				2,91,002.85
							26,19,025.65
			Add 1% labour cess .				26,190.26
			Cost of 205 cum				26,45,215.91
			Rate per sqm /205				12,903.49
			Add 12% GST				1,548.42
			Rate per cum				14,451.91
						Say Rs.	**14,451.90**
31	**5.3**	**504**	**Bituminous Macadam**				
			Providing and laying bituminous macadam with hot mix plant using crushed aggregates of grading as per Table 500.4 premixed with bituminous binder, transported to site upto a lead of 1000 m laid over a previously prepared surface with paver finisher to the required grade, level and alignment and rolled to achieve the desired compaction as per Technical Specification Clause 504.				
			Unit = cum				
			Taking output = 102.5 cum (225 t)				
			a) Labour				
			Mate	day	0.52	350.00	182.00
			Mazdoor (Unskilled)	day	10.00	350.00	3,500.00
			Mazdoor (Skilled)	day	3.00	350.00	1,050.00
			b) Machinery				
			Batch mix HMP 40-60 THP @ 40 t per hour actual output	hour	6.00	15,000.00	90,000.00
			Hydraulic broom @ 1250 sqm per hour	hour	1.10	528.00	580.80
			Air compressor 210 cfm	hour	1.10	488.00	536.80
			Paver finisher	hour	6.00	4,300.00	25,800.00
			Generator 125 KVA	hour	6.00	1,160.00	6,960.00
			Front end loader 1 cum bucket capacity	hour	6.00	1,281.00	7,686.00
			Tipper 5.5 cum, 10 t capacity	hour	6.21	570.00	3,539.70

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Three wheel 80-100 kN static roller for intial break down rolling, final and finishing rolling	hour	12.00	1,100.00	13,200.00
			Vibratory roller 80-100 kN for intermediate rolling	hour	6.00	1,800.00	10,800.00
			c) Material				
			i) Bitumen @ 3.3 per cent of mix (Weight of mix = 102.5 x 2.2 = 225 t)	t	7.425	40,159.00	2,98,180.58
			ii) Aggregate Total weight of mix = 225 t Weight of bitumen = 7.425 t Weight of aggregate = 225 – Taking density of aggregate = Volume of aggregate = 145.05 (19 mm nominal size)				
			25 -10 mm - 40 per cent	cum	58.02	1,298.00	75,309.96
			10– 5 mm - 40 per cent	cum	58.02	1,298.00	75,309.96
			5 mm and below - 20 per cent	cum	29.01	1,298.00	37,654.98
							6,50,290.78
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				81,286.35
							7,31,577.12
			e) Add 1% labour cess on a+b+c+d.				7,315.77
			Cost of 102.5 cum = a+b+c+d+e				7,38,892.89
			Rate per cum = a+b+c+d+e/102.5				7,208.71
			Add 12% GST				865.05
			Rate per cum				8,073.76
							Say Rs. 8,073.80

CHAPTER-6

CEMENT CONCRETE PAVEMENT

	Preamble:
1	Use of cement concrete pavement for rural roads is likely to be limited to small stretches. These will, therefore, have to be constructed without use of heavy equipment, like, high capacity batching/mixing plant and slip form pavers. Accordingly, the rate analysis is based on concrete mixer of suitable capacity with weigh batcher, fixed side forms and screed, plate and needle vibrators.
2	Provision of Plasticizer admixture to improve workability with reduced water cement ratio has been made.
3	The rates of materials taken in the analysis/schedule are on lowest prevailing market rate has finalized and approved by the committee constituted. The concrete mixer placement is also assured close to the site of work so that transporting and placement of concrete can be done by labour alone.
4	Quantities of materials provided in the rate analysis are for the estimate purpose. Exact quantity of materials will be determined from the job mix formula.
5	The extra Cost of Carriage, including loading, unloading is required to be added based on Tonne - Kilometerage as per Chapter -I for the purpose of justification.

CHAPTER – 6
CEMENT CONCRETE PAVEMENT

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
32	**6.4**	**1500**	**(A) Cement Concrete Pavement**				
			Construction of un-reinforced, dowel jointed at expansion and construction joint only, plain cement concrete pavement, thickness as per design, over a prepared sub base, with 43 grade cement or any other type as per Clause 1501.2.2 M30 (Grade), coarse and fine aggregates conforming to IS:383, maximum size of coarse aggregate not exceeding 25 mm, mixed in a concrete mixer of not less than 0.2 cum capacity and appropriate weigh batcher using approved mix design, laid in approved fixed side formwork (steel channel, laying and fixing of 125 micron thick polythene film, wedges, steel plates including levelling the formwork as per drawing), spreading the concrete				
			with shovels, rakes, compacted using needle, screed and plate vibrators and finished in continuous operation including provision of contraction and expansion, construction joints, applying debonding strips, primer, sealant, dowel bars, near approaches to bridge/culvert and construction joints, admixtures as approved, curing of concrete slabs for 14-days, using curing compound (where specified) and water finishing to lines and grade as per drawing and Technical Specification Clause 1501				
			Unit = cum Taking output = 75 cum (172.50 t) (100 x 3.75 x 0.200)				
			a) Labour				
			Mate	day	7.00	350.00	2,450.00
			Mason (1st class)	day	5.00	505.17	2,525.83
			Mason (2nd class)	day	5.00	421.17	2,105.83
			Mazdoor (Unskilled)	day	129.00	350.00	45,150.00
			Mazdoor (Skilled)	day	6.00	350.00	2,100.00
			Surveyor	day	2.00	505.17	1,010.33
			Mazdoor (Semi-Skilled)	day	6.00	350.00	2,100.00
			Bhisti	day	14.00	350.00	4,900.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Blacksmith for cutting of dowel bars including removal of burrs, fabrications & fixing of dowel bars.	day	1.00	403.67	403.67
			b) Machinery				
			Concrete mixer 0.28 / 0.4 cum capacity (6 mixers) with weigh batcher and suitable capacity calibrated water tank	hour	36.00	350.00	12,600.00
			Needle vibrator	hour	9.00	100.00	900.00
			Screed vibrator	hour	9.00	100.00	900.00
			Plate vibrator	hour	9.00	100.00	900.00
			Concrete joint cutting machine for initial & final cuts	hour	4.00	1,227.00	4,908.00
			Water tanker 6 kl capacity	hour	5.00	500.00	2,500.00
			Air Compressor (1 hour initial + 1 hour final)	hour	2.00	488.00	976.00
			c) Material				
			(i) Crushed stone coarse aggregates, grading will be as per Clause 1501.2.4.1 (Table 1500.1) of specifications @ 0.90 cum/cum of concrete	cum	67.50	1,298.00	87,615.00
			(ii) Sand as per IS:383 and conforming to Clause 1500.2.4.2 @ 0.45 cum/cum of concrete	cum	33.75	1,156.00	39,015.00
			(iii) Cement @ 310 kg/cum of concrete	t	26.25	6,875.00	1,80,468.75
			(iv) Polythene sheet 125 micron	sqm	412.50	7.00	2,887.50
			(v) Mild steel dowel bar 25 mm dia of grade S 240. 500 mm long 20 Nos. at culvert/bridge slab and at construction joint including 5 per cent wastage.				
			(4 x 20 x 0.500) + 5 per cent wastage = 42 m @ 2.80 kg per m = 117.6 kg.	kg	117.60	58.00	6,820.80
			Bitumen primer @ 200 ml per joint for 23 joints	t	0.005	40,159.00	200.80
			Bituminous sealant 800 ml per joint for 23 joints	litre	19.00	225.00	4,275.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Jute rope 12 mm dia including 5 per cent wastage	m	90.00	12.00	1,080.00
			Debonding strips 3.75 m (length) x 10 mm (width) x 5 mm (thick) cut-out of rubber filler board or similar material including 5 per cent wastage	m	90.00	12.00	1,080.00
			Polythene sheathing, covering 2/3rd dowel bars (20x23) and tight fit including 5 per cent wastage	No.	483.00	10.00	4,830.00
			Plasticizer 0.5 per cent by weight of cement	litre	122.00	170.00	20,740.00
			Curing compound (if used) @ 0.33 litre per sqm	litre	131.25	17.00	2,231.25
			Water for curing	kl	18.00	102.00	1,836.00
			Joint filler board 20 mm thick as per IS:1838 (4 x 3.75 x 0.200 = 3 sqm)	sqm	3.00	500.00	1,500.00
			d) Formwork @ 3% of (a+b+c)				13,230.29
							4,54,240.05
			e) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d)				56,780.01
							5,11,020.06
			f) Add 1% labour cess on a+b+c+d+e.				5,110.20
			Cost for 75 cum = a+b+c+d+e+f				5,16,130.26
			Rate per cum = (a+b+c+d+e+f)/75				6,881.74
			Add 12% GST				825.81
			Rate per cum				7,707.55
							Say Rs. 7,707.50
33	**6.6**	**1500**	**Rectangular Concrete Block Pavement**				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Manufacturing, laying of cement concrete blocks of size 0.450 m x 0.300 m x 0.15 m of Cement Concrete (C.C.) M30 garde and spreading 25 mm thick sand under neath and filling joints with sand on existing W.B.M. base as per Technical Specification Clause 1503.				
			Unit = sqm				
			Taking output = 112.5 sqm				
			Concrete M30 grade for block, 400 x (0.450 x 0.300 x 0.150)	cum	8.10		
			Concrete M30 for edge block, 2 x 50 x (0.300 x 0.300 x 0.150)	cum	1.35		
			TOTAL	**cum**	**9.45**		
			a) Labour				
			Labour for Manufacturing the Cement Concrete Block :				
			(i) Mate	day	1.70	350.00	595.00
			(ii) Mazdoor (Unskilled)	day	41.00	350.00	14,350.00
			(iii) Mason (2nd class)	day	6.00	421.17	2,527.00
			(iv) Bhisti	day	1.40	350.00	490.00
			b) Machinery				
			Concrete mixer 0.28 / 0.4 cum	hour	6.00	350.00	2,100.00
			Plate vibrator	hour	12.00	100.00	1,200.00
			Water tanker 6 kl capacity	hour	2.00	500.00	1,000.00
			c) Material				
			(i) Coarse aggregates (9.450 x 0.84)	cum	7.94	1,130.00	8,972.20
			(ii) Sand (9.450 x 0.42)	cum	3.97	1,156.00	4,589.32
			(iii) Cement	t	3.80	6,875.00	26,125.00
			(iv) Sand as per Table 1500.5	cum	1.725	1,156.00	1,994.10
			Bed = 60*0.025 = 1.5 cum Joints = 1.5*0.15 = 0.225				
			(v) Cost of water	kl	6.00	102.00	612.00
							64,554.62
			d) Formwork @ 3% of (a+b+c)				1,936.64
							66,491.26
			e) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d)				8,311.41

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
							74,802.67
			f) Add 1% labour cess on a+b+c+d+e.				748.03
			Cost for 112.5 sqm =				75,550.69
			Rate per sqm =				671.56
			Add 12% GST				80.59
							752.15
			Say Rs.				**752.10**
			Labour Rate				17,962.00
			Formwork @ 3%				538.86
							18,500.86
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				2,312.61
							20,813.47
			Add 1% labour cess				208.13
			Cost of 112.5 sqm				21,021.60
			Rate per sqm				186.86
			Add 12% GST				22.42
							209.28
			Say Rs.				**209.30**
			Note: *i. In case curing compound is used in places where there is scarcity of water, the water curing will be used for 4-days and rate analysis will be amended accordingly*				
			ii. Carriage of C.C. block to site of is payable seperately as per Chapter of carriage of material from manufacturing site to the site of work.				
34	**6.7**	**1500**	**Interlocking Concrete Block Pavement**				
			(1) Providing and Laying of Interlocking Concrete Block Pavements having thickness 80 mm as per drawings and Technical Specification Clause 1504.				
			Unit = sqm				
			Taking output = 225 sqm				
			a) Labour				
			Mate	day	1.00	350.00	350.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Mazdoor (Unskilled)	day	17.00	350.00	5,950.00
			Mason (2nd class)	day	8.00	421.17	3,369.33
			b) Machinery				
			Water tanker 6 kl capacity	hour	2.00	500.00	1,000.00
			c) Material				
			(i) Providing inter-locking blocks of approved shape, thickness and size.	sqm	225.00	925.36	2,08,206.00
			(ii) Edge blocks 60 mx2	m	120.00	138.80	16,656.00
			(iii) Sand as per Table 1500.5 Bed = 603x75x 0.03 = 6.75 cum Joints = 60x0.08 = 0.48 cum	cum	7.23	1,156.00	8,357.88
			(iv) Water for wetting of bedding sand	kl	3.00	102.00	306.00
							2,44,195.21
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				30,524.40
							2,74,719.62
			e) Add 1% labour cess on a+b+c+d.				2,747.20
			Cost for 225 sqm =				2,77,466.81
			Rate per sqm =				1,233.19
			Add 12% GST				147.98
							1,381.17
			Say Rs.				**1,381.20**
			Labour Rate				9,669.33
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				1,208.67
							10,878.00
			Add 1% labour cess				108.78
			Cost of 225 sqm				10,986.78
			Rate per sqm				48.83
			Add 12% GST				5.86
							54.69
			Say Rs.				**54.70**

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			(2) Providing and Laying of Interlocking Concrete Blcok Pavements having thickness 60 mm as per drawing and Technical Specification Clause 1504				
			Unit = sqm				
			Taking output = 225 sqm				
			a) Labour				
			Mate	day	0.90	350.00	315.00
			Mazdoor (Unskilled)	day	15.00	350.00	5,250.00
			Mason (2nd class)	day	7.00	421.17	2,948.17
			b) Machinery				
			Water tanker 6 kl capacity	hour	2.00	500.00	1,000.00
			c) Material				
			(i) Providing inter-locking blocks	sqm	225.00	753.20	1,69,470.00
			(ii) Edge blocks	m	120.00	138.80	16,656.00
			(iii) Sand as per Table 1500.5	cum	5.42	1,156.00	6,265.52
			(iv) Water	kl	3.00	102.00	306.00
							2,02,210.69
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				25,276.34
							2,27,487.02
			e) Add 1% labour cess on a+b+c+d.				2,274.87
			Cost for 225 sqm =				2,29,761.89
			Rate per sqm =				1,021.16
			Add 12% GST				122.54
							1,143.70
			Say Rs.				**1,143.70**
			Labour Rate				8,513.17
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				1,064.15
							9,577.31
			Add 1% labour cess				95.77
			Cost of 225 sqm				9,673.09
			Rate per sqm				42.99
			Add 12% GST				5.16
							48.15
			Say Rs.				**48.20**

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Note: *i. Carriage of interlocking blocks is payable seperately as per Chapter of carriage of material from manufacturing site to the site of work.*				
			ii. Edge blocks may be cast-in-situ. Brick masonry toe wall or CC block 300 mm x 300 mm x 150 mm or any other shape can also be used and their cost shall be analysed/included accordingly				
			iii. *The rates for sub-grade, sub-base and base course can be taken from Chapters 3 and 4*				
35	6.8		*Add extra over item of cement concrete flooring/ payments for supply and application of synthetic fibre (Polyetster 12 mmRecron 3 S or equivalent) properly mixed with sand / cement /aggregates / admixture including laying of floor trowelling and finishing (in dose of 125 gms per 50 kg of cement i.e. 0.25 per cent by weight of cement in ration as specified by manufacturer's specification or as directed by the Engineer-in- Charge*				
			Detail of cost for 1 cum				
			Material				
			Synthetic Polyester Fiber	kg	0.90	427.00	384.30
			Labour	LS			1.00
							385.30
			Add for water charges @ 1.5%				5.78
							391.08
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				48.88
							439.96
			Add 1% labour cess				4.40
			Cost per cum				444.36
			Add 12% GST				53.32
							497.69
			Say Rs.				**497.70**

CHAPTER – 7

CAUSEWAY AND SUBMERSIBLE BRIDGES

Preamble:

CHAPTER – 7

CAUSEWAY AND SUBMERSIBLE BRIDGES

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)

NIL

CHAPTER-8

HILL ROADS

Preamble:

1 The Chapter covers only the analysis of rates for items which are peculiar to hill roads. For other items, reference may be made to relevant Chapters and analysis modified as suggested in note 2 below.

2 **Extra Provision for High Altitude Areas**

Considering the loss of output of men and machines above 2100 m altitude, the following percentage addition to cost of manpower and usage rates of machines may be considered in the analysis of rates given in various Chapters.

Altitude in m	% of the value in Manpower	% of the value in Machine to be added to rates
2100 to 2400	**0.07**	**0.03**
2401 to 2700	**0.15**	**0.06**
2701 to 3000	**0.25**	**0.09**
3001 to 3300	**0.32**	**0.12**
3301 to 3600	**0.48**	**0.15**
3601 to 3900	**0.66**	**0.18**
3901 to 4200	**0.86**	**0.21**
4201 to 4500	**1.08**	**0.24**
4501 to 4800	**1.32**	**0.27**
4801 to 5100	**1.86**	**0.3**

The above provisions are based on the report of Defence Institute of Physiology and Allied Sciences, Delhi Cantt. regarding quantitative reduction in the physical work capacity of individuals working in high altitude areas and the recommendation of the Committee on Cost of Construction set-up by Border Roads Development Board for reduction in output of machines while working in high altitudes. These figures are adopted from 'Standard Schedule of Rates' of BRO as applicable to high altitude areas.

3 The above addition is also to be applied on the analysis of rates for items provided in this Chapter.

4 The extra Cost of Carriage, including loading, unloading is required to be added based on Tonne - Kilometerage as per Chapter -I for the purpose of justification.

CHAPTER – 8

HILL ROADS

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
36	8.2	1600	**Setting Out**				
			Unit = 1km				
			The analysis of rate per km shall account for the following:				
			(1) Construction of reference pillars (burjee) @ 20 m on both sides as per Fig. 1600.1 (b) and @ 8.33 m interval on curves				
			(2) Construction of back pillars in front of each reference pillar as per Fig. 1600.1 (c)				
			(3) Construction of job pillars as per Fig. 1600.1 (d)				
			(1) Construction of reference pillars as per Fig. 1600.1 (b) as per drawing and Technical Specification Clause 1602.1				
			(a) Earthwork in excavation for foundation as per drawing and technical specifications.				
			Rate as per item No.11.1 of Chapter 11	cum	1.20	330.88	397.05
			(b) Stone masonry work in cement mortar 1:4 in foundation complete as per drawing and technical specifications				
			Rate as per item No.11.6, I(ii) of Chapter 11	cum	1.20	4,408.00	5,289.60
			(c) Plaster with cement mortar 1:4 as per technical specifications				
			Rate as per item No.12.4 of Chapter 12	sqm	4.00	186.70	746.79
							6,433.44
			Add 5% of (a+b+c) for white washing, lettering and painting, etc.				321.67

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Total Cost for each Reference Pillar				6,755.11
			Add 12% GST				810.61
			Cost for each Reference Pillar				7,565.72
						Say Rs.	**7,566.00**
			Labour Rate				
			Rate as per item No.11.1 of Chapter 11	cum	1.20	371.00	445.20
			Rate as per item No.11.6, I(ii) of Chapter 11	cum	1.20	2,452.00	2,942.40
			Rate as per item No.12.4 of Chapter 12	sqm	4.00	127.00	508.00
							3,895.60
			Add 5% of (a+b+c) for white washing, lettering and painting, etc.				194.78
			Total Cost for each Reference Pillar				4,090.38
			Add 12% GST				490.85
			Cost for each Reference Pillar				4,581.23
						Say Rs.	**4,581.00**
			(2) Construction of back piller as per Fig. 1600.1(c) as per drawing and Technical Specification Clause 1602.3				
			(a) Earthwork in excavation for foundation as per drawing and technical specifications				
			Rate as per item No. 11.1 of Chapter 11	cum	3.60	330.88	1,191.15
			(b) Stone masonary work in cement mortar 1:4 in foundation complete as per drawing and technical specifications				
			Rate as per itme No. 11.6, I(ii) Chapter 11	cum	3.60	4,408.00	15,868.80
			(c) Plaster with cement mortar 1:4 as per technical specifications				
			Rate as per item No. 12.4 of Chapter 12	sqm	45.00	186.70	8,401.33
							25,461.29

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Add 5% of (a+b+c) for white washing, lettering and painting, etc.				1,273.06
			Total Cost for each back Pillar				26,734.35
			Add 12% GST				3,208.12
			Cost for each Reference Pillar				29,942.48
							Say Rs. 29,942.00
			Labour Rate				
			a) Rate as per item No.11.1 of Chapter 11	cum	3.60	371.00	1,335.60
			b) Rate as per item No.11.6, I(ii) of Chapter 11	cum	3.60	2,452.00	8,827.20
			c) Rate as per item No.12.4 of Chapter 12	sqm	45.00	127.00	5,715.00
							15,877.80
			Add 5% of (a+b+c) for white washing, lettering and painting, etc.				793.89
			Total Cost for each Reference Pillar				16,671.69
			Add 12% GST				2,000.60
			Cost for each Reference Pillar				18,672.29
							Say Rs. 18,672.00
			(3) Construction of Job pillers as per Fig. 1600.1 (d) and Technical Specification Clause 1602.4				
			(a) Earthwork in excavation for foundation as per drawing and technical specification				
			Rate as per item No.11.1 of Chapter 11	cum	0.096	330.88	31.76
			(b) Stone masonary work in cement mortar in foundation complete as per drawing and technical specification				
			Rate as per item No. 11.6, I(ii) of Chapter 11	cum	0.096	4,408.00	423.17
			(c) Plaster with cement mortar 1:4 as per drawing and technical specification				
			Rate as per Item No.12.4 of Chapter 12	sqm	0.96	186.70	179.23
							634.16

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Add 5% of (a+b+c) for white washing, lettering and painting, etc.				31.71
			Total Cost for each Job Pillar				665.87
			Add 12% GST				79.90
			Cost for each Job Pillar				745.77
						Say Rs. 746.00	
			Labour Rate				
			a) Rate as per item No.11.1 of Chapter 11	cum	0.096	371.00	35.62
			b) Rate as per item No.11.6, I(ii) of Chapter 11	cum	0.096	2,452.00	235.39
			c) Rate as per item No.12.3 of Chapter 12	sqm	0.96	127.00	121.92
							392.93
			Add 5% of (a+b+c) for white washing, lettering and painting, etc.				19.65
			Total Cost for each Reference Pillar				412.57
			Add 12% GST				49.51
			Cost for each Reference Pillar				462.08
						Say Rs. 462.00	
37	8.3	1600 & 300	**Earthwork in Hill Road**				
			(i) Excavation in Hilly Areas in Soil by manual means.				
			A) **Excavation in soil in Hilly Area by manual means including cutting and trimming of side slopes and disposing of excavated earth with a lift upto 1.5 m and a lead upto 20 m as per drawing and Technical Specification Clause 1603.1**				
			Unit = cum				
			Taking output = 120 cum				
			a) Labour				
			Mate	day	2.40	350.00	840.00
			Mazdoor (Unskilled)	day	60.00	350.00	21,000.00
							21,840.00
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				2,730.00
							24,570.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			d) Add 1% labour cess on a+b+c.				
							245.70
			Cost for 120 cum = (a+b+c+d)				24,815.70
			Rate per cum = (a+b+c)/120				206.80
			Add 12% GST				24.82
			Rate per cum				231.61
						Say Rs. 232.00	
			B) **Extra for Every Additional Lift of 1.5 m or Part thereof**				
			Excavation in Soil				
			Unit = cum				
			Taking output = 10 cum				
			a) Labour				
			Mazdoor (Unskilled)	day	0.55	350.00	192.50
							192.50
			c) Add 12.5% (Overheads @ 2.5				24.06
							216.56
			d) Add 1% labour cess on a+b+c.				2.17
			Cost for 10 cum = (a+b+c)				218.73
			Rate per cum = (a+b+c)/10				21.87
			Add 12% GST				2.62
			Rate per cum				24.50
						Say Rs. 24.00	
			(ii) Excavation in Hilly Areas in Soil by mechanical means				
			A) **Excavation in soil in Hilly Area by mechanical means including cutting and trimming of side slopes and disposing of excavated earth with a lift upto 1.5 m and a lead upto 20 m as per Technical Specification Clause 1603.1**				
			Unit = cum				
			Taking output = 260 cum				
			a) Labour				
			Mate	day	0.80	350.00	280.00
			Mazdoor (Unskilled) for trimming slopes and helping in excavation, etc.	day	20.00	350.00	7,000.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			b) Machinery				
			Dozer D-50 @ 43.28 cum per hour	hour	6.00	1,740.00	10,440.00
			Front end loader	hour	6.00	1,321.00	7,926.00
							25,646.00
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				3,205.75
							28,851.75
			d) Add 1% labour cess on a+b+c.				288.52
			Cost for 260 cum = a+b+c+d				29,140.27
			Rate per cum = (a+b+c)/260				112.08
			Add 12% GST				13.45
			Rate per cum				125.53
						Say Rs.	**125.53**
			a) **Labour Rate**				7,280.00
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a)				910.00
							8,190.00
			d) Add 1% labour cess				81.90
			Cost for 260 cum				8,271.90
			Rate per cum				31.82
			Add 12% GST				3.82
			Rate per cum				35.63
						Say Rs.	**36.00**
			B) **Extra for Every Additional Lift of 1.5 m or Part thereof**				
			Excavation in Soil				
			Unit = cum				
			Taking output = 10 cum				
			a) Labour				
			Mazdoor (Unskilled)	day	0.55	350.00	192.50
							192.50
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a)				24.06
							216.56
			d) Add 1% labour cess on a+b+c.				2.17
			Cost for 10 cum = (a+b+c)				218.73

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Rate per cum = (a+b+c)/10				21.87
			Add 12% GST				2.62
			Rate per cum				24.50
							Say Rs. 24.00
			(ii) Excavation in Hilly Areas in Ordinary Rock by mechanical means not requiring blasting				
			Excavation in hilly area in ordinary rock not requiring blasting by mechanical means including cutting and trimming of slopes and disposal of cut material with a lift upto 1.5 m and lead upto 20 m as per Clause 1603.2.				
			Unit = cum				
			Taking output = 170 cum				
			a) **Labour**				
			Mate	day	0.68	350.00	238.00
			Mazdoor (Unskilled)	day	17.00	350.00	5,950.00
			Mazdoor for disposing of earth upto 20 m	day	9.00	350.00	3,150.00
			b) **Machinery**				
			Dozer D-50 @ 28.32 cum per hour	hour	6.00	1,740.00	10,440.00
			Hydraulic Excavator 0.9 cum bucket capacity @ 40 cum per hour	hour	4.25	1,080.00	4,590.00
							24,368.00
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				3,046.00
							27,414.00
			d) Add 1% labour cess on a+b+c.				274.14
			Cost for 170 cum = a+b+c+d				27,688.14
			Rate per cum = (a+b+c+d)/170				162.87
			Add 12% GST				19.54
			Rate per cum				182.42
							Say Rs. 182.00
			Labour Rate				9,338.00
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				1,167.25

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
							10,505.25
			Add 1% labour cess				105.05
			Cost for 170 cum				10,610.30
			Rate per cum				62.41
			Add 12% GST				7.49
			Rate per cum				69.90
			Say Rs.			**Say Rs. 70.00**	
			(iii) Excavation in Hilly Areas in Hard Rock requiring blasting				
			A) **Excavation in hilly areas in hard rock requiring blasting, by mechanical means, lift upto 1.5 m and disposal of excavated rock upto a lead of 20 m as per Clause 1603.2.**				
			Unit = cum				
			Taking output = 170 cum				
			a) Labour				
			Mate	day	1.36	350.00	476.00
			Mazdoor (Unskilled)	day	22.00	350.00	7,700.00
			Driller	day	2.00	350.00	700.00
			Blaster	day	10.00	403.67	4,036.67
			b) Machinery				
			Dozer D-50 @ 56.67 cum per hour (blasted rock)	hour	3.00	1,740.00	5,220.00
			Hydraulic Excavator 0.9 cum bucket capacity @ 34 cum per hour	hour	5.00	1,080.00	5,400.00
			Air compressor 210 cfm with two jack hammer @ 6 cum per hour	hour	28.00	488.00	13,664.00
			c) Materials				
			Gelatine 80 per cent	kg	67.00	98.00	6,566.00
			Electric detonators @ 1 detonator for 1 Gelatine stick of 285 gm each	nos	235	16.00	3,760.00
							47,522.67
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				5,940.33
							53,463.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			e) Add 1% labour cess on a+b+c.				534.63
			Cost for 170 cum = a+b+c+d+e				53,997.63
			Rate per cum = (a+b+c+d+e)/17				317.63
			Add 12% GST				38.12
			Rate per cum				355.75
						Say Rs.	**356.00**
			Labour Rate				12,912.67
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				1,614.08
							14,526.75
			Add 1% labour cess				145.27
			Cost for 170 cum				14,672.02
			Rate per cum				86.31
			Add 12% GST				10.36
			Rate per cum				96.66
						Say Rs.	**97.00**
			B) **Extra for Every Additional Lift of 1.5 m or Part thereof**				
			For Hard Rock				
			Unit = cum				
			Taking output = 10 cum				
			a) Labour				
			Mazdoor (Unskilled)	day	1.08	350.00	378.00
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				47.25
							425.25
			Add 1% labour cess				4.25
			Cost for 10 cum = a+b+c				429.50
			Rate per cum = (a+b+c)/10				42.95
			Add 12% GST				5.15
			Rate per cum				48.10
						Say Rs.	**48.00**
38	8.4	1600, 600 & 700	**Retaining Walls / Breast Walls**				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Construction of retaining walls/breast walls in cement mortar 1:5 as per drawing and technical specifications Clause 1604				
			(i) Earthwork in excavation for structures				
			Rate as per item No.11.1 of Chapter 11	cum	1.00	371.00	371.00
			Labour Rate as per item no. 11.1	cum	1.00	371.00	371.00
			(ii) Plain cement concrete M 10 grade				
			Rate as per item No.11.4, I(ii)of Chapter 11	cum	1.00	5,565.00	5,565.00
			Labour Rate as per item no. 11.4, I(ii)	cum	1.00	984.00	984.00
			(iii) Stone masonry in cement mortar 1:5				
			Rate as per item No. 12.7 (III) (iii) of Chapter 12	cum	1.00	4,891.00	4,891.00
			Labour Rate as per item no. 12.7 (III) (iii)	cum	1.00	2,393.00	2,393.00
			(iv) Pointing with cement mortar 1:3				
			Rate as per item No.12.2 of Chapter 12	sqm	1.00	84.00	84.00
			Labour Rate as per item no. 12.2	sqm	1.00	66.00	66.00
			(v) Providing P.C.C. M 20 architectural coping on top of retaining wall/breast wall				
			Rate as per item No.12.17 of Chapter 12	m	1.00	362.00	362.00
			Labour Rate as per item no. 12.17	m	1.00	61.00	61.00
			(vi) Filter material behind retaining wall / breast wall as per Specification 1204.3.8 in a width of 600 m				
			Rate as per item No. 12.15 of Chapter 12	cum	1.00	1,554.00	1,554.00
			Labour Rate as per item no. 12.15	cum	1.00	683.00	683.00
			(vii) Back filling behind retaining wall/breast wall				
			Rate as per item No. 12.14 of Chapter 12	cum	1.00	1,050.00	1,050.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Labour Rate as per item no. 12.14	cum	1.00	609.00	609.00

SUB-ANALYSIS OF RATE

Sub-analysis

Cement mortar 1:3 (1 cement : 3 sand)

Unit = cum

a)	Material				
	Cement	t	0.51	6,875.00	3,506.25
	Sand	cum	1.05	1,156.00	1,213.80
b)	Labour				
	Mate	day	0.04	350.00	14.00
	Mazdoor (Unskilled)	day	0.90	350.00	315.00
	Bhisti	day	0.08	350.00	28.00
Total material and labour = (a+b)					**5,077.05**
				Say Rs.	**5,077.00**
	Labour Rate				**357.00**

Sub-analysis

Cement mortar 1:4 (1 cement : 4 sand)

Unit = cum

a)	Material				
	Cement	t	0.38	6,875.00	2,612.50
	Sand	cum	1.05	1,156.00	1,213.80
b)	Labour				
	Mate	day	0.04	350.00	14.00
	Mazdoor (Unskilled)	day	0.90	350.00	315.00
	Bhisti	day	0.08	350.00	28.00
Total material and labour = (a+b)					**4,183.30**
				Say Rs.	**4,183.00**
	Labour Rate				**357.00**

Sub-analysis

Cement mortar 1:5 (1 cement, 5 sand)

a) **Material**

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Cement	t	0.31	6,875.00	2,131.25
			Sand	cum	1.05	1,156.00	1,213.80
			b) **Labour**				
			Mate	day	0.04	350.00	14.00
			Mazdoor (Unskilled)	day	0.90	350.00	315.00
			Bhisti	day	0.08	350.00	28.00
			Total material and labour = (a+b)				**3,702.05**
						Say Rs.	**3,702.00**
			Labour Rate				**357.00**
			Sub-Analysis				
			Cement Morter 1:6 (1 Cement : 6 Sand)				
			Unit = cum				
			a) Material				
			Cement	t	0.25	6,875	1,718.75
			Sand	cum	1.05	1,156.00	1,213.80
			b) Labour				
			Mate	day	0.04	350.00	14.00
			Mazdoor (Unskilled)	day	0.90	350.00	315.00
			Bhisti	day	0.08	350.00	28.00
			Total Material and Labour (a+b)				**3,289.55**
						Say Rs.	**3,290.00**
			Labour Rate				**357.00**
39	8.5	1600, 700, 300 & 800	**Construction of Hill Side Drain**				
			Construction of hill side drain in accordance with the requirement of specifications true to lines and grades. Dimesions and other particulars as per drawing and Technical Specification Clause 1606.1				
			Unit = 1 m				
			(i) Earthwork in excavation for structures as per drawing and technical specification				
			Rate as per item No.11.1 of Chapter 11	cum	1.00	371.00	371.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			(ii) Plain cement concrete M10 grade				
			Rate as per item No.11.4 (I) (ii) of Chapter 11	cum	1.00	5,565.00	5,565.00
			(iii) Stone masonry in cement mortar 1:5				
			Rate as per item No.12.7 (III) (iii) of Chapter 12	cum	1.00	4,891.00	4,891.00
			(iv) Plain cement concrete M15 grade				
			Rate as per item No.11.4 (II) (i) of Chapter 11	cum	1.00	5,012.00	5,012.00
			(v) Cement plaster 15 mm thick 1:4 on stone masonry				
			Rate as per item No.12.4 of Chapter 12	sqm	1.00	209.00	209.00
			(vi) Providing P.C.C. M20 architectural coping on top of wall				
			Rate as per item No.12.17 of Chapter 12	m	1.00	362.00	362.00
			Rate per m length (i+ii+iii+iv+v+vi)				**16,410.00**
						Say Rs.	**16,410.00**
			Labour Rate				
			Labour Rate as per item no. 11.1	cum	1.00	371.00	371.00
			Labour Rate as per item no. 11.4, I(ii)	cum	1.00	984.00	984.00
			Labour Rate as per item no. 12.7 (III) (iii)	cum	1.00	2,393.00	2,393.00
			Labour Rate as per item no. 11.4 (II) (i)	cum	1.00	984.00	984.00
			Labour Rate as per item no. 12.4	sqm	1.00	127.00	127.00
			Labour Rate as per item no. 12.17	m	1.00	61.00	61.00
			Labour Rate per m length				**4,920.00**
						Say Rs.	**4,920.00**
40	**8.13**	**803**	**Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads on Bituminous Surface**				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		MORTH	Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35 .The finished surface to be level, uniform and free from streaks and holes.				
			Unit = sqm				
			Taking output = 600 sqm				
			a) Labour				
			Mate	day	0.03	350.00	10.50
			Mazdoor	day	0.75	350.00	262.50
			b) Machinery				
			Road marking machine @ 60 sqm per hour	hour	10.00	105.00	1050.00
			Tractor-trolley	hour	0.50	581.00	290.50
			c) Material				
			Hot applied thermoplastic compound	Litre	1500	165.00	247500.00
			Reflectorising glass beads	kg	150.00	95.00	14250.00
							263363.50
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				32,920.44
							2,96,283.94
			e) Add 1% labour cess on a+b+c+d.				2,962.84
			Cost of 600sqm a+b+c+d.+e=				2,99,246.78
			Rate per sqm a+b+c+d.+e/600				498.74
			Add 12% GST				59.85
			Rate per sqm				558.59
							Say Rs. 558.60

CHAPTER-9

PIPE CULVERTS

	Preamble:
1	Pipe culverts of sizes 900, 1000 mm and 1200 mm dia in single row and double row which are generally used on roads, have been included. Providing and laying of pipe has been included in the rate analysis. Items of auxiliary works such as excavation, bedding, backfilling, concrete and masonry shall be analysed, as provided under the respective sections and paid for separately.
2	Analysis has been given separately for NP2 and NP3 pipes for ease of adoption.
3	The joining of pipes is proposed by collar joints.
5	Chain & pulley for lifting the pipes is considered part of overheads.
6	The extra Cost of Carriage, including loading, unloading is required to be added based on Tonne - Kilometerage as per Chapter -I for the purpose of justification.

CHAPTER – 9
PIPE CULVERTS

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
41	**9.3**	**1100**	**Providing and Laying Reinforced**				
			Providing and laying reinforced cement				
			Unit = m				
			Taking output = 7.5 m				
			(3 pipes of 2.5 m length each)				
			(A) 1200 mm dia				
			a) Labour				
			Mate	day	0.14	350.00	49.00
			Mason (1st Class)	day	0.50	505.17	252.58
			Mazdoor (Unskilled)	day	3.00	350.00	1,050.00
			b) Material				
			Sand	cum	0.05	1,156.00	57.80
			Cement	t	0.07	6,875.00	481.25
			RCC pipe NP2 pipe including collar.	m	7.50	4,596.00	34,470.00
							36,360.63
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				4,545.08
							40,905.71
			d) Add 1% labour cess on a+b+c.				409.06
			Cost for 7.5 m = a+b+c+d				41,314.77
			Rate per m = (a+b+c+d)/7.5				5,508.64
			Add 12% GST				661.04
			Rate per m				6,169.67
							Say Rs. 6,170.00
			Labour Rate				1,351.58
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				168.95
							1,520.53
			Add 1% labour cess				15.21
			Cost for 7.5 m				1,535.74
			Rate per m				204.76
			Add 12% GST				24.57
			Rate per m				229.34
							Say Rs. 229.00
			(B) 1000 mm dia				
			a) Labour				
			Mate	day	0.09	350.00	31.50
			Mason (1st Class)	day	0.25	505.17	126.29
			Mazdoor (Unskilled)	day	2.00	350.00	700.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			b) Material				
			Sand at site	cum	0.04	1,156.00	46.24
			Cement at site	t	0.03	6,875.00	206.25
			RCC pipe NP2 concrete pipe	m	7.50	3,242.00	24,315.00
							25,425.28
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				3,178.16
							28,603.44
			d) Add 1% labour cess on a+b+c.				286.03
			Cost for 7.5 m = a+b+c+d				28,889.48
			Rate per m = (a+b+c+d)/7.5				3,851.93
			Add 12% GST				462.23
			Rate per m				4,314.16
							Say Rs. 4,314.00
			Labour Rate				857.79
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				107.22
							965.02
			Add 1% labour cess				9.65
			Cost for 7.5 m				974.67
			Rate per m				129.96
			Add 12% GST				15.59
			Rate per m				145.55
							Say Rs. 146.00
			(C) 900 mm dia				
			a) Labour				
			Mate	day	0.07	350.00	24.50
			Mason (1st Class)	day	0.20	505.17	101.03
			Mazdoor (Unskilled)	day	1.60	350.00	560.00
			b) Material				
			Sand at site	cum	0.040	1,156.00	46.24
			Cement at site	t	0.030	6,875.00	206.25
			RCC pipe NP2 concrete pipe	m	7.50	2,625.00	19,687.50
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				2,460.94
							22,148.44
			d) Add 1% labour cess on a+b+c.				221.48
			Cost for 7.5 m = a+b+c+d				22,369.92
			Rate per m = (a+b+c+d)/7.5				2,982.66
			Add 12% GST				357.92
			Rate per m				3,340.58
							Say Rs. 3,341.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Labour Rate				685.53
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				85.69
							771.23
			Add 1% labour cess				7.71
			Cost for 7.5 m				778.94
			Rate per m				103.86
			Add 12% GST				12.46
			Rate per m				116.32
							Say Rs. 116.00
42	9.4	1100	**Providing and Laying Reinforced Cement Concrete Pipe NP2 as per design in Double Row . Providing and laying reinforced cement concrete pipe NP2 for culverts on first class beeding of granular material in double row including fixing collar with cement morter 1:2 but excluding excavation, protection works, backfilling, concrete and masonary works in head walls and parapets as per clause 1106**				
			Providing and laying reinforced cement concrete pipe NP2 for culverts on first class bedding of granular material in single row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets Clause 1106.				
			Unit = m				
			Taking output = 7.5 m				
			(6 pipes of 2.5 m length each in two rows)				
			(A) 1200 mm dia				
			a) **Labour**				
			Mate	day	0.34	350.00	119.00
			Mason (1st Class)	day	1.20	505.17	606.20
			Mazdoor (Unskilled)	day	7.20	350.00	2,520.00
			b) **Material**				
			Sand at site	cum	0.11	1,156.00	127.16
			Cement at site	t	0.14	6,875.00	962.50

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			RCC pipe NP2 pipe including collar at site	m	15.00	4,596.00	68,940.00
							73,274.86
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				9,159.36
							82,434.22
			d) Add 1% labour cess on a+b+c.				824.34
			Cost for 7.5 m = a+b+c+d				83,258.56
			Rate per m = (a+b+c+d)/7.5				11,101.14
			Add 12% GST				1,332.14
			Rate per m				12,433.28
							Say Rs. 12,433.00
			Labour Rate				3,245.20
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				405.65
							3,650.85
			Add 1% labour cess				36.51
			Cost for 7.5 m				3,687.36
			Rate per m				491.65
			Add 12% GST				59.00
			Rate per m				550.65
							Say Rs. 551.00
			(B) 1000 mm dia				
			a) **Labour**				
			Mate	day	0.22	350.00	77.00
			Mason (1st Class)	day	0.60	505.17	303.10
			Mazdoor (Unskilled)	day	4.80	350.00	1,680.00
			b) **Material**				
			Sand at site	cum	0.06	1,156.00	69.36
			Cement at site	t	0.06	6,875.00	412.50
			RCC pipe NP2 pipe including collar at site	m	15.00	3,242.00	48,630.00
							51,171.96
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				6,396.50
							57,568.46
			d) Add 1% labour cess on a+b+c.				575.68
			Cost for 7.5 m = a+b+c+d				58,144.14
			Rate per m = (a+b+c+d)/7.5				7,752.55
			Add 12% GST				930.31
			Rate per m				8,682.86
							Say Rs. 8,683.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Labour Rate				2,060.10
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				257.51
							2,317.61
			Add 1% labour cess				23.18
			Cost for 7.5 m				2,340.79
			Rate per m				312.11
			Add 12% GST				37.45
			Rate per m				349.56
							Say Rs. 350.00
			(C) 900 mm dia				
			a) **Labour**				
			Mate	day	0.18	350.00	63.00
			Mason (1st Class)	day	0.48	505.17	242.48
			Mazdoor (Unskilled)	day	3.84	350.00	1,344.00
			b) **Material**				
			Sand at site	cum	0.08	1,156.00	92.48
			Cement at site	t	0.06	6,875.00	412.50
			RCC pipe NP2 pipe including collar at site	m	15.00	2,625.00	39,375.00
							41,529.46
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				5,191.18
							46,720.64
			d) Add 1% labour cess on a+b+c.				467.21
			Cost for 7.5 m = a+b+c+d				47,187.85
			Rate per m = (a+b+c+d)/7.5				6,291.71
			Add 12% GST				755.01
			Rate per m				7,046.72
							Say Rs. 7,047.00
			Labour Rate				1,649.48
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				206.19
							1,855.67
			Add 1% labour cess				18.56
			Cost for 7.5 m				1,874.22
			Rate per m				249.90
			Add 12% GST				29.99
			Rate per m				279.88
							Say Rs. 280.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
43	9.5	1100	**Providing and Laying Reinforced Cement Concrete Pipe NP3 as per design in Single Row**				
			Providing and laying reinforced cement concrete pipe NP3 for culverts on first class bedding of granular material in single row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets Clause 1106.				
			Unit = m				
			Taking output = 7.5 m				
			(3 pipes of 2.5 m length each)				
			(C) 900 mm dia				
			a) **Labour**				
			Mate	day	0.07	350.00	24.50
			Mason 1st Class	day	0.20	505.17	101.03
			Mazdoor (Unskilled)	day	1.60	350.00	560.00
			b) **Material**				
			Sand at site	cum	0.04	1,156.00	46.24
			Cement at site	t	0.030	6,875.00	206.25
			RCC pipe NP3 pipe including collar at site	m	7.50	5,141.00	38,557.50
							39,495.52
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				4,936.94
							44,432.46
			d) Add 1% labour cess on a+b+c.				444.32
			Cost for 7.5 m = a+b+c+d				44,876.79
			Rate per m = (a+b+c+d)/7.5				5,983.57
			Add 12% GST				718.03
			Rate per m				6,701.60
			Say Rs.			**Say Rs. 6,702.00**	
			Labour Rate				685.53
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				85.69
							771.23
			Add 1% labour cess				7.71
			Cost for 7.5 m				778.94
			Rate per m				103.86
			Add 12% GST				12.46
			Rate per m				116.32
						Say Rs. 116.00	

CHAPTER-10

TRAFFIC SIGNS, MARKINGS AND OTHER APPURTENANCES

	Preamble:
1	Backfilling of foundation of boundary pillars has been proposed with stone spalls, tightly packed and compacted.
2	The item pertaining to road traffic signals has not been analysed as this is a specialized work and rates can be obtained from firms having specialisation for design and installation of this work.
3	Two supports have been provided for direction and place identification signs where size is more than 0.9 square metres. Only one support is provided for size upto 0.9 square metres.
4	The traffic signs proposed are of retro-reflectorised types made of encapsulated lens type reflective sheeting fixed over aluminum sheeting and semi-reflective type on M.S. sheet.
5	The size and location of traffic signs shall be as per IRC:67.
6	In the case of road signs and direction boards, the depth of foundation and quantity of cement concrete provided in the rate analysis are indicative. These may be suitably increased in areas of higher wind velocities, like, coastal areas.
7	The extra Cost of Carriage, including loading, unloading is required to be added based on Tonne - Kilometerage as per Chapter -I for the purpose of justification.

CHAPTER–10

TRAFFIC SIGNS, MARKINGS AND OTHER APPURTENANCES

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
44	10.1	1700	**Printing New Letters and Figures of any Shade** Printing new letter and figures of any shade with synthetic enamel paint black or any other approved colour to give an even shade as per drawings and Technical Specification Clause 1701				
			i) Hindi (Matras commas and the like not to be measured and paid for. Half letters shall be counted as half only) Details for 100 letters of 160 mm height, i.e., 1600 cm Unit = per cm height per letter				
			a) **Labour**				
			Mate	day	0.12	350.00	42.00
			Painter 1st Class	day	2.00	403.67	807.33
			Mazdoor (Unskilled)	day	1.00	350.00	350.00
			b) **Material**				
			Paint	litre	0.70	149.00	104.30
							1,303.63
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				162.95
							1,466.59
			e) Add 1% labour cess on a+b+c+d.				14.67
			Cost for 1600 cm = a+b+c+d				1,481.25
			Rate per cm height per letter = (a+b+c+d)/1600				0.93
			Add 12% GST				0.11
			Rate per cm height per letter				1.04
						Say Rs.	**1.00**
			Labour Rate				1,199.33
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				149.92
							1,349.25
			e) Add 1% labour cess				13.49
			Cost for 1600 cm				1,362.74

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Rate per cm height per letter				0.85
			Add 12% GST				0.10
			Rate per cm height per letter				0.95
						Say Rs.	**0.95**
			ii) English and Roman				
			Hyphens, commas and the like not to be measured and paid for. Detail for 100 letters of 160 mm height, i.e., 1600 cm				
			Unit = per cm height per letter				
			a) **Labour**				
			Mate	day	0.07	350.00	24.50
			Painter Ist class	day	1.25	403.67	504.58
			Mazdoor	day	0.50	350.00	175.00
			b) **Material**				
			Paint	litre	0.50	149.00	74.50
							778.58
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				97.32
							875.91
			e) Add 1% labour cess on a+b+c+d.				8.76
			Cost for 1600 cm = a+b+c+d				884.67
			Rate per cm height per letter = (a+b+c +d)/1600				0.55
			Add 12% GST				0.07
			Rate per cm height per letter				0.62
			Say Rs.			**Say Rs.**	**0.60**
			Labour Rate				704.08
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				88.01
							792.09
			e) Add 1% labour cess				7.92
			Cost for 1600 cm				800.01
			Rate per cm height per letter				0.50
			Add 12% GST				0.06
			Rate per cm height per letter				0.56
			Say Rs.			**Say Rs.**	**0.56**

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
45	10.2	1700, 300, 800	**Traffic Signs**				
			B. Semi Reflective Traffic Signs				
			(I) Providing and fixing of semi reflective cautionary, mandatory and informatory sign board as per IRC:67 made of 1.5 mm thick MS Sheet duly stove white colour in front and gray colour on back with red reflective border of 65 mm width and required letters and figures with reflective tape engineering grade as per Clause 1701.3.9 of MORD for Rural Roads of required shade and colour supported and welded on 47mm x 47 mm x 12 SWG sheet tube firmly fixed to the ground by mean of properly designed foundations with M-15 grade cement concrete 450x450x600 mm, 600 mm below ground level as per approved drawing Clause 1701.2.2				
			Unit = Each				
			Taking output = one traffic sign				
			(i) Excavation foundations				
			As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	331.00	41.71
			(ii) Cement concrete M-15 Grade				
			As per item no. 11.4 of Chapter 11	cum	0.126	4,966	625.72
			(iii) Painting steel tube posts with primer and two coats of epoxy paint as per specifications				
			As per item no 10.7 of Chapter 11	sqm	0.46	121.21	55.75
			a) **Labour (For fixing at site)**				
			Mate	day	0.01	350.00	3.50
			Mazdoor (Unskilled)	day	0.25	350.00	87.50
			b) **Material**				
			Support of M.S. Sheet tube				
			(I) 47 mm x 47 mm x 12 SWG Sheet 3050 mm long	kg	12.40	91.00	1,128.40
			(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	91.00	96.46

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications				
			i) 900 mm equilateral & triangle	sqm	0.35	376.00	131.60
			Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				36.75
			c) **Machinery**				
			Tractor with Trolley	hour	0.08	581.00	46.48
							2,253.86
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				191.34
							2,445.20
			e) Add 1% labour cess on a+b+c+d.				24.45
			Rate per traffic sign =				2,469.65
			Add 12% GST				296.36
			Rate per traffic sign				2,766.01
						Say Rs. 2,766.00	
			Labour Rate				91.00
			Labour for item No. 11.1				0.12
			Labour for item No. 11.4				110.75
			Labour for item No. 10.7				51.52
							253.39
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				31.67
							285.07
			Add 1% labour cess .				2.85
			Rate per traffic sign				287.92
			Add 12% GST				34.55
			Rate per traffic sign				322.47
						Say Rs. 322.00	

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			(II) Providing and fixing of semi reflective cautionary, mandatory and informatory sign board as per IRC:67 made of 1.5 mm thick MS Sheet duly stove white colour in front and gray colour on back with red reflective border of 65 mm width and required letters and figures with reflective tape engineering grade as per Clause 1701.3.9 of MORD for Rural Roads of required shade and colour supported and welded on 47mm x 47 mm x 12 SWG sheet tube firmly fixed to the ground by mean of properly designed foundations with M-15 grade cement concrete 450x450x600 mm, 600 mm below ground level as per approved drawing Clause 1701.2.2				
			Unit = Each Taking output = one traffic sign				
			(i) Excavation foundations				
			As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	331.00	41.71
			(ii) Cement concrete M-15 Grade				
			As per item no. 11.4 of Chapter 11	cum	0.126	4,966	625.72
			(iii) Painting steel tube posts with primer and two coats of epoxy paint as per specifications				
			As per item no 10.7 of Chapter 11	sqm	0.46	121.21	55.75
			a) **Labour (For fixing at site)**				
			Mate	day	0.01	350.00	3.50
			Mazdoor (Unskilled)	day	0.25	350.00	87.50
			b) **Material**				
			Support of M.S. Sheet tube				
			(I) 47 mm x 47 mm x 12 SWG Sheet 3050 mm long	kg	12.40	91.00	1,128.40
			(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	91.00	96.46

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications				
			ii) 600 mm equilateral & triangle	sqm	0.156	376.00	58.66
			Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				36.75
			c) **Machinery**				
			Tractor with Trolley	hour	0.08	581.00	46.48
							2,180.92
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				182.22
							2,363.14
			e) Add 1% labour cess on a+b+c+d.				23.63
			Rate per traffic sign =				2,386.77
			Add 12% GST				286.41
			Rate per traffic sign				2,673.18
						Say Rs. 2,673.00	
			Labour Rate				91.00
			Labour for item No. 11.1				0.12
			Labour for item No. 11.4				110.75
			Labour for item No. 10.7				51.52
							253.39
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				31.67
							285.07
			Add 1% labour cess .				2.85
			Rate per traffic sign				287.92
			Add 12% GST				34.55
			Rate per traffic sign				322.47
						Say Rs. 322.00	

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			(III) Providing and fixing of semi reflective cautionary, mandatory and informatory sign board as per IRC:67 made of 1.5 mm thick MS Sheet duly stove white colour in front and gray colour on back with red reflective border of 65 mm width and required letters and figures with reflective tape engineering grade as per Clause 1701.3.9 of MORD for Rural Roads of required shade and colour supported and welded on 47mm x 47 mm x 12 SWG sheet tube firmly fixed to the ground by mean of properly designed foundations with M-15 grade cement concrete 450x450x600 mm, 600 mm below ground level as per approved drawing Clause 1701.2.2				
			Unit = Each Taking output = one traffic sign				
			(i) Excavation foundations				
			As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	331.00	41.71
			(ii) Cement concrete M-15 Grade				
			As per item no. 11.4 of Chapter 11	cum	0.126	4,966	625.72
			(iii) Painting steel tube posts with primer and two coats of epoxy paint as per specifications				
			As per item no 10.7 of Chapter 11	sqm	0.46	121.21	55.75
			a) **Labour (For fixing at site)**				
			Mate	day	0.01	350.00	3.50
			Mazdoor (Unskilled)	day	0.25	350.00	87.50
			b) **Material**				
			Support of M.S. Sheet tube				
			(I) 47 mm x 47 mm x 12 SWG Sheet 3050 mm long	kg	12.40	91.00	1,128.40
			(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	91.00	96.46

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications				
			iii) 600 mm circular	sqm	0.283	376.00	106.41
			Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				36.75
			c) **Machinery**				
			Tractor with Trolley	hour	0.08	581.00	46.48
							2,228.67
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				188.19
							2,416.86
			e) Add 1% labour cess on a+b+c+d.				24.17
			Rate per traffic sign =				2,441.03
			Add 12% GST				292.92
			Rate per traffic sign				2,733.95
						Say Rs. 2,734.00	
			Labour Rate				91.00
			Labour for item No. 11.1				0.12
			Labour for item No. 11.4				110.75
			Labour for item No. 10.7				51.52
							253.39
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				31.67
							285.07
			Add 1% labour cess .				2.85
			Rate per traffic sign				287.92
			Add 12% GST				34.55
			Rate per traffic sign				322.47
						Say Rs. 322.00	

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			(IV) Providing and fixing of semi reflective cautionary, mandatory and informatory sign board as per IRC:67 made of 1.5 mm thick MS Sheet duly stove white colour in front and gray colour on back with red reflective border of 65 mm width and required letters and figures with reflective tape engineering grade as per Clause 1701.3.9 of MORD for Rural Roads of required shade and colour supported and welded on 47mm x 47 mm x 12 SWG sheet tube firmly fixed to the ground by mean of properly designed foundations with M-15 grade cement concrete 450x450x600 mm, 600 mm below ground level as per approved drawing Clause 1701.2.2				
			Unit = Each Taking output = one traffic sign				
			(i) Excavation foundations				
			As per Item No. 1 to 11.1 of	cum	0.126	331.00	41.71
			(ii) Cement concrete M-15 Grade				
			As per item no. 11.4 of Chapter 11	cum	0.126	4,966	625.72
			(iii) Painting steel tube posts with primer and two coats of epoxy paint as per specifications				
			As per item no 10.7 of Chapter 11	sqm	0.46	121.21	55.75
			a) **Labour (For fixing at site)**				
			Mate	day	0.01	350.00	3.50
			Mazdoor (Unskilled)	day	0.25	350.00	87.50
			b) **Material**				
			Support of M.S. Sheet tube				
			(I) 47 mm x 47 mm x 12 SWG Sheet 3050 mm long	kg	12.40	91.00	1,128.40
			(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	91.00	96.46

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications				
			iv) 800 mm x 600 mm rectangular	sqm	0.480	376.00	180.48
			Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				36.75
			c) **Machinery**				
			Tractor with Trolley	hour	0.08	581.00	46.48
							2,302.74
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				197.45
							2,500.19
			e) Add 1% labour cess on a+b+c+d.				25.00
			Rate per traffic sign =				2,525.19
			Add 12% GST				303.02
			Rate per traffic sign				2,828.21
						Say Rs. 2,828.00	
			Labour Rate				91.00
			Labour for item No. 11.1				0.12
			Labour for item No. 11.4				110.75
			Labour for item No. 10.7				51.52
							253.39
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				31.67
							285.07
			Add 1% labour cess .				2.85
			Rate per traffic sign				287.92
			Add 12% GST				34.55
			Rate per traffic sign				322.47
						Say Rs. 322.00	

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			(V) Providing and fixing of semi reflective cautionary, mandatory and informatory sign board as per IRC:67 made of 1.5 mm thick MS Sheet duly stove white colour in front and gray colour on back with red reflective border of 65 mm width and required letters and figures with reflective tape engineering grade as per Clause 1701.3.9 of MORD for Rural Roads of required shade and colour supported and welded on 47mm x 47 mm x 12 SWG sheet tube firmly fixed to the ground by mean of properly designed foundations with M-15 grade cement concrete 450x450x600 mm, 600 mm below ground level as per approved drawing Clause 1701.2.2				
			Unit = Each				
			Taking output = one traffic sign				
			(i) Excavation foundations				
			As per Item No. 1 to 11.1 of	cum	0.126	331.00	41.71
			(ii) Cement concrete M-15 Grade				
			As per item no. 11.4 of Chapter 11	cum	0.126	4,966	625.72
			(iii) Painting steel tube posts with primer and two coats of epoxy paint as per specifications				
			As per item no 10.7 of Chapter 11	sqm	0.46	121.21	55.75
			a) **Labour (For fixing at site)**				
			Mate	day	0.01	350.00	3.50
			Mazdoor (Unskilled)	day	0.25	350.00	87.50
			b) **Material**				
			Support of M.S. Sheet tube				
			(I) 47 mm x 47 mm x 12 SWG Sheet 3050 mm long	kg	12.40	91.00	1,128.40
			(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	91.00	96.46
			(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			v) 600 mm x 450 mm rectangular	sqm	0.270	376.00	101.52
			Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				36.75
			c) **Machinery**				
			Tractor with Trolley	hour	0.08	581.00	46.48
							2,223.78
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				187.58
							2,411.36
			e) Add 1% labour cess on a+b+c+d.				24.11
			Rate per traffic sign =				2,435.47
			Add 12% GST				292.26
			Rate per traffic sign				2,727.73
						Say Rs. 2,728.00	
			Labour Rate				91.00
			Labour for item No. 11.1				0.12
			Labour for item No. 11.4				110.75
			Labour for item No. 10.7				51.52
							253.39
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				31.67
							285.07
			Add 1% labour cess .				2.85
			Rate per traffic sign				287.92
			Add 12% GST				34.55
			Rate per traffic sign				322.47
						Say Rs. 322.00	

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			(VI) Providing and fixing of semi reflective cautionary, mandatory and informatory sign board as per IRC:67 made of 1.5 mm thick MS Sheet duly stove white colour in front and gray colour on back with red reflective border of 65 mm width and required letters and figures with reflective tape engineering grade as per Clause 1701.3.9 of MORD for Rural Roads of required shade and colour supported and welded on 47mm x 47 mm x 12 SWG sheet tube firmly fixed to the ground by mean of properly designed foundations with M-15 grade cement concrete 450x450x600 mm, 600 mm below ground level as per approved drawing Clause 1701.2.2				
			Unit = Each Taking output = one traffic sign				
			(i) Excavation foundations				
			As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	331.00	41.71
			(ii) Cement concrete M-15 Grade				
			As per item no. 11.4 of Chapter 11	cum	0.126	4,966	625.72
			(iii) Painting steel tube posts with primer and two coats of epoxy paint as per specifications				
			As per item no 10.7 of Chapter 11	sqm	0.46	121.21	55.75
			a) **Labour (For fixing at site)**				
			Mate	day	0.01	350.00	3.50
			Mazdoor (Unskilled)	day	0.25	350.00	87.50
			b) **Material**				
			Support of M.S. Sheet tube				
			(I) 47 mm x 47 mm x 12 SWG Sheet	kg	12.40	91.00	1,128.40
			3050 mm long				
			(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	91.00	96.46

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications				
			vi) 600 mm x 600 mm	sqm	0.360	376.00	135.36
			Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				36.75
			c) **Machinery**				
			Tractor with Trolley	hour	0.08	581.00	46.48
							2,257.62
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				191.81
							2,449.43
			e) Add 1% labour cess on a+b+c+d.				24.49
			Rate per traffic sign =				2,473.92
			Add 12% GST				296.87
			Rate per traffic sign				2,770.79
			Say Rs.			**Say Rs. 2,771.00**	
			Labour Rate				91.00
			Labour for item No. 11.1				0.12
			Labour for item No. 11.4				110.75
			Labour for item No. 10.7				51.52
							253.39
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				31.67
							285.07
			Add 1% labour cess .				2.85
			Rate per traffic sign				287.92
			Add 12% GST				34.55
			Rate per traffic sign				322.47
						Say Rs. 322.00	

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			(VII) Providing and fixing of semi reflective cautionary, mandatory and informatory sign board as per IRC:67 made of 1.5 mm thick MS Sheet duly stove white colour in front and gray colour on back with red reflective border of 65 mm width and required letters and figures with reflective tape engineering grade as per Clause 1701.3.9 of MORD for Rural Roads of required shade and colour supported and welded on 47mm x 47 mm x 12 SWG sheet tube firmly fixed to the ground by mean of properly designed foundations with M-15 grade cement concrete 450x450x600 mm, 600 mm below ground level as per approved drawing Clause 1701.2.2				
			Unit = Each Taking output = one traffic sign				
			(i) Excavation foundations				
			As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	331.00	41.71
			(ii) Cement concrete M-15 Grade				
			As per item no. 11.4 of Chapter 11	cum	0.126	4,966	625.72
			(iii) Painting steel tube posts with primer and two coats of epoxy paint as per specifications				
			As per item no 10.7 of Chapter 11	sqm	0.46	121.21	55.75
			a) **Labour (For fixing at site)**				
			Mate	day	0.01	350.00	3.50
			Mazdoor (Unskilled)	day	0.25	350.00	87.50
			b) **Material**				
			Support of M.S. Sheet tube				
			(I) 47 mm x 47 mm x 12 SWG Sheet 3050 mm long	kg	12.40	91.00	1,128.40
			(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	91.00	96.46

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications				
			vii) 900 mm side octagon	sqm	0.672	376.00	252.67
			Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				36.75
			c) **Machinery**				
			Tractor with Trolley	hour	0.08	581.00	46.48
							2,374.93
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				206.47
							2,581.40
			e) Add 1% labour cess on a+b+c+d.				25.81
			Rate per traffic sign =				2,607.22
			Add 12% GST				312.87
			Rate per traffic sign				2,920.08
			Say Rs.			**Say Rs. 2,920.00**	
			Labour Rate				91.00
			Labour for item No. 11.1				0.12
			Labour for item No. 11.4				110.75
			Labour for item No. 10.7				51.52
							253.39
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				31.67
							285.07
			Add 1% labour cess .				2.85
			Rate per traffic sign				287.92
			Add 12% GST				34.55
			Rate per traffic sign				322.47
			Say Rs.			**Say Rs. 322.00**	
46	10.3	1700, 800 & 300	**Direction and Place Identification signs upto 0.9 sqm size board**				
			B. Semi-Reflective Traffic signs Direction and place indentification signs up to 0.9 sqm size board				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Providing and erecting direction and place identifications of semi reflective sign boards as per IRC:67 made of 2 mm thick M.S. Sheet duly stove enameled paint in white colour in front and grey colour on back with red reflective border of 70 mm width and required message, letters, figures with reflective engineering grade tape as per MORD specifications of required shade and colour.				
			Supported and welded on 47 mm x 47mm of 12 SWG Square tube of 3050 mm height duly strengthened by 25 mm x 5 mm M/s flat iron on edges on back firmly fixed to the ground by means of properly designed foundations with M-15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm below ground level as per approved drawing and Technical Specification Clause 1701				
			Unit = each Take Output = 0.9 sqm				
			(i) Excavation for foundations				
			As per Item No. 11.1 of Chapter 11	cum	0.126	331.00	41.71
			(ii) Cement Concrete M-15 grade				
			As per Item No. 11.4 of Chapter 11	cum	0.126	4,966.00	625.72
			(iii) Painting on M.S. tube post with primer and two coat of epoxy paint as per specifications				
			As per item No.10.7 of Chapter 10	sqm	0.59	121.21	71.51
			a) **Labour (For fixing at site)**				
			Mate	day	0.01	350.00	3.50
			Mazdoor (Unskilled)	day	0.25	350.00	87.50
			b) **Materials**				
			i) Support of MS sheet tube				
			47 mm x 47 mm of 12 SWG sheet 3050 mm long	kg	12.40	91.00	1,128.40
			ii) Angle iron 50 x 50 x 6 mm for lugs including 5% wastage	kg	1.06	91.00	96.46

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			iii) 2 mm thick MS sheet strengthened by 25 mm x 5 mm MS flat iron & painted with stove enameled paint including lettering, signs, message, border with reflective tape of engineering grade of required shade and colour as per Technical Specifications.	sqm	0.90	1,554	1,398.60
			Add 3% cost of MS sheet angle iron towards the cost of fabrications, drilling, holes, nuts, bolts, etc.				36.75
			c) **Machinery**				
			Tractor with Trolley	hour	0.08	581.00	46.48
							3,536.62
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				349.71
							3,886.33
			e) Add 1% labour cess on a+b+c+d.				38.86
			Cost for 0.9 sqm =				3,925.19
			Rate per sqm = (i+ii+iii+a+b+c+d+e)				4,361.33
			Add 12% GST				523.36
			Rate per sqm				4,884.68
						Say Rs.	**4,885.00**
			Labour Rate				91.00
			Labour for item No. 11.1				0.12
			Labour for item No. 11.4				110.75
			Labour for item No. 10.7				66.08
							267.95
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				33.49
							301.45
			Add 1% labour cess .				3.01
			Cost for 0.9 sqm				304.46
			Rate per sqm				338.29
			Add 12% GST				40.59
			Rate per sqm				378.89
						Say Rs.	**379.00**
47	10.5	1700	**Painting Two Coats on New Concrete Surfaces**				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Painting two coats including primer coat after filling the surface with synthetic enamel paint in all shades on new, plastered / concrete surfaces as per drawing and Technical Specification Clause 1701				
			Unit = sqm				
			Taking output = 40 sqm				
			a) Labour				
			Mate	day	0.20	350.00	70.00
			Painter (1st Class)	day	3.00	403.67	1,211.00
			Mazdoor (Unskilled)	day	2.00	350.00	700.00
			b) Material				
			Cement Primer as per specifications	litre	3.00	149.00	447.00
			Paint conforming to requirement of Clause 1701.3.8	litre	6.00	149.00	894.00
			Add for scaffolding @ 1 per cent of labour cost where required				19.81
							3,341.81
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				417.73
							3,759.54
			e) Add 1% labour cess on a+b+c+d.				37.60
			Cost for 40 sqm = a+b+c+d+e				3,797.13
			Rate per sqm = (a+b+c+d+e)/40				94.93
			Add 12% GST				11.39
			Rate per sqm				106.32
			Say Rs.			**Say Rs. 106.00**	
			Labour Rate				1,981.00
			Add for scaffolding @ 1 per cent of labour cost where required				19.81
							2,000.81
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				250.10
							2,250.91
			e) Add 1% labour cess				22.51
			Cost for 40 sqm				2,273.42
			Rate per sqm				56.84
			Add 12% GST				6.82
			Rate per sqm				63.66
						Say Rs. 64.00	

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
48	10.7	1700	**Painting on Concrete/Steel Surfaces with Epoxy** Painting two coats including prime coat with epoxy paint of approved brand on concrete/steel surfaces after through cleaning of surface to give an even shade as per drawing and Technical Specification Clause 1701 Unit = sqm Taking output = 10 sqm				
			a) Labour				
			Mate	day	0.25	350.00	87.50
			Painter (1st Class)	day	0.60	403.67	242.20
			Mazdoor (Unskilled)	day	0.40	350.00	140.00
			b) Material				
			Epoxy primer/Red-oxide	litre	0.60	206.00	123.60
			Epoxy paint	litre	1.25	374.00	467.50
			Add @ 1 per cent on cost of material for scaffolding wherever required				5.91
							1,066.71
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d)				133.34
							1,200.05
			d) Add 1% labour cess on a+b+c.				12.00
			Cost for 10 sqm = (a+b+c+d)				1,212.05
			Rate per sqm = (a+b+c+d)/10				121.21
			Add 12% GST				14.54
			Rate per sqm				135.75
						Say Rs. 136.00	
			Labour Rate				469.70
							877.20
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				109.65
							986.85
			Add 1% labour cess .				9.87
			Cost for 10 sqm				996.72
			Rate per sqm				99.67
			Add 12% GST				11.96
			Rate per sqm				111.63

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
							Say Rs. 112.00
49	10.8	1700	**Painting lines, Dashes, Arrows, etc. on Road in Two Coats on New Work**				
			Painting lines, dashes, arrows, etc. on roads in two coats on new work with ready mixed road marking paint conforming to IS:164 on bituminous/concrete surface, including cleaning the surface of all dirt, dust and other foreign matter, demarcation at site and traffic control as per drawing and Technical Specification Clause 1702				
			Assuming 100 mm width				
			Unit = sqm				
			Taking output = 10 sqm				
			a) Labour				
			Mate	day	0.09	350.00	31.50
			Painter 1st Class	day	0.55	403.67	222.02
			Mazdoor (Unskilled)	day	1.55	350.00	542.50
			b) Material				
			Road marking paint as per IS:164	litre	1.48	312.00	461.76
							1,257.78
			h) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d+e+f+g)				157.22
							1,415.00
			i) Add 1% labour cess on a+b+c+d+e+f+g+h.				14.15
			Cost for 10 sqm = a+b+c+d				1,429.15
			Rate per sqm = (a+b+c+d)/10				142.91
			Add 12% GST				17.15
			Rate per sqm				160.06
							Say Rs. 160.00
			Labour Rate				796.02
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				99.50
							895.52
			Add 1% labour cess				8.96
			Cost for 10 sqm				904.47
			Rate per sqm				90.45
			Add 12% GST				10.85
			Rate per sqm				101.30
							Say Rs. 101.00
50	10.10	1700	**Kilometre Stone**				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Reinforced cement concrete M15 grade kilometre stone/local stone of standard design as per IRC:8 fixing in position including painting and printing, etc as per drawing and Technical Specification Clause 1703				
			i) 5th Kilometre Stone (precast)				
			Unit = each				
			Taking output = 6 Nos.				
			a) M-15 grade of concrete				
			As per item No.12.8 of Chapter 12	cum	2.35	4,966	11,670.10
			b) Steel reinforcement @ 5 kg per sqm				
			As per item No.12.9 of Chapter 12	kg	22.08	75.62	1,669.65
			c) Excavation in soil for foundation				
			As per item No.11.1 of Chapter 11	cum	1.68	331.00	556.08
			d) Painting two coats on concrete surface				
			As per item No.10.5 of Chapter 10	sqm	9.85	94.93	935.04
			e) lettering on km post (average 30 letters of 10 cm height each)				
			As per item No.10.1 of Chapter 10	per cm high per litre	1,800	1.00	1,800.00
			Transportation and fixing				
			f) **Labour**				
			Mate	day	0.26	350.00	91.00
			Mason (1st Class)	day	0.60	505.17	303.10
			Mazdoor (Unskilled)	day	6.00	350.00	2,100.00
			g) **Machinery**				
			50 HP Tractor with trolley	hour	6.00	581.00	3,486.00
							22,610.97
			h) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d+e+f+g)				2,826.37
							25,437.34
			i) Add 1% labour cess on a+b+c+d+e+f+g+h.				254.37
			Cost for 6 Nos. 5th km stone = a+b+c+d+e+f+g+h +i				25,691.71

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Rate for each 5th km stone = (a+b+c+d+e+f+g+h+i)/6				4,281.95
			Add 12% GST				513.83
			Rate for each 5th km stone				4,795.79
			Say Rs.				**Say Rs. 4,796.00**
			Labour Rate				2,494.10
			Labour rate item No. 10.1				0.95
			Labour rate item No. 10.5				64.00
			Labour rate item No. 11.1				331.00
			Labour rate item No. 12.8				879.00
			Labour rate item No. 12.9				3,638.00
							7,407.05
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				925.88
							8,332.93
			e) Add 1% labour cess on a+b+c+d.				83.33
			Cost for 6 Nos. 5th km stone				8,416.26
			Rate for each 5th km stone				1,402.71
			Add 12% GST				168.33
			Rate for each 5th km stone				1,571.04
			Say Rs.				**Say Rs. 1,571.00**
			ii) Ordinary Kilometer Stone (Precast)				
			Unit = each Taking output = 14 Nos.				
			a) M15 grade of concrete				
			As per item No.12.8 of Chapter 12	cum	3.77	4,966	18,721.82
			b) Steel reinforcement @ 5 kg per sqm				
			As per item No.12.9 of Chapter 12	kg	26.32	75.62	1,990.27
			c) Excavation in soil for foundation As per item No.11.1 of Chapter 11	cum	2.77	331.00	916.87
			d) Painting two coats on concrete surface				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			As per item No.10.5 of Chapter 10	sqm	11.41	94.93	1,083.13
			e) lettering on km post (average 12 letters of 10 cm height each)				
			As per item No.10.1 of Chapter 10	per cm high per letter	1,680	1.00	1,680.00
			Transportation and fixing				
			f) **Labour**				
			Mate	day	0.32	350.00	112.00
			Mason (1st Class)	day	1.00	505.17	505.17
			Mazdoor (Unskilled)	day	7.00	350.00	2,450.00
			g) **Machinery**				
			50 HP Tractor with trolley	hour	6.00	581.00	3,486.00
							30,945.25
			h) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d+e+f+g)				3,868.16
							34,813.41
			i) Add 1% labour cess on a+b+c+d+e+f+g+h.				348.13
			Cost for 14 Nos. ordinary km stone = (a+b+c+d+e+ f+g+h+I)				35,161.55
			Rate for each ordinary km stone = (a+b+c+d+e+ f+g+h+i)/14				2,511.54
			Add 12% GST				301.38
			Rate for each ordinary km stone				2,812.92
			Say Rs.			**Say Rs. 2,813.00**	
			Labour Rate				3,067.17
			Labour rate item No. 10.1				0.95
			Labour rate item No. 10.5				64.00
			Labour rate item No. 11.1				331.00
			Labour rate item No. 12.8				879.00
			Labour rate item No. 12.9				3,638.00
							7,980.12
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				997.51
							8,977.63
			Add 1% labour cess				89.78
			Cost for 14 Nos. ordinary km stone				9,067.41

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Rate for each ordinary km stone				647.67
			Add 12% GST				77.72
			Rate for each ordinary km stone				725.39
						Say Rs.	**725.00**
			iii) 200 m stone (precast)				
			Unit = each				
			Taking output = 33 Nos.				
			a) M15 grade of concrete				
			As per item No.12.8 of Chapter 12	cum	1.58	4,966	7,846.28
			b) Steel reinforcement @ 5 kg per sqm				
			As per item No.12.9 of Chapter 12	kg	66.00	75.62	4,990.79
			c) Excavation in soil for foundation				
			As per item No.11.1 of Chapter 11	cum	1.39	331.00	460.09
			d) Painting two coats on concrete surface				
			As per item No.10.5 of Chapter 10	sqm	6.27	94.93	595.20
			e) lettering on km post (average 1 letter of 10 cm height each)				
			As per item No. 10.1 of Chapter 10	per cm per letter	330.00	1.00	330.00
			Transportation and fixing				
			f) **Labour**				
			Mate	day	0.34	350.00	119.00
			Mason (1st Class)	day	1.50	505.17	757.75
			Mazdoor (Unskilled)	day	7.00	350.00	2,450.00
			g) **Machinery**				
			50 HP Tractor with trolley	hour	6.00	581.00	3,486.00
							21,035.11
			h) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d+e+f+g)				2,629.39
							23,664.50

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			i) Add 1% labour cess on a+b+c+d+e+f+g+h.				236.64
			Cost for 33 Nos. 200 m stone =				23,901.14
			Rate for each 200 m stone =				724.28
			Add 12% GST				86.91
			Rate for each 200 m stone				811.19
						Say Rs. 811.00	
			Labour Rate				3,326.75
			Labour rate item No. 10.1				0.95
			Labour rate item No. 10.5				64.00
			Labour rate item No. 11.1				331.00
			Labour rate item No. 12.8				879.00
			Labour rate item No. 12.9				3,638.00
							8,239.70
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				1,029.96
							9,269.66
			Add 1% labour cess				92.70
			Cost for 33 Nos. 200 m stone				9,362.36
			Rate for each 200 m stone				283.71
			Add 12% GST				34.04
			Rate for each 200 m stone				317.75
						Say Rs. 318.00	
51	10.11	1700	**Boundary Pillar**				
			Reinforced cement concrete M15 grade boundary pillars/local stone of standard design as per IRC:25, fixed in position including finishing and lettering but excluding painting as per drawing and Technical Specification Clause 1704				
			Unit = each				
			Taking output = 57 Nos.				
			a) M-15 grade of Concrete				
			As per Item No. 12.8 of Chapter 12	cum	1.25	4,966	6,207.50
			b) Steel reinforcement				
			As per Item No. 12.9 of Chapter 12	kg	79.80	75.62	6,034.32
			c) Excavation in soil				
			As per Item No. 11.1 of Chapter 11	cum	10.72	331.00	3,548.32
			d) lettering, each 10 cm high				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			As per Item No. 10.1 of Chapter 10	per litre per cm high	2,280	1.00	2,280.00
			Transportation and fixing				
			e) Labour				
			Mate	day	0.57	350.00	199.50
			Mazdoor (Unskilled)	day	14.25	350.00	4,987.50
			f) Machinery				
			Tractor with trolley	hour	6.00	581.00	3,486.00
			g) Material				
			Stone spall	cum	11.97	600.00	7,182.00
							33,925.14
			h) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d+e+f+g)				4,240.64
							38,165.78
			i) Add 1% labour cess on a+b+c+d+e+f+g+h.				381.66
			Cost for 57 Nos. boundary pillar = a+b+c+d+e+f+g+h+i				38,547.44
			Rate for each boundary pillar = (a+b+c+d+e+f+g+h+i)/57				676.27
			Add 12% GST				81.15
			Rate for each boundary pillar				757.42
						Say Rs.	**757.00**
			Labour Rate				5,187.00
			Labour rate item No. 10.1				0.95
			Labour rate item No. 11.1				331.00
			Labour rate item No. 12.8				879.00
			Labour rate item No. 12.9				3,638.00
							10,035.95
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				1,254.49
							11,290.44
			Add 1% labour cess				112.90
			Cost for 57 Nos. boundary pillar				11,403.35
			Rate for each boundary pillar				200.06
			Add 12% GST				24.01
			Rate for each boundary pillar				224.07
						Say Rs.	**224.00**
52	10.16	1700	**Providing and Fixing 'Logo' of PMGSY Project**				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Providing and fixing of typical PMGSY informatory sign board with Logo as per MORD specifications and drawing. Three MS Plates of 1.6 mm thick, top and middle plate duly welded with MS flat iron 25mm x 5m size on back on edges. The lower plate will be welded with MS angle iron frame of 25mm x 25mm x 5mm. The angle iron frame of the lower most plate and flat iron frame of middle plate will be welded to 2 nos. 75mm x 75 mm of 12 SWG sheet tubes posts duly embedded in cement concrete M-15 grade blocks of 450mm x 450mm x 600mm, 600mm below ground level. The top most diamond plate will be welded to middle plate by 47mm x 47mm of 12 SWG steel plate tube. All M.S. will be stove enameled on both sides. Lettering and printing arrows, border etc. will be painted with ready mixed synthetic enamel paint of superior quality in required shade and colour. All sections of framed posts and steel tube will be painted with primer and two coats of epoxy paint as per drawing Clause 1701 and Annexure 1700.1 Unit = Each Taking out put = one typical board				
			(i) Excavation for foundations As per item No. 11.1 of Chapter 11	cum	0.252	331.0	83.41
			(ii) Cement Concrete M15 grade As per item No. 11.4 of Chapter 11	cum	0.252	4,966.0	1,251.43
			(iii) Painting on MS Steel tubes with primer and two coats of epoxy paint 2x2.05x.30 = 1.23 1x1.10x188 = 0.21 As per item no. 10.7 of Chapter 10	sqm	1.80	121.21	218.17
			iv) Printing new letters and figures of any shade with synthetic enamel paint black or any other approved colour to give an even shade. Logo Border 60x4x5 = 1200 per cm height per letter				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Figure 60x10 = 600 per cm height per letter				
			Middle plate words 28x5 = 140 per cm height per letter				
			Bottom plate border 150x2x5 = 1500 per cm height per letter				
			Bottom plate border 60x2x5 = 600 per cm height per letter				
			Words 101x2.5 = 252.5				
			Words 80x3 = 240.00				
			Total				
			As per item No.10.1 of Chapter 10	per cm height per litre	4,533	1.00	4,532.50
			a) **Labour (for fixing at site)**				
			Mate	day	0.03	350.00	10.50
			Mazdoor (Unskilled)	day	0.75	350.00	262.50
			b) **Material**				
			2 nos. MS tubes 75mx75mm of 12 SWG sheet 2650 mm long	kg	63.15	91.00	5,746.65
			1 No. MS tube 47mm x 47mm of 12 SWG 1100 mm long	kg	4.47	91.00	406.77
			Angle iron 50mm x 50mm x 5 mm for lugs	kg	2.12	91.00	192.92
			1.6 mm thick MS sheet strengthened by 25mm x 5 MS flat iron on logo and middle plate angle iron 25mm x 25mm x 5mm on bottom plate painting with stove enameled paint on both sides as per MORD specifications	sqm	1.44	1,554.0	2,237.76
			Add 3% cost of MS tube and angle iron towards the cost of fabrications, drilling holes, nuts, bolts, etc.				190.39
			c) **Machinery**				
			Tractor with trolley	hour	0.24	581.00	139.44
							15,272.44
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				1,148.37

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
							16,420.81
			e) Add 1% labour cess on a+b+c+d.				164.21
			Cost for one Board= (i+ii+iii+iv+a+b+c+d)				16,585.02
							Say Rs. 16,585.00
			Labour Rate				273.00
			Labour rate item No. 10.1				4,305.88
			Labour rate item No. 10.7				201.60
			Labour rate item No. 11.1				83.412
			Labour rate item No. 11.4				221.508
							5,085.40
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				635.67
							5,721.07
			Add 1% labour cess .				57.21
			Cost for one Board				5,778.28
			Add 12% GST				693.39
			Cost for one Board				6,471.67
							Say Rs. 6,472.00
53	**8.15**	**805**	**Road Delineators**				
		MORTH	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.				
			Unit = Each				
			Taking output= 30 Nos.				
			a) Labour				
			Mate	day	0.040	350.00	14.00
			Mazdoor for fixing	day	1.000	350.00	350.00
			b) Material				
			Cost of approved type of delineators from ISI certified firm as per the standard drawing given in IRC - 79	each	30.000	399.00	11970.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Add 10 per cent cost of material for installation				1197.00
							13531.00
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				1,691.38
							15,222.38
			d) Add 1% labour cess on a+b+c+d.				152.22
			Cost of 30 Nos a+b+c+d=				15,374.60
			Rate per delineators = (a+b+c+d) /30				512.49
			Add 12% GST				61.50
			Rate per delineators				573.99
						Say Rs. 512.50	
			Labour Rate Cost of 30 Nos				364.00
			Cost of one Nos				12.13
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				1.52
							13.65
			Add 1% labour cess				0.137
							13.79
			Add 12% GST				1.65
			Rate per delineators				15.44
						Say Rs. 15.40	

CHAPTER-11

FOUNDATION

	Preamble:
1	Excavation for structures has been provided by and large by manual means.
2	The earth excavated from foundation has been proposed to be backfilled in the foundation trenches except for marshy soil where disposal has been provided.
3	The rock surface for foundations is to be prepared which has been analysed accordingly.
4	In case of rock, excavation has been considered upto a depth of 1500 mm for rock of ultimate crushing strength of 10 Mpa or more, which shall be reckoned as hard rock.
5	Mixing of cement concrete has been considered by using concrete mixer with weigh batching facility fitted with water measuring device. It is preferable to use concrete mixes fitted with load cells for weigh batching.
6	In remote areas, for isolated slab culvert/box culvert upto 2 m span, concrete can be hand mixed in accordance with Clause 806 of MORD Specifications. Therefore, in the analysis, for items of concrete, the alternative of hand mixing has also been considered.
7	Necessary safety precautions shall be taken for excavation for open foundation for which guidance may be taken from IS:3764. Cost of shoring and shuttering has been provided on percentage basis, which may be adjusted according to site condition.
8	Rates of all materials used in the analysis/schedule are on lowest prevailing market rates as finalized and approved by the committee constituted and should include cartage from crusher.
9	The extra Cost of Carriage, including loading, unloading is required to be added based on Tonne - Kilometerage as per Chapter -I for the purpose of justification.

CHAPTER – 11
FOUNDATION

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
54	11.1	300	**Excavation for Structures**				
			Earthwork in excavation for structures as per drawing and technical specifications Clause 305.1 including setting out, construction of shoring and bracing, removal of stumps and other deleterious material and disposal upto a lead of 50 m, dressing of sides and bottom and backfilling in trenches with excavated suitable material.				
			I. Ordinary soil				
			(i) **Upto 3 m depth**				
			Unit = cum				
			Taking output = 10 cum				
			a) Labour				
			Mate	day	0.32	350.00	112.00
			Mazdoor (Unskilled)	day	8.00	350.00	2,800.00
							2,912.00
			b) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a)				364.00
							3,276.00
			c) Add 1% labour cess on a+b.				32.76
			Cost for 10 cum = a+b+c				3,308.76
			Rate per cum = (a+b+c)/10				330.88
			Add 12% GST				39.71
			Rate per Cum				370.58
							Say Rs. 371.00
			II. Ordinary rock (not requiring blasting)				
			Upto 3 m depth				
			Unit = cum				
			Taking output = 10 cum				
			a) **Labour**				
			Mate	day	0.40	350.00	140.00
			Mazdoor (Unskilled)	day	10.00	350.00	3,500.00
							3,640.00
			b) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a)				455.00
							4,095.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			c) Add 1% labour cess on a+b.				40.95
			Cost for 10 cum = a+b+c				4,135.95
			Rate per cum = (a+b+c)/10				413.60
			Add 12% GST				49.63
			Rate per Cum				463.23
			Add 12% GST				55.59
			Rate per Cum				518.81
						Say Rs.	**519.00**
			III. Hard rock (requiring blasting)				
			Upto 3 m depth including 1.5 m depth in hard rock				
			Unit = cum				
			Taking output = 10 cum				
			a) **Labour**				
			Mate	day	0.53	350.00	185.50
			Driller	day	0.84	350.00	294.00
			Blaster	day	0.40	403.67	161.47
			Mazdoor (Unskilled)	day	12.00	350.00	4,200.00
			b) **Machinery**				
			Air compressor 210 cfm with 2 jack hammers for drilling	hour	1.00	488.00	488.00
			c) **Material**				
			Gelatin 80%	kg	3.50	98.00	343.00
			Detonator electric	Nos.	14.00	16.00	224.00
							5,895.97
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				737.00
							6,632.96
			e) Add 1% labour cess on a+b+c+d.				66.33
			Cost for 10 cum = a+b+c+d+e				6,699.29
			Rate per cum = (a+b+c+d+e)/10				669.93
			Add 12% GST				80.39
			Rate per Cum				750.32
						Say Rs.	**750.00**
			Labour Rate				4,840.97
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				605.12

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
							5,446.09
			e) Add 1% labour cess on a+b+c+d.				54.46
			Cost for 10 cum				5,500.55
			Rate per cum				550.05
			Add 12% GST				66.01
			Rate per Cum				616.06
							Say Rs. 616.00
			IV. Hard rock (blasting prohibited)				
			Upto 3 m depth including 1.5 m depth in hard rock				
			Unit = cum				
			Taking output = 10 cum				
			a) **Labour**				
			Mate	day	0.20	350.00	70.00
			Mazdoor (Unskilled)	day	5.00	350.00	1,750.00
			b) **Machinery**				
			Air compressor 210 cfm with 2 jack hammers of pneumatic breaker	hour	10.00	488.00	4,880.00
							6,700.00
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				837.50
							7,537.50
			d) Add 1% labour cess on a+b+c.				75.38
			Cost for 10 cum = a+b+c+d				7,612.88
			Rate per cum = a+b+c+d/10				761.29
			Add 12% GST				91.35
			Rate per Cum				852.64
							852.64
			Labour Rate				1,820.00
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				227.50
							2,047.50
			e) Add 1% labour cess on a+b+c+d.				20.48
			Cost for 10 cum				2,067.98
			Rate per cum				206.80
			Add 12% GST				24.82
			Rate per Cum				231.61
							Say Rs. 232.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
55	11.4	800 & 1200	Providing concrete for plain/reinforced concrete in open foundations complete as per drawings and technical specifications Clause 802, 803, 1202 & 1203				
			I. P.C.C grade M 10				
			(i) **Nominal mix 1:3:6**				
			Unit = cum				
			a) Material				
			Cement	t	0.250	6,875.00	1,718.75
			Coarse sand	cum	0.48	1,156.00	554.88
			40 mm aggregate	cum	0.576	954.00	549.50
			20 mm aggregate	cum	0.288	1,298.00	373.82
			10 mm aggregate	cum	0.096	1,298.00	124.61
			b) Labour				
			Mate	day	0.08	350.00	28.00
			Mason (1st Class)	day	0.10	505.17	50.52
			Mazdoor (Unskilled)	day	1.63	350.00	570.50
			Bhisti	day	0.27	350.00	94.50
			c) Machinery				
			Mechnical concrete mixer 0.4/0.28 cum capacity fitted with water measuring device and preferably also with load cell.	hour	0.40	350.00	140.00
							4,205.08
			d) Formwork @ 4% on cost of material, labour and machinery (a+b+c)				168.20
							4,373.29
			e) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d)				546.66
							4,919.95
			f) Add 1% labour cess on a+b+c+d+e.				49.20
			Rate per cum =				4,969.15
			Add 12% GST				596.30
			Rate per Cum				5,565.44
							Say Rs. 5,565.00
			Labour Rate				743.52
			Formwork @ 4%				29.74
							773.26

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			e) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				96.66
							869.91
			f) Add 1% labour cess				8.70
			Rate per cum				878.61
			Add 12% GST				105.43
			Rate per Cum				984.05
							Say Rs. 984.00
			II. P.C.C grade M 15				
			(i) **Nominal mix (1:2.5:5) 1 cement :2.5 Sand : 5 graded stone aggregare 40 mm & down gauge nominal size.**				
			Unit = cum				
			a) Material				
			Cement	t	0.275	6,875.00	1,890.63
			Coarse sand	cum	0.48	1,156.00	554.88
			40 mm aggregate	cum	0.48	954.00	457.92
			20 mm aggregate	cum	0.24	1,298.00	311.52
			10 mm aggregate	cum	0.08	1,298.00	103.84
			b) Labour				
			Mate	day	0.08	350.00	28.00
			Mason (1st Class)	day	0.10	505.17	50.52
			Mazdoor (Unskilled)	day	1.63	350.00	570.50
			Bhisti	day	0.27	350.00	94.50
			c) Machinery				
			Concrete mixer 0.4/0.28 cum capacity	hour	0.40	350.00	140.00
			d) Formwork @ 4% on cost of material, labour and machinery (a+b+c)				168.09
							4,370.39
			e) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d)				546.30
							4,916.69
			f) Add 1% labour cess on a+b+c+d.				49.17
			Rate per cum = a+b+c+d+e+f				4,965.86
			Add 12% GST				595.90
			Rate per Cum				5,561.76
							Say Rs. 5,562.00
			Labour Rate				743.52
			Formwork @ 4%				29.74

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
							773.26
			e) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				96.66
							869.91
			f) Add 1% labour cess				8.70
			Rate per cum				878.61
			Add 12% GST				105.43
			Rate per Cum				984.05
							Say Rs. 984.00
			III. P.C.C. grade M 20				
			(i) **Nominal mix (1:2:4)**				
			Unit = cum				
			a) Material				
			Cement	t	0.33	6,875.00	2,268.75
			Sand	cum	0.45	1,156.00	520.20
			40 mm aggregate	cum	0.36	954.00	343.44
			20 mm aggregate	cum	0.36	1,298.00	467.28
			10 mm aggregate	cum	0.18	1,298.00	233.64
			b) Labour				
			Mate	day	0.08	350.00	28.00
			Mason (1st Class)	day	0.10	505.17	50.52
			Mazdoor (Unskilled)	day	1.63	350.00	570.50
			Bhisti	day	0.27	350.00	94.50
			c) Machinery				
			Concrete mixer 0.4/0.28 cum capacity	hour	0.40	350.00	140.00
			d) Formwork @ 4% on (a+b+c)				188.67
							4,905.50
			e) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d)				613.19
							5,518.69
			f) Add 1% labour cess on a+b+c+d.				55.19
			Rate per cum = a+b+c+d+e+f				5,573.87
			Add 12% GST				668.86
			Rate per Cum				6,242.74
							Say Rs. 6,243.00
			Labour Rate				743.52
			Formwork @ 4%				29.74
							773.26
			e) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				96.66

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
							869.91
			f) Add 1% labour cess				8.70
			Rate per cum				878.61
			Add 12% GST				105.43
			Rate per Cum				984.05
							Say Rs. 984.00
			IV **R.C.C grade M 20**				
			Unit = cum				
			a) **Material**				
			Cement	t	0.35	6,875.00	2,406.25
			Coarse sand	cum	0.45	1,156.00	520.20
			20 mm aggregate	cum	0.54	1,298.00	700.92
			10 mm aggregate	cum	0.36	1,298.00	467.28
			b) **Labour**				
			Mate	day	0.08	350.00	28.00
			Mason (1st Class)	day	0.12	505.17	60.62
			Mazdoor (Unskilled)	day	1.73	350.00	605.50
			Bhisti	day	0.27	350.00	94.50
			c) **Machinery**				
			Concrete mixer 0.4/0.28 cum capacity	hour	0.40	350.00	140.00
			d) **Formwork @ 4% on (a+b+c)**				200.93
							5,224.20
			e) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d)				653.03
							5,877.23
			f) Add 1% labour cess on a+b+c+d.				58.77
			Rate per cum = (a+b+c+d+e+f)				5,936.00
			Add 12% GST				712.32
			Rate per Cum				6,648.32
							Say Rs. 6,648.00
			Labour Rate				788.62
			Formwork @ 4%				31.54
							820.16
			e) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				102.52
							922.69
			f) Add 1% labour cess				9.23
			Rate per cum				931.91
			Add 12% GST				111.83
			Rate per Cum				1,043.74
							Say Rs. 1,044.00
			V. R.C.C. grade M 25				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Unit = cum				
			a) **Material**				
			Cement	t	0.404	6,875.00	2,777.50
			Coarse sand	cum	0.45	1,156.00	520.20
			20 mm aggregate	cum	0.54	1,298.00	700.92
			10 mm aggregate	cum	0.36	1,298.00	467.28
			b) **Labour**				
			Mate	day	0.08	350.00	28.00
			Mason (1st Class)	day	0.12	505.17	60.62
			Mazdoor (Unskilled)	day	1.73	350.00	605.50
			Bhisti	day	0.27	350.00	94.50
			c) **Machinery**				
			Concrete mixer 0.4/0.28 cum capacity	hour	0.40	350.00	140.00
			d) **Formwork @ 3.75% on (a+b+c)**				202.29
							5,596.81
			e) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d)				699.60
							6,296.42
			f) Add 1% labour cess on a+b+c+d.				62.96
			Rate per cum = a+b+c+d+e+f				6,359.38
			Add 12% GST				763.13
			Rate per Cum				7,122.51
							Say Rs. 7,123.00
			Labour Rate				788.62
			Formwork @ 3.75%				29.57
							818.19
			e) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				102.27
							920.47
			f) Add 1% labour cess				9.20
			Rate per cum				929.67
			Add 12% GST				111.56
			Rate per Cum				1,041.23
							Say Rs. 1,041.00
			VI P.C.C. grade M 15				
			I) Nominal mix (1:2.5:5) 1 cement :2.5 Sand : 5 graded stone aggregare 40 mm nominal size.				
			Unit = cum				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			a) **Material**				
			Cement	t	0.275	6,875.00	1,890.63
			Coarse sand	cum	0.48	1,156.00	554.88
			40 mm aggregate	cum	0.48	954.00	457.92
			b) **Labour**				
			Mate	day	0.08	350.00	28.00
			Mason (1st Class)	day	0.10	505.17	50.52
			Mazdoor (Unskilled)	day	1.63	350.00	570.50
			Bhisti	day	0.27	350.00	94.50
			c) **Machinery**				
			Concrete mixer 0.4/0.28 cum capacity	hour	0.40	350.00	140.00
			d) **Formwork @ 4% on (a+b+c)**				151.48
							3,938.42
			e) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d)				492.30
							4,430.72
			f) Add 1% labour cess on a+b+c+d+e.				44.31
			Rate per cum = a+b+c+d+e+f				4,475.03
			Add 12% GST				537.00
			Rate per Cum				5,012.03
							Say Rs. 5,012.00
			Labour Rate				743.52
			Formwork @ 4%				29.74
							773.26
			e) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				96.66
							869.91
			f) Add 1% labour cess				8.70
			Rate per cum				878.61
			Add 12% GST				105.43
			Rate per Cum				984.05
							Say Rs. 984.00
56	11.6	700 & 1200	**Stone masonry work in cement mortar in foundation complete as per drawing and technical specifications Clauses 702, 704, 1202 & 1203.**				
			(i) **In 1:4 cement mortar**				
			Unit = cum				
			a) Material				
			Stone for C.R. masonry 1st sort	cum	1.10	800.00	880.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Through bond stone (7 nos 0.24 x 0.24 x 0.39 = 0.16 cum)	Nos.	7.00	25.00	175.00
			Cement mortar 1:4 (Rate as in item 11.5 II)	cum	0.30	4,183.30	1,254.99
			b) Labour				
			Mate	day	0.14	350.00	49.00
			Mason (1st Class)	day	1.50	505.17	757.75
			Mazdoor (Unskilled)	day	2.10	350.00	735.00
			Bhisti	day	0.08	350.00	28.00
							3,879.74
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				484.97
							4,364.71
			d) Add 1% labour cess on a+b+c.				43.65
			Rate per cum = (a+b+c+d)				4,408.35
			Add 12% GST				529.00
			Rate per Cum				4,937.36
						Say Rs.	**4,937.00**
			Labour Rate				1,569.75
			Labour in CM 1:4				357.00
							1,926.75
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				240.84
							2,167.59
			d) Add 1% labour cess				21.68
			Rate per cum				2,189.27
			Add 12% GST				262.71
			Rate per Cum				2,451.98
						Say Rs.	**2,452.00**
			(iii) **In cement mortar (1:5)**				
			Unit = cum				
			a) Material				
			Stone for CR masonry 1st sort	cum	0.60	800.00	480.00
			Through and bond stone (7 no x 0.24 x 0.24 m x 0.39 m = 0.16 cum)	Nos.	7.00	25.00	175.00
			Spalls/blasted rubbles	cum	0.50	700.00	350.00
			Cement mortar (Rate same as in item 12.1 III)	cum	0.33	3,702.05	1,221.68
			b) Labour				
			Mate	day	0.14	350.00	49.00
			Mason 1st Class	day	1.30	505.17	656.72
			Mazdoor (Unskilled)	day	2.00	350.00	700.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Bhisti	day	0.08	350.00	28.00
			As for scaffolding @ 5% on (a+b)				183.02
							3,843.41
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				480.43
							4,323.84
			d) Add 1% labour cess on a+b+c.				43.24
			Rate per cum = a+b+c+d				4,367.08
			Add 12% GST				524.05
			Rate per Cum				4,891.13
							Say Rs. 4,891.00
			Labour Rate				1,433.72
			Morter 1:5				357.00
			Scaffolding @ 5%				89.54
							1,880.25
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				235.03
							2,115.28
			d) Add 1% labour cess				21.15
			Rate per cum				2,136.44
			Add 12% GST				256.37
			Rate per Cum				2,392.81
							Say Rs. 2,393.00
57	11.11	800 & 1200	**Providing and Laying concrete for plain/reinforced concrete in open foundations complete as per drawing and technical specification clauses 802, 803, 1202 and 1203**				
			P.C.C nominal mix 1:4:8 (25 mm aggregates)				
			Unit = cum				
			a) Material				
			Cement	t	0.17	6,875.00	1,168.75
			Course Sand	cum	0.47	1,156.00	543.32
			Aggregate 25mm	cum	0.65	1,298.00	843.70
			Aggregate 20mm	cum	0.24	1,298.00	311.52
			b) Labour				
			Mate	day	0.08	350.00	28.00
			Mason 1st class	day	0.10	505.17	50.52

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Mazdoor (Unskilled)	day	1.63	350.00	570.50
			Bhisti	day	0.27	350.00	94.50
			c) Machinery				
			Mechanical concrete mixer 0.4/0.28 cum capacity fitted with water measuring device and preferably also with load cell	hour	0.40	350.00	140.00
			d) formwork@4% on (a+b+c)				150.03
							3,900.84
			e) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d)				487.60
							4,388.44
			f) Add 1% labour cess on a+b+c+d+e.				43.88
			Cost per cum				4,432.33
			Add 12% GST				531.88
			Rate per Cum				4,964.21
						Say Rs.	**4,964.00**
			Labour Rate				743.52
			formwork @ 4%				29.74
							773.26
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				96.66
							869.91
			Add 1% labour cess				8.70
			Rate per cum				878.61
			Add 12% GST				105.43
			Rate per Cum				984.05
						Say Rs.	**984.00**
58	11.13	800 & 1200	**Providing and Laying concrete for plain/reinforced concrete in open foundations complete as per drawing and technical specification clauses 802, 803, 1202 and 1203 P.C.C nominal mix 1:6:12 (40 mm aggregates)**				
			Unit = cum				
			a) Material				
			Aggregate 40mm	cum	0.65	954.00	620.10
			Aggregate 20mm	cum	0.24	1,298.00	311.52
			Course Sand	cum	0.47	1,156.00	543.32
			Cement	t	0.11	6,875.00	756.25

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			b) Labour				
			Mate	day	0.08	350.00	28.00
			Mason 1st class	day	0.10	505.17	50.52
			Mazdoor (Unskilled)	day	1.63	350.00	570.50
			Bhisti	day	0.27	350.00	94.50
			c) Machinery				
			Mechanical concrete mixer 0.4/0.28 cum capacity fitted with water measuring device and preferably also with load cell	hour	0.40	350.00	140.00
			d) formwork@4% on (a+b+c)				124.59
							3,239.29
			e) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				404.91
							3,644.21
			f) Add 1% labour cess on a+b+c+d.				36.44
			Cost per cum				3,680.65
			Add 12% GST				441.68
			Rate per Cum				4,122.33
						Say Rs.	**4,122.00**
			Labour Rate				743.52
			formwork @ 4%				29.74
							773.26
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				96.66
							869.91
			Add 1% labour cess				8.70
			Rate per cum				878.61
			Add 12% GST				105.43
			Rate per Cum				984.05
						Say Rs.	**984.00**
59	11.14	800 & 1200	**Providing and Laying cement concrete 1:5:10 with 15% plum and curing complete including the cost of formwork for plain / reinforced concrete in retaining walls, breast walls, the size of plum should be 150 to 300 mm as per drawing and HP.PWD technical specifications.**				
			Unit = cum				
			a) Material				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Aggregate 40mm	cum	0.55	954.00	524.70
			Aggregate 20mm	cum	0.20	1,298.00	259.60
			Course Sand	cum	0.47	1,156.00	543.32
			Cement	t	0.13	6,875.00	893.75
			Plum	cum	0.15	600.00	90.00
			b) Labour				
			Mate	day	0.08	350.00	28.00
			Mason 1st class	day	0.10	505.17	50.52
			Mazdoor (Unskilled)	day	1.63	350.00	570.50
			Bhisti	day	0.27	350.00	94.50
			c) Machinery				
			Mechanical concrete mixer 0.4/0.28 cum capacity fitted with water measuring device and preferably also with load cell	hour	0.40	350.00	140.00
			d) formwork@4% on (a+b+c)				127.80
							3,322.68
			e) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d)				415.34
							3,738.02
			f) Add 1% labour cess on a+b+c+d+e.				37.38
			Cost per cum				3,775.40
			Add 12% GST				453.05
			Rate per Cum				4,228.45
						Say Rs.	**4,228.00**
			Labour Rate				743.52
			formwork @ 4%				29.74
							773.26
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				96.66
							869.91
			Add 1% labour cess				8.70
			Rate per cum				878.61
			Add 12% GST				105.43
			Rate per Cum				984.05
						Say Rs.	**984.00**
A	800 & 1200		**Providing and Laying cement concrete 1:5:10 and curing complete including the cost of formwork for plain/reinforced concrete in retaining walls, breast walls as per drawing and HP.PWD technical specifications.**				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Unit = cum				
			a) Material				
			Aggregate 40mm	cum	0.65	954.00	620.10
			Aggregate 20mm	cum	0.24	1,298.00	311.52
			Course Sand	cum	0.47	1,156.00	543.32
			Cement	t	0.13	6,875.00	893.75
			b) Labour				
			Mate	day	0.08	350.00	28.00
			Mason 1st class	day	0.10	505.17	50.52
			Mazdoor (Unskilled)	day	1.63	350.00	570.50
			Bhisti	day	0.27	350.00	94.50
			c) Machinery				
			Mechanical concrete mixer 0.4/0.28 cum capacity fitted with water measuring device and preferably also with load cell	hour	0.40	350.00	140.00
			d) formwork@4% on (a+b+c)				130.09
							3,382.29
			e) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d)				422.79
							3,805.08
			f) Add 1% labour cess on a+b+c+d+e.				38.05
			Cost per cum				3,843.13
			Add 12% GST				461.18
			Rate per Cum				4,304.31
						Say Rs.	**4,304.00**
			Labour Rate				743.52
			formwork @ 4%				29.74
							773.26
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				96.66
							869.91
			Add 1% labour cess				8.70
			Rate per cum				878.61
			Add 12% GST				105.43
			Rate per Cum				984.05
						Say Rs.	**984.00**

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
60	11.15	800 & 1200	**Providing and Laying cement concrete 1:4:8 with 15% plums and curing complete including the cost of formwork for plain/reinforced concrete in retaining walls, breast walls, the size of plum should be 150 to 300 mm as per drawing and HP.PWD technical specifications.** **Unit = cum**				
			a) Material				
			Aggregate 40mm	cum	0.55	954.00	524.70
			Aggregate 20mm	cum	0.20	1,298.00	259.60
			Course Sand	cum	0.47	1,156.00	543.32
			Cement	t	0.17	6,875.00	1,168.75
			Plum	cum	0.14	600.00	84.00
			b) Labour				
			Mate	day	0.08	350.00	28.00
			Mason 1st class	day	0.10	505.17	50.52
			Mazdoor (Unskilled)	day	1.63	350.00	570.50
			Bhisti	day	0.27	350.00	94.50
			c) Machinery				
			Mechanical concrete mixer 0.4/0.28 cum capacity fitted with water measuring device and preferably also with load cell	hour	0.40	350.00	140.00
			d) formwork@4% on (a+b+c)				138.56
							3,602.44
			e) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d)				450.31
							4,052.75
			f) Add 1% labour cess on a+b+c+d+e.				40.53
			Cost per cum				4,093.27
			Add 12% GST				491.19
			Rate per Cum				4,584.47
						Say Rs.	**4,584.00**
			Labour Rate				743.52
			formwork @ 4%				29.74
							773.26
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				96.66
							869.91
			Add 1% labour cess				8.70
			Rate per cum				878.61
			Add 12% GST				105.43
			Rate per Cum				984.05

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
							Say Rs. 984.00
A		800 & 1200	**Providing and Laying cement concrete 1:4:8 and curing complete including the cost of formwork for plain/reinforced concrete in retaining walls, breast walls, as per drawing and HP.PWD technical specifications.**				
			Unit = cum				
			a) Material				
			Aggregate 40mm	cum	0.65	954.00	620.10
			Aggregate 20mm	cum	0.24	1,298.00	311.52
			Course Sand	cum	0.47	1,156.00	543.32
			Cement	t	0.17	6,875.00	1,168.75
			b) Labour				
			Mate	day	0.08	350.00	28.00
			Mason 1st class	day	0.10	505.17	50.52
			Mazdoor (Unskilled)	day	1.63	350.00	570.50
			Bhisti	day	0.27	350.00	94.50
			c) Machinery				
			Mechanical concrete mixer 0.4/0.28 cum capacity fitted with water measuring device and preferably also with load cell	hour	0.40	350.00	140.00
			d) formwork@4% on (a+b+c)				141.09
							3,668.29
			e) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d)				458.54
							4,126.83
			f) Add 1% labour cess on a+b+c+d+e.				41.27
			Cost per cum				4,168.10
			Add 12% GST				500.17
			Rate per Cum				4,668.27
							Say Rs. 4,668.00
			Labour Rate				743.52
			formwork @ 4%				29.74
							773.26
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				96.66
							869.91
			Add 1% labour cess				8.70
			Rate per cum				878.61
			Add 12% GST				105.43
			Rate per Cum				984.05
							Say Rs. 984.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
61	11.16	800 & 1200	**Providing and Laying cement concrete 1:5:10(1 cement :5 Sand :10 graded stone aggregate 40 mm nominal size) with 15% plams, the size of plum should be 150 to 300 mm and curing complete including the cost of formwork with steel plates and filled by bitumen drums in dressiest as per drawing and HP.PWD technical specifications.**				
			Detail of cost for one paraphets				
			Unit = cum				
			a) Excavation in earth work				
			1x1.85x0.45x0.15=0.12 cum	cum	0.12	207.00	24.84
			Rate as per item No. 8.3(1)(A)				
			b) Providing and laying C.C 1:5:10 with 15% plam 40 mm nominal size				
			1x1.85x0.45x0.60=0.50 cum				
			Less parapet				
			1x1.85x0.45x0.15=0.02 cum				
			Net Qty: 0.48 cum	cum	0.48	4,228.00	2,029.44
			Rate as per item No.				
			c) Supplying of bitumen drums from PWD Store to site of work 2 Nos.	Nos.	2.00	150.00	300.00
			d) Labour for carriage of empty drums filling with earth and stones including copping etc.	day	2.00	350.00	700.00
			e) Sundries				100.00
			Cost per one Parapets on (a+b+c+d+e)				3,154.28
			Add 12% GST				378.51
			Cost per one Parapet				3,532.79
						Say Rs.	**3,533.00**
			Labour Rate				700.00
			Labour for earth work				22.00
			Labour for 1:5:10 with plam				984.00
			Cost for one Parapet				**1,706.00**
			Add 12% GST				204.72
			Cost per one Parapet				1,910.72
						Say Rs.	**1,911.00**

CHAPTER-12

SUBSTRUCTURE

	Preamble:
1	The cost of form work will vary with the height and cross-section of the substructure. Provision has been made accordingly.
2	As the higher grade of concrete is costlier, the provision made for formwork on percentage basis has been suitably adjusted to make it compatible with other grades.
3	Filter media and backfilling behind abutment are required to be provided as per guidelines in IRC:78-2000.
4	Bearing shall be set truly level so as to have full and even seating.
5	The bearing should be procured only from those manufacturers who have been pre-qualified by MORTH.
6	For spans in gradient, the soffit shall be made horizontal specially at the supports and the bearing, where provided, shall be placed horizontally.
7	Weep holes shall be provided as per specifications.

CHAPTER – 12
SUBSTRUCTURE

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
62	12.2	600	**Pointing with cement mortar (1:3) on brickwork as per drawing and technical specification Clauses 613.3 and 1204**				
			Unit = 10 sqm				
			Taking output = 10 sqm				
			a) Material				
			Cement mortar 1.3 (Rate as in item 11.5. I)	cum	0.03	5,077.00	152.31
			b) Labour				
			Mate	day	0.04	350.00	14.00
			Mason 1st Class	day	0.50	505.17	252.58
			Mazdoor (Unskilled)	day	0.50	350.00	175.00
			Bhisti	day	0.20	350.00	70.00
							663.89
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				82.99
							746.88
			d) Add 1% labour cess on a+b+c.				7.47
			Rate per 10 sqm = (a+b+c+d)				754.35
			Cost per sqm				75.43
			Add 12% GST				9.05
			Cost per sqm				84.49
						Say Rs.	**84.00**
			Labour Rate				511.58
			Morter 1:3				10.71
							522.29
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				65.29
							587.58
			d) Add 1% labour cess.				5.88
			Rate per 10 sqm				593.46
			Cost per sqm				59.35
			Add 12% GST				7.12
			Cost per sqm				66.47
						Say Rs.	**66.00**

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
63	12.4	600	**Plastering with cement mortar (1:4), 15 mm thick on brickwork in substructure as per technical specification Clauses 613.4 & 1204**				
			Unit = 10 sqm				
			Taking output = 10 sqm				
			a) Material				
			Cement mortar 1:4 (Rate as in item 11.5 II)	cum	0.24	4,183.30	1,003.99
			b) Labour				
			Mate	day	0.06	350.00	21.00
			Mason 1st Class	day	0.60	505.17	303.10
			Mazdoor (Unskilled)	day	0.60	350.00	210.00
			Bhisti	day	0.30	350.00	105.00
							1,643.09
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				205.39
							1,848.48
			d) Add 1% labour cess on a+b+c.				18.48
			Rate per 10 sqm = a+b+c+d				1,866.96
					Per Sqm		186.70
			Add 12% GST				22.40
			Cost per sqm				209.10
						Say Rs.	**209.00**
			Labour Rate				639.10
			Morter 1:4				357.00
							996.10
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				124.51
							1,120.61
			Add 1% labour cess.				11.21
			Rate per 10 sqm				1,131.82
					Per Sqm		113.18
			Add 12% GST				13.58
			Cost per sqm				126.76
						Say Rs.	**127.00**

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
64	12.6	700	**Construction of dry rabble masonry for retaining walls, breast walls, revetment walls and parapets etc. for sub structure and super structure complete as per drawing and technical specification clauses 704.6 and 1302.5**				
			Unit = cum				
			Taking output = 10 sqm				
			a) Material				
			Stone for R/R masonry	cum	1.00	700.00	700.00
			Through and bond stone	Nos.	7.00	25.00	175.00
			b) Labour				
			Mate	day	0.12	350.00	42.00
			Mason 1st Class	day	1.20	505.17	606.20
			Mazdoor (Unskilled)	day	1.80	350.00	630.00
			Bhisti	day	0.08	350.00	28.00
			c) Add for scaffolding @ 5 per cent on				109.06
							2,290.26
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				286.28
							2,576.54
			e) Add 1% labour cess on a+b+c+d.				25.77
			Rate per 10 sqm = a+b+c+d				2,602.31
			Add 12% GST				312.28
			Cost per cum				2,914.58
						Say Rs.	**2,602.00**
			Labour Rate				1,306.20
			Scaffolding @ 5%				65.31
							1,371.51
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				171.44
							1,542.95
			Add 1% labour cess				15.43
			Cost per cum				1,558.38
			Add 12% GST				187.01
			Cost per cum				1,745.38
						Say Rs.	**1,745.00**

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
65	12.7	700	**Stone masonry in cement mortar for substructure complete as per drawing & technical specification Clauses 702, 704, 1202 and 1204**				
			I. Coursed rubble masonry (1st sort)				
			(i) **In 1:3 cement mortar**				
			Unit = cum				
			a) Material				
			Stone for CR masonry 1st sort	cum	1.10	800.00	880.00
			Through and bond stone (7 no x 0.24 x 0.24 m x 0.39 m = 0.16 cum)	Nos.	7.00	25.00	175.00
			Cement mortar (Rate as in item 11.5. I)	cum	0.30	5,077.05	1,523.12
			b) Labour				
			Mate	day	0.14	350.00	49.00
			Mason 1st Class	day	1.50	505.17	757.75
			Mazdoor (Unskilled)	day	2.10	350.00	735.00
			Bhisti	day	0.08	350.00	28.00
			Add for scaffolding @ 5 per cent of cost of material (a) and labour (b) (a+b)				207.39
							4,355.26
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				544.41
							4,899.67
			d) Add 1% labour cess on a+b+c.				49.00
			Rate per cum = a+b+c+d				4,948.66
			Add 12% GST				593.84
			Cost per cum				5,542.50
							Say Rs. 5,543.00
			Labour Rate				1,569.75
			Morter 1:3				357.00
			Scaffolding @ 5%				96.34
							2,023.09

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				252.89
							2,275.97
			Add 1% labour cess				22.76
			Rate per cum				2,298.73
			Add 12% GST				275.85
			Cost per cum				2,574.58
							Say Rs. 2,575.00
			(ii) **In 1:4 cement mortar**				
			Unit = cum				
			a) Material				
			Stone for CR masonry 1st sort	cum	1.10	800.00	880.00
			Through and bond stone (7 no x 0.24 x 0.24 m x 0.39 m = 0.16 cum)	Nos.	7.00	25.00	175.00
			Cement mortar (Rate as in item 11.5 II)	cum	0.30	4,183.30	1,254.99
			b) Labour				
			Mate	day	0.14	350.00	49.00
			Mason 1st Class	day	1.50	505.17	757.75
			Mazdoor (Unskilled)	day	2.10	350.00	735.00
			Bhisti	day	0.08	350.00	28.00
			Add for scaffolding @ 5 per cent of cost of material (a) and labour (b) 5% on (a+b)				193.99
							4,073.73
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				509.22
							4,582.94
			d) Add 1% labour cess on a+b+c.				45.83
			Rate per cum = a+b+c+d				4,628.77
			Add 12% GST				555.45
			Cost per cum				5,184.22
							Say Rs. 5,184.00
			Labour Rate				1,569.75
			Morter 1:4				357.00
			Scaffolding @ 5%				96.34
							2,023.09
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				252.89

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
							2,275.97
			Add 1% labour cess				22.76
			Rate per cum				2,298.73
			Add 12% GST				275.85
			Cost per cum				2,574.58
							Say Rs. 2,575.00
			(iii) **In cement mortar (1:5)**				
			Unit = cum				
			a) Material				
			Stone for CR masonry 1st sort	cum	0.60	800.00	480.00
			Through and bond stone (7 no x 0.24 x 0.24 m x 0.39 m = 0.16 cum)	Nos.	7.00	25.00	175.00
			Spalls/blasted rubbles	cum	0.50	700.00	350.00
			Cement mortar (Rate same as in item 12.1 III)	cum	0.33	3,702.00	1,221.66
			b) Labour				
			Mate	day	0.14	350.00	49.00
			Mason 1st Class	day	1.30	505.17	656.72
			Mazdoor (Unskilled)	day	2.00	350.00	700.00
			Bhisti	day	0.08	350.00	28.00
			As for scaffolding @ 5% on (a+b)				183.02
							3,843.40
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				480.42
							4,323.82
			d) Add 1% labour cess on a+b+c.				43.24
			Rate per cum = a+b+c+d				4,367.06
			Add 12% GST				524.05
			Cost per cum				4,891.11
							Say Rs. 4,891.00
			Labour Rate				1,433.72
			Morter 1:5				357.00
			Scaffolding @ 5%				89.54
							1,880.25
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				235.03
							2,115.28

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Add 1% labour cess				21.15
			Rate per cum				2,136.44
			Add 12% GST				256.37
			Cost per cum				2,392.81
							Say Rs. 2,393.00
			(iv) **In cement morter 1:6**				
			a) Material				
			Stone for C.R masonry (1st sort)	cum	1.10	800.00	880.00
			Through and bond stone (7 Nos.0.24x0.24x0.39=0.16 cum)	Nos	7.00	25.00	175.00
			Cement morter 1:6 (11.6-III)	cum	0.30	3,289.55	986.87
			b) Labour				
			Mate	day	0.14	350.00	49.00
			Mason 1st Class	day	1.50	505.17	757.75
			Mazdoor (Unskilled)	day	2.10	350.00	735.00
			Bhisti	day	0.08	350.00	28.00
			Add for scaffolding @ 5 per cent on (a+b)				180.58
							3,792.20
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				474.02
							4,266.22
			d) Add 1% labour cess on a+b+c.				42.66
			Rate per cum (a+b+c+d)				4,308.88
			Add 12% GST				517.07
			Cost per cum				4,825.95
							Say Rs. 4,826.00
			Labour Rate				1,569.75
			Labour in CM 1:6				357.00
			Scaffolding @ 5%				96.34
							2,023.09
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				252.89
							2,275.97
			Add 1% labour cess				22.76
			Rate per cum				2,298.73
			Add 12% GST				275.85
			Cost per cum				2,574.58
							Say Rs. 2,575.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)

II. Coursed Rubble masonry (2nd

(i) **In cement mortar (1:3)**

Unit = cum

a) Material

Stone for CR masonry 2nd sort	cum	0.60	800.00	480.00
Through and bond stone (7 no x 0.24 x 0.24 m x 0.39 m = 0.16 cum)	Nos.	7.00	25.00	175.00
Spalls/blasted rubbles	cum	0.50	600.00	300.00
Cement mortar (Rate as in item 11.5 I)	cum	0.33	5,077.05	1,675.43

b) Labour

Mate	day	0.14	350.00	49.00
Mason 1st Class	day	1.30	505.17	656.72
Mazdoor (Unskilled)	day	2.00	350.00	700.00
Bhisti	day	0.08	350.00	28.00
Add for scaffolding @ 5 per cent of cost of material (a) and labour (b)				203.21
				4,267.35
c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				533.42
				4,800.77
d) Add 1% labour cess on a+b+c.				48.01
Rate per cum = a+b+c+d				4,848.78
Add 12% GST				581.85
Cost per cum				5,430.63
			Say Rs.	**5,431.00**

Labour Rate	1,433.72
Morter 1:3	357.00
Scaffolding @ 5%	89.54
	1,880.25
Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)	235.03
	2,115.28
Add 1% labour cess	21.15
Rate per cum	2,136.44
Add 12% GST	256.37
Cost per cum	2,392.81
Say Rs.	**2,393.00**

(ii) **In 1:4 cement mortar**

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Unit = cum				
			a) Material				
			Stone for CR masonry 2nd sort	cum	0.60	800.00	480.00
			Through and bond stone (7 no x 0.24 x 0.24 m x 0.39 m = 0.16 cum)	Nos.	7.00	25.00	175.00
			Spall/blasted rubble	cum	0.50	600.00	300.00
			Cement mortar (Rate same as in item 11.5 II)	cum	0.33	4,183.30	1,380.49
			b) Labour				
			Mate	day	0.14	350.00	49.00
			Mason 1st Class	day	1.30	505.17	656.72
			Mazdoor (Unskilled)	day	2.00	350.00	700.00
			Bhisti	day	0.08	350.00	28.00
			Add for scaffolding @ 5 per cent of cost of material (a) and labour (b)				188.46
							3,957.67
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				494.71
							4,452.37
			d) Add 1% labour cess on a+b+c.				44.52
			Rate per cum = a+b+c+d				4,496.90
			Add 12% GST				539.63
			Cost per cum				5,036.53
							Say Rs. 5,037.00
			Labour Rate				1,433.72
			Morter 1:4				357.00
			Scaffolding @ 5%				89.54
							1,880.25
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				235.03
							2,115.28
			Add 1% labour cess				21.15
			Rate per cum				2,136.44
			Add 12% GST				256.37
			Cost per cum				2,392.81
							Say Rs. 2,393.00
			(iii) **In cement mortar (1:5)**				
			Unit = cum				
			a) Material				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Stone for CR masonry 2nd sort	cum	0.60	800.00	480.00
			Through and bond stone (7 no x 0.24 x 0.24 m x 0.39 m = 0.16 cum)	Nos.	7.00	25.00	175.00
			Spall/blasted rubble	cum	0.50	600.00	300.00
			Cement mortar (Rate same as in item 12.1 III)	cum	0.33	3,702.00	1,221.66
			b) Labour				
			Mate	day	0.14	350.00	49.00
			Mason 1st Class	day	1.30	505.17	656.72
			Mazdoor (Unskilled)	day	2.00	350.00	700.00
			Bhisti	day	0.08	350.00	28.00
			Add for scaffolding @ 5 per cent on (a+b)				180.52
							3,790.90
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				473.86
							4,264.76
			d) Add 1% labour cess on a+b+c.				42.65
			Rate per cum = a+b+c+d				4,307.41
			Add 12% GST				516.89
			Cost per cum				4,824.29
							Say Rs. 4,824.00
			Labour Rate				1,433.72
			Morter 1:5				357.00
			Scaffolding @ 5%				89.54
							1,880.25
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				235.03
							2,115.28
			Add 1% labour cess				21.15
			Rate per cum				2,136.44
			Add 12% GST				256.37
			Cost per cum				2,392.81
							Say Rs. 2,393.00
			(iv) **In cement morter 1:6**				
			a) Material				
			Stone for C.R masonry (2nd sort)	cum	0.60	800.00	480.00
			Through and bond stone (7 Nos.0.24x0.24x0.39=0.16 cum)	Nos	7.00	25.00	175.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Spalls/blasted rubbles	cum	0.50	600.00	300.00
			Cement morter 1:6 (11.6-III)	cum	0.33	3,289.55	1,085.55
			b) Labour				
			Mate	day	0.14	350.00	49.00
			Mason 1st Class	day	1.30	505.17	656.72
			Mazdoor (Unskilled)	day	2.00	350.00	700.00
			Bhisti	day	0.08	350.00	28.00
			Add for scaffolding @ 5 per cent on (a+b)				173.71
							3,647.98
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				456.00
							4,103.98
			d) Add 1% labour cess on a+b+c.				41.04
			Rate per cum (a+b+c+d)				4,145.02
			Add 12% GST				497.40
			Cost per cum				4,642.42
						Say Rs.	**4,642.00**
			Labour Rate				1,433.72
			Labour in CM 1:6				357.00
			Scaffolding @ 5%				89.54
							1,880.25
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				235.03
							2,115.28
			Add 1% labour cess				21.15
			Rate per cum				2,136.44
			Add 12% GST				256.37
			Cost per cum				2,392.81
						Say Rs.	**2,393.00**
			III. Random rubble masonry				
			(iii) **In cement mortar (1:5)**				
			Unit = cum				
			a) Material				
			Stone for RR masonry	cum	1.00	700.00	700.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Through and bond stone (7 no x 0.24 x 0.24 m x 0.39 m = 0.16 cum)	Nos.	7.00	25.00	175.00
			Cement mortar (Rate same as in item 12.1 III)	cum	0.33	3,702.00	1,221.66
			b) Labour				
			Mate	day	0.12	350.00	42.00
			Mason 1st Class	day	1.20	505.17	606.20
			Mazdoor (Unskilled)	day	1.80	350.00	630.00
			Bhisti	day	0.08	350.00	28.00
			Add for scaffolding @ 5 per cent on (a+b)				170.14
							3,573.00
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				446.63
							4,019.63
			d) Add 1% labour cess on a+b+c.				40.20
			Rate per cum = a+b+c+d				4,059.82
			Add 12% GST				487.18
			Cost per cum				4,547.00
						Say Rs.	**4,547.00**
			Labour Rate				1,306.20
			Morter 1:5				357.00
			Scaffolding @ 5%				83.16
							1,746.36
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				218.30
							1,964.66
			Add 1% labour cess				19.65
			Rate per cum				1,984.30
			Add 12% GST				238.12
			Cost per cum				2,222.42
						Say Rs.	**2,222.00**
		(iv)	**In cement morter 1:6**				
			Unit=cum				
			a) Material				
			Stone for R.R masonry	cum	1.00	700.00	700.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Through and bond stone (7 Nos.0.24x0.24x0.39=0.16 cum)	Nos	7.00	25.00	175.00
			Cement morter 1:6 (11.6-III)	cum	0.33	3,289.55	1,085.55
			b) Labour				
			Mate	day	0.12	350.00	42.00
			Mason 1st Class	day	1.20	505.17	606.20
			Mazdoor (Unskilled)	day	1.80	350.00	630.00
			Bhisti	day	0.08	350.00	28.00
			c) Add for scaffolding @ 5 per cent on (a+b)				163.34
							3,430.09
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				428.76
							3,858.85
			e) Add 1% labour cess on a+b+c+d.				38.59
			Rate per cum (a+b+c+d+e)				3,897.44
			Add 12% GST				467.69
			Cost per cum				4,365.13
							Say Rs. 4,365.00
			Labour Rate				1,306.20
			Labour in CM 1:6				357.00
			Scaffolding @ 5%				83.16
							1,746.36
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				218.30
							1,964.66
			Add 1% labour cess				19.65
			Rate per cum				1,984.30
			Add 12% GST				238.12
			Cost per cum				2,222.42
							Say Rs. 2,222.00
66	12.8	800	**Plain / reinforced cement concrete in sub-structure as per drawings and technical specification clauses 802, 804, 805, 806, 807, 1202 and 1204**				
			I P.C.C. grade M 15 (1) upto 5 metre height				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			(i) **Nominal**				
			Unit = cum				
			a) Material				
			Cement	t	0.275	6,875.00	1,890.63
			Coarse sand	cum	0.48	1,156.00	554.88
			40 mm aggregate	cum	0.48	954.00	457.92
			20 mm aggregate	cum	0.24	1,298.00	311.52
			10 mm aggregate	cum	0.08	1,298.00	38.40
			b) Labour				
			Mate	day	0.08	350.00	28.00
			Mason (1st Class)	day	0.10	505.17	50.52
			Mazdoor (Unskilled)	day	1.63	350.00	570.50
			Bhisti	day	0.27	350.00	94.50
			c) Machinery				
			Concrete mixer 0.4/0.28 cum	hour	0.40	350.00	140.00
			d) Formwork @ 10% on (a+b+c)				413.69
							4,550.55
			e) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d)				568.82
							5,119.37
			f) Add 1% labour cess on a+b+c.				51.19
			Rate per cum = a+b+c+d+e+f				5,170.56
			Add 12% GST				620.47
			Cost per cum				5,791.03
							Say Rs. 5,791.00
			Labour				743.52
			Farm Work @10%				74.35
							817.87
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d)				102.23
							920.10
			Add 1% labour cess on a+b+c.				9.20
			Cost per cum				929.30
			Add 12% GST				111.52
			Cost per cum				1,040.82
							Say Rs. 1,041.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
67	12.9	1000	**Supplying, fitting and placing HYSD bar reinforcement (Fe 415) in substructrue complete as per drawings and technical specification Clauses 1002, 1005, 1010 & 1202**				
			Unit = t				
			a) Material				
			HYSD bars including 5 per cent overlaps and wastage	t	1.05	59,875.00	62,868.75
			Binding wire	kg	6.00	80.00	480.00
			b) Labour for cutting, bending, shifting to site, tying, and placing in position				
			Mate	day	0.34	350.00	119.00
			Blacksmith	day	2.00	403.67	807.33
			Mazdoor (Unskilled)	day	6.50	350.00	2,275.00
							66,550.08
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				8,318.76
							74,868.84
			e) Add 1% labour cess on a+b+c+d.				748.69
			Rate per t = a+b+c+d				75,617.53
			Add 12% GST				9,074.10
			Cost per tonne				84,691.64
						Say Rs.	**84,692.00**
			Labour Rate				3,201.33
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				400.17
							3,601.50
			e) Add 1% labour cess				36.02
			Rate per t				3,637.52
			Add 12% GST				436.50
			Cost per tonne				4,074.02
						Say Rs.	**4,074.00**

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
68	12.13	600	**Providing weepholes in brick masonry / stone masonry /plain reinforced concrete abutment, wing wall, return wall with 100 mm dia PVC pipe extending through the full with of the structures with slop of 1(v):20(H) towards drawing face complete as per drawing and technical specification clauses 614, 709, 1204.3.7**				
			Unit = Nos.				
			Taking output = 30 Nos.				
			a) Material				
			PVC pipe 100 mm dia unloading wostofer@ 5 percent	m	31.50	200.00	6,300.00
			Cement morter 1:3 (for rate refer to cement 11.5)	cum	0.05	5,077.05	253.85
			b) Labour				
			Mate	day	0.03	350.00	10.50
			Mason (1st Class)	day	0.50	505.17	252.58
			Mazdoor (Unskilled)	day	0.25	350.00	87.50
							6,904.44
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				863.05
							7,767.49
			d) Add 1% labour cess on a+b+c.				77.67
			Cost for 30 Nos.				7,845.17
			Rate per Nos.				261.51
			Add 12% GST				31.38
			Cost per no.				292.89
							Say Rs. 293.00
			Labour Rate				350.58
			Labour CM 1:3				17.85
							368.43
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				46.05
							414.49
			Add 1% labour cess.				4.14
			Cost for 30 Nos.				418.63
			Rate per Nos.				13.95
			Add 12% GST				1.67

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Cost per no.				15.63
							Say Rs. 16.00
69	12.14	1200	**Backfilling behind abutment, wing wall and return wall complete as per drawings & technical specification Clause 1204.3.8**				
			Unit = cum				
			Taking output = 10 cum				
			I) Granular material				
			a) **Material**				
			Granular material	cum	12.00	376.00	4,512.00
			b) **Labour**				
			Mate	day	0.28	350.00	98.00
			Mazdoor (Unskilled)	day	10.00	350.00	3,500.00
			Bhisti	day	0.40	350.00	140.00
							8,250.00
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				1,031.25
							9,281.25
			d) Add 1% labour cess on a+b+c.				92.81
			Cost for 10 cum of granular backfill = a+b+c+d				9,374.06
			Rate per cum = (a+b+c+d)/10				937.41
			Add 12% GST				112.49
			Cost per cum				1,049.90
							Say Rs. 1,050.00
			Labour Rate				3,738.00
							4,788.00
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				598.50
							5,386.50
			Add 1% labour cess.				53.87
			Cost for 10 cum of granular backfill				5,440.37
			Rate per cum				544.04
			Add 12% GST				65.28
			Cost per cum				609.32
							Say Rs. 609.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
70	12.15	1200	**Providing and laying filter media with granular crushed aggregates as per specification to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and providing over the entire surface behind abutment, wing wall, return wall to the full height, compacted to firm condition complete as per drawing and technical specification Clause 1204.3.8**				
			Unit = cum				
			Taking output = 10 cum				
			a) Material				
			Filter media as per specification	cum	12.00	700.00	8,400.00
			b) Labour				
			Mate	day	0.40	350.00	140.00
			Mazdoor (Unskilled)	day	9.00	350.00	3,150.00
			Mazdoor (Skilled)	day	1.00	350.00	350.00
			Bhisti	day	0.50	350.00	175.00
							12,215.00
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				1,526.88
							13,741.88
			d) Add 1% labour cess on a+b+c.				137.42
			Cost for 10 cum of filter media = a+b+c+d				13,879.29
			Rate per cum = (a+b+c+d)/10				1,387.93
			Add 12% GST				166.55
			Cost per cum				1,554.48
			Say Rs.			**Say Rs.**	**1,554.00**
			Labour Rate				3,815.00
							5,369.00
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				671.13
							6,040.13
			d) Add 1% labour cess.				60.40
			Cost for 10 cum of sand back fill				6,100.53

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Rate per cum				610.05
			Add 12% GST				73.21
			Cost per cum				683.26
						Say Rs. 683.00	
71	12.17	600	**Providing PCC M-20 architectural coping on the top of wing wall, return wall etc. complete as per drawing and technical specification Clauses 615, 710 and 1204.3.11**				
			Unit = Running m				
			Taking output = 1 m				
			Assume wall thickness = 345 mm				
			Projection of the coping will be 25 mm wide on both side of the wall = 345 + 50 = 395 mm				
			Quantity = 1 x 0.395 x 0.150 = 0.059				
			PCC M-20 Grade (1:2:4) Nominal Mix				
			As per item No. 12.8 (III)(i)	cum	0.059	5,574.00	328.87
			Add 10 per cent extra of cost of (a) being architectural coping				32.89
			Cost of 1 m = a				361.75
			Add 12% GST				43.41
			Cost per m				405.16
						Say Rs. 362.00	
			Labour Rate	cum	0.059	879.00	51.86
			Add 10 per cent extra				2.16
			Cost of 1 m				54.02
			Add 12% GST				6.48
			Cost per m				60.50
						Say Rs. 61.00	

CHAPTER-13

SUPERSTRUCTURE

	Preamble:	
1	The rate for wearing coat has been analysed as under in accordance with the provisions of MORD Specifications:	
	a.	Cement concrete
2	The rate analysis has been done for the following types of railings & parapet:	
	i.	R.C.C. railing
3	Various types of metal beam crash barriers have been taken as per MORTH specification.	
4	The extra Cost of Carriage, including loading, unloading is required to be added based on Tonne - Kilometerage as per Chapter -I for the purpose of justification.	

CHAPTER – 13
SUPERSTRUCTURE

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
72	13.1	800	**Providing and laying reinforced cement concrete in superstructure as per drawing and technical specifications Clauses 800, 1205.4 and 1205.5**				
			I. R.C.C grade M 20				
			(i) I **For nominal mix 1:2:4 upto 5 m height**				
			Unit = cum				
			a) Material				
			Cement	t	0.35	6,875.00	2,406.25
			Coarse sand	cum	0.45	1,156.00	520.20
			20 mm aggregate	cum	0.54	1,298.00	700.92
			10 mm aggregate	cum	0.36	1,298.00	467.28
			b) Labour				
			Mate	day	0.08	350.00	28.00
			Mason (1st Class)	day	0.12	505.17	60.62
			Mazdoor (Unskilled)	day	1.73	350.00	605.50
			Bhisti	day	0.27	350.00	94.50
			c) Machinery				
			Concrete mixer 0.4/ 0.28 cum capacity	hour	0.40	350.00	140.00
			d) Add for formwork and staging				
			Height upto 5 m @ 20% of (a+b+c)				1,004.65
							6,027.92
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				753.49
							6,781.41
			d) Add 1% labour cess on a+b+c.				67.81
			Rate per cum = a+b+c+d+e+f				6,849.23
			Add 12% GST				821.91
			Cost per cum				7,671.14
						Say Rs.	**7,671.00**
			Labour Rate				788.62
			Farm Work @ 20%				157.72
							946.34
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				118.29

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
							1,064.64
			Add 1% labour cess .				10.65
			Rate per cum				1,075.28
			Add 12% GST				129.03
			Cost per cum				1,204.32
							Say Rs. 1,204.00
			(i) II **For nominal mix 1:2:4**				
			Height from 5m to 10m				
			Unit = cum				
			a) Material				
			Cement	t	0.35	6,875.00	2,406.25
			Coarse sand	cum	0.45	1,156.00	520.20
			20 mm aggregate	cum	0.54	1,298.00	700.92
			10 mm aggregate	cum	0.36	1,298.00	467.28
			b) Labour				
			Mate	day	0.08	350.00	28.00
			Mason (1st Class)	day	0.12	505.17	60.62
			Mazdoor (Unskilled)	day	1.73	350.00	605.50
			Bhisti	day	0.27	350.00	94.50
			c) Machinery				
			Concrete mixer 0.4/0.28 cum capacity	hour	0.40	350.00	140.00
			d) Add for formwork and staging				
			Height from 5 m to 10 m @ 25% of (a+b+c)				1,255.82
							6,279.09
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				784.89
							7,063.97
			d) Add 1% labour cess on a+b+c.				70.64
			Rate per cum = a+b+c+d+e+f				7,134.61
			Add 12% GST				856.15
			Cost per cum				7,990.77
							Say Rs. 7,991.00
			Labour Rate				788.62
			Farm Work @ 25%				197.16
							985.78
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				123.22
							1,109.00
			Add 1% labour cess .				11.09
			Rate per cum				1,120.09
			Add 12% GST				134.41

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Cost per cum				1,254.50
							Say Rs. 1,254.00
			(i) II **For nominal mix 1:2:4**				
			Height above 10m				
			Unit = cum				
			a) Material				
			Cement	t	0.35	6,875.00	2,406.25
			Coarse sand	cum	0.45	1,156.00	520.20
			20 mm aggregate	cum	0.54	1,298.00	700.92
			10 mm aggregate	cum	0.36	1,298.00	467.28
			b) Labour				
			Mate	day	0.08	350.00	28.00
			Mason (1st Class)	day	0.12	505.17	60.62
			Mazdoor (Unskilled)	day	1.73	350.00	605.50
			Bhisti	day	0.27	350.00	94.50
			c) Machinery				
			Concrete mixer 0.4/ 0.28 cum capacity	hour	0.40	350.00	140.00
			d) Add for formwork and staging				
			Height above 10 m @ 30% of (a+b+c)				1,506.98
							6,530.25
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				816.28
							7,346.53
			d) Add 1% labour cess on a+b+c.				73.47
			Rate per cum = a+b+c+d+e+f				7,420.00
			Add 12% GST				890.40
			Cost per cum				8,310.40
							Say Rs. 8,310.00
			Labour Rate				788.62
			Farm Work @ 30%				236.59
							1,025.21
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				128.15
							1,153.36
			Add 1% labour cess .				11.53
			Rate per cum				1,164.89
			Add 12% GST				139.79
			Cost per cum				1,304.68
							Say Rs. 1,305.00
			(iii) I **For design mix RCC M 20 upto 5 m height**				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			a) Material				
			Cement	t	0.33	6,875.00	2,268.75
			Coarse sand	cum	0.45	1,156.00	520.20
			20 mm aggregate	cum	0.54	1,298.00	700.92
			10 mm aggregate	cum	0.36	1,298.00	467.28
			b) Labour				
			Mate	day	0.08	350.00	28.00
			Mason (1st Class)	day	0.12	505.17	60.62
			Mazdoor (Unskilled)	day	1.73	350.00	605.50
			Bhisti	day	0.27	350.00	94.50
			c) Machinery				
			Concrete mixer 0.4/0.28 cum capacity	hour	0.40	350.00	140.00
			d) For formwork and staging add the following percentage of (a+b+c):				
			Height upto 5 m @ 20 per cent				977.15
							5,862.92
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d)				732.87
							6,595.79
			d) Add 1% labour cess on a+b+c.				65.96
			Rate per cum = a+b+c+d+e+f				6,661.75
			Add 12% GST				799.41
			Cost per cum				7,461.16
							Say Rs. 7,461.00
			Labour Rate				788.62
			Farm Work @ 20%				157.72
							946.34
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				118.29
							1,064.64
			Add 1% labour cess .				10.65
			Rate per cum				1,075.28
			Add 12% GST				129.03
			Cost per cum				1,204.32
							Say Rs. 1,204.00
			(iii) **For design mix RCC M 20 (1:2:4)** **Height from 5m to 10m**				
			a) Material				
			Cement	t	0.33	6,875.00	2,268.75

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Coarse sand	cum	0.45	1,156.00	520.20
			20 mm aggregate	cum	0.54	1,298.00	700.92
			10 mm aggregate	cum	0.36	1,298.00	467.28
			b) Labour				
			Mate	day	0.08	350.00	28.00
			Mason (1st Class)	day	0.12	505.17	60.62
			Mazdoor (Unskilled)	day	1.73	350.00	605.50
			Bhisti	day	0.27	350.00	94.50
			c) Machinery				
			Concrete mixer 0.4/0.28 cum capacity	hour	0.40	350.00	140.00
			d) For formwork and staging add the following percentage of (a+b+c):				
			Height from 5 to 10 m @ 25 per cent				1,221.44
							6,107.21
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d)				763.40
							6,870.61
			d) Add 1% labour cess on a+b+c.				68.71
			Rate per cum = a+b+c+d+e+f				6,939.32
			Add 12% GST				832.72
			Cost per cum				7,772.04
						Say Rs.	**7,772.00**
			Labour Rate				788.62
			Farm Work @ 25%				197.16
							985.78
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				123.22
							1,109.00
			Add 1% labour cess .				11.09
			Rate per cum				1,120.09
			Add 12% GST				134.41
			Cost per cum				1,254.50
						Say Rs.	**1,254.00**
		(iii) III	**For design mix RCC M 20 (1:2:4)**				
			Height above 10m				
			a) Material				
			Cement	t	0.33	6,875.00	2,268.75

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Coarse sand	cum	0.45	1,156.00	520.20
			20 mm aggregate	cum	0.54	1,298.00	700.92
			10 mm aggregate	cum	0.36	1,298.00	467.28
			b) Labour				
			Mate	day	0.08	350.00	28.00
			Mason (1st Class)	day	0.12	505.17	60.62
			Mazdoor (Unskilled)	day	1.73	350.00	605.50
			Bhisti	day	0.27	350.00	94.50
			c) Machinery				
			Concrete mixer 0.4/0.28 cum capacity	hour	0.40	350.00	140.00
			d) For formwork and staging add the following percentage of (a+b+c):				
			Height above 10 m @ 30 per cent				1,465.73
							6,351.50
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d)				793.94
							7,145.44
			d) Add 1% labour cess on a+b+c.				71.45
			Rate per cum = a+b+c+d+e+f				7,216.89
			Add 12% GST				866.03
			Cost per cum				8,082.92
							Say Rs. 8,083.00
			Labour Rate				788.62
			Farm Work @ 30%				236.59
							1,025.21
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				128.15
							1,153.36
			Add 1% labour cess .				11.53
			Rate per cum				1,164.89
			Add 12% GST				139.79
			Cost per cum				1,304.68
							Say Rs. 1,305.00
			II. (i) R.C.C M 25 upto 5 m height				
			Unit =cum				
			a) **Material**				
			Cement	t	0.40	6,875.00	2,750.00
			Coarse sand	cum	0.45	1,156.00	520.20
			20 mm aggregate	cum	0.54	1,298.00	700.92
			10 mm aggregate	cum	0.36	1,298.00	467.28
			b) **Labour**				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Mate	day	0.08	350.00	28.00
			Mason (1st Class)	day	0.12	505.17	60.62
			Mazdoor (Unskilled)	day	1.73	350.00	605.50
			Bhisti	day	0.27	350.00	94.50
			e) **Machinery**				
			Concrete mixer 0.4/0.28 cum capacity	hour	0.40	350.00	140.00
			d) **For formwork and staging refer to sub-item above @ 20%**				1,073.40
							6,440.42
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d)				805.05
							7,245.48
			d) Add 1% labour cess on a+b+c.				72.45
			Rate per cum = a+b+c+d+e+f				7,317.93
			Add 12% GST				878.15
			Cost per cum				8,196.08
						Say Rs.	**8,196.00**
			Labour Rate				788.62
			Farm Work @ 20%				157.72
							946.34
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				118.29
							1,064.64
			Add 1% labour cess .				10.65
			Rate per cum				1,075.28
			Add 12% GST				129.03
			Cost per cum				1,204.32
						Say Rs.	**1,204.00**
			II. (i For Height 5m to 10 m				
			Unit =cum				
			a) **Material**				
			Cement	t	0.40	6,875.00	2,750.00
			Coarse sand	cum	0.45	1,156.00	520.20
			20 mm aggregate	cum	0.54	1,298.00	700.92
			10 mm aggregate	cum	0.36	1,298.00	467.28
			b) **Labour**				
			Mate	day	0.08	350.00	28.00
			Mason (1st Class)	day	0.12	505.17	60.62
			Mazdoor (Unskilled)	day	1.73	350.00	605.50
			Bhisti	day	0.27	350.00	94.50
			e) **Machinery**				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Concrete mixer 0.4/0.28 cum capacity	hour	0.40	350.00	140.00
			d) **For height 5 m to 10 m @25% on (a+b)**				1,341.76
							6,708.78
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d)				838.60
							7,547.37
			d) Add 1% labour cess on a+b+c.				75.47
			Rate per cum = a+b+c+d+e+f				7,622.85
			Add 12% GST				914.74
			Cost per cum				8,537.59
						Say Rs.	**8,538.00**
			Labour Rate				788.62
			Farm Work @ 25%				197.16
							985.78
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				123.22
							1,109.00
			Add 1% labour cess .				11.09
			Rate per cum				1,120.09
			Add 12% GST				134.41
			Cost per cum				1,254.50
						Say Rs.	**1,254.00**
			II. (i For Height above 10 m				
			Unit =cum				
			a) **Material**				
			Cement	t	0.40	6,875.00	2,750.00
			Coarse sand	cum	0.45	1,156.00	520.20
			20 mm aggregate	cum	0.54	1,298.00	700.92
			10 mm aggregate	cum	0.36	1,298.00	467.28
			b) **Labour**				
			Mate	day	0.08	350.00	28.00
			Mason (1st Class)	day	0.12	505.17	60.62
			Mazdoor (Unskilled)	day	1.73	350.00	605.50
			Bhisti	day	0.27	350.00	94.50
			e) **Machinery**				
			Concrete mixer 0.4/0.28 cum	hour	0.40	350.00	140.00
			d) **For height above 10 m @30%**				1,610.11
							6,977.13
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d)				872.14
							7,849.27

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			d) Add 1% labour cess on a+b+c.				78.49
			Rate per cum = a+b+c+d+e+f				7,927.76
			Add 12% GST				951.33
			Cost per cum				8,879.09
			Say Rs.				**8,879.09**
			Labour Rate				788.62
			Farm Work @ 30%				236.59
							1,025.21
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				128.15
							1,153.36
			Add 1% labour cess .				11.53
			Rate per cum				1,164.89
			Add 12% GST				139.79
			Cost per cum				1,304.68
			Say Rs.			**Say Rs. 1,305.00**	
			Note: This analysis will hold good for concrete of nominal mix 1:1½:3 also				
			III. (i R.C.C. Grade M 30 upto 5 m height				
			Unit =cum				
			a) **Material**				
			Cement	t	0.43	6,875.00	2,956.25
			Sand	cum	0.45	1,156.00	520.20
			20 mm aggregate	cum	0.54	1,298.00	700.92
			10 mm aggregate	cum	0.36	1,298.00	467.28
			b) **Labour**				
			Mate	day	0.08	350.00	28.00
			Mason (1st Class)	day	0.12	505.17	60.62
			Mazdoor (Unskilled)	day	1.73	350.00	605.50
			Bhisti	day	0.27	350.00	94.50
			c) **Machinery**				
			Concrete mixer 0.4/0.28 cum capacity	hour	0.40	350.00	140.00
			d) **For formwork and staging refer to sub-item above @ 20%**				1,114.65
							6,687.92
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d)				835.99
							7,523.91
			d) Add 1% labour cess on a+b+c.				75.24
			Rate per cum = a+b+c+d+e+f				7,599.15

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Add 12% GST				911.90
			Cost per cum				8,511.05
						Say Rs.	**8,511.00**
			Labour Rate				788.62
			Farm Work @ 20%				157.72
							946.34
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				118.29
							1,064.64
			Add 1% labour cess .				10.65
			Rate per cum				1,075.28
			Add 12% GST				129.03
			Cost per cum				1,204.32
						Say Rs.	**1,204.00**
73	13.5	800	**Providing and laying cement concrete wearing course M 30 grade including reinforcement complete as per drawing and technical specifications Clauses 800 and 1206.3**				
			Unit = cum				
			a) **Material**				
			Cement	t	0.43	6,875.00	2,956.25
			Sand	cum	0.45	1,156.00	520.20
			20 mm aggregate	cum	0.54	1,298.00	700.92
			10 mm aggregate	cum	0.36	1,298.00	467.28
			HYSD bar reinforcement (Rate as per item 13.2)	t	0.075	59,875.00	4,490.63
			Binding Wire	kg	0.01	80.00	0.80
			b) **Labour**				
			Mate	day	0.08	350.00	28.00
			Mason (1st Class)	day	0.12	505.17	60.62
			Mazdoor	day	1.73	350.00	605.50
			Bhisti	day	0.27	350.00	94.50
			Mazdoor (Unskilled) for cleaning deck slab concrete surface	day	0.15	350.00	52.50
			c) **Machinery**				
			Concrete mixer 0.4/0.28 cum capacity	hour	0.40	350.00	140.00
			d) **Formwork @ 3% of cost of concrete**				303.52
							10,420.71
			e) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d)				1,302.59
							11,723.30

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			f) Add 1% labour cess on a+b+c.				117.23
			Rate per cum = a+b+c+d+e+f				11,840.53
			Add 12% GST				1,420.86
			Cost per cum				13,261.40
							Say Rs. 13,261.00
			Labour Rate				841.12
			Formwork @ 3%				25.23
							866.35
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c+d)				108.29
							974.65
			Add 1% labour cess on a+b+c.				9.75
			Rate per cum				984.39
			Add 12% GST				118.13
			Cost per cum				1,102.52
							Say Rs. 1,103.00
74	13.6	800	**Construction of R.C.C. railing of M 25 grade in cast-in-situ with 20 mm nominal size aggregate, true to line and grade, tolerance of vertical railing post not to exceed 1 in 500, centre-to-centre spacing between vertical posts not to exceed 2000 mm as per drawing and technical specifications Clauses 800, 900 and 1208.3**				
			Unit = Runing m				
			Taking output = 4x12 m				
			Span = 48 m				
			a) **M 25 grade R.C.C.**				
			No. of vertical posts = (6+1) 4 = 28 nos				
			Cross-sectional area of vertical post = 0.25x0.275 = 0.069 sqm				
			Concrete in vertical posts = 0.069 x28x1.00 = 1.932 cum				
			Hand rail in 3 tiers = 3x48 = 144 m				
			Cross-sectional area = 0.17x0.175 = 0.03 sqm				
			Concrete in hand rails = 0.03 x 144 = 4.32 cum				

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Total concrete = 1.932+4.32 = 6.252 cum	cum	6.25	6,011.00	20,049.38
			b) **HYSD bar reinforcement (Rate as per item (55) (13.2)**	t	1.36	84,692.00	1,15,181.12
							1,35,230.50
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				16,903.81
							1,52,134.31
			d) Add 1% labour cess on a+b+c.				1,521.34
			Cost for 48 m = (a+b+c+d)				1,53,655.66
			Rate per m = (a+b+c+d)/48				3,201.16
			Add 12% GST				384.14
			Cost per m				3,585.30
						Say Rs.	**3,585.00**
			Labour Rate for M-25 grads				5,520.52
			HYSD bar reinforcement				4,947.68
			Formwork @ 12%				1,256.18
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				157.02
							11,881.40
			Add 1% labour cess				118.81
			Cost for 48 m				12,000.22
			Rate per m				250.00
			Add 12% GST				30.00
			Cost per m				280.01
						Say Rs.	**250.00**
-			**Sub Analysis for Rate of Concrete**				
			Unit=Cum				
			a) **Material**				
			Cement	t	0.40	6,875.00	2,750.00
			Coarse sand	cum	0.45	1,156.00	520.20
			20 mm aggregate	cum	0.54	1,298.00	700.92
			10 mm aggregate	cum	0.36	1,298.00	467.28
			b) **Labour**				
			Mate	day	0.08	350.00	28.00
			Mason (1st Class)	day	0.12	505.17	60.62
			Mazdoor (Unskilled)	day	1.73	350.00	605.50
			Bhisti	day	0.27	350.00	94.50
			c) **Machinery**				
			Concrete mixer 0.4/0.28 cum capacity	hour	0.40	350.00	140.00
			d) **Formwork @ 12%**				644.04
			Total rate per cum (a+b+c+d)				6,011.06

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
						Say Rs.	**6,011.00**
			Labour				788.62
			Formwork @ 12%				94.63
			Labour Rate per cum				883.25
						Say Rs.	**883.00**
75	**13.7**	**1200**	**Providing fitting and fixing mild steel railing complete as per drawing and technical specifications Clause 1208.2**				
			Unit = Runing m				
			Taking output = 100 m				
			a) Material				
			1) IS MC 100 = 2.806x1.05 =2.946 t	t	2.946	55,110.00	1,62,354.06
			2) MS Flats = 0.964x1.05 =1.012 t	t	1.012	55,110.00	55,771.32
			3) MS bars = 0.17x1.05 = 0.18 t	t	0.18	58,000.00	10,440.00
			4) MS bolts, nuts and washers	t	0.15	85,000.00	12,750.00
			b) Labour				
			Mate	day	2.80	350.00	980.00
			Blacksmith	day	30.00	403.67	12,110.00
			Mazdoor (Unskilled)	day	40.00	350.00	14,000.00
							2,68,405.38
			c) Add 5 per cent of (a) for painting one shop coat with red oxide primer and three coats of synthetic enamel paint and consumables @ 5% on (a)				12,065.77
			d) Add for cost of concrete for fixing vertical post in the preformed recess @ 1 per cent of (a)				2,413.15
			e) Add for electricity charges, welding and drilling equipment, electrodes and other consumables @ 1 per cent of (a)				2,413.15
							2,85,297.46
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				35,662.18
							3,20,959.64
			Ad				3,209.60
			Cost for 100 m				3,24,169.24
			Rate per m = (a+b+c+d+e+f+g)/100				3,241.69
			Add 12% GST				389.00
							3,630.70
			Say Rs.				**3,630.70**
			Labour Rate				27,090.00
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				3,386.25

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
							30,476.25
			Add 1% labour cess				304.76
			Cost for 100 m				30,781.01
			Rate per m				307.81
			Add 12% GST				36.94
							344.75
			Say Rs.				**344.70**
76	13.10	1200	**Drainage spouts complete as per drawing and technical specifications Clause 1209**				
			Unit = 1 No				
			a) Material				
			i) Corrosion resistant structural steel grating including 5 per cent wastage	kg	4.00	151.00	604.00
			ii) G I pipe 100 mm dia	m	1.00	837.00	837.00
			b) Labour				
			For fabrication				
			Mate	day	0.02	350.00	7.00
			Blacksmith, Welder etc. (Skilled)	day	0.02	403.67	8.07
			Mazdoor (Unskilled)	day	0.20	350.00	70.00
			For fixing in position				
			Mate	day	0.01	350.00	3.50
			Mason (1st Class)	day	0.01	505.17	5.05
			Mazdoor (Unskilled)	day	0.20	350.00	70.00
			Add @ 5 per cent of cost of material and labour (a+b) for electrodes, gas cutting, sealant, anti-corrrosive bituminous paint, mild steel grating etc.				42.76
							1,647.39
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				205.92
							1,853.31
			d) Add 1% labour cess on a+b+c.				18.53
			Rate per m = a+b+c+d				1,871.84
			Add 12% GST				224.62
			Cost per m				2,096.46
							Say Rs. 2,096.00
			Labour Rate				163.63

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Add @ 5 per cent of cost of material and labour for electrodes, gas cutting, sealant, anti-corrrosive bituminous paint, mild steel				8.18
							171.81
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				21.48
							193.28
			Add 1% labour cess .				1.93
			Rate per m				195.21
			Add 12% GST				23.43
			Cost per m				218.64
							Say Rs. 219.00
77	**8.23**	**810**	**Metal Beam Crash Barrier**				
		A	**Type - A, "W" : Metal Beam Crash Barrier**				
		MORTH	Providing and erecting a "W" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 70 cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2 m centre to centre, 1.8 m high, 1.1 m below ground/road level, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a spacer of channel section 150 x 75 x 5 mm, 330 mm long complete as per clause 810				
			Unit = Running metre				
			Taking output = 4.5 metre length				
			a) Labour				
			Mate	day	0.060	350.00	21.00
			Blacksmith	day	0.500	403.67	201.83
			Mazdoor	day	1.000	350.00	350.00
			b) Machinery				
			Tractor-trolley	hour	0.100	581.00	58.10
			c) Material				
			Corrugated sheet,3 mm thick, "W" beam section railing,4.5 m in length	kg	41.210	61.00	2513.81
			Channel post 150 x 75 x 5 mm,1.8 m long,3 Nos @16.4 kg per metre	kg	88.560	61.00	5402.16
			Spacer 150 x 75 x 5 mm channel 0.33 m long,3 Nos @16.4 kg per metre	kg	16.240	61.00	990.64
			Nuts and bolts	kg	20.000	85.00	1700.00

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Add 25 per cent of the cost of material for fabrication, nuts, bolts and washers etc.)				2651.65
							13889.20
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				1,736.15
							15,625.35
			e) Add 1% labour cess on a+b+c+d.				156.25
			Cost for 4.5 metre = a+b+c+d+e				15,781.60
			Rate per metre = (a+b+c+d+e)/4.5				3,507.02
			Add 12% GST				420.84
			Rate per metre				3,927.86
							Say Rs. 3,927.90
8.23		**B**	**Type - B, "THRIE" : Metal Beam Crash Barrier**				
		MORTH	Providing and erecting a "Thrie" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 85 cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2 m centre to centre, 2 m high with 1.15 m below ground level, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a space of channel section 150 x 75 x 5 mm, 546 mm long complete as per clause 810				
			Unit = Running metre				
			Taking output = 4.5 metre length				
			a) Labour				
			Mate	day	0.060	350.00	21.00
			Blacksmith	day	0.500	403.67	201.83
			Mazdoor	day	1.000	350.00	350.00
			b) Machinery				
			Tractor-trolley	hour	0.100	581.00	58.10
			c) Material				
			Corrugated sheet,3 mm thick, "Thrie" beam section railing,4.5 m in length	kg	72.940	61.00	4449.34
			Channel post 150 x 75 x 5 mm, 2 m long,3 Nos @ 16.4 kg per metre	kg	98.400	61.00	6002.40
			Spacer 150 x 75 x 5 mm channel 0.546 m long,3 Nos	kg	26.860	61.00	1638.46
			Nuts and bolts	kg	30.000	85.00	2550.00
			Add 15 per cent of the cost of material for fabrication, nuts, bolts and washers etc.)				2196.03
							17467.16
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				2,183.40

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
							19,650.56
			e) Add 1% labour cess on a+b+c+d.				196.51
			Cost for 4.5 metre = a+b+c+d+e				19,847.06
			Rate per metre = (a+b+c+d+e)/4.5				4,410.46
			Add 12% GST				529.26
			Rate per metre				4,939.71
							Say Rs. 4,939.70
		Note	In the case of median crash barrier, 'W' metal beam or thrie beam section should be provided on both sides of the vertical posts fixed in the median. Extra provision for metal beam railing and spacer is required to be made when fixed in the median depending on approved design.				
78		**A**	Providing and fixing single "W" metal beam crash barrier comprising of cold formed W profiled section having thickness of 3 mm with frame width of 311 mm, depth 83 mm and length 4318 mm (made of ISI marked HR coil confirming to IS 5986/2011), to be fixed on cold formed channel section post of size 150x75x5 mm made from ISI marked HR coil confirming to IS : 5986/2011 spaced 1.50 metre centre to centre of the post which will be of total height of 1.8 metre with its height of 1.1 metre below ground level / road level, and 0.70 metre above ground level. Metal beam rail to be fixed on vertical post with spacer channel of cold formed channel section size 150 X 75 X 5 mm and 330 mm long (made of ISI marked HR coils confirming to IS : 5986/2011). All the above conponents shall conform to clause 810 of MORT&H specifications including all fittings required for errection on road side W- beams, posts, spacers shall not be hot dip galvanised with zinc coating of 550 gm/sqm. All the bots, nuts & washers shall be hot dip galvanised to IS : 1367 pt-XIII/1983 (Reaffirmed 2011) for bolts and IS 14394/1996 (Reaffirmed 2011) for nuts.				
			Unit = Running metre				
			Taking output = 4.5 metre length				
			a) Labour				
			Mate	day	0.060	350.00	21.00
			Blacksmith	day	0.500	403.67	201.83
			Mazdoor	day	1.000	350.00	350.00
			b) Machinery				
			Tractor-trolley	hour	0.100	581.00	58.10
			c) Material				
			"W" metal beam crash barrier comprising of 3 mm	Rmt	4.500	2510.00	11295.00
							11925.93
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				1,490.74
							13,416.68
			e) Add 1% labour cess on a+b+c+d.				134.17
			Cost for 4.5 metre = a+b+c+d+e				13,550.84
			Rate per metre = (a+b+c+d+e)/4.5				3,011.30
			Add 12% GST				361.36
			Rate per metre				3,372.65
							Say Rs. 3,372.70

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)

B Providing and fixing single "W" metal beam crash barrier comprising of cold formed W profiled section having thickness of 3 mm with frame width of 311 mm, depth 83 mm and length 4318 mm (made of ISI marked HR coil confirming to IS 5986/2011), to be fixed on cold formed channel section post of size 150x75x5 mm made from ISI marked HR coil confirming to IS : 5986/2011 spaced 2.00 metre centre to centre of the post which will be of total height of 1.8 metre with its height of 1.1 metre below ground level / road level, and 0.70 metre above ground level. Metal beam rail to be fixed on vertical post with spacer channel of cold formed channel section size 150 X 75 X 5 mm and 330 mm long (made of ISI marked HR coils confirming to IS : 5986/2011). All the above conponents shall conform to clause 810 of MORT&H specifications including all fittings required for errection on road side W- beams, posts, spacers shall not be hot dip galvanised with zinc coating of 550 gm/sqm. All the bots, nuts & washers shall be hot dip galvanised to IS : 1367 pt-XIII/1983 (Reaffirmed 2011) for bolts and IS 14394/1996 (Reaffirmed 2011) for nuts.

Unit = Running metre

Taking output = 4.5 metre length

a) Labour					
Mate		day	0.060	350.00	21.00
Blacksmith		day	0.500	403.67	201.83
Mazdoor		day	1.000	350.00	350.00
b) Machinery					
Tractor-trolley		hour	0.100	581.00	58.10
c) Material					
"W" metal beam crash barrier comprising of 3 mm		Rmt	4.500	2085.00	9382.50
					10013.43
d)	Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				1,251.68
					11,265.11
e)	Add 1% labour cess on a+b+c+d.				112.65
	Cost for 4.5 metre = a+b+c+d+e				11,377.76
	Rate per metre = (a+b+c+d+e)/4.5				2,528.39
	Add 12% GST				303.41
	Rate per metre				2,831.80
				Say Rs.	**2,831.80**

CHAPTER – 14									
PROTECTION WORKS									
	Preamble:								
1	Boulder apron laid in wire crates has been taken:								
2	The extra Cost of Carriage, including loading, unloading is required to be added based on Tonne - Kilometerage as per Chapter -I for the purpose of justification.								

CHAPTER – 14
PROTECTION WORKS

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
79	14.2	1300	**Providing and laying of boulder apron laid in wire crates with 4 mm dia GI wire conforming to IS:280 and IS:4826 in 100 mm x 100 mm mesh (woven diagonally) including 10 per cent extra for laps and joints laid with stone boulders weighing not less than 25 kg each as per drawing and technical specifications Clause 1301**				
			Unit = cum				
			Taking ouput = 3 m x 1.5 m x 1.25 m = 5.63 cum				
			a) Material				
			Stone boulder (25 kg minimum)	cum	5.63	700.00	3,941.00
			Stone spalls	cum	1.13	700.00	791.00
			GI wires 4 mm dia @ 32 kg/10 sqm	kg	64.00	82.00	5,248.00
			b) Labour				
			Mate	day	0.18	350.00	63.00
			Mazdoor (Skilled)	day	1.50	350.00	525.00
			Mazdoor (Unskilled)	day	3.00	350.00	1,050.00
			c) Add for labour for weaving the wire crates @ 2 per cent of cost of GI wire				104.96
							11,722.96
			d) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b+c)				1,465.37
							13,188.33
			e) Add 1% labour cess on a+b+c+d.				131.88
			Cost for 5.63 cum = a+b+c+d+e				13,320.21
			Rate per cum = (a+b+c+d+e)/5.63				2,365.93
			Add 12% GST				283.91
			Rate per cubic metre				2,649.85
						Say Rs.	**2,650.00**
			Labour Rate				1,638.00
			Add for labour for weaving the wire crates @ 2 per cent of cost of GI wire				32.76
							1,670.76
			d) Add 12.5% (Overheads @ 2.5 % +				208.85
							1,879.61
			e) Add 1% labour cess on a+b+c+d.				18.80

Sr. No.	Sr.No as per HPSR-2009	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Cost for 5.63 cum				1,898.40
			Rate per cum				337.19
			Add 12% GST				40.46
			Rate per cubic metre				377.66
						Say Rs.	**378.00**
80	14.8	1303	**Providing and laying of dry rubble flooring complete as per drawings and technical specifications Clause 1303.3**				
			Unit = cum				
			a) Material				
			Stone for rubble flooring 150 mm thick	cum	1.00	800.00	800.00
			Stone spalls	cum	0.20	300.00	60.00
			b) Labour				
			Mate	day	0.10	350.00	35.00
			Mason 1st Class	day	0.50	505.17	252.58
			Mazdoor (Unskilled)	day	1.50	350.00	525.00
			Add 1 per cent of (b) for trimming and preparation of base				8.13
							1,680.71
			c) Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit) on (a+b)				210.09
							1,890.80
			d) Add 1% labour cess on a+b+c.				18.91
			Rate per cum = a+b+c+d				1,909.71
			Add 12% GST				229.16
			Rate per cubic metre				2,138.87
						Say Rs.	**2,139.00**
			Labour Rate				812.58
			Add 12.5% (Overheads @ 2.5 % + 10% Contractor profit)				101.57
							914.16
			Add 1% labour cess				9.14
			Rate per cum				923.30
			Add 12% GST				110.80
			Rate per cubic metre				1,034.09
						Say Rs.	**1,034.00**