



GOVERNMENT OF HIMACHAL PRADESH
PUBLIC WORKS DEPARTMENT



SCHEDULE OF RATES
2021
PMGSY
ROAD WORKS

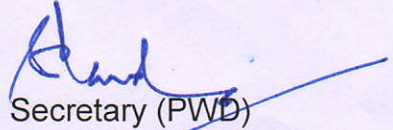
FOREWORD

Roads are the 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.

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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 conforming 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.								

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 (1st 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)							
<i>Preamble:</i>							

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 ingredients	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	Trailer 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									
	<i>Preamble:</i>								
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 an analysis 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 strengthened by 25mmX5mm MS flat iron on logo and middle plate angle iron 25mm X 25 mm X 5 mm on bottom plate painting with stove 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 occurring, 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, initiator 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. $2 \times 10.2/100 = 0.204$	tonne	40159.00
132	ii) Crusher stone dust @ 31.9 per cent by weight of mix = $2 \times 31.9/100 = 0.638$ tonnes = $0.638/1.625 = 0.39$	cum	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 = $2 \times 17.92/100 = 0.36$	tonne	7725.00
134	Pre-coated stone chips of 9.5 mm nominal size for skid resistance = $72.46 \times 0.005/10 = 0.036$	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

					<u>CHAPTER - 1</u>				
	LOADING, UNLOADING, CARRIAGE, CRUSHING OF MATERIALS AND SETTING OUT								
	<i>Preamble:</i>								
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 OF MATERIALS

Sr. No.	Reference to MORD Specification	Description	Unit	Labour Rate	Through Rate
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	Cum	--	110.00
		(ii) Loading of Earth, Sand, Moorum, Manure, Flyash by manual means including a lead upto 30 m	Cum	--	55.00
		(iii) Unloading of Lime, Aggregate, Stone Boulder, Brick Aggregate, Kankar, Building Rubbish, Crushed Slag, Stone for Masonry Work by manual means including a lead upto 30 m	Cum	--	55.00
		(iv) Unloading of Earth, Sand, Moorum, Manure, Flyash by manual means including a lead upto 30 m	Cum	--	33.00
2		Loading and Unloading of Lime, Aggregate, Stone Boulder, Brick Aggregate, Kankar, Building Rubbish, Crushed Slag, Stone for Masonry Work by Mechanical Means			
		(i) Loading of Lime, Aggregate, Stone Boulder, Brick Aggregate, Kankar, Building Rubbish, Crushed Slag, Stone for Masonry Work by	Cum	--	60.00
		(ii) Loading of Earth, Sand, Moorum, Manure,	Cum	--	31.00
		(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.	Cum	--	11.00
3		Loading, Unloading and Stacking of Bricks by Manual Means			
		(i) Loading of Bricks by manual means including a lead upto 30 m	1000 Nos	--	182.00
		(ii) Unloading and Stacking of Bricks by manual means including a lead upto 30 m	1000 Nos	--	182.00
4		Loading and Unloading of Cement by Manual Means			
		(i) Loading of Cement by manual means including a lead upto 30 m	Tonne	--	144.00
		(ii) Unloading of Cement by manual means including a lead upto 30 m	Tonne	--	144.00
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	Tonne	--	158.00
		(ii) Unloading of Structural Steel, Steel Bars by manual means including a lead upto 30 m	Tonne	--	158.00
6		Loading and Unloading of Bitumen Drums by Manual Means			

Sr. No.	Reference to MORD Specification	Description	Unit	Labour Rate	Through Rate
		(i) Loading of Bitumen Drums by manual means including a lead upto 30 m	Tonne	--	168.00
		(ii) Unloading of Bitumen Drums by Manual Means including a lead upto 30 m	Tonne	--	149.00
<i>Note: The rate is inclusive of the self weight of drum</i>					
7	100	Loading and Unloading of Timber by Manual Means			
		(i) Loading of Timber by manual means including a lead upto 30 m	Tonne	--	243.00
		(ii) Unloading of Timber by manual means including a lead upto 30 m	Tonne	--	243.00
<i>Note :Density of wood has been assumed as 900 kg per cum. If the density is less the output may be reduced proportionately</i>					
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	Cum	--	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	Cum	--	373.00
9		Loading and Unloading of Hume Pipes			
		(i) Loading of RCC Hume pipes by mechanical means including a lead upto 30 m			
		A. 900/1000/1200mm dia RCC Hume pipe	P/Pipe	--	85.00
		B. 750mm dia RCC Hume pipe	P/Pipe	--	51.00
		C 600/500/300mm dia Hume pipe	P/Pipe	--	36.00
		(ii) Unloading of RCC Hume Pipe by manual means including a lead upto 30m			
		A 900/1000/1200 mm dia RCC Hume pipes	P/Pipe	--	406.00
		B 750mm dia Hume pipe	P/Pipe	--	338.00
		C 600/500/300mm dia Hume pipe	P/Pipe	--	254.00
		(iii) Unloading of RCC Hume Pipe by manual means including a lead upto 30m			
		A 900/1000/1200 mm dia Hume pipe	P/Pipe	--	62.00
		B 750 mm dia Hume pipe	P/Pipe	--	37.00
		C 600/500/300 mm dia Hume pipe	P/Pipe	--	26.00
10		Haulage excluding Loading & Unloading			
		Haulage of materials by tipper excluding cost of loading, unloading and stacking.			
		(i) Surface road.	T/Km.	--	5.00
		(ii) Unsurfaced Gravel road	T/Km.	--	6.00
		(iii) Katcha track and track in River Bed/Nallah bed & Choe bed	T/Km.	--	12.00
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			
		Case-I			
		(i) Surface road.	P/Pipe	--	56.00
		Case-II			
		(ii) Unsurfaced Gravel road	P/Pipe	--	67.00
		Case-III			
		(iii) Katcha track and track in River Bed/Nallah bed & Choe bed	P/Pipe	--	135.00

Sr. No.	Reference to MORD Specification	Description	Unit	Labour Rate	Through Rate
		II) Hume pipe 750 mm dia			
		Case-I			
		(i) Surface road.	P/Pipe	--	33.00
		Case-II			
		(ii) Unsurfaced Gravel road	P/Pipe	--	46.00
		Case-III			
		(iii) Katcha track and track in River Bed/Nallah bed & Choe bed	P/Pipe	--	82.00
		III) Hume pipe 600/500/300 mm dia			
		Case-I			
		(i) Surface road.	P/Pipe	--	24.00
		Case-II			
		(ii) Unsurfaced Gravel road	P/Pipe	--	31.00
		Case-III			
		(iii) Katcha track and track in River Bed/Nallah bed & Choe bed	P/Pipe	--	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.	Reference to MORD Specification	Description	Unit	Labour Rate	Through Rate
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SITE CLEARANCE

12 201 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.

By Mechanical Means

(A) In area of non-thorny jungle	Hectare	--	42,577.00
(B) In area of thorny jungle	Hectare	--	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

EARTH WORK, EROSION CONTROL AND DRAINAGE

Sr. No.	Reference to MORD Specification	Description	Unit	Labour Rate	Through Rate
13	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	Cum	--	332.00
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.	Cum	--	310.00
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.	Cum	--	93.00
16	301.4	Compacting Original Ground (i) Compacting original ground supporting embankment Loosening, Levelling and Compacting original ground supporting embankment to facilitate placement of first layer of embankment, scarified to a depth of 150 mm, mixed with water at OMC and then compacted by rolling so as to achieve minimum dry density as given in Tables 300.1 and 300.2 for embankment construction as per Technical Specification Clause 301.4	Cum	--	37.00
17	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.			
		(A) Manual Means	Metre	--	93.00
		(B) Mechanical Means	Metre	--	17.00

Sr. No.	Reference to MORD Specification	Description	Unit	Labour Rate	Through Rate
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(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.

(A) Manual Means Metre -- 138.97

(B) Mechanical Means Metre -- 37.00

(iii) Surface Drains in Hard Rock

(A) Manual Means Metre -- 180.00

(B) Mechanical Means Metre -- 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.	Reference to MORD Specification	Description	Unit	Labour Rate	Through Rate
18	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	Cum	--	1,757.00
		(ii) For Grading II Material	Cum	--	1,664.00
		(iii) For Grading III Material	Cum	--	1,649.00
	402	i) Gravel/Soil-Aggregate Base (Table 400.2)			
		Grading A			
		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	Cum	--	1,927.00
		ii) Gravel/Soil-Aggregate Base (Table 400.2)			
		Grading B			
		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	Cum	--	1,927.00
		iii) Gravel/Soil-Aggregate Base (Table 400.2)			
		Grading C			
		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	Cum	--	1,901.00

Sr. No.	Reference to MORD Specification	Description	Unit	Labour Rate	Through Rate
19	402	<p>i) Gravel/Soil-Aggregate Base (Table 400.2) Grading A 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</p>	Cum	--	1,650.00
		<p>ii) Gravel/Soil-Aggregate Base (Table 400.2) Grading B 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</p>	Cum	--	1,682.00
		<p>iii) Gravel/Soil-Aggregate Base (Table 400.2) Grading C 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</p>	Cum	--	1,694.00
20	405	<p>Water Bound Macadam Sub-base/base</p>			
		<p>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 405.</p>		--	
		<p>(A) By Manual Means</p>	Cum	--	2,372.00
		<p>(B) By Mechanical Means</p>	Cum	--	2,128.00
		<p>2) WBM Grading 2</p>			

Sr. No.	Reference to MORD Specification	Description	Unit	Labour Rate	Through Rate
		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	Cum	--	2,545.00
		(B) By Mechanical Means	Cum	--	2,331.00
		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	Cum	--	2,523.00
		(B) By Mechanical Means	Cum	--	2,278.00
21	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	Cum	--	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

BASE AND SURFACE COURSES (BITUMINOUS)

Sr. No.	Reference to MORD Specification	Description	Unit	Labour Rate	Through Rate
22	502	Prime Coat			
		(i) Low porosity			
		Providing and applying primer coat with bitumen emulsion 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			
		(B) By Mechanical Means	Sqm.	--	55.00
23	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.	Sqm.	--	15.00
		(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.	Sqm.	--	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.	Sqm.	--	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.			
			Sqm.	--	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.			

Sr. No.	Reference to MORD Specification	Description	Unit	Labour Rate	Through Rate
		By Mechanical Means			
		(I) Bitumen (VG-10)	Sqm	--	165.00
		(II) Bitumen Emulsion (MS)	Sqm	--	188.00
25	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 Mechanical Means			
		I : Type A			
		(I) Bitumen (VG-10)	Sqm	--	85.00
		(II) Bitumen (Durapave Emulsion CSS-2)	Sqm	--	79.00
		II : Type B			
		(I) Bitumen (VG-10)	Sqm	--	58.00
		(II) Bitumen (Durapave Emulsion CSS-2)	Sqm	--	54.00
		III : Type C			
		(I) Bitumen (VG-10)	Sqm	--	55.00
		(II) Bitumen (Durapave Emulsion CSS-2)	Sqm	--	59.00
26	507	Dense Graded Bituminous Macadam Providing and laying dense graded bituminous macadam with 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.0 to 4.5 per cent by weight of total mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specification clause No. 507 complete in all respects.			
		(i) For Grading I (40 mm nominal size)	Cum	--	8,891.50
		(ii) For GradingII(19mm nominal size)	Cum	--	8,891.40
27	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			
		(i) for Grading I (13 mm nominal size)	Cum	--	9,149.70
		(ii) for GradingII(10 mm nominal size)	Cum	--	9,756.10
28	507	Bituminous Concrete			

Sr. No.	Reference to MORD Specification	Description	Unit	Labour Rate	Through Rate
		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			
	(i)	for Grading-I (13 mm nominal size)	Cum	--	10,562.50
	(ii)	for Grading-II(10 mm nominal size)	Cum	--	10,518.00
29	515	Mastic Asphalt 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.			
			Sqm	--	944.70
30	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.			
	(i)	Using bitumen emulsion and 9.5 mm or 13.2 mm size aggregate	Cum	--	14,375.30
	(ii)	Using bitumen emulsion and 19 mm or 26.5 mm nominal size aggregate	Cum	--	14,451.90
31	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.			
			Cum	--	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.	Reference to MORD Specification	Description	Unit	Labour Rate	Through Rate
32	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	Cum	--	7,707.50
33	1500	Rectangular Concrete Block Pavement 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 grade 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.	Sqm	209.30	752.10
34	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.	Sqm	54.70	1,381.20
		(2) Providing and Laying of Interlocking Concrete Blcok Pavements having thickness 60 mm as per drawing and Technical Specification Clause 1504	Sqm	48.20	1,143.70
35		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	cum	--	497.70

CHAPTER – 7

CAUSEWAY AND SUBMERSIBLE BRIDGES

Preamble:									

CHAPTER-7

CAUSEWAY AND SUBMERSIBLE BRIDGES

Sr. No.	Reference to MORD Specification	Description	Unit	Labour Rate	Through Rate
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<u>CHAPTER-8</u>							
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.	Reference to MORD Specification	Description	Unit	Labour Rate	Through Rate
36	1600	Setting Out			
		(1) Construction of reference pillars as per Fig. 1600.1 (b) as per drawing and Technical Specification Clause 1602.1	Each	4581.00	7,566.00
		(2) Construction of back pillar as per Fig. 1600.1(c) as per drawing and Technical Specification Clause 1602.3	Each	18672.00	29,942.00
		(3) Construction of Job pillars as per Fig. 1600.1 (d) and Technical Specification Clause 1602.4	Each	462.00	746.00
37	1600 & 300	Earth work 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	Cum	232.00	232.00
		B) Extra for Every Additional Lift of 1.5 m or Part thereof	Cum	24.00	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	Cum	36.00	125.53
		B) Extra for Every Additional Lift of 1.5 m or Part thereof	Cum	--	24.00
		(iv) Excavation in Hilly Areas in Ordinary Rock by mechanical means not requiring blasting			
		Excavation in hilly area in ordinary rock not requiring blasting by mechanical means including cutting and trimming of slopes and disposal of cut material with a lift upto 1.5 m and lead upto 20 m as per Clause 1603.2.	Cum	70.00	182.00
		(v) 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.	Cum	97.00	356.00
		B) Extra for Every Additional Lift of 1.5 m or Part thereof	Cum	--	48.00
		<u>RETAINING WALL / BREAST WALLS</u>			
38	1600, 600 & 700	Retaining Walls / Breast Walls			
		Construction of retaining walls/breast walls in cement mortar 1:5 as per drawing and technical specifications Clause 1604			

Sr. No.	Reference to MORD Specification	Description	Unit	Labour Rate	Through Rate
		(i) Earthwork in excavation for structures			
		Rate as per item No.11.1 of Chapter 11	cum	371.00	371.00
		(ii) Plain cement concrete M 10 grade			
		Rate as per item No.11.4, I(ii)of Chapter 11	cum	984.00	5,565.00
		(iii) Stone masonry in cement mortar 1:5			
		Rate as per item No. 12.7 (III) (iii) of	cum	2,393.00	4,891.00
		(iv) Pointing with cement mortar 1:3			
		Rate as per item No.12.2 of Chapter 12	sqm	66.00	84.00
		(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	metre	61.00	362.00
		(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	683.00	1,554.00
		(vii) Back filling behind retaining wall/breast wall			
		Rate as per item No. 12.14 of Chapter 12	cum	609.00	1,050.00
39	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			
		(i) Earthwork in excavation for structures as per drawing and technical specification	Cum	371.00	371.00
		(ii) Plain cement concrete M10 grade	Cum	984.00	5,565.00
		(iii) Stone masonry in cement mortar 1:5	Cum	2,393.00	4,891.00
		(iv) Plain cement concrete M15 grade	Cum	984.00	5,012.00
		(v) Cement plaster 15 mm thick 1:4 on stone masonry	Sqm	127.00	209.00
		(vi) Providing P.C.C. M20 architectural coping on top of wall	Metre	61.00	362.00
40	803	Road Marking with Hot Applied Thermoplastic Compound with Reflectorisng Glass Beads on Bituminous Surface			
	MORTH	Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorisng 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.	Sqm	--	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.	Reference to MORD Specification	Description	Unit	Labour Rate	Through Rate
41	11100	<p>Providing and laying reinforced cement concrete pipe NP2 as per design in single Row.</p> <p>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 work, back filling, concrete and masonry work in head walls and parapets clause 1108.</p>			
		A 1200mm dia	Metre	229.00	6,170.00
		B 1000mm dia	Metre	146.00	4,314.00
		C 900mm dia	Metre	116.00	3,341.00
42	1100	<p>Providing and laying reinforced cement concrete pipe NP2 for culverts on first class bedding of granular material in double row including fixing collar with cement mortar 1:2 but excluding excavation, protection work, back filling, concrete and masonry work in head walls and parapets clause 1106.</p>			
		A 1200mmdia	Metre	551.00	12,433.00
		B 1000mm dia	Metre	350.00	8,683.00
		C 900mm dia	Metre	280.00	7,047.00
43	1100	<p>Providing and Laying Reinforced Cement Concrete Pipe NP3 as per design in Single Row</p> <p>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.</p>			
		C 900mm dia	Metre	116.00	6,702.00

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.	Reference to MORD Specification	Description	Unit	Labour Rate	Through Rate
44	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)	Per.Cm height per letter	0.95	1.00
		ii) English and Roman Hyphens, commas and the like not to be measured and paid for.	Per.Cm height per letter	0.56	0.60
45		B. Semi Reflective Traffic Signs Providing and fixing of semi reflective cautionary, mandatory and inforatory 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			
		i) 900 mm equilateral & triangle	Each	322.00	2,766.00
		ii) 600 mm equilateral & triangle	Each	322.00	2,673.00
		iii) 600 mm circular	Each	322.00	2,734.00
		iv) 800 mm x 600 mm rectangular	Each	322.00	2,828.00
		v) 600 mm x 450 mm rectangular	Each	322.00	2,728.00
		vi) 600 mm x 600 mm	Each	322.00	2,771.00
		vii) 900 mm side octagon	Each	322.00	2,920.00
46	1700, 800 & 300	Direction and Place Identification signs upto 0.9 sqm size board A. Retro-reflectorised Traffic Signs			

Sr. No.	Reference to MORD Specification	Description	Unit	Labour Rate	Through Rate
		(i) Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide Clause 1701.2.3, fixed over aluminium sheeting, 2 mm thick with area not exceeding 0.9 sqm supported on a mild steel single angle iron post 75 x 75 x 6 mm firmly fixed to the ground by means of properly designed foundation with M-15 grade cement concrete 450 x 450 x 600 mm, 600 mm below ground level as per approved drawing and Technical Specification Clause 1701			
47	1700	Painting Two Coats on New Concrete Surfaces Painting two coats including primer coat after filling the surface with synthetic enamel paint in all shades on new, plastered / concrete surfaces as per drawing and Technical Specification Clause 1701	Sqm	379.00	4,885.00
48	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	Sqm	64.00	106.00
49	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	Sqm	112.00	136.00
50	1700	<u>KM STONES AND ROAD SIGNS BOARDS</u> Kilometre Stone Reinforced cement concrete M15 grade kilometre stone/local stone of standard design as per IRC:8 fixing in position including painting and printing, etc as per drawing and Technical Specification Clause 1703			
		i) 5th Kilometre Stone (precast)	Each	1,571.00	4,796.00
		ii) Ordinary Kilometer Stone (Precast)	Each	725.00	2,813.00
		iii) 200 m stone (precast)	Each	318.00	811.00
51	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	Each	224.00	757.00
52	1700	Providing and Fixing 'Logo' of PMGSY Project			

Sr. No.	Reference to MORD Specification	Description	Unit	Labour Rate	Through Rate
		<p>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</p>	Each	6,472.00	16,585.00
53	<p>805 MORTH</p>	<p>Road Delineators 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.</p>	Each	15.40	512.50

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.	Reference to MORD Specification	Description	Unit	Labour Rate	Through Rate
54	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	Cum	371.00	371.00
		II. Ordinary rock (not requiring blasting)			
		Upto 3 m depth	Cum	519.00	519.00
		III. Hard rock (requiring blasting)	Cum	616.00	750.00
		IV. Hard rock (blasting prohibited)	Cum	232.00	852.64
55	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	Cum	984.00	5,565.00
		II. P.C.C grade M 15			
		(i) Nominal mix (1:2.5:5) (1 cement:2.5 sand: 5 graded stone aggregate 40 mm & down gauge nominal size)	Cum	984.00	5,562.00
		III. P.C.C. grade M 20			
		(i) Nominal mix (1:2:4)	Cum	984.00	6,243.00
		IV. R.C.C. grade M 20			
		(i) Nominal mix	Cum	1,044.00	6,648.00
		V. R.C.C. grade M 25			
		(i) Nominal mix	Cum	1,041.00	7,123.00
		VI. P.C.C grade M 15			
		(i) Nominal mix (1:2.5:5) (1 cement:2.5 sand: 5 graded stone aggregate 40 mm nominal size)	Cum	984.00	5,012.00
56	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	Cum	2,452.00	4,937.00
		(iii) In cement mortar (1:5)	Cum	2,393.00	4,891.00
57	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 1:4:8	Cum	984.00	4,964.00
58	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	Cum	984.00	4,122.00

Sr. No.	Reference to MORD Specification	Description	Unit	Labour Rate	Through Rate
59	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.	Cum	984.00	4,228.00
A		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.	Cum	984.00	4,304.00
60	800 & 1200	Providing and Laying cement concrete 1:4:8 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.	Cum	984.00	4,584.00
A		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.	Cum	984.00	4,668.00
61	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.	Cum	1,911.00	3,533.00

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.	Reference to MORD Specification	Description	Unit	Labour Rate	Through Rate
62	600	Pointing with cement mortar (1:3) on brickwork as per drawing and technical specification Clauses 613.3 and 1204	Sqm	66.00	84.00
63	600	Plastering with cement mortar (1:4), 15 mm thick on brickwork in substructure as per technical specification Clauses 613.4 & 1204	Sqm	127.00	209.00
64	700	Construction of dry rubble 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 & 1302.5	Cum	1,745.00	2,602.00
65	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	Cum	2,575.00	5,543.00
		(ii) In 1:4 cement mortar	Cum	2,575.00	5,184.00
		(iii) In cement mortar (1:5)	Cum	2,393.00	4,891.00
		(iv) In cement lime mortar (1:6)	Cum	2,575.00	4,826.00
		II. Coursed Rubble masonry (2nd sort)			
		(i) In cement mortar (1:3)	Cum	2,393.00	5,431.00
		(ii) In 1:4 cement mortar	Cum	2,393.00	5,037.00
		(iii) In cement mortar (1:5)	Cum	2,393.00	4,824.00
		(iv) In cement mortar (1:6)	Cum	2,393.00	4,642.00
		III. Random rubble masonry			
		(i) In cement mortar (1:5)	Cum	2,222.00	4,547.00
		(ii) In cement mortar (1:6)	Cum	2,222.00	4,365.00
66	800	Plain / reinforced cement concrete in sub-structure as per drawings and technical specification clauses 802, 804, 805, 806, 807, 1202 and 1204 (1) upto 5 metre height P.C.C. grade M 15 Nominal mix (1:2.5:5)	Cum	1,041.00	5,791.00
67	1000	Supplying, fitting and placing HYSD bar reinforcement (Fe 415) in substructure complete as per drawings and technical specification Clauses 1002, 1005, 1010 & 1202	Tonne	4,074.00	84,692.00
68	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 width 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	Nos.	16.00	293.00
69	1200	Backfilling behind abutment, wing wall and return wall complete as per drawings & technical specification Clause 1204.3.8 l) Granular material	Cum	609.00	1,050.00

Sr. No.	Reference to MORD Specification	Description	Unit	Labour Rate	Through Rate
70	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	Cum	683.00	1554.00
71	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	Rmt	61.00	362.00

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.	Reference to MORD Specification	Description	Unit	Labour Rate	Through Rate
72	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			
		(ii) For nominal mix 1:2:4 (Hand mixed)			
		I Upto 5m height	Cum	1,204.00	7,671.00
		II 5m to 10m height	Cum	1,254.00	7,991.00
		III Above 10m height	Cum	1,305.00	8,310.00
		(iii) For design mix RCC M 20 1:2:4			
		I Upto 5m height	Cum	1,204.00	7,461.00
		II 5m to 10m height	Cum	1,254.00	7,772.00
		III Above 10m height	Cum	1,305.00	8,083.00
		II. R.C.C M 25 1:1.5:3			
		I Upto 5m height	Cum	1,204.00	8,196.00
		II 5m to 10m height	Cum	1,254.00	8,538.00
		III Above 10m height	Cum	1,305.00	8,879.09
		III. R.C.C. Grade M 30 1:1:3			
		I Upto 5m height	Cum	1,204.00	8,511.00
73	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	Cum	1,103.00	13,261.00
74	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	Rmt.	250.00	3,585.00
		Sub Analysis for Rate of Concrete	Cum	883.00	6,011.00
75	1200	Providing fitting and fixing mild steel railing complete as per drawing and technical specifications Clause 1208.2	Rmt.	344.70	3,630.70
76	1200	Drainage spouts complete as per drawing and technical specifications Clause 1209	Rmt.	219.00	2,096.00
77	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	Rmt.		3,927.90
	B	Type - B, "THRIE" : Metal Beam Crash Barrier			

Sr. No.	Reference to MORD Specification	Description	Unit	Labour Rate	Through Rate
	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	Rmt.	-	4,939.70
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 coils confirming to IS 5986/2011), to be fixed on cold formed channel section post of size 150x75x5 mm made from ISI marked HR coils 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 components shall conform to clause 810 of MORT&H specifications including all fittings required for erection on road side W- beams, posts, spacers shall not be hot dip galvanised with zinc coating of 550 gm/sqm. All the bolts, 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.	Rmt.	-	3,372.70
	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 coils confirming to IS 5986/2011), to be fixed on cold formed channel section post of size 150x75x5 mm made from ISI marked HR coils 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 components shall conform to clause 810 of MORT&H specifications including all fittings required for erection on road side W- beams, posts, spacers shall not be hot dip galvanised with zinc coating of 550 gm/sqm. All the bolts, 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.	Rmt.	-	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.	Reference to MORD Specification	Description	Unit	Labour Rate	Through Rate
79	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	cum	378.00	2,650.00
80	1303	Providing and laying of dry rubble flooring complete as per drawings and technical specifications Clause 1303.3	cum	1,034.00	2,139.00