



**GOVERNMENT
OF
MADHYA PRADESH
PUBLIC WORKS DEPARTMENT**

**SCHEDULE OF RATES
FOR
ROAD & BRIDGE WORKS**

IN FORCE FROM 25-03-2022

**ISSUED BY -
ENGINEER-IN-CHIEF
PUBLIC WORKS DEPARTMENT
M.P. BHOPAL**

**Price : Rs. 1000/-
(Excluding Postage and forwarding Charges etc.)**

FOREWORD

Schedule of Rates for Road and Bridge works has been issued by Public Works Department from time to time. The Public works Department since its inception has revised schedule of Rates for Road and Bridge works on several occasions. The last such revision was done on 29-08-2017

Due care has been taken to frame the schedule of Rates as correctly as possible. It is, however, possible that some errors might have crept in. In case any error or omission is noticed, the same may be brought to the notice of this office.

I extend my gratitude and thanks to **Mr. Deepak Asai Chief Engineer, Mr. Sanjay Khande Chief Engineer, Mr. Shri Ram Mishra Chief Engineer, Mr. P.C. Verma Superintending Engineer, Mr. B.P. Bourasi Superintending Engineer, Mr. Javed Shakil Executive Engineer and Mr. Naveen Malhotra Sub Engineer**, who have contributed considerably towards bringing out this Schedule of Rates into effect.

Suggestions, if any, towards further improvement to this Schedule of Rates for Road and Bridge works shall be highly appreciated.

This SOR is available on the Departmental website www.mppwd.gov.in and shall be applicable w.e.f. 25th March 2022

Bhopal, dated 25-03-2022


(Er. Narendra Kumar)
Engineers-in- Chief
M.P. Public Works Department

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This SOR is based on Standard Data book for analysis of Rates for Road and Bridge Works.

GENERAL NOTES

ROAD WORKS

- 1)
 - (i) "Specifications" would refer to the "Specifications for road and bridge works" (5th Revision) published by the Indian Roads Congress April'2013, on behalf of the Government of India, Ministry of Road Transport & Highway (Roads Wing).
 - (ii) "Clause" would refer to clauses of the specifications referred to in note (i) above.
 - (iii) "Engineer-in-charge" would refer to the Executive Engineer of the division or any other person like Supervision Consultant etc., so authorised by the Department.
 - (iv) "Table" would refer to the table of the aforesaid specifications.
- 2) The rates have been normally analysed for items being executed through mechanical means. However, for certain items, rates have been derived for execution through manual means also. These items (using manual means) should be incorporated in the estimates only after site inspection by the S.E. and after getting written permission from the C.E.
- 3) The rates for any items shall include all such activities which are described in the corresponding items of "Specifications for road and bridge works" (5th Revision). In addition to these activities the rates shall be deemed to include charges for lease of borrow areas/ mines, royalty of material consumed in the works, any other taxes/toll imposed etc. if any accept GST unless otherwise provided in the contract.
- 4) Mode of measurements shall be as per provisions contained in the relevant clauses of the specifications, unless specified otherwise.
- 5)
 - (i) Bitumen to be used in the works shall be as provided in IS -73 while the modified bitumen should comply with Clause 501.2.1 or as otherwise specified in the contract.
 - (ii) The use/ provision in the estimate of PMB-40/ CRMB is only permitted to be done with prior written permission of Chief Engineer.
 - (iii) Materials, as may be required to be issued to the contractor by department shall be specified in the N.I.T. with place of delivery and their issue rates. The issue rate all such material shall be decided by the concerned Chief Engineer.
- 6) For the purpose of quality assurance, the contractor is required to establish a field laboratory, in accordance with clause 120 of the specifications. All charges for testing, as per the defined frequency, whether done in field laboratory or otherwise required/directed to be done in any other laboratories, (Like departmental laboratories, Engineering Colleges, etc.) shall be treated as incidental to the execution of works and no separate payment for the same shall be permissible, unless otherwise provided in the contract.
- 7) If any work is found to be sub-standard, but the Engineer-in-charge is of the opinion that the same can be accepted at a reduced rate, then the Engineer-in-charge shall submit proposals for the same, supported by an analysis i.e. justification of such reduction, through a D.O. letter to the Superintending Engineer concerned, to obtain his approval expeditiously (ordinarily within 15 days). The approved analysis along with orders of the Superintending Engineer should be appended to the final bill of the contractor. It is hereby clarified that the acceptability of the sub standard work should be necessarily supported by a logical engineering conclusion considering the structural safety and functionality of the item.
- 8)
 - a) Rates for transportation in Chapter No. 1 of "Carriage of Material" include :-
 - (i) Loading and unloading into transport vehicle with incidental leads upto 100 M. at each place and all lifts.
 - (ii) Stacking at suitable places as directed by the Engineer-in-charge.

- 9) Rubble available from excavation of hard rock, shall be used to the contractor shall be charged @Rs.100 per cubic meter of rock excavated.
- 10) Wherever an existing boulder soling or WBM pavement is required to be excavated, it shall be presumed that the material so obtained is used in the consturction works, and may be issued to the contractor @ specified below :-
- a) Rubble :- For every cubic meter of boulder soling excavated @Rs.200 per cubic meter.
 - b) Coarse Aggregate :- For every cubic meter of WBM excavated @ Rs. 200 per cubic meter (Excavated WBM should be screened to segregate metal from moorum before re-use).
- 11) In case of any contradiction in the provisions of the specifications and this schedule of rates, the provisions of the later would take precedence.
- 12) The actual quantities of materials shall be as per job mix formula for bituminous works. Job mix design shall be approved by Engineer-in-charge prior to execution of work.
- 13) The measurement of bituminous works shall be cross checked by the actual weight of the mix, used at the site. The contractor shall submit the weigh slips in support of the bituminous work.
- 14) The girth of trees shall be measured at 1.00 Metre (One Metre) above ground level.
- 15) All wood obtained from the tree shall be property of the government and shall be deposited at P.W.D. store or as per direction of Engineer-in-Charge.
- 16) The following over head charges have been taken in deriving the rates :-
- a) For Road works 10%
 - b) For Bridge works 25%

GENERAL NOTES

BRIDGE WORKS

1) FOUNDATION

- i) All works below ground level or lowest water level (LWL) , whichever is higher shall be termed as foundation work.

2) SUB-STRUCTURE

- i) The part of the bridge structure below the a) Soffit level of the deck slab/beams and or b)Springing level for arch spans, but above the ground level or L.W.L. which ever is higher, shall be treated as sub structure of the bridge part. Complete RCC box section will also be considered as sub-structure.

3) SUPER-STRUCTURE

- i) The work above (a)Soffit level for deck slabs/beams and (b)Springing level for arch span, including kerbs, railing, expansion joints, beams, slabs etc. shall be termed as super structure of the bridge part.

4) DEFINITIONS

- a) Major Bridge : Having total length between abutments at cap level 60 M. and above.
- b) Minor Bridge : Having total length between faces of abutments at cap level, 6 M. and above but less than 60 M.
- c) Culverts : Having total length less than 6 M.

5) SPECIFICATIONS

- i) The specifications of works shall be in accordance with 5th revision of "Specifications for Road and Bridge works" (Ministry of Road Transport & Highway) unless otherwise provided in the contract.

6) CONCRETE

- a) All concrete work shall be done as provided in section 1700 of "Specifications for Road and Bridge works" (Ministry of Road Transport & Highway) 5th Revision unless otherwise provided in the contract.
- b) Finishing of concrete by plastering the surface shall not be done without obtaining written permission from the Executive Engineer. No extra for plastering shall be payable. Light touching up and rubbing the uneven surfaces by carborandum stone shall be done within the specified rates.

7) STEEL

- i) TMT Steel confirming to IS-1786 can be used in place of Tor Steel.
- ii) Steel used as reinforcement steel shall be measured as per clause 1608 of Specifications of Road and Bridge works, MORT&H.

8) CEMENT

- i) If the cement is brought by the contractor, the contractor shall be responsible for ensuring the quality of cement and would be bound to conduct any or all tests at his cost for ensuring its quality as per directions of the Engineer-in-Charge. The theoretical consumption of cement shall be worked out at regular intervals and shall be verified with actual cement brought to the site

9) **MASONRY WORK**

- i) All the stone masonry work shall be strictly as per "Specification for Road & Bridge works" of MORT&H (5th Revision).
- ii) In place of stone headers, precast concrete blocks in M-15 Concrete shall be used. Cast-in-situ concrete headers are not permitted.
- iii) Generally for all stone masonry subjected to exposure of water flow (e.g. piers, abutments, returns etc.) C.R. Masonry first sort shall be used unless otherwise provided in the approved drawing.
- iv) In case where width of stone masonry is more than one meter, the central portion of stone masonry (Hearting) shall be done with uncoursed random rubble masonry. Payment for the C.R. Masonry will be limited to 1/2 meter width on either faces and the balance will be paid as uncoursed Random Rubble Masonry.

10) **ISSUE RATES OF MATERIALS**

- i) Materials, as may be required to be issued to the contractor by department shall be specified in the N.I.T. with place of delivery and their issue rates. The issue rate all such material shall be decided by the concerned Chief Engineer.

11) **LEAD AND LIFTS**

- i) The rates in all items of this S.O.R. are inclusive of all lead, lift and transportation of material except otherwise specified in the item. No extra on this account is payable unless otherwise specifically mentioned in any particular item.

12) **ROYALTY AND OTHER TAXES**

- i) Royalty, Octroi duty and all other taxes accept GST are included in the rates. No extra on this account shall be payable. Unless otherwise provided in the contract.

13) **DISMANTLING**

- i) The rates include the complete cost of dismantling and shifting away the dismantled material to place at site of work as directed by Engineer-in-Charge and the rates also include the serviceable dismantled material to be properly stacked at river bank at a location directed by the Engineer-in-Charge.

14) **MODE OF MEASUREMENTS**

- i) The mode of measurements shall be as per provisions contained in the relevant clauses of the specifications unless specified otherwise.
- ii) The rates include all such activities as are described in the relevant clauses of the Specifications, unless specified otherwise.
- iii) Rates include provisions of necessary precautionary devices and other arrangements etc. for traffic control, e.g. provision of caution boards, red lights, watchmen flags and flagmen but do not include construction of temporary diversion.
- iv) The rates do not include the work of trial pits, which are to be measured and paid separately.
- v) The contractor is bound to install at the site of work a testing laboratory as provided in the specifications.
- vi) Detailed measurements for steel and concrete for items of R.C.C. approach slab, R.C.C. Railing and R.C.C. wearing coat shall also be recorded in M.B. However the payment shall be regulated as per the item and rates given in the S.O.R.
- viii) The measurement of rock excavation are to be done as per the relevant clause of "Specification of Road and Bridge works" of MORT&H 5th Revision. All serviceable rock excavated shall be issued to the contractor at the rate of Rs.100/- per Cum.

CHAPTER WISE NOTES

CHAPTER – 12

FOUNDATION

NOTES :-

- 1) Back filling upto original bed level shall be done as per clause 304.3.7 of "Specification for Road and Bridges". No extra shall be payable on this account.
- 2) The rates of well sinking include the charges of labour, plant, cost of P.O.L. and other materials and accessories. The rates also include the cost of diversion of channel, making of island, if required to be done for laying the cutting edge, kerb and steining. The permissible tilt and shift in well in its final position shall be as per IRC-78-1983. The rates include the cost of rectification of tilt and shift in excess of permissible limit. No extra over these rates are payable for sinking of well.
- 3) For the purpose of the computation of the volume in well sinking, the cubic content of well shall be measured by the portion contained in outer diameter of well steining. Projection of R.C.C. kerb, if any shall not be measured.

CHAPTER – 13

SUB-STRUCTURE

NOTES :-

- 1) The rates of bearing are inclusive of the charges required for testing of bearing, procurement, transport, if required, greasing while storing and at the time of fixing etc.
- 2) The use of A.C. Pipes for weep holes is permitted only in PCC/RCC/Brick masonry sub-structure. In stone masonry inbuilt weep holes of size 80mm x 150mm shall be constructed and no extra for this work is payable. No deduction for the recess or for pipes due to weep holes shall be made in the measurement of stone/brick masonry, PCC and RCC.
- 3) The bearings should be procured only from those manufactures who have not been disqualified by MORT&H or by MP PWD.
- 4) For Hume pipe culverts, Hume pipes shall be ISI marked or DGS&D certified only and a certificate should invariably be produced to the satisfaction of Engineer-in-Charge before getting the pipes fixed at site.

CHAPTER – 14

SUPER STRUCTURE

NOTES :-

- 1) Properly designed form work shall be used for super structure. In case of steel form work the thickness of steel plate shall not be less than 3 mm. The form work shall be adequately stiffened by brackets and angles not more than 15 cm. apart in such a manner that it does not get distorted during handling and placing/vibration of concrete.
- 2) Centering made up of steel trusses below soffit shall not be supported in recess made in sub-structure. Providing safe centering shall be solely contractor's responsibility. The contractor shall remove all bolts, anchors protruding beyond the pier/pier-cap after removal of centering.
- 3) Contractor shall have the option to adopt launching of super-structure but in such cases prior permission of the department should be obtained by getting launching arrangement approved by the Chief Engineer. It is clarified that the payment to the contractor in such case shall be limited to the payment he would have received by carrying out the work through conventional method involving centering shuttering, cast in situ concreting and prestressing, etc. including all the ancillary arrangements.
- 4) The rate of prestressing of H.T. Steel is complete rate including hire and running expenses of plant and machineries, labour involved in stressing operations, anchorages and ducts or sheathing etc., complete including grouting.
- 5) The rates of wearing coat are inclusive of reinforcement provided, construction joints between panels and the form work at the panels. Construction joints in panel shall be 10 mm. wide and shall be filled with premoulded joint filler. Filling of expansion joints between span over piers/abutment or at articulation is not included in the rate.
- 6) The payment of railing includes the construction of required intermediate posts and end posts. The length of railing for payment purposes on each side separately, shall be measured from the outer edges of end posts.

CHAPTER : 1.0
(CARRIAGE OF MATERIALS)

S.No.	Materials	Unit	Rate (Rs.)								Remarks
	2	3	4	5	6	7	8	9	10	11	12
1.1	Transportation By Mechanical Transport including loading , unloading and stacking.										
1.1.1	Loose moorum/sand/earth/ surkhi/ cement/stone dust/hot mix asphalt material.	cum	65.04	71.26	74.84	78.40	82.86	3.91	2.90	Beyond 10 km upto 20 km addl. Km.	The rates will be applicable to net quantities after deduction of prescribed percentage for voids mentioned in the Table at the bottom of the Chapter
1.1.2	Excavated/compacted ordinary & other soil.	cum	79.30	88.21	92.66	96.23	102.47	4.81	3.56	2.90	
1.1.3	Boulders.	cum	128.30	140.78	147.90	154.14	163.94	7.58	5.70	4.68	
1.1.4	Stone aggregate (Metal)	cum	69.50	76.63	80.19	83.75	89.10	4.19	3.12	2.54	
1.1.5	Masonry stones.	cum	57.92	64.15	66.85	69.50	73.95	3.48	2.58	2.13	
1.1.6	Coal/Fuel wood/iron work/steel/G.I. Sheets/pipes/lime/machinery etc.	tonne	57.02	62.37	65.93	68.60	73.06	3.43	2.54	2.05	
1.1.7	Steel	tonne	57.02	62.37	65.93	68.60	73.06	3.43	2.54	2.05	
1.1.8	timber	cum	73.06	80.19	84.64	88.21	93.55	4.36	3.25	2.67	
1.1.9	Tar/Paint/Bitumen etc.	M.T.	65.04	71.28	74.84	78.41	82.86	3.92	2.90	2.41	

Table

S.No.	Standard size of Aggregate	Percentage reduction in volume computed by stack measurements to arrive at the volume to be paid for	
1.	75mm and 63mm	12.50	
2.	45 mm and 26.5mm	10.00	
3.	22.4mm, 13.2 mm 11.2mm and 6.7mm	5.00	
4.	Fine aggregate	5.00	
1.2	Supply of mineral aggregate like broken stone/crushed stone (crushed in mechanical crusher) at road site including all lead and stacking etc. complete.		
	(i) 75mm standard size broken stone	Cum.	600.00
	(ii) 63mm standard size broken stone	Cum.	630.00
	(iii) 63mm standard size broken stone	Cum.	630.00
	(iv) 45mm standard size crushed stone	Cum.	685.00
	(v) 26.5mm standard size crushed stone	Cum.	715.00
	(vi) 22.4mm standard size crushed stone	Cum.	715.00
	(vii) 13.2mm standard size crushed stone	Cum.	587.00
	(viii) 11.2mm standard size crushed stone	Cum.	587.00
	(ix) 6.7mm standard size crushed stone	Cum.	585.00
1.3	Supply of following material including all lead and stacking etc. complete.		
	(i) Crusher stone dust	Cum.	275.00
	(ii) Sand/Shingle/Kanker/Laterite	Cum.	275.00
	(iii) Moorum with CBR not less than 20 and P.I. Not exceeding 6.	Cum.	140.00

CHAPTER : 2.0

SITE CLEARANCE

Item No.	Descriptions	Unit	Rate
2.1	Cutting of Trees, including Cutting of Trunks, Branches and Removal Cutting of trees, including cutting of trunks/branches in suitable size removal of stumps/roots, and stacking of serviceable material with all lifts and up to a lead of 1000 mtrs and filling earth in the depression/pit..		
(i)	Girth from 300 mm to 600 mm	each	244.00
(ii)	Girth from 600 mm to 900 mm	each	417.00
(iii)	Girth from 900 mm to 1800 mm	each	841.00
(iv)	Girth above 1800 mm	each	1619.00
2.2	Clearing and Grubbing Road Land Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees having girth up to 300 mm, removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable material up to a lead of 1000 metres including removal and disposal of top organic soil not exceeding 150 mm in thickness.		
A	In area of light jungle	hectare	22918.00
B	In area of thorny jungle	hectare	28025.00
2.3	Dismantling of Structures Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood, steel, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead upto 1000 metres.		
(i)	Lime /Cement Concrete		
A	Lime Concrete, cement concrete grade M-10 and below	cum	354.00
B	Cement Concrete Grade M-15 & M-20	cum	425.00
C	Prestressed / Reinforced cement concrete grade M-25 & above	cum	1170.00
(ii)	Dismantling Brick / Tile work		
A	In lime mortar	cum	210.00
B	In cement mortar	cum	282.00
C	In mud mortar	cum	182.00
D	Dry brick pitching or brick soling	cum	167.00
(iii)	Dismantling Stone Masonry		
A	Rubble stone masonry in lime mortar	cum	239.00
B	Rubble stone masonry in cement mortar.	cum	282.00
C	Rubble Stone Masonry in mud mortar.	cum	210.00
D	Dry rubble masonry	cum	196.00
E	Dismantling stone pitching/ dry stone spalls.	cum	182.00
F	Dismantling boulders laid in wire crates including opening of crates and stacking dismantled materials.	cum	210.00
(iv)	Wood work wrought framed and fixed in frames of trusses upto a height of 5 m above plinth level	cum	554.00

Item No.	Descriptions	Unit	Rate
(v)	Steel work in all types of sections upto a height of 5 m above plinth level.		
A	Including dismembering	tonne	1484.00
B	Excluding dismembering.	tonne	1103.00
C	Extra over item No (V) A and (V) B for cutting rivets.	tonne	11.00
(vi)	Scraping of bricks dismantled from Brick work including stacking.		
A	In lime/Cement mortar	1000 numbers	1253.00
B	In mud mortar	1000 numbers	448.00
(vii)	Scraping of Stone from dismantled stone masonry		
A	In cement and lime mortar	cum	503.00
B	In Mud mortar	cum	106.00
(viii)	Scarping plaster in lime or cement mortar from brick/ stone masonry	sqm	15.00
(ix)	Removing all type of hume pipes and stacking within a lead of 1000 metres including earthwork and dismantling of masonry works.		
A	Up to 600 mm dia	metre	186.00
B	Above 600 mm to 900 mm dia	metre	252.00
C	Above 900 mm	metre	431.00
2.4	Dismantling of Flexible Pavements Dismantling of flexible pavements thickness more than 100 mm and disposal of dismantled materials up to a lead of 1000 metres, stacking serviceable and unserviceable materials separately.	cum	230.00
2.5	Dismantling of Cement Concrete Pavement Dismantling of cement concrete pavement by mechanical means using pneumatic tools, breaking to pieces not exceeding 0.02 cum in volume and stock piling Serviceable material at designated locations and disposal of unserviceable materials up to a lead of 1000 metres,	cum	1283.00
2.6	Dismantling Guard Rails Dismantling guard rails by manual means and disposal of dismantled material with all lifts and up to a lead of 1000 metres, stacking serviceable materials and unserviceable materials separately.	metre	69.00
2.7	Dismantling Kerb Stone Dismantling kerb stone by manual means and disposal of dismantled material with all lifts and up to a lead of 1000 metre	metre	12.00
2.8	Dismantling Kerb Stone channel Dismantling kerb stone channel by manual means and disposal of dismantled material with all lifts and up to a lead of 1000 metre	metre	18.00
2.9	Dismantling Kilometre/ Boundry Stone Dismantling of Kilometre/ Boundry stone including cutting of earth, foundation and disposal of dismantled material with all lifts and lead upto 1000 m and back filling of pit.		
A	5th KM stone	each	363.00

Item No.	Descriptions	Unit	Rate
	B Ordinary KM Stone	each	210.00
	C Hectometre Stone	each	42.00
	D Boundary Stone	each	43.00
2.10	Dismantling of Fencing Dismantling of barbed wire fencing/ wire mesh fencing including cutting of earth, foundation concrete, posts, back filling of pit by manual means including disposal of dismantled material with all lifts and up to a lead of 1000 metres, stacking serviceable material and unserviceable material separately.	metre	50.00
2.11	Dismantling of CI Water Pipe Line Dismantling of CI water pipe line upto 600 mm dia including disposal with all lifts and lead upto 1000 metres and stacking of serviceable material and unserviceable material separately under supervision of concerned department.	metre	107.00
2.12	Removal of Cement Concrete Pipe of Sewer Gutter Removal of cement concrete pipe of sewer gutter upto 1500 mm dia under the supervision of concerned department including disposal with all lifts and up to a lead of 1000 metres and stacking of serviceable and unserviceable material separately but excluding earth excavation and dismantling of masonry works.	metre	128.00
2.13	Removal of Telephone / Electric Poles and Lines Removal of telephone / Electric poles including excavation and dismantling of foundation concrete and lines under the supervision of concerned department, disposal with all lifts and up to a lead of 1000 metres and stacking the serviceable and unserviceable material separately.	each	168.00

CHAPTER : 3.0

**EARTH WORK, EROSION
CONTROLAND DRAINAGE**

Item No.	Descriptions	Unit	Rate
3.1	Excavation in Soil by Manual Means Excavation for roadway in soil including loading and unloading in/from truck for carrying of suitable cut earth to embankment site and disposing off unsuitable earth with all lifts and lead upto 1000 metres as per clauses of section-300.	cum	156.00
3.2	Excavation in ordinary rock by Manual Means Excavation in ordinary rock including loading and unloading in/from in a truck and carrying of excavated material to embankment site with all lifts and leads upto 1000 metres as per relevant clauses of section-300	cum	231.00
Note:-	Item No.3.1 & 3.2 can be executed only after prior written approval by C.E.		
3.3	Excavation in Soil using Hydraulic Excavator and Tippers with disposal upto 1000 metres. Excavation for roadwork in soil with hydraulic excavator including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting suitable earth to the embankment location and disposing off unsuitable earth with all lifts and lead upto 1000m as per relevant clauses of section-300 of specification.	cum	55.00
3.4	Excavation in Ordinary Rock using Hydraulic Excavator and Tippers with disposal upto 1000 metres. Excavation for roadway in ordinary rock with hydraulic excavator including cutting and loading in tippers, transporting to embankment site with in all lifts and lead upto 1000 m, trimming bottom and side slopes in accordance with requirements of lines, grades and cross sections as per relevant clauses of section-300 of specification.	cum	75.00
3.5	Excavation in Hard Rock with disposal upto 1000 metres Excavation for roadway in hard rock with rock breakers i/c breaking rock or by drilling, blasting and breaking, trimming of bottom and side slopes in accordance with requirements of lines, grades and cross sections, loading and disposal of cut road with all lifts and leads upto 1000 metres and as per relevant clauses of section-300 of specification. Note:- 1. The Quality and Availability of rock shall be checked before affording credit. 2. In case some rock is issue to the contractor at site the item of carriage shall be reduce/restricted to that extend.	cum	203.00
3.6	Excavation in Hard rock (Blasting prohibited)	Cum	408.00
3.7	Excavation in Hard rock (Controlled Blasting)	Cum	210.00
3.8	Excavation in Marshy Soil Excavation for roadway in marshy soil with hydraulic excavator including cutting and loading in tippers and disposal with all lifts and lead upto 1000 metres, trimming of bottom and side slopes in accordance with requirements of lines, grades and cross sections and as per relevant clauses of section-300 of specification.	cum	57.00
3.9	Removal of Unserviceable Soil with Disposal upto 1000 metres Removal of unserviceable soil including excavation, loading and disposal upto 1000 metres lead but excluding replacement by suitable soil which shall be paid separately as per clause 305.	cum	50.00

Item No.	Descriptions	Unit	Rate
3.10	Scarifying Existing Granular Surface to a 50 mm by Manual Means Scarifying the existing granular road surface to a depth of 50 mm and disposal of scarified material within all lifts and leads upto 1000 metres. (refer clause two of General Notes)	sqm	23.00
3.11	Scarifying existing bituminous surface to a depth of 50 mm by mechanical means Scarifying the existing bituminous road surface to a depth of 50 mm and disposal of scarified material with in all lifts and lead upto 1000 metres.	sqm	5.00
3.12	Dismantling of Existing bituminous surface (Flexible pavements) upto average depth of 50mm by way of mechanical milling, including loading of dismantled material and transportation of same to the dumping ground/place as directed by the Engineer-in- Charge includes all lead and lift. Note:- This item shall be included in the DPR and executed with prior written permission from Engineer-in- Charge MPPWD.	Sqm	30.00
3.13	Embankment Construction with Material Obtained from Borrow Pits Construction of embankment with approved material having CBR>7 obtained from borrow pits with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement of table 300-1, 300-2 and as per relevent clauses of section-300.	cum	155.00
3.14	Construction of Embankment with Material Deposited from Roadway Cutting Construction of embankment with approved materials having CBR>7 deposited at site from roadway cutting and excavation from drain or foundation of structures graded and compacted to meet requirement of table 300-1, 300-2 and as per relevent clauses of section-300.	cum	60.00
3.15	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 to the requirement of clause 301 and 309. Suitable Excavated material to be used in embankment within a lead of 50 metres as per relevent clauses of section-300.	metre	67.00
3.16	Sub Surface Drains with Perforated Pipe Construction of subsurface drain with perforated pipe of 100 mm internal diameter of metal/ asbestos cement/ cement concrete/PVC, closely jointed, perforations ranging from 3 mm to 6 mm depending upon size of material surrounding the pipe, with 150 mm bedding below the pipe and 300 mm cushion above the pipe, cross section of excavation 450(w) x 550 (d) mm. Suitable Excavated material to be utilised in roadway at site	metre	382.00
3.17	Aggregate Sub- Surface Drains Construction of aggregate sub surface drain 300 mm x 450 mm with aggregates conforming to table 300-4, suitable excavated material to be utilised in roadway.	metre	146.00

Item No.	Descriptions	Unit	Rate
3.18	Construction of Rock fill Embankment Construction of rock fill embankment with broken hard rock fragments of size not exceeding 300 mm laid in layers not exceeding 500 mm thick including filling of surface voids with stone spalls, blinding top layer with granular material, rolled with vibratory road roller, all complete as per clause 313	cum	42.00
3.19	Embankment Construction with Fly ash/Pond ash available from coal or lignite burning Thermal Plants as waste material. Construction of embankment with fly ash conforming to table 1 of IRC: SP: 58 - 2001 obtained from coal or lignite burning thermal power stations as waste material, spread and compacted in layer of 200mm thickness each at OMC, all as specified in IRC: SP: 58-2001 and as per approved plans.	cum	143.00
Note:-	The above rate is for an initial lead of fly ash upto 11 Kms. If the lead of the Fly ash is more than 11 Kms. the same shall be measured and paid extra as per item 1.1 of Chapter 1 “Carriage of Material”.		

CHAPTER : 4.0

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

Item No.	Descriptions	Unit	Rate
4.1	Granular Sub-base with Well Graded Material (CBR>30 or more) (Table:- 400-1 & Table 400-2) Construction of granular sub-base by providing well graded material like natural sand crushed gravel or crushed stone having CBR >30, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator or plant mix method at OMC, and compacting with vibratory rollers of 80 to 100 kN static weight to achieve the desired density, complete as per Clause 401 of Specification. Note :- This item can be executed only after prior written approval by C.E.	cum	934.00
4.2	Lime Stabilisation for Improving Subgrade Laying and spreading available soil in the subgrade on a prepared surface, pulverising, as per requirement of Table 400-3 mixing the spread soil in place with rotavator with 3 % slaked lime having minimum content of 70% of CaO, grading with motor grader and compacting with vibrator roller at OMC to the desired density to form a layer of improved sub grade as per clause 402 of specification. A By Mechanical Means B By Manual Means	cum cum	467.00 488.00
4.3	Lime Treated Soil for Sub-Base Providing, laying and spreading soil on a prepared sub grade, pulverising, as per requirement of Table 400-3 mixing the spread soil in place with rotavator with 4 % slaked lime with minimum content of 70% of CaO, to achieve CBR>30 grading with motor grader and compacting with the road roller at OMC to achieve at least 98%of the max dry density to form a layer of sub base as per clause 402 of specification.	cum	553.00
4.4	Cement Treated Soil Sub Base/ Base Providing, laying and spreading soil on a prepared sub grade, pulverising, adding the designed quantity of cement to the spread soil, mixing in place with rotavator, grading with the motor grader and compacting with vibrator roller at OMC to achieve the desired unconfined compressive strength and to form a layer of sub-base/base as per clause 403 of specification.	cum	737.00
4.5	Cement Treated Crushed Rock or combination as per clause 403.2 and table 400.4in Sub base/ Base Providing, laying and spreading Material on a prepared sub grade, adding the designed quantity of cement to the spread Material, mixing in place with rotavator, grading with the motor grader and compacting with vibrator roller at OMC to achieve the desired unconfined compressive strength and to form a layer of sub-base/base as per clause 403 of specification. (i) For Sub-Base course (ii) For Base course	cum cum	1597.00 1529.00

Item No.	Descriptions	Unit	Rate
4.6	Lime, Fly ash stabilised soil sub-base Construction of Sub-base using lime - fly ash admixture with granular soil, free from organic matter/ deleterious material or clayey silts and low plasticity clays having PI between 5 and 20 and liquid limit less than 25 and commercial dry lime, slaked at site or pre-slaked with CaO content not less than 50%, fly ash to conform to gradation as per clause 4.3 of IRC: 88-1984, lime + fly ash content ranging between 10 to 30%, the minimum unconfined compressive strength and CBR value after 28 days curing and 4 days soaking to be 7.5kg/sq, cm and 25% respectively, all as specified in IRC: 88-1984.	cum	553.00
4.7	Making 50 mm wide Furrows Making 50 mm wide furrows, 450 to the center line of the road and at one metre interval in the existing thin bituminous wearing coarse including sweeping and disposal of excavated material within 1000 metres lead		
	a) 25mm deep furrow cutting	sqm	4.00
	b) 50mm deep furrow cutting	sqm	7.00
4.8	Water Bound Macadam Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing, rolling with vibratory roller 8-10 tonnes in stages to proper grade and camber, applying and brooming requisite type of screening/ binding Materials to fill up the interstices of coarse aggregate, watering and compacting to the required density as per clause 404 of specification.		
	(i) Grading- I (63 to 45mm)		
	(a) Using Screening Type-A (13.2mm Agg.)	cum	1347.00
	(b) Using Screening Type-B (11.2mm Agg.)	cum	1417.00
	(ii) Grading- II (53 to 22.4mm)		
	(a) Using Screening Type-B (11.2mm Agg.)	cum	1250.00
4.9	Deduction for item No.4.1, 4.2, 4.3, 4.4, 4.5, 4.6 & 4.8 if vibratory roller / motor grader is not used with prior written approval by C.E. :		
	i) If static roller is used in place of vibratory roller.	cum	50.00
	ii) If motor grader is not used.	cum	50.00
4.10	Crushed Cement Concrete Sub-base / Base Breaking and crushing of material obtained by breaking damaged cement concrete slabs to size range not exceeding 75 mm as specified in table 400-9 transporting the aggregates obtained from breaking of cement concrete slabs at a lead of 1.0 km., laying and compacting the same as sub base/ base course, constructed as per clause 405 of specification.	cum	215.00
4.11	Wet Mix Macadam Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechanical mix plant carriage of mixed Material by tipper to site, laying in	cum	1493.00

Item No.	Descriptions	Unit	Rate
	uniform layers with paver in sub- base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density in accordance to Table No. 400-12, 400-13 and as per clause of section 406 of specifications.		
4.12	Crusher Run Macadam Sub Base/Base Course Providing crushed stone aggregate, depositing on a prepared surface by hauling vehicles, spreading and mixing with a motor grader, watering and compacting with a vibratory roller as per clause 410 to form a layer of sub-base/Base in accordance to Table No. 400-14, 400-15 and as per clause of section 407 of specifications.		
	(i) For 53 mm maximum size	cum	1145.00
	(ii) For 37.5 mm maximum size	cum	1157.00
4.13	Construction of Shoulders with approved material/selected soil i/c excavation all lifts & leads i/c grading to required slope & camber of 4% and compacting using vibratory roller of 80 to 100 kN static weight to meet requirement as per relevant clause of 400.		
	A Earthen Shoulders (CBR value >7)	cum	186.00
	B Hard Shoulders (CBR value >12)	cum	223.00
4.14	Construction of Median and Island with Soil Taken from Roadway Cutting Construction of Median and Island above road level with approved material deposited at site from roadway cutting and excavation for drain and foundation of structures, spread, graded and compacted as per clause 408 of specification	cum	141.00
4.15	Construction of Median and Island with Soil Taken from Borrow Areas Construction of median and Island above road level with approved material brought from borrow pits, spread, sloped and compacted as per clause 408 of specification.	cum	199.00
4.16	Deduction for item No.4.13 if vibratory roller / motor grader is not used with prior written approval by C.E. :		
	i) If static roller is used in place of vibratory roller.	cum	50.00
	ii) If motor grader is not used.	cum	50.00
4.17	Footpaths and Separators Construction of footpath/ separator by providing a 150 mm compacted granular sub base as per clause 410 and 25 mm thick cement concrete grade M15, over laid with precast concrete tiles in cement mortar 1:3 including provision of all drainage arrangements but excluding kerb channel.	sqm	534.00
4.18	Treated Soil for Sub- Base/ Base Using RBI-81 providing laying and spreading soil on a prepared sub-grade pulverizing mixing the spread soil in place with rotavator with 3 percent RBI- 81 With motor grader and compacting with the road roller at OMC to achieve at least 98 percent of the max dry density to form a layer of sub-base and base as per Technical Specification Clause 403(90% Soil+10% stone Dust+ 3% RBI 81) Note- The above shall be included in the DPR and executed with prior written permission from the E-IN-C MPPWD.		

Item No	Descriptions	Unit	Rate
	(i) With motor Grader	Cum	2115.00
	(ii)Tractor Mounted Grader	Cum	2100.00
4.19	Soil Stabilization-Stabilization of in-situ (existing pavement crust) or soil or Cum otherwise sub-base course up- to the required depth by cold in-situ recycling using chemical additives/otherwise: Providing pulverizing, spreading ,milling and mixing of chemical additives at the rate of minimum 750 ml/cum require quantity as per job mix design in accordance with IRC37-2018.Cementitious additive @ rate of minimum 4% should be spread on the existing pavement using a mobile truck mounted containerized cement/additive spreader with microprocessor controlled weighing and spreading system. The additive spreader shall, have variable working width sufficient to cover whole pavement lane. The in-situ stabilization process shall be carried out by a mobile and self propelled stabilizer/ reclaimed of working width of 2.4 mt and with minimum engine horse power of 440 km with a variable working depth of nimum 50 cm. The resultant stabilized mix then would be profiled to the required grade level and thickness using motor grader and the mix would be compacted using 20 ton pad foot roller in combination with smooth well roller to achieve desired proctor density as per IRC37-2018 and complete in all respects and curing with water as required including all materials, labour and machinery etc. The entire In-situ process would be carried out in single pass with milling and pulverizing of damaged asphalt pavement/soil/aggregates/soil- Note- The above shall be included in the DPR and executed with prior written permission from the E-IN-C MPPWD	Cum	3495.00

CHAPTER : 5.0
BASES AND SURFACECOURSES
(BITUMINOUS)

Item No.	Descriptions	Unit	Rate
5.1	Prime coat Providing and applying primer coat with bitumen emulsion on prepared surface of granular Base including cleaning of road surface and spraying primer at the rate of 0.75 kg/sqm using mechanical means as per clause 502 of specifications.	sqm	37.00
5.2	Providing and applying tack coat with catonic bitumen emulsion using emulsion pressure distributor on the prepared bituminous/granular surface cleaned with mechanical broom and as per relevant clauses of section-503 of specifications.		
(i)	@ 0.25 kg per sqm (normal bituminous surfaces)	sqm	14.00
(ii)	@0.30 kg per sqm (dry & hungry bituminous surfaces /granular surfaces treated with primer)	sqm	16.00
(iii)	@ 0.35 kg per sqm (Non-bituminous surfaces) cement concrete pavement.	sqm	18.00
(iv)	@ 0.40 kg per sqm (Non-bituminous surfaces) granular base not primed.	sqm	21.00
5.3	Providing and applying tack coat with low viscosity bitumen of VG 10 grade using bitumen pressure sprayer on the prepared bituminous/granular surface cleaned with mechanical broom and as per relevant clauses of section-503 of specifications.		
(i)	@ 0.25 kg per sqm (normal bituminous surfaces)	sqm	17.00
(ii)	@0.30 kg per sqm (dry & hungry bituminous surfaces /granular surfaces treated with primer)	sqm	20.00
(iii)	@ 0.35 kg per sqm (Non-bituminous surfaces) cement concrete pavement.	sqm	22.00
(iv)	@ 0.40 kg per sqm (Non-bituminous surfaces) granular base not primed.	sqm	23.00
	Note:- this item can be executed only after prior written approval by CE.		
5.4	Bituminous Macadam Providing and laying bituminous macadam using crushed aggregates of specified grading premixed with bituminous binder, transported to site, laid over a previously prepared surface with Electronic Sensor paver finisher to the required grade, level and alignment and rolled as per clauses 501.6 and 501.7 to achieve the desired compaction and as per clause 504 of specifications.		
a)	Using Batch Mix Plant of appropriate capacity and Paver finisher Hydraustatic with Sensor.		
(i)	for Grading I(40 mm nominal size) bitumen content 3.4% with bitumen 60/70 (VG 30)	cum	6005.00
(ii)	for GradingII(19 mm nominal size) bitumen content 3.5% with bitumen 60/70 (VG 30)	cum	5998.00
b)	Using Drum Mix Plant of appropriate capacity.		
(i)	for Grading I(40 mm nominal size) bitumen content 3.4% with bitumen 60/70 (VG 30)	cum	5305.00
(ii)	for GradingII(19 mm nominal size) bitumen content 3.5% with bitumen 60/70 (VG 30)	cum	5298.00

Item No.	Descriptions	Unit	Rate
5.5	Dense Graded Bituminous Macadam Providing and laying dense bituminous macadam using crushed aggregates of specified grading, premixed with bituminous binder @ 4.0 to 4.5% by weight of total mix of mix and filler, transporting the hot mix to work site, laying with a Electronic Sensor 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 clause 505 of specification complete in all respects.		
	a) Using Batch Mix Plant of appropriate capacity		
(i)	for Grading I(40 mm nominal size) Bitumen Content minimum 4% with bitumen 60/70 (VG 30)	cum	7456.00
(ii)	for Grading I(40 mm nominal size) Bitumen Content minimum 4% with bitumen 30/40 (VG 40)	cum	7891.00
(iii)	for Grading I(40 mm nominal size) Bitumen Content minimum 4.3% with CRMB 60	cum	8404.00
(iv)	for GradingII(19 mm nominal size) Bitumen Content minimum 4.5% with bitumen 60/70 (VG 30)	cum	8167.00
(v)	for GradingII(19 mm nominal size) Bitumen Content minimum 4.5% with bitumen 30/40 (VG 40)	cum	8657.00
(vi)	for GradingII(19 mm nominal size) Bitumen Content minimum 4.7% with CRMB 60	Cum	9029.00
	b) Using Drum Mix Plant of appropriate capacity.		
(i)	for Grading I(40 mm nominal size) Bitumen Content minimum 4%with bitumen 60/70 (VG 30)	cum	6756.00
(ii)	for Grading I(40 mm nominal size) Bitumen Content minimum 4% with bitumen 30/40 (VG 40)	cum	7191.00
(iii)	for Grading I(40 mm nominal size) Bitumen Content minimum 4.3%with CRMB 60	Cum	7704.00
(iv)	for GradingII(19 mm nominal size) Bitumen Content minimum 4.5%with bitumen 60/70 (VG 30)	cum	7467.00
(v)	for GradingII(19 mm nominal size) Bitumen Content minimum 4.5%with bitumen 30/40 (VG 40)	cum	7957.00
(vi)	for GradingII(19 mm nominal size) Bitumen Content minimum 4.7%with CRMB 60	Cum	8329.00
5.6	Bituminous Concrete Providing and laying bituminous concrete using crushed aggregates of specified grading, premixed with bituminous binder @ 5.4 to 5.6 % by weight of total mix of mix and filler, transporting the hot mix to work site, laying with a Electronic Sensor 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 clause 507 of specification.		
	a) Using Batch Mix Plant of appropriate capacity		
(i)	for Grading-I (50-65 mm thickness) Bitumen Content minimum 5.2% with 60/70bitumen (VG-30)	cum	9317.00
(ii)	for Grading-I (50-65 mm thickness) Bitumen Content minimum 5.2%with 30/40bitumen (VG-40)	cum	9895.00
(iii)	for Grading I (50 mm thickness) Bitumen Content minimum 5.4%with CRMB-60	cum	10287.00

Item No.	Descriptions	Unit	Rate
(iv)	for Grading I (50-65 mm thickness) Bitumen Content minimum 5.4%with PMB-40/NRMB	cum	12421.00
(v)	for Grading-II (30-40 mm thickness) Bitumen Content minimum 5.4%with 60/70bitumen(VG-30)	cum	9581.00
(vi)	for Grading-II (30-40 mm thickness) Bitumen Content minimum 5.4% with 30/40bitumen(VG-40)	cum	10182.00
(vii)	for Grading II (30-45 mm thickness) Bitumen Content minimum 5.6%with CRMB -60	cum	10577.00
(viii)	for Grading II (30-45 mm thickness) Bitumen Content minimum 5.6%with PMB-40/NRMB	cum	12790.00
b)	Using Drum Mix Plant of appropriate capacity.		
(i)	for Grading-I (50-65 mm thickness) Bitumen Content minimum 5.2%with 60/70bitumen (VG-30)	cum	8617.00
(ii)	for Grading-I (50-65 mm thickness) Bitumen Content minimum 5.2%with 30/40bitumen (VG-40)	cum	9195.00
(iii)	for Grading I (50-65 mm thickness) Bitumen Content minimum 5.4%with CRMB -60	cum	9587.00
(iv)	for Grading I (50-65 mm thickness) Bitumen Content minimum 5.4%with PMB-40/NRMB	cum	11721.00
(v)	for Grading-II (30-45 mm thickness) Bitumen Content minimum 5.4% with 60/70bitumen(VG-30)	cum	9482.00
(vi)	for Grading-II (30-45 mm thickness) Bitumen Content minimum 5.4%with 30/40bitumen(VG-40)	cum	9992.00
(vii)	for Grading II (30-45 mm thickness) Bitumen Content minimum 5.6%with CRBM-60	cum	9877.00
(viii)	for Grading II (30-45 mm thickness) Bitumen Content minimum 5.6%with PMB-40/NRMB	cum	12090.00
5.7	Deduct from Item No.5.4,.5.5 & 5.6 above if paver with electronic sensor is not used and laying, compaction is done by any other method (The acceptance criteria regarding level, thickness, surface regularity, texture finish, strength of concrete and all other quality control measures shall be the same as in case of machine laidwork.)	Cum	250.00
5.8	Surface Dressing Providing and laying surface dressing as wearing course in single coat using crushed stone aggregates of specified size on a layer of bituminous binder laid on prepared surface and rolling with 8-10 tonne smooth wheeled steel roller all complete as per clause 509 of specification.		
I	with 19 mm nominal chipping size & bitumen @1.2kg per sqm.	sqm	92.00
II	with 13 mm nominal chipping size & bitumen @ 1.0 kg per sqm.	sqm	74.00
NOTE :- Normally 13mm chipping size should be used. second coat, if specified, should be provided as per clause 509.3.6 of specifications.			

Item No.	Descriptions	Unit	Rate
5.9	Open - Graded Premix Surfacing Providing, laying and rolling of open - graded premix surfacing of 20 mm thickness composed of 13.2 mm to 5.6 mm aggregates either using penetration grade bitumen or cut-back or emulsion to required line, grade and level to serve as wearing course on a previously prepared base, including mixing in a suitable plant, laying and rolling with a smooth wheeled roller 8-10 tonne capacity, finished to required level and grades all complete as per clause 510 of specification.		
	(i) Case - I: Mechanical method using Penetration grade Bitumen VG 30 and HMP of appropriate capacity not less than 75 tonnes/hour.	sqm	117.00
	(ii) Case - II: Open-Graded Premix Surfacing using cationic Bitumen Emulsion	sqm	131.00
5.10	Close Graded Premix Surfacing/Mixed Seal Surfacing (Mechanical means using HMP of appropriate capacity not less than 75 tonnes /hour.) Providing, laying and rolling of close-graded premix surfacing material of 20 mm thickness composed of 11.2 mm to 0.09 mm (Type-A) or 13.2 mm to 0.09 mm (Type-B) aggregates using penetration grade bitumen to the required line, grade and level to serve as wearing course on a previously prepared base, including mixing in a suitable plant, laying and rolling with a Smooth wheeled roller 8-10 tonne capacity & finishing to required level and grade all complete as per clause 508 of specifications.		
	a) with 60/70 butumen (VG-30)	sqm	161.00
	b) with CRMB-60	sqm	172.00
	c) with PMB-50/NRMB	sqm	204.00
5.11	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 and B seal coats, all complete as per clause 511 of Specification.		
	(i) Case - I : Type A Providing and laying of liquid seal coat comprising of an application of layer of bitumen binder followed by a cover of stony chips, All complete as per clause 511 of specification.	sqm	68.00
	(ii) Case - II : Type B (Providing and laying of premix sand seal coat using HMP of appropriate capacity not less than 75 tonnes/ hours using crushed stone chipping (aggregate shall pass 2.36mm seal and retained to 180 micron sieve) and penetration bitumen VG 30 of suitable grade all complete as per clause 511 of specification.	sqm	49.00

Item No.	Descriptions	Unit	Rate
5.12	Mastic Asphalt Providing and laying 25 mm thick mastic asphalt wearing course with paving grade bitumen meeting the requirements given in table 500-39, prepared by using mastic cooker and laid to required level and slope after cleaning the surface, including providing antiskid surface with bitumen precoated fine-grained hard stone chipping of 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 not less than 100°C, protruding 1 mm to 4 mm over mastic surface, all complete as per clause 516 of specification.	sqm	650.00
5.13	Slurry Seal Providing and laying slurry seal consisting of a mixture of fine aggregates, Portland cement filler, bituminous emulsion and water on road surface including cleaning of surface, mixing of slurry seal in a suitable mobile plant, laying and compacting to provide even riding surface all complete as per clause 512 of Specifications.		
	(i) 5.0 mm thickness Type-III (6-8)	sqm	64.00
	(ii) 3.0 mm thickness Type-II (4-6)	sqm	45.00
	(iii) 1.5 mm thickness Type-I (2-3)	sqm	27.00
5.14	Recycling of Bituminous Pavement with Central Recycling Plant Recycling pavement by cold milling of exiting bituminous layers, planning the surface after cold milling, reclaiming excavated material to the extent of 30 % of the required quantity, hauling and stock piling the reclaimed material near the central recycling plant after carrying out necessary checks and evaluation, adding fresh material including rejuvenators as required, mixing in a hot mix plant, transporting and laying at site and compacting to the required grade, level and thickness, all as specified in clause 519 of specification.	cum	6486.00
5.15	Sand Asphalt Base Course Providing, laying and rolling sand-asphalt base course composed of sand, mineral filler and bituminous binder on a prepared sub-grade or sub-base to the lines, levels, grades and cross sections as per the drawings including mixing in a plant of suitable type and capacity, transporting, laying, compacting and finishing complete as per clause 506 of specification.	cum	9275.00
5.16	Crack Prevention Courses		
	(i) Stress Absorbing Membrane (SAM) crack width less than 6 mm Providing and laying of a stress absorbing membrane over a cracked road surface, with crack width below 6 mm after cleaning with a mechanical broom, using modified binder complying with clause 517, sprayed at the rate of 10-12 kg per 10 sqm and spreading 5.6 mm crushed stone aggregates @ 0.11 cum per 10 sqm with hydraulic chip spreader, sweeping the surface for uniform spread of aggregates and surface finished to conform to clause 902 of specification all complete as per clause 517 of specification.	sqm	66.00

Item No.	Descriptions	Unit	Rate
(ii)	Stress Absorbing Membrane (SAM) with crack width 6 mm to 9 mm Providing and laying a single coat of a stress absorbing membrane over a cracked road surface, with crack width 6 to 9 mm after cleaning with a mechanical broom, using modified binder complying with clause 517, sprayed at the rate of 11 kg per 10 sqm and spreading 11.2 mm crushed stone aggregates @ 0.12 cum per 10 sqm, sweeping the surface for uniform spread of aggregates and surface finished to conform to clause 902.	sqm	80.00
(iii)	Stress Absorbing Membrane (SAM) crack width above 9 mm and cracked area above 50 % Providing and laying a single coat of a stress absorbing membrane over a cracked road surface, with crack width above 9 mm and cracked area above 50 % after cleaning with a mechanical broom, using modified binder complying with clause 517, sprayed at the rate of 15 kg per 10 sqm and spreading 11.2 mm crushed stone aggregates @ 0.12 cum per 10 sqm, sweeping the surface for uniform spread of aggregates and surface finished to conform to clause 902.	sqm	106.00
(iv)	Case - IV : Bitumen Impregnated Geotextile Providing and laying a bitumen impregnated geotextile layer after cleaning the road surface, geotextile conforming to requirements of clause 704.3, laid over a tack coat with 1.05 kg per sqm of paving grade bitumen 80 - 100 penetration (VG-10) and constructed to the requirement of clause 704.4.5	sqm	266.00
5.17	labour only for Laying and rolling of Bituminous courses i/c primer and tack coat (excluding cost of bitumen & metal) with a smooth wheeled roller 8-10 tonne capacity i/c hire charges & running expenses, finished to required level and grades and as per relevant clauses of section-500.		
i)	20mm Open Graded Premix Carpet	sqm	23.00
ii)	75mm Built-up Spray Grout	sqm	26.00
5.18	Providing, laying and rolling of open - graded premix surfacing of 20 mm thickness composed of 13.2 mm to 5.6 mm aggregates using 60/70 grade bitumen, including PCC as a integral part of it, to required line, grade and level to serve as wearing course on a previously prepared base, including mixing in hot mix plant, laying with paver finisher and rolling with a smooth wheeled roller 8-10 tonne capacity, finished to required level and grades excluding primer and tack coat and as per relevant clauses of section-500. NOTE This item shall be executed only after prior approval of the C.E.	Cum.	5850.00

Item No.	Descriptions	Unit	Rate
5.19	Providing, laying and rolling of close-graded premix surfacing / mixed seal surfacing material of 20 mm thickness composed of 13.2 mm to 0.09 mm (Type-B) aggregates using penetration grade bitumen, including PCC as a integral part of it, to the required line, grade and level to serve as wearing course on a previously prepared base, including mixing in a suitable plant, laying and rolling with a Smooth wheeled roller 8-10 tonne capacity, and finishing to required level and grade and as per relevant clauses of section-500.		
	(i) Type-B aggregate A with 60/70 bitumen	Cum.	8050.00
	NOTE This item shall be executed only after prior approval of the C.E.		
5.20	Micro Surfacing Providing and laying Micro surfacing to the bituminous surface as per clause 514 of specification.		
	i) Type II grading	Sqm	143.00
	ii) Type III grading	Sqm	161.00
	NOTE This item shall be executed only after prior approval of the C.E.		
5.21	20 mm thick open-grade premix carpet using Bituminous Binder mixing with processed waste plastic by replacing 8% Bitumen binder by weight. (as per IRC; SP:98-2013). Providing laying and rolling of 20 mm thick open-graded premix carpet (thickness not less than 20 mm at any place) composed of 13.2 mm graded aggregate size @ 0.18 cum per 10 sqm & 11.2 mm graded size 0.09 cum per 10 sqm using with bituminous binder @ 13.43 kg per 10 Sqm (i.e 92% of standard bitumen) and 8 % waste processed plastic by weight shall be used for coating aggregate after its heating as per IRC:SP:98-2013, laying to required line, grade and level to serve as wearing course on a previously prepared base, including mixing in a suitable plant, laying and rolling with a three wheel 8 to 10 ton static roller capacity, finished to required level and grades as per technical specification clause 508 to be seal coat of either type A, type B or type C as per technical specification Note- The above shall be included in the DPR and executed with prior written permission from the E-IN-C MPPWD.		
	(i) Bitumen (VG-10)	Sqm	121.00
	(ii) Bitumen (VG-30)	Sqm	121.00

CHAPTER : 6.0

CEMENT CONCRETEPAVEMENTS

Item No.	Descriptions	Unit	Rate
6.1	Dry Lean Cement Concrete Sub- base Construction of dry lean cement concrete Sub- base over a prepared sub-grade or drainage layer with coarse and fine aggregate conforming to IS: 383, the size of coarse aggregate not exceeding 25 mm, aggregate cement ratio not to exceed 15:1, aggregate gradation after blending to be as per table 600-1, cement content not to be less than 150 kg/ cum, optimum moisture content to be determined during trial length construction, concrete strength not to be less than 10 Mpa at 7 days, mixed in a batching plant, transported to site, laid with a paver finisher with electronic sensor, compacting with 8- 10 tonnes vibratory roller, finishing and curing as per clause 601 of specification complete in all respect.	cum	2767.00
6.2	Deduct from Item No.6.1 above if paver finisher with electronic sensor, vibratory roller are not used and laying, compaction is done by any other method. (The acceptance criteria regarding level, thickness, surface regularity, texture finish, strength of concrete and all other quality control measures shall be the same as in case of machine laid work.) . Note:- This item is to be executed with prior written permission from the C.E.	cum	150.00
6.3	Cement Concrete Pavement Construction of un-reinforced, dowel jointed, plain cement concrete pavement with M-40 grade concrete over a prepared sub base with cement , coarse and fine aggregate conforming to IS 383, maximum size of coarse aggregate not exceeding 25 mm, mixed in a batching and mixing plant as per approved mix design, transported to site, laid with electronic sensor slip form paver, spread, compacted and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints, joint filler, separation membrane, sealant primer, joint sealant, debonding strip, admixtures as approved, curing compound, finishing to lines and grades as per drawing as per IRC 15 2011 and as per relevant clauses of section 602 of specifications complete but excluding cost of steel in dowel bar and tie rods etc.	cum	6103.00
6.4	Cement Concrete Pavement Construction of un-reinforced, dowel jointed, plain cement concrete pavement with M-30 grade concrete over a prepared sub base with cement , coarse and fine aggregate conforming to IS 383, maximum size of coarse aggregate not exceeding 25 mm, mixed in a batching and mixing plant as per approved mix design, transported to site, laid with electronic sensor slip form paver, spread, compacted and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints, joint filler, separation membrane, sealant primer, joint sealant, debonding strip, admixtures as approved, curing compound, finishing to lines and grades as per drawing as per IRC 15 2011 and as per relevant clauses of section 602 of specifications complete but excluding cost of steel in dowel bar and tie rods etc.	cum	5685.00

Item No.	Descriptions	Unit	Rate
6.5	Deduct from Item No.6.3 & 6.4 above if slip from paver with electronic sensor is not used and laying, compaction is done by any other method (The acceptance criteria regarding level, thickness, surface regularity, texture finish, strength of concrete and all other quality control measures shall be the same as in case of machine laid work.) Note:- This item is to be executed with prior written permission from the C.E.	cum	350.00
6.6	Rolled Cement Concrete Base Construction of rolled cement concrete base course with coarse and fine aggregate conforming to IS:383, the size of coarse aggregate not exceeding 25 mm with minimum, aggregate cement ratio not to exceed 15:1 and minimum cement content of 200 kg/cum, aggregate gradation to be as per table 600-3 after blending, mixing in batching plant at optimum moisture content, transporting to site, laying with a paver with electronic sensor, compacting with 8-10 tonnes smooth wheeled vibratory roller to achieve, the designed flexural strength, finishing and curing complete.	cum	3150.00
6.7	Deduct from Item No.6.6 above if paver with electronic sensor, vibratory roller are not used and laying, compaction is done by any other method. (The acceptance criteria regarding level, thickness, surface regularity, texture finish, strength of concrete and all other quality control measures shall be the same as in case of machine laid work.) . Note:- This item is to be executed with prior written permission from the C.E.	cum	140.00
6.8	Add extra in Item No.6.3, 6.4, 6.6 & 6.10 above for the cost of steel in dowel bar and tie rod including cradle, laps etc. complete required as per design.		
	Mild steel	MT	63587.00
	Tor steel	MT	68297.00
6.9	Cement Concrete Pavement M-40 grade for Conventional White tapping.(Thickness 200 mm or more). providing and laying Conventional white Topping as per IRC:SP:76-2015 Over bituminous surface(Existing bituminous surface prepared if necessary, either by milling or leveling course to be done: with. BM/DBM/DLC to correct surface profile and to be paid separately) as Cement Concrete Pavement, Construction. of un-reinforced, 'dowel Jointed, plain cement concrete pavement M-40 grade concrete over a prepared sub base, coarse and fine aggregate conforming to IS 383, maximum size of coarse aggregate not exceeding 31.5 mm, mixed' in a batching and mixing plant as per approved mix design, transported to site, laid with a slip form paver, spread, compacted and finished, In a continuous operation including. Provision of expansion Joint, construction joint, separation membrane, admixtures as approved, curing compound, finishing to lines and grades as per drawing as per IRC 15 2017 and as per relevant clauses of MORTH&H Specifications of section 600. Complete but excluding cost of steel In dowel bar and tie rods complete. Note:- This item shall be included In the DPR and executed with prior written permission from the E-in-C MPPWD.	Cum	6203.00

Item No.	Descriptions	Unit	Rate
6.10	Cement Concrete Pavement M-40 grade for Thin white topping (Thickness greater than 100 mm and less than 200 mm) Providing and laying Thin white Topping as per IRC: 76-2015 Over bituminous surface (Existing bituminous surface prepared if necessary either by milling or leveling course to be done with BM/DBM/DLC to correct Surface. profile and to be to paid separately) as Cement Concrete. Pavement Construction of un-reinforced, dowel Concrete pavement M-40 grade concrete over a prepared sub base, coarse and fine aggregate conforming to IS 383, maximum. Size of coarse aggregate not exceeding, 31.5 mm, mixed in a batching and mixing plant as per approved mix design, transported to site, laid with electronic sensor slip form paver, spread, compacted and finished in a continuous operation including provision of expansion joint, construction joint, admixture as approved curing compound finishing to lines and grades as per drawing as per IRC 15-2017 and as per relevant clauses of MORT&H specifications of section 600 Complete but excluding cost of steel In dowel bar and tie rods etc. complete. Note 1: This item shall ,be prior included in the DPR and executed with written permission from the E-in-c MPPWD, Note 2 If fiber are to be used as per mix design the same shall be paid separately as per item no 6.22	Cum	6303.00
6.11	Cement concrete pavement M-40 grade for Ultra Thin white Topping (Thickness equal to or less than 100 mm) providing and laying' Ultra Thin white Topping as per IRC: 76-2015 Over bituminous surface (Existing bituminous surface prepared if necessary either by milling or leveling course to be done with BM/DBM/DLC to correct surface profile and to be paid separately) as Cement Concrete Pavement (Construction of un reinforced, dowel jointed, plain cement concrete pavement:M-40 grade concrete over a prepared sub base, coarse and fine aggregate conforming to IS 383, maximum size of coarse aggregate not exceeding 31.5 mm, mixed in a batching and mixing plant as per approved mix design, transported to site, laid with electronic sensor slip form paver, spread, compacted and finished in a continuous operation including provision of expansion joint, construction Joint, admixtures as approved, curing compound, finishing to lines and grades as per, drawing as per drawing as per IRC 15 2017 and as per relevant clauses of MORT&H specifications of section 600 complete but excluding cost of steel in dowel bar and tie rods etc. complete. Note 1:This item shall be included in the DPR and executed with prior written permission from the E-in-c MPPWD: Note 2 :- If fiber are to be used as per mix design the same shall be paid separately as per item no. 6.22	Cum	6403.00
6.12	Providing groove cutting for width of 4 mm- 6mm and 1/3rd depth of PQC White topping within 8-10 hrs of placing/ finishing of PQC Including cost of cutting. machine, generators, Handling Operation and Maintenance of machinery, blades, coolant etc. including cleaning of groove and providing approved sealant filling etc. as per clause 602.2.10 and 600.10 and IRC-57-2006, including cost of conveyance of all materials labour, lead and lift charges and all other incidental charges as per drawing and as per specification.	Mt	101.00
6.13	Providing and mixing fiber mesh stealth e3 Fiber mesh 150 multi-dimensional graded multifilament 100% virgin macro polypropylene/ polymeric fibers contains no reprocessed olefin materials and are specifically manufactured for use as concrete secondary reinforcement. Application per cubic meter shall be @ 0.9kg per cum of concrete. Fiber mesh stealth e3 shall confirm to ASTM C 1116 Type 111.4.106	cum	396.00

Item No.	Descriptions	Unit	Rate
6.14	Providing and laying factory made coloured chamfered edge Cement Concrete paver blocks of required strength, thickness and size/shape, made by table vibratory method using PU mould, laid in required colour and pattern over 50mm thick compacted bed of stone dust, compacting and proper embedding/laying of inter locking paver blocks into the bedding layer through vibratory compaction by using plate vibrator, filling the joints with sand and cutting of paver blocks as per required size and pattern, finishing and sweeping extra sand including locking edges with M 15 cement concrete in footpath, light traffic parking etc. complete as per direction of Engineer-in-Charge.		
	(i) 100mm thick C.C. paver block of M-35 grade with approved colour, design and pattern.	sqm	837.00
	(ii) 80mm thick C.C. paver block of M-35 grade with approved colour, design and pattern.	sqm	748.00
6.15	Providing and laying reinforced cement concrete pipe NP-4 for service ducts below concrete pavement.		
	a) 300 mm Dia	RM	713.00
	b) 600 mm Dia	RM	1950.00
6.16	Providing, fixing and lowering, laying and jointing Double Walled Corrugated (DWC) Pipes of HDPE in 6m. length bar with IS-14930-II in prepared trenches in grade and level including cost of couplers and testing of pipes at factory as per the stipulation in relevant IS codes etc. complete.		
	i) 145mm outer diameter / 123mm inner diameter	RM	399.00
	ii) 200mm outer diameter / 174mm inner diameter	RM	611.00
6.17	Deduct if batch mix plant is not used and a mix prepared by any other machinery.	Cum	250.00

CHAPTER : 7.0

**GEOSYNTHETICS
AND
REINFORCED EARTH**

Item No.	Descriptions	Unit	Rate
7.1	Sub- Surface Drain with Geotextiles Construction of sub surface drain 200 mm dia using geotextiles treated with carbon black with physical properties as given in clause 702.2.3 formed in to a stable network and a planar geocomposite structure, joints wrapped with geotextile to prevent ingress of soil, all as per clause 702 and approved drawings including excavation and backfilling.	metre	899.00
7.2	Narrow Filter Sub- Surface Drain Construction of a narrow filter sub- surface drain consisting of porous or perforated pipe laid in narrow trench surrounded by a geotextile filter fabric, with a minimum of 450 mm overlap of fabric and installed as per clause 702.3 and 309.3.5 including excavation and backfilling	metre	622.00
7.3	Laying Paving Fabric Beneath a Pavement Overlay Providing and laying paving fabric with physical requirements as per table 700-16 over a tack coat of paving grade Bitumen VG 10 penetration, laid at the rate of 1 kg per sqm over thoroughly cleaned and repaired surface to provide a water resistant membrane and crack retarding layer. Paving fabric to be free of wrinkling and folding and to be laid before cooling of tack coat, brooming and rolling of surface with pneumatic roller to maximise paving fabric contact with pavement surface	sqm	152.00
7.4	Laying Boulder Apron in Crates of Synthetic Geogrids Providing, preparing and laying of geogrid crated apron 1 m x 5 m, 600 mm thick including excavation and backfilling with baffles at 1 metre interval, made with geogrids having characteristics as per clause 704.2, joining sides with connectors/ring staples, top corners to be tie tensioned, placing of suitable cross interval ties in layers of 300 mm connecting opposite side with lateral braces and tied with polymer braids to avoid bulging, constructed as per clause 704.3. filled with stone with minimum size of 200 mm and specific gravity not less than 2.65, packed with stone spalls, keyed to the foundation recess in case of sloping ground and laid over a layer of geotextile to prevent migration of fines, all as per clause 704 and laid as per clause 2503.3 and approved design.	cum	3710.00
7.5	Reinforced Earth Retaining Wall Reinforced earth retaining walls have four main components as under: (i) Excavation for foundation, foundation concrete and cement concrete grooved seating in the foundation for facing elements (facia material (ii) Assembling, joining with facing elements and laying of the reinforcing elements.). (iii) Facia material and its placement. (iv) Earthfill with specified material as per specification to be retained by the wall. (This will be paid extraas per C below)		
	(ii) Assembling, joining and laying of reinforcing elements.		

Item No.	Descriptions	Unit	Rate
A	With reinforcing element of steel / Aluminum strips / polymeric strips.		
Type 1	1.Galvanised carbon steel strips	metre	337.00
Type 2	2.Copper Strips	metre	324.00
Type 3	3.Aluminium Strips	metre	285.00
Type 4	4.Stainless steel strips	metre	311.00
Type 5	5.Glass reinforced polymer/fibre reinforced polymer/polymeric strips	metre	403.00
B	With reinforcing elements of synthetic geogrids	Sqm	211.00
(iii)	Facing elements of RCC M35		
	(a) RCC Panel	Sqm	1880.00
	(b) CC Block	Sqm	1680.00
(iv)	Earth fill with specified material as per relevant specifications. (The earth fill material shall be clean, free drawing granular with high friction and low cohesion, noncorrosive, coarse grained with not 10 percent of particle passing 75 micron sieve free of any deleterious matter, chlorides, salt, acids alkaline mineral oil , fungus and microbes and shall be of specified PH value.)	Cum	665.00
7.6	Reinforced cement concrete crash barrier with friction slab Provision of an Reinforced cement concrete crash barrier with friction slab at the approaches to bridge structures, constructed with M-40 grade concrete with HYSD reinforcement conforming to IRC:112 and as per dimensions in the approved drawing and at locations directed by the Engineer, all as specified. (Area-0.185 Sqm, /Meter) below friction slab and (Area-1.03 Sqm, /Meter)Crash Barrier with friction slab Unit= Linear meter	RM	15171.00
7.7	Supplying & laying of drainage composite for use behind walls, between two different fills, alongside drains of road, below concrete lining of canals etc. Geo composite for planar drainage, realized by thermo bonding a draining core in extruded monofilaments with two filtering nonwoven geotextiles that may also be working as separation or protecting layers. The draining three dimensional core will have a “W” configuration as longitudinal parallel channels. Minimum thickness to be 7.2mm, with two filtering UV stabilized polypropylene nonwoven geotextile of minimum thickness of 0.75 mm having pores of 150 micron and tensile strength of 8.0 KN/m that will be working as separation or protecting layer, geo composite having in plane flow capacity of 2.1 L / (m.s) at hydraulic gradient of 1.0 & 20 KPa pressure and tensile strength of 18 KN/m , with mass per unit area of 740 gsm, supplied in the form of roll for easy transportation to site of work as per detailed specification all complete as per directions of Engineer in charge.	Sqm	616.00

Item No	Description	Unit	Rate
7.8	Supplying & Laying of drainage composible for use behind walls, between two different fills, alongside drains of road, below concrete liming of canals etc. having thermos bonding a draining core- HDPE geonet comprises of two sets of parallel overlaid ribs integrally connected to have a thomboidal shape with a polyethylene film and a nonwoven geotestile having mass per unit area 130 g/m ² and tensile strength of 8.0 KN/m that will be working as separation or protecting layer, geo composite having in plane flow capacity of 0.7 L/ (m.s) at hydraulic gradient of 1.0 & 20 KPa pressure and tensile strength of 13.5 KN/m, with mass per unit area of 830 gsm, at easily accessible location including top and bottom , with all leads and lifts, manpower and machinery, materials, labour etc. complete and as directed by Engineer-in-Charge. Unit = Sqm	Sqm	490.00
7.9	Providing and placing in position precast, reinforced cement concrete Earth Retaining Wall as per design and shape, using coarse aggregate and fine aggregate derived from natural sources, Portland Pozzolana/ Ordinary Portland/ Portland slag cement, admixtures in recommended proportions as per IS : 456-2000 and standard like indian standard, international standards viz. Japanese industrial Standards (JIS)/ US Standard/EU standard/having of strength not less than M-50. Using Thermo-Mechanically Treated bars. (TMT/TMX) FE 500D. Precast reinforced cement concrete. Rate includes all cost of material, labor charges at the plant. Cost of reinforcement, formwork and lifting accessories, and transportation up to work at the site. Rate excludes unloading the material at site, lead and lift. All work up to plinth level: making necessary holes of required sizes for carrying through service lines etc., providing steel hooks for lifting, etc. the work exciting as per the direction of Engineer-in-Charge. Note:- Rate shall also include technical assistance for the installation of products at one time.		
(i)	Earth Retaining Wall- 800 mm Height	RM	4543.00
(ii)	Earth Retaining Wall- 1000 mm Height	RM	5139.00
(iii)	Earth Retaining Wall- 1200 mm Height	RM	5913.00
(iv)	Earth Retaining Wall- 1800 mm Height	RM	8552.00
(v)	Earth Retaining Wall- 2000 mm Height	RM	9254.00
(vi)	Earth Retaining Wall- 2250 mm Height	RM	12133.00
(vii)	Earth Retaining Wall- 2500 mm Height	RM	13074.00

CHAPTER : 8.0

**TRAFFIC SIGNS, MARKINGS
AND
OTHER ROAD APPURTENANCES**

Item No.	Descriptions	Unit	Rate
8.1	Cast in Situ Cement Concrete M20 kerb Construction of cement concrete kerb with top and bottom width 115 and 165 mm respectively, 250 mm high in M 20 grade PCC on M-15 grade 150 mm thick, or with kerb laying machine, foundation having 50 mm projection beyond kerb stone, kerb stone laid with kerb laying machine, foundation concrete laid manually, all complete as per clause 409		
A	Using Concrete Mixer	metre	390.00
B	Using Concrete Batching and Mixing Plant	metre	425.00
8.2	Cast in Situ Cement Concrete M 20 Kerb with Channel Construction of cement concrete kerb with channel with top and bottom width 115 and 165 mm respectively, 250 mm high in M 20 grade PCC on M15 grade foundation 150 mm thick, kerb channel 300 mm wide, 50 mm thick in PCC M20 grade, sloped towards the kerb, kerb stone with channel laid with kerb laying machine, foundation concrete laid manually, all complete as per clause 409		
A	Using Concrete Mixer	metre	525.00
B	Using Concrete Batching and Mixing Plant	metre	550.00
8.3	Retro- reflectorised Traffic signs Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign board as per IRC 67-2012 made of high intensity Micro-Prismatic Grade Sheeting (Type IV) vide IRC: 67:2012 clause 6.7.3.2 and clause 801.3.3 of MoRT &H fixed over Aluminum composite material sheet with thermoplastic core of Low density polyethylene (LDPE) between two thick skins/sheets of aluminum with overall thickness of 4mm and aluminum skin of thickness 0.3 on both side, the ACM shall conform to Table 6.1 of IRC:67:2012 and Table 800-1 of MoRT &H specification and High Intensity Micro Prismatic Grade Sheeting shall conform to Table 6.6 of IRC:67:2012 and Table 800-3 of MoRT &H specification of in the clause IRC 6.8 of the IRC 67-2012 and clause 801.3.7 of MORTH message legend numerical letter etc. and borders shall be screen printed on high intensity micro prismatic sheeting shall conform to clause 801.3.7 with digital printing ink or of cutout from transparent durable overlay or cutout from the same type of reflecting sheeting for cautionary/ mandatory/ signs, supported on MS sign post of size 75mm x75mm x 6mm of 3.60 meter over all length and fix to ground by means of properly designed foundation of dimension 450x450x600mm with M20 grade concrete. The ACM sheet shall be fixed to the post with four minimum four number breakaway bolts. & supported with a back support frame of 25mmx25mmx3mm angle. 7 years warranty for Retro Reflection Sheeting to be provided from the original sheeting manufacture as per clause 6.9 of IRC: 67:2012 & a certified copy for three years for outdoor exposure report from an independent test lab as per clause 6.7 of IRC: 67:2012 for the product offered shall be submitted by the contractor. Note:- Manufacture name and date of manufacture is to be printed (Embossed) at the backside of the board.		
i)	90 cm equilateral triangle	Each	4184.00
ii)	60 cm equilateral triangle	Each	3011.00

Item No.	Descriptions	Unit	Rate
iii)	60 cm circular	Each	3779.00
iv)	80 cm x 60 cm rectangular	Each	4971.00
v)	60 cm x 45 cm rectangular	Each	3700.00
vi)	60 cm x 60 cm square	Each	4245.00
vii)	90 cm high octagon	Each	6132.00

8.4 **Retro- reflectorised Traffic signs**

Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign board as per IRC 67-2012 made of high intensity Micro-Prismatic Grade Sheeting (Type XI) vide IRC: 67:2012 clause 6.7.3.2 and clause 801.3.3 of MoRT&H fixed over Aluminum composite material sheet with thermoplastic core of Low density polyethylene (LDPE) between two thick skins/sheets of aluminum with overall thickness of 4mm and aluminum skin of thickness 0.3 on both side, the ACM shall conform to Table 6.1 of IRC:67:2012 and Table 800-1 of MoRT&H specification and High Intensity Micro Prismatic Grade Sheeting shall conform to Table 6.6 of IRC:67:2012 and Table 800-3 of MoRT&H specification of in the clause IRC 6.8 of the IRC 67-2012 and clause 801.3.7 of MORTH message legend numerical letter etc. and borders shall be screen printed on high intensity micro prismatic sheeting shall conform to clause 801.3.7 with digital printing ink or of cutout from transparent durable overlay or cutout from the same type of reflecting sheeting for cautionary/ mandatory/ signs, supported on MS sign post of size 75mm x75mm x 6mm of 3.60 meter over all length and fix to ground by means of properly designed foundation of dimension 450x450x600mm with M20 grade concrete. The ACM sheet shall be fixed to the post with four minimum four number breakaway bolts. & supported with a back support frame of 25mmx25mmx3mm angle. 10 years warranty for Retro Reflection Sheeting to be provided from the original sheeting manufacture as per clause 6.9 of IRC: 67:2012 & a certified copy for three years for outdoor exposure report from an independent test lab as per clause 6.7 of IRC: 67:2012 for the product offered shall be submitted by the contractor.

Note:- Manufacture name and date of manufacture is to be printed (Embossed) at the backside of the board.

i)	90 cm equilateral triangle	Each	4357.00
ii)	60 cm equilateral triangle	Each	3066.00
iii)	60 cm circular	Each	3911.00
iv)	80 mm x 60 mm rectangular	Each	5222.00
v)	60 cm x 45 cm rectangular	Each	3825.00
vi)	60 cm x 60 cm square	Each	4424.00
vii)	90 cm high octagon	Each	6500.00

Item No.	Descriptions	Unit	Rate
8.5	Retro- reflectorised Traffic signs Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign board as per IRC 67-2012 made of high intensity Micro-Prismatic Grade Sheeting (Type IV) vide IRC: 67:2012 clause 6.7.3.2 and clause 801.3.3 of MoRT&H fixed over IRC Accredited board made of Advance polymer composite. The board shall be of min. 2.5 mm sheet thickness with specially designed edges to make it tamper proof. Specification and High Intensity Micro Prismatic Grade Sheeting shall conform to Table 6.6 of IRC:67:2012 and Table 800-3 of MoRT&H specification of in the clause IRC 6.8 of the IRC 67-2012 and clause 801.3.7 of MORTH message legend numerical letter etc. and borders shall be screen printed on high intensity micro prismatic sheeting shall conform to clause 801.3.7 with digital printing ink or of cutout from transparent durable overlay or cutout from the same type of reflecting sheeting for cautionary/ mandatory/ signs, supported on an IRC Accredited triangular sign post of size 75mm x 60 mm x60 mm (4 MM wall thickness) made of advance polymer composite of 3.60 meter over all length and fix to ground by means of properly designed foundation of dimension 450x450x600mm with M20 grade concrete. The ACM sheet shall be fixed to the post with four minimum number breakaway bolts. & supported with a back support frame of 25mmx25mmx3mm angle. 7 years warranty for Retro Reflection Sheeting to be provided from the original sheeting manufacture as per clause 6.9 of IRC: 67:2012 & a certified copy for three years for out door exposure report from an independent test lab as per clause 6.7 of IRC: 67:2012 for the product offered shall be submitted by the contractor. Note:- Manufacture name and date of manufacture is to be printed (Embossed) at the backside of the board.		
i)	90 cm equilateral triangle	Each	3465.00
ii)	60 cm equilateral triangle	Each	2737.00
iii)	60 cm circular	Each	3214.00
iv)	80 mm x 60 mm rectangular	Each	3952.00
v)	60 cm x 45 cm rectangular	Each	3165.00
vi)	60 cm x 60 cm square	Each	3502.00
vii)	90 cm high octagon	Each	4673.00

Item No.	Description	Unit	Rate
8.6	Retro- reflectorised Traffic signs Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign board as per IRC 67-2012 made of high intensity Micro-Prismatic Grade Sheeting (Type XI) vide IRC: 67:2012 clause 6.7.3.2 and clause 801.3.3 of MoRT&H fixed over IRC Accredited board made of Advance polymer composite. The board shall be of min. 2.5 mm sheet thickness with specially designed edges to make it tamper proof. Specification and High Intensity Micro Prismatic Grade Sheeting shall conform to Table 6.6 of IRC:67:2012 and Table 800-3 of MoRT&H specification of in the clause IRC 6.8 of the IRC 67-2012 and clause 801.3.7 of MORTH message legend numerical letter etc. and borders shall be screen printed on high intensity micro prismatic sheeting shall conform to clause 801.3.7 with digital printing ink or of cutout from transparent durable overlay or cutout from the same type of reflecting sheeting for cautionary/ mandatory/ signs, supported on an IRC Accredited triangular sign post of size 75mm x 60 mm x60 mm (4 MM wall thickness) made of advance polymer composite of 3.60 meter over all length and fix to ground by means of properly designed foundation of dimension 450x450x600mm with M20 grade concrete. The ACM sheet shall be fixed to the post with four minimum number breakaway bolts. & supported with a back support frame of 25mmx25mmx3mm angle. 10 years warranty for Retro Reflection Sheeting to be provided from the original sheeting manufacture as per clause 6.9 of IRC: 67:2012 & a certified copy for three years for outdoor exposure report from an independent test lab as per clause 6.7 of IRC: 67:2012 for the product offered shall be submitted by the contractor. Note:- Manufacture name and date of manufacture is to be printed (Embossed) at the backside of the board.		
i)	90 cm equilateral triangle	Each	3888.00
ii)	60 cm equilateral triangle	Each	2926.00
iii)	60 cm circular	Each	3556.00
iv)	80 mm x 60 mm rectangular	Each	4533.00
v)	60 cm x 45 cm rectangular	Each	3491.00
vi)	60 cm x 60 cm square	Each	3938.00
vii)	90 cm high octagon	Each	5486.00

Item No.	Description	Unit	Rate
8.7	Direction and Place Identification signs upto 0.9 sqm size board. Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign board as per IRC 67-2012 made of high intensity Micro-Prismatic Grade Sheeting (Type IV) vide IRC: 67:2012 clause 6.7.3.2 and clause 801.3.3 of MoRT&H fixed over Aluminum composite material sheet with thermoplastic core of Low density polyethylene (LDPE) between two thick skins/sheets of aluminum with overall thickness of 4mm and aluminum skin of thickness 0.3 on both side, the ACM shall conform to Table 6.1 of IRC:67:2012 and Table 800-1 of MoRT&H specification and High Intensity Micro Prismatic Grade Sheeting shall conform to Table 6.6 of IRC:67:2012 and Table 800-3 of MoRT&H specification of in the clause IRC 6.8 of the IRC 67-2012 and clause 801.3.7 of MORTH message legend numerical letter etc. and borders shall be screen printed on high intensity micro prismatic sheeting shall conform to clause 801.3.7 with digital printing ink or of cutout from transparent durable overlay or cutout from the same type of reflecting sheeting for cautionary/ mandatory/ signs, supported on MS sign post of size 75mm x75mm x 6mm of 3.60 meter over all length and fix to ground by means of properly designed foundation of dimension 450x450x600mm with M20 grade concrete. The ACM sheet shall be fixed to the post with four minimum four number breakaway bolts. & supported with a back support frame of 25mmx25mmx3mm angle. 7 years warranty for Retro Reflection Sheeting to be provided from the original sheeting manufacture as per clause 6.9 of IRC: 67:2012 & a certified copy for three years for outdoor exposure report from an independent test lab as per clause 6.7 of IRC: 67:2012 for the product offered shall be submitted by the contractor. Note:- Manufacture name and date of manufacture is to be printed (Embossed) at the backside of the board.	Sqm.	6479.00
8.8	Direction and Place Identification signs upto 0.9 sqm size board. Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign board as per IRC 67-2012 made of high intensity Micro-Prismatic Grade Sheeting (Type XI) vide IRC: 67:2012 clause 6.7.3.2 and clause 801.3.3 of MoRT&H fixed over Aluminum composite material sheet with thermoplastic core of Low density polyethylene (LDPE) between two thick skins/sheets of aluminum with overall thickness of 4mm and aluminum skin of thickness 0.3 on both side, the ACM shall conform to Table 6.1 of IRC:67:2012 and Table 800-1 of MoRT&H specification and High Intensity Micro Prismatic Grade Sheeting shall conform to Table 6.6 of IRC:67:2012 and Table 800-3 of MoRT&H specification of in the clause IRC 6.8 of the IRC 67-2012 and clause 801.3.7 of MORTH message legend numerical letter etc. and borders shall be screen printed on high intensity micro prismatic sheeting shall conform to clause 801.3.7 with digital printing ink or of cutout from transparent durable overlay or cutout from the same type of reflecting sheeting for cautionary/ mandatory/ signs, supported on MS sign post of size 75mm x75mm x 6mm of 3.60 meter over all length and fix to ground by means of properly designed foundation of dimension 450x450x600mm with M20 grade concrete. The ACM sheet shall be fixed to the post with four minimum four number	sqm	8893.00

Item No.	Description	Unit	Rate
8.9	breakaway bolts. & supported with a back support frame of 25mmx25mmx3mm angle. 10 years warranty for Retro Reflection Sheeting to be provided from the original sheeting manufacture as per clause 6.9 of IRC: 67:2012 & a certified copy for three years for outdoor exposure report from an independent test lab as per clause 6.7 of IRC: 67:2012 for the product offered shall be submitted by the contractor. Note:- Manufacture name and date of manufacture is to be printed (Embossed) at the backside of the board. Direction and Place Identification signs upto 0.9 sqm size board Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign board as per IRC 67-2012 made of high intensity Micro-Prismatic Grade Sheeting (Type IV) vide IRC: 67:2012 clause 6.7.3.2 and clause 801.3.3 of MoRT&H fixed over IRC Accredited board made of Advance polymer composite. The board shall be of min. 2.5 mm sheet thickness with specially designed edges to make it tamper proof. Specification and High Intensity Micro Prismatic Grade Sheeting shall conform to Table 6.6 of IRC:67:2012 and Table 800-3 of MoRT&H specification of in the clause IRC 6.8 of the IRC 67-2012 and clause 801.3.7 of MORTH message legend numerical letter etc. and borders shall be screen printed on high intensity micro prismatic sheeting shall conform to clause 801.3.7 with digital printing ink or of cutout from transparent durable overlay or cutout from the same type of reflecting sheeting for cautionary/ mandatory/ signs, supported on an IRC Accredited triangular sign post of size 75mm x 60 mm x60 mm (4 MM wall thickness) made of advance polymer composite of 3.60 meter over all length and fix to ground by means of properly designed foundation of dimension 450x450x600mm with M20 grade concrete. The ACM sheet shall be fixed to the post with four minimum number breakaway bolts. & supported with a back support frame of 25mmx25mmx3mm angle. 7 years warranty for Retro Reflection Sheeting to be provided from the original sheeting manufacture as per clause 6.9 of IRC: 67:2012 & a certified copy for three years for outdoor exposure report from an independent test lab as per clause 6.7 of IRC: 67:2012 for the product offered shall be submitted by the contractor. Note:- Manufacture name and date of manufacture is to be printed (Embossed) at the backside of the board.	Sqm	7331.00
8.10	Direction and Place Identification signs upto 0.9 sqm size board Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign board as per IRC 67-2012 made of high intensity Micro-Prismatic Grade Sheeting (Type XI) vide IRC: 67:2012 clause 6.7.3.2 and clause 801.3.3 of MoRT&H fixed over IRC Accredited board made of Advance polymer composite. The board shall be of min. 2.5 mm sheet thickness with specially designed edges to make it tamper proof. Specification and High Intensity Micro Prismatic Grade Sheeting shall conform to Table 6.6 of IRC:67:2012 and Table 800-3 of MoRT&H specification of in the clause IRC 6.8 of the IRC 67-2012 and clause 801.3.7 of MORTH message legend numerical letter etc. and borders shall be screen printed on high intensity micro prismatic sheeting shall conform to clause 801.3.7 with digital printing ink or of cutout from transparent durable overlay or cutout from the same type of reflecting sheeting for cautionary/ mandatory/ signs, supported on	Sqm	12937.00

Item No.	Description	Unit	Rate
	an IRC Accredited triangular sign post of size 75mm x 60 mm x60 mm (4 MM wall thickness) made of advance polymer composite of 3.60 meter over all length and fix to ground by means of properly designed foundation of dimension 450x450x600mm with M20 grade concrete. The ACM sheet shall be fixed to the post with four minimum number breakaway bolts. & supported with a back support frame of 25mmx25mmx3mm angle. 10 years warranty for Retro Reflection Sheeting to be provided from the original sheeting manufacture as per clause 6.9 of IRC: 67:2012 & a certified copy for three years for outdoor exposure report from an independent test lab as per clause 6.7 of IRC: 67:2012 for the product offered shall be submitted by the contractor. Note:- Manufacture name and date of manufacture is to be printed (Embossed) at the backside of the board.		
8.11	Direction and Place Identification signs more than 0.9 sqm size board. Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign board as per IRC 67-2012 made of high intensity Micro-Prismatic Grade Sheeting (Type IV) vide IRC: 67:2012 clause 6.7.3.2 and clause 801.3.3 of MoRT&H fixed over Aluminum composite material sheet with thermoplastic core of Low density polyethylene (LDPE) between two thick skins/sheets of aluminum with overall thickness of 4mm and aluminum skin of thickness 0.3 on both side, the ACM shall conform to Table 6.1 of IRC:67:2012 and Table 800-1 of MoRT&H specification and High Intensity Micro Prismatic Grade Sheeting shall conform to Table 6.6 of IRC:67:2012 and Table 800-3 of MoRT&H specification of in the clause IRC 6.8 of the IRC 67-2012 and clause 801.3.7 of MORTH message legend numerical letter etc. and borders shall be screen printed on high intensity micro prismatic sheeting shall conform to clause 801.3.7 with digital printing ink or of cutout from transparent durable overlay or cutout from the same type of reflecting sheeting for cautionary/ mandatory/ signs, supported on MS sign post of size 75mm x75mm x 6mm of 3.60 meter over all length and fix to ground by means of properly designed foundation of dimension 450x450x600mm with M20 grade concrete. The ACM sheet shall be fixed to the post with four minimum four number breakaway bolts. & supported with a back support frame of 25mmx25mmx3mm angle. 7 years warranty for Retro Reflection Sheeting to be provided from the original sheeting manufacture as per clause 6.9 of IRC: 67:2012 & a certified copy for three years for outdoor exposure report from an independent test lab as per clause 6.7 of IRC: 67:2012 for the product offered shall be submitted by the contractor. Note:- Manufacture name and date of manufacture is to be printed (Embossed) at the backside of the board.	Sqm	14497.00

Item No.	Description	Unit	Rate
8.12	Direction and Place Identification signs more than 0.9 sqm size board. Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign board as per IRC 67-2012 made of high intensity Micro-Prismatic Grade Sheeting (Type XI) vide IRC: 67:2012 clause 6.7.3.2 and clause 801.3.3 of MoRT&H fixed over Aluminum composite material sheet with thermoplastic core of Low density polyethylene (LDPE) between two thick skins/sheets of aluminum with overall thickness of 4mm and aluminum skin of thickness 0.3 on both side, the ACM shall conform to Table 6.1 of IRC:67:2012 and Table 800-1 of MoRT&H specification and High Intensity Micro Prismatic Grade Sheeting shall conform to Table 6.6 of IRC:67:2012 and Table 800-3 of MoRT&H specification of in the clause IRC 6.8 of the IRC 67-2012 and clause 801.3.7 of MORTH message legend numerical letter etc. and borders shall be screen printed on high intensity micro prismatic sheeting shall conform to clause 801.3.7 with digital printing ink or of cutout from transparent durable overlay or cutout from the same type of reflecting sheeting for cautionary/ mandatory/ signs, supported on MS sign post of size 75mm x75mm x 6mm of 3.60 meter over all length and fix to ground by means of properly designed foundation of dimension 450x450x600mm with M20 grade concrete. The ACM sheet shall be fixed to the post with four minimum four number breakaway bolts. & supported with a back support frame of 25mmx25mmx3mm angle. 10 years warranty for Retro Reflection Sheeting to be provided from the original sheeting manufacture as per clause 6.9 of IRC: 67:2012 & a certified copy for three years for outdoor exposure report from an independent test lab as per clause 6.7 of IRC: 67:2012 for the product offered shall be submitted by the contractor. Note:- Manufacture name and date of manufacture is to be printed (Embossed) at the backside of the board.	Sqm	15506.00

Item No.	Description	Unit	Rate
8.13	Direction and Place Identification signs more than 0.9 sqm size board. Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign board as per IRC 67-2012 made of high intensity Micro-Prismatic Grade Sheeting (Type IV) vide IRC: 67:2012 clause 6.7.3.2 and clause 801.3.3 of MoRT&H fixed over IRC Accredited board made of Advance polymer composite. The board shall be of min. 2.5 mm sheet thickness with specially designed edges to make it tamper proof. Specification and High Intensity Micro Prismatic Grade Sheeting shall conform to Table 6.6 of IRC:67:2012 and Table 800-3 of MoRT&H specification of in the clause IRC 6.8 of the IRC 67-2012 and clause 801.3.7 of MORTH message legend numerical letter etc. and borders shall be screen printed on high intensity micro prismatic sheeting shall conform to clause 801.3.7 with digital printing ink or of cutout from transparent durable overlay or cutout from the same type of reflecting sheeting for cautionary/ mandatory/ signs, supported on an IRC Accredited triangular sign post of size 75mm x 60 mm x60 mm (4 MM wall thickness) made of advance polymer composite of 3.60 meter over all length and fix to ground by means of properly designed foundation of dimension 450x450x600mm with M20 grade concrete. The ACM sheet shall be fixed to the post with four minimum number breakaway bolts. & supported with a back support frame of 25mmx25mmx3mm angle. 7 years warranty for Retro Reflection Sheeting to be provided from the original sheeting manufacture as per clause 6.9 of IRC: 67:2012 & a certified copy for three years for outdoor exposure report from an independent test lab as per clause 6.7 of IRC: 67:2012 for the product offered shall be submitted by the contractor. Note:- Manufacture name and date of manufacture is to be printed (Embossed) at the backside of the board.	Sqm	12398.00
8.14	Direction and Place Identification signs more than 0.9 sqm size board Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign board as per IRC 67-2012 made of high intensity Micro-Prismatic Grade Sheeting (Type XI) vide IRC: 67:2012 clause 6.7.3.2 and clause 801.3.3 of MoRT&H fixed over IRC Accredited board made of Advance polymer composite. The board shall be of min. 2.5 mm sheet thickness with specially designed edges to make it tamper proof. Specification and High Intensity Micro Prismatic Grade Sheeting shall conform to Table 6.6 of IRC:67:2012 and Table 800-3 of MoRT&H specification of in the clause IRC 6.8 of the IRC 67-2012 and clause 801.3.7 of MORTH message legend numerical letter etc. and borders shall be screen printed on high intensity micro prismatic sheeting shall conform to clause 801.3.7 with digital printing ink or of cutout from transparent durable overlay or cutout from the same type of reflecting sheeting for cautionary/ mandatory/ signs, supported on an IRC Accredited triangular sign post of size 75mm x 60 mm x60 mm (4 MM wall thickness) made of advance polymer composite of 3.60 meter over all length and fix to ground by means of properly designed foundation of dimension 450x450x600mm with M20 grade concrete. The ACM sheet shall be fixed to the post with four minimum number breakaway bolts. & supported with a back support frame of 25mmx25mmx3mm angle. 10 years warranty for Retro Reflection Sheeting to be provided from the original sheeting manufacture as per clause 6.9 of IRC: 67:2012 &	Sqm	14398.00

Item No.	Description	Unit	Rate
	a certified copy for three years for outdoor exposure report from an independent test lab as per clause 6.7 of IRC: 67:2012 for the product offered shall be submitted by the contractor. Note:- Manufacture name and date of manufacture is to be printed (Embossed) at the backside of the board.		
8.15	Providing and pasting on existing informatory boards high intensity Micro Prismatic Grade cube corner Sheeting (Type IV) vide clause IRC:67:2012,. message (legends, numerals letter .) borders for the informatory & other sign boards shall be cut out item durable transparent overlay film or cut out from the same reflective sheeting only. Cut-outs shall be from durable transparent overlay materials as specified by the sheeting manufacturer and shall be bonded with the sheeting in the manner specified by the manufacturer and as directed by Engineer-in-Charge. Sheet shall be fixed on the existing board by de-greasing either by acid or hot alkaline etching and all scale dirt removed to obtain smooth plain surface before application of high intensity grade cube corner retro reflective sheeting (1Type X) all complete. 10 years Warranty for Retro Reflective Sheeting from the original sheeting manufacturer as per clause 6.9 of IRC:67:2012 & a certified copy. of three years outdoor exposure report as per clause 6.7 of IRC:67:2012 for the product offered shall be submitted by the contractor.	Sqm.	5273.00
8.16	Metal Beam Crash Barrier A Type - A, "W" : Metal Beam Crash Barrier (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, however 5 spaces of 600mm each between vertical post and 5 spaces of 900mm each between vertical post will be kept adjacent to RCC parapet/ concrete crash barrier in accordance to figure 9.14 of the IRC-SP: 73-2018, 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 811) and treatment for metal beam crash barrier on approach shall be modified eccentric loader terminal arrangement as shown in figure 9.12 of IRC- SP : 73-2018 End portion of metal beam crash barrier shall be flared outside by 1.25 mtr. Distance in last section of 8 mtr. Length. Departure side it shall be trailing terminal (TT) arrangement as shown in figure 9.13 of the IRC SP-73-2018. End portion of metal beam crash barrier shall be flared outside by 0.35 mtr. Distance in last section of 8 mtr. length	metre	4500.00

Item No.	Description	Unit	Rate
B	Type - B, "THRIE" : Metal Beam Crash Barrier (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, however 5 spaces of 600mm each between vertical post and 5 spaces of 900mm each between vertical post will be kept adjacent to RCC parapet/ concrete crash barrier in accordance to figure 9.14 of the IRC-SP: 73-2018 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 811) and treatment for metal beam crash barrier on approach shall be modified eccentric loader terminal arrangement as shown in figure 9.12 of IRC- SP : 73-2018 End portion of metal beam crash barrier shall be flared outside by 1.25 mtr. Distance in last section of 8 mtr. Length. Departure side it shall be trailing terminal (TT) arrangement as shown in figure 9.13 of the IRC SP-73-2018. End portion of metal beam crash barrier shall be flared outside by 0.35 mtr. Distance in last section of 8 mtr. Length.	metre	6163.00

Note:- The manufacture or the contractor may submit other than specified design and get it approved subjected to conformity to the requirements of EN1317 part-2. The manufacture or the contractor shall demonstrate the compliance of these requirements by submission of videos of actual crash testing along with authenticated crash test reports. The crash test must have been conducted in accredited crash test laboratories/Institution, as per MORT&H circular RW/NH-29023/2/2019-S&R (P&B) dated 01 Jan 2020.

8.17	Flexible Crash Barrier, Wire Rope Safety Barrier Providing and erecting a wire rope safety barrier with vertical posts of medium weight RS Joist (ISMB series) 100 mm x 75 mm (11.50kg/m), 1.50 m long 0.85 m above ground and 0.65 m below ground level, split at the bottom for better grip, embedded in M 15 grade cement concrete 450 x 450 x 450 mm, 1.50 m center to center and with 4 horizontal steel wire rope 40 mm dia and anchored at terminal posts 15 m apart. Terminal post to be embedded in M 15 grade cement concrete foundation 2400 x 450 x 900 mm (depth), strengthened by a strut of RS joist 100 x 75 mm, 2 m long at 45° inclination and a tie 100 x 8 mm, 1.50 m long at the bottom, all embedded in foundation concrete as per approved design and drawing, rate excluding excavation and cement concrete.	metre	3396.00
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Item No.	Description	Unit	Rate
8.18	Reinforced Cement Concrete Crash Barrier Providing of an Reinforced cement concrete crash barrier at the edges of the road, approaches to bridge structures and medians, constructed with M-40 grade concrete with HYSD reinforcement conforming to IRC:21 and dowel bars 25 mm dia, 450 mm long at expansion joints filled with pre-moulded asphalt filler board, keyed to the structure on which it is built and installed as per design given in the enclosure to MoRT&H circular No. RW/NH - 33022/1/94-DO III dated 24 June 1994 as per dimensions in the approved drawing and at locations directed by the Engineer, all as specified.		
	(i) M 40 grade concrete	metre	3691.00
8.19	Road Delineators Supplying and installation road delineators (road way indicators). as per MORT&H Clause 806. The structure shall be made in roll forming process having height of 80-100 cm above the ground level, width not less than 100 mm and shall extend not more than 300mm below the ground while being installed, buried or pressed in to the ground in confirmation with IRC:79: 1981, are as directed by the by. the Engineer painted black with powder coat of minimum 40 microns thickness for protection against corrosion, on top of which Type XI retro reflective sheeting shall be pasted on both sides complying to IRC:79:1981. The delineator should consist of minimum retro reflective unit exposed area of 330 cm ² white color, full cube corner micro prismatic non-metallic retro reflective sheeting on each side conforming with IRC 67:2012 and meeting the coefficient of retro reflection values as per ASTM D 4956 Type XI label specification. The delineator shall have grooves across the- length to make the reflective sheets vandal-proof.	each	990.00
8.20	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 stripes, fitted with 80 x 100 mm rectangular or 75 mm dia circular reflectorised panels at the top, buried or pressed into the ground and confirming to IRC-79 and the drawings.	Each	278.00
8.21	Road Markers/Road Stud with Lense Reflector Providing and fixing single mound twin shanked molded Road Markers/Road Stud made of poly carbonate or ABS body and shall support a load of 13635 Kg tested in accordance to ASTM D 4280 and complying lo specifications of Section-5 of IRC:35-2015 and clause 804.2.2 of MORT&H and Section-5 of IRC:35-2015. he reflecting panels shall consist of number of lenses containing single or dual prismatic cubes capable of providing total internal reflection of the light entering the lens face. The slope or retro-reflecting surface should be 35 + 5 degree to base. The reflective marker shall be fixed to the road surface using the epoxy/ adhesives and the procedure recommended by the manufacturer. No nails shall be used to affix the markers so Cubes capable of that they do not pose safety hazard on the road.. The contractor shall submit a two year replacement warranty. for satisfactory field performance including stipulated retro-reflectance of the reflecting panel.	each	673.00

Item No.	Description	Unit	Rate
8.22	Solar powered Road Marker (Solar Stud) Supplying and fixing solar raised Pavement markers made of polycarbonate molded body with circular shape, solar powered, LED self Illumination in active mode, 360 degree Illumination and reflective panels with micro prismatic lens capable of providing total internal reflection of the light entering the lens face in passive mode. The marker shall support a load of 20000 kg tested in accordance to ASTM D 4280, The marker should be resistant to dust and water ingress according to IP 65 standards and should withstand temperatures in the range of 0 c to 70 c color of lighting could be provided in red or yellow (amber) as per requirement and typical frequency of blinking is 1Hz. There should be current losses of less than 20 microamperes at 2.4 v in sleep charging mode to enhance the life of the marker and a full charge should provide for a minimum autonomy of 50 hours. The height width and length of the marker shall not less than 10 mm x 100 mm x 100 mm. Also the surface diameter of the marker shall not be less than 100 mm respectively. The weight of the marker shall not exceed 0.5 kilograms fixing will be by drilling holes on the road for the shanks to go inside, without nails and using epoxy resin based adhesive and complete as directed by the engineer.	Each	1871.00
8.23	Kilo Metre Stone Reinforced cement concrete M15grade kilometre stone of standard design as per IRC:8-1980, fixing in position including painting andprinting etc		
	(i) 5th kilometre stone (precast)	each	3275.00
	(iii) Ordinary Kilometer stone (Precast)	each	1984.00
	(iii) Hectometer stone (Precast)	each	578.00
8.24	Boundary pillar Reinforced cement concrete M15 grade boundary pillars of standard design as per IRC:25-1967, fixed in position including finishing and lettering but excluding painting.	each	546.00
8.25	Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beeds on Bituminous surface. Providing and applying (Cleaning of Bituminous surface) thermoplastic compound having composition of binder (Regin) minimum 18 %, titanium dioxide minimum 10 % and intermixed glass beed, minimum 30% of brand like Asian, Burger or equivalent make of 2.5 mm thick including drop down reflectorizing, glass beeds @ 250 gms per sqm area thickness of 2.5 mm is exclusive of surface applied glass beeds as per IRC:35.The finished surface to be level, uniform and free from streaks and holes, all complete as per clause 803 of specifications. Note:- The guarantee of Thermoplastic should be minimum 3 Years.	sqm	636.00
8.26	Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beeds on Concrete surface. Providing and applying (Cleaning of concrete surface and after applying Concrete primer) thermoplastic compound having composition of binder (Regin) minimum 18 %, titanium dioxide minimum 10 % and intermixed glass beed, minimum 30% of brand like Asian, Burger or equivalent make of 2.5 mm thick including drop down reflectorizing, glass beeds @ 250 gms per sqm area thickness of 2.5 mm is exclusive of surface applied glass beeds as per IRC:35 along with concrete primer. The finished surface to be level, uniform and free from streaks and holes, all complete as per clause 803 of specifications. Note:- The guarantee of Thermoplastic should be minimum 3 Years.	Sqm	661.00

Item No.	Description	Unit	Rate
8.27	Printing new letter and figures of any shade Printing new letter and figures of any shade with synthetic enamel paint black or any other approved colour to give an even shade		
	(i) Hindi (Matras commas and the like not to be measured and paid for Half letter shall be counted as half)	cm height per letter	0.80
	(ii) English and Roman	cm height per letter	0.50
8.28	Painting Two Coats on New Concrete Surfaces Painting two coats after filling the surface with synthetic enamel paint in all shades on new plastered concrete surfaces	sqm	65.00
8.29	Painting on Steel Surfaces Providing and applying two coats of ready mix paint of approved brand on steel surface after through cleaning of surface to give an even shade	sqm	61.00
8.30	Painting Lines, Dashes, Arrows etc on Roads in Two Coats on New Work Painting lines, dashes, arrows etc on roads in two coats on new work with ready mixed road Grade-I marking paint (cold applied reflective paint) conforming to IS:164 on concrete/bituminous surface, including cleaning the surface of all dirt, dust and other foreign matter, demarcation at site and traffic control.		
	(i) Over 10 cm in width	sqm	110.00
	(ii) Up to 10 cm in width	sqm	93.00
8.31	Painting Lines, Dashes, Arrows etc on Roads in Two Coats on Old Work Painting lines, dashes, arrows etc on roads in two coats on old work with ready mixed Grade-I road marking paint (cold applied reflective paint) confirming to IS: 164 on bituminous / concrete surface,concrete including cleaning the surface of all dirt, dust and other foreign matter, demarcation at site and traffic control.		
	(i) Over 10 cm in width	sqm	76.00
	(ii) Up to 10 cm in width	sqm	82.00
8.32	G.I Barbed wire Fencing 1.2 metre high Providing and fixing 1.2 metres high GI barbed wire (weighing 9.38 kg per 100 mts.) fencing with 1.8 m angle iron posts 40 mm x 40 mm x 6 mm placed every 3 metres center to center founded in M15 grade cement concrete, 0.6 metre below ground level, every 15th post, last but one end post and corner post shall be strutted on both sides and end post on one side only and provided with 9 horizontal lines and 2 diagonals interwoven with horizontal wires, fixed with GI staples, turn buckles etc complete as per clause 808	metre	317.00
8.33	G.I Barbed wire Fencing 1.8 metre high Providing and fixing 1.8 metres high GI barbed wire (weighing 9.38 kg per 100 mts.) fencing with 2.4 m angle iron posts 50 mm x 50 mm x 6 mm placed every 3 metres center to center founded in M15 grade cement concrete, 0.6 metre below ground level, every 15th post, last but one end post and corner post shall be strutted on both sides and end post on one side only and provided with 12 horizontal lines and 2 diagonals interwoven with horizontal wires, fixed with GI staples, turn buckles etc complete as per clause 808	metre	519.00

Item No.	Description	Unit	Rate
8.34	Fencing with weaved/welded steel wire Fabric (weighing 4 kg per sqm.)75 mm x 50 mm (Suggestive) Providing 1.20 metre high fencing with angle iron posts 50mmx50mmx6mm at 3 metre center to center with 0.40 metre embedded in M15 grade cement concrete, corner, end and every 10th post to be struttred, provided with weaved/welded steel wire 75 mm x 25 mm mesh (Weighing 4 kg per sqm) and fixed to iron posts by flat iron 50 x 5 mm and bolts etc. complete in all respects.	metre	685.00
8.35	Tubular Steel Railing on Medium Weight steel channel (ISMC series) 100 mm x 50 mm Providing, fixing and erecting 50 mm dia steel pipe (weighing 3.56 kg per mts.) railing in 3 rows on medium weight steel channels (ISMC series) 100 mm x 50 mm, 1.2 metres high above ground, 2 m centre to centre, painting etc. complete as per approved drawings.	metre	2001.00
8.36	Tubular Steel Railing on Precast RCC posts, 1.2 m high above ground level Providing, fixing and erecting 50 mm dia (weighing 3.56 kg per mts.) steel pipe railing in 3 rows on precast M20 grade RCC vertical posts 1.8 metres high (1.2 m above GL) with 3 holes 50 mm dia for pipe, fixed 2 metres centre painting etc., complete as per approved drawing.	metre	1431.00
8.37	Cable Duct Across the Road Providing and laying of a reinforced cement concrete pipe duct, 300 mm dia, across the road (new construction), extending from drain to drain in cuts and toe of slope to toe of slope in fills, constructing head walls at both ends, providing a minimum fill of granular material over top and sides of RCC pipe as per IRC:98-1997, bedded on a 0.3 m thick layer of granular material free of rock pieces, outer to outer distance of pipe at least half dia of pipe subject to minimum 450 mm in case of double and triple row ducts, joints to be made leak proof, invert level of duct to be above higher than ground level to prevent entry of water and dirt, all as per IRC: 98 - 1997 and approved drawings.		
	(i) Single Row for one utility service	metre	1786.00
	(ii) Double Row for two utility services	metre	3253.00
	(iii) Triple Row for three utility services	metre	4737.00
8..38	Traffic Cone Providing of red fluorescent with white reflective sleeve traffic cone made of low density polyethylene (LDPE) material with a square base of 390 x 390 x 35 mm and a height of 770 mm, 4 kg in weight, placed at 1.5 m interval, all as per BS 873. as per requirement Note:- Provided till the end of agreement period.	each	197.00
8.39	Portable Barricade in Construction Zone Providing and Installing of a steel portable barricade with horizontal rail 300mm wide, 2.5 m in length fitted on a 'A' frame made with 45 x 45 x 5 mm angle iron section, 1.5 m in height, horizontal rail painted (2 coats) with yellow and white stripes, 150 mm in width at an angle of 450, 'A' frame painted with 2 coats of yellow paint, complete as per IRC:SP:55-2001, as per requirement Note:- Provided till the agreemented period.	each	3281.00

Item No.	Description	Unit	Rate
8.40	Permanent Type Barricade in Construction Zone		
A	With Steel Components (Construction of a permanent type barricade made of steel components, 1.5 m high from road level, fitted with 3 horizontal rails 200 mm wide and 4 m long on 50 x 50 x 5 mm angle iron vertical support, painted with yellow and white strips, 150 mm in width at an angle of 45°, complete as per IRC:SP:55- 2001)	each	5190.00
B	With Wooden Components (Construction of a permanent type barricade made of wooden components, 1.5 m high from road level, fitted with 3 horizontal planks 200 mm wide and 3.66 m long on 100 x 100mm wooden vertical post, painted with yellow and white strips, 150 mm in width at an angle of 45°, complete as per IRC:SP:55-2001)	each	5103.00
C	With Bricks (Construction of a permanent type barricade made with brick work in mud mortar, 1.5 m high, 4 m long, 600 mm thick, plastered with cement mortar 1:6, painted with yellow and white strips)	each	19453.00
8.41	Drum Delineator in Construction Zone Providing and placing metal drum/empty bitumen drum delineator, 300 mm in diameter, 800 mm high, filled with earth for stability, painted in circumferential strips of alternate black and white 100 mm wide fitted with reflectors 3 Nos of 7.5 cm dia, all as per IRC:SP:55-2001	each	502.00
8.42	Flagman Positioning of a smart flagman with a yellow vest and a yellow cap and a red flag 600 x 600 mm securely fastened to a staff 1 m in length for guiding the traffic.	each	576.00
8.43	Providing and fixing guard stones 220x220x1000mm made of hammer dressed stones or 250 mm (dia) x 1000 mm M-15 concrete and fixed 400mm into the ground in moorum and broken aggregates block of size 500x500x500 mm and given two coats of paints with white and black bands i/c excavation etc. complete.	each	368.00
8.44	Providing fixing and erecting /Pre cast RCC information board including reinforcement with RCC M25 Posts (2 Nos) of size 150 x150x3300 mm RCC M-25 plate of size 1300x900 x 50mm The post shall be with groove at top of size 900x60x40mm. So that the plate is fixed inside it. Both posts are fixed jointly with M-15 concrete of size 600x1500x750 excavation in all types of soil including painting of Post and plate with synthetic enamel paint in all shades and also including providing and fixing High Intensity micro Prismatic retro reflective sheeting (Type IV) 50 mm wide around both side of the board and two places in each post (Preferably at 30cm and 150 cm respectively above road level) All work shall be as per MORT&H specifications and as per drawing including all material, labour, lead and lift, T&P etc. complete.	Each	13500.00

CHAPTER : 9.0
CULVERTS & DRAINS

Item No.	Descriptions	Unit	Rate
9.1	PCC M-15 in Foundation Plain cement concrete M-15 mix with crushed stone aggregate 40 mm nominal size mechanically mixed, placed in foundation and compacted by vibration including curing for 14 days. as per MORT&H Specification 409.	cum	4195.00
9.2	Providing and Laying Reinforced Cement Concrete Pipe NP4/prestressed concrete pipe on first class bedding in single row. Providing and Laying Reinforced cement concrete pipe NP4/prestressed concrete pipe for culverts on first class bedding of granular material (cost of bedding included) 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.		
A	1000 mm dia	metre	7012.00
B	1200 mm dia	metre	9544.00
C	1500 mm dia	Metre	11544.00
9.3	Providing and Laying Reinforced Cement Concrete Pipe NP 4 /prestressed concrete pipe on first class bedding in double row. Providing and Laying Reinforced cement concrete pipe NP4 /prestressed concrete pipe for culverts on first class bedding of granular material (cost of bedding included) in double row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets		
A	1000 mm dia	Metre	14168.00
B	1200 mm dia	Metre	19242.00
C	1500 mm dia	Metre	21242.00
9.4	Providing and Laying Reinforced cement concrete pipe NP4 / prestressed concrete pipe for culverts on first class bedding of granular material (cost of bedding included) in triple row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets and as per relevant clauses of section-2900.		
A	1000 mm dia	Metre	20944.00
B	1200 mm dia	Metre	28632.00
C	1500 mm dia	Metre	30632.00
9.5	Add for every additional row in item 9.4 above		
A	1000 mm dia	Metre	6826.00
B	1200 mm dia	Metre	9338.00
C	1500 mm dia	Metre	11338.00
9.6	Providing concrete cradle bedding in M-15 grade concrete as per clause 2900 and as per section 1700 and 2900.	Cum	4195.00
9.7	Deduction for not providing the first class bedding (in case sand is available in the bed or the concrete cradle is provided as per item 9.6 above) in item No.9.2., 9.3, 9.4 & 9.5 above.	Cum	514.00
9.8	Providing P.C.C. M-15 Nominal mix for hume pipe culverts in foundation and sub structure etc. as per drawing and as per relevant clauses of section 1500, 1700, 2100 and 2900.	Cum	4617.00

Item No	Description	Unit	Rate
9.9	Providing and placing in position precast reinforced cement concrete U-shape drain as per design and shape, using coarse aggregate and fine aggregate derived from natural sources, Ordinary Portland cement, admixtures as per IS: 456-2000 and standard like India standard, international standards viz. Japanese Industrial Standards (JIS)/ US standard/EU standard/ having of strength not less than M-50. Using Thermo-Mechanically Treated bars. (TMT/TMX) FE 500D or more conforming to IS 1786 reinforcement bar and capable of carrying a wheel load of min 25 Tones for heavy vehicle movement. Rate includes all cost of material, labor charges at the plant, cost of reinforcement, formwork and lifting accessories, and transportation upto work at the site. making necessary holes of required sizes for carrying through service lines etc., providing steel hooks for lifting, etc. the work to be executed as per the direction of Engineer in- charge.		
(i)	Pre Cast U Shape Drain 300x300mm Wall Th 70 mm	RM	2728.00
(ii)	Pre Cast U Shape Drain 450x450 mm Wall Th 80 mm	RM	3591.00
(iii)	Pre Cast U Shape Drain 600x600 Wall Th 90 mm	RM	4892.00
(iv)	Pre Cast U Shape Drain 750x750 mm Wall Th 100 mm	RM	5910.00
(v)	Pre Cast U Shape Drain 900x900 mm Wall Th 120 mm	RM	8295.00
(vi)	Pre Cast U Shape Drain – 1200x1200 mm Wall Th 120 mm	RM	10707.00
9.10	Providing and placing in position precast reinforced cement concrete U-shape drain as per design and shape, using coarse aggregate and fine aggregate derived from natural sources, Ordinary Portland cement, admixtures as per IS: 456-2000 and standard like India standard, international standards viz. Japanese Industrial Standards (JIS)/ US standard/EU standard/ having of strength not less than M-50. Using Thermo- Mechanically Treated bars. (TMT/TMX) FE 500D or more conforming to IS 1786 reinforcement bar and capable of carrying a wheel load of min 5 Tones for heavy vehicle movement. Rate includes all cost of material, labour charges at the plant, cost of reinforcement, formwork and lifting accessories, and transportation upto work at the site. making necessary holes of required sizes for carrying through service lines etc., providing steel hooks for lifting, etc. the work to be executed as per the direction of Engineer in- charge.		
(i)	Pre Cast U Shape Drain 300x300mm Wall Th 70 mm	RM	2356.00
(ii)	Pre Cast U Shape Drain 450x450 mm Wall Th 80 mm	RM	2885.00
(iii)	Pre Cast U Shape Drain 600x600 Wall Th 90 mm	RM	4026.00
(iv)	Pre Cast U Shape Drain 750x750 mm Wall Th 100 mm	RM	4939.00
(v)	Pre Cast U Shape Drain 900x900 mm Wall Th 120 mm	RM	6415.00

Item No	Description	Unit	Rate
9.11	Providing and fixing factory-made precast RCC-U-shape drain covers, having of strength not less than M-50, using Thermo-Mechanically Treated bars. (TMT/TMX) FE 500D or more conforming to IS 1786 reinforcement bar and capable of carrying a wheel load of 25.0 Tones for heavy vehicle movement, of size Lid for U-300x300 mm. As per standard size reinforced with 8 mm dia main longitudinal & 6 mm nos cross-sectional T'M T. hoop bars, including providing 50 mm dia perforations @ 2 nos. including providing edge binding with M.S. flats of size 50 mm x 1.80 mm complete, all as per direction of Engineer-in-charge		
(i)	Pre Cast RCC U Shape drain Lid for U-300x300 mm	Each	1937.00
(ii)	Pre Cast RCC U Shape drain Lid for U-450x450 mm	Each	2488.00
(iii)	Pre Cast RCC U Shape drain Lid for U-600x600 mm	Each	3033.00
(iv)	Pre Cast RCC U Shape drain Lid for U-750x750 mm	Each	3623.00
(vi)	Pre Cast RCC U Shape drain Lid for U-900x900 mm	Each	4019.00
(vii)	Pre Cast RCC U Shape drain Lid for U-1200x1200 mm	Each	8241.00
9.12	Providing and fixing factory-made precast RCC U-shape drain (FUJI) drain covers, having of strength not less than M-50 using Thermo-Mechanically Treated bars (TMT/TMX) FE 500D or more conforming to IS 1786 reinforcement bar and capable of carrying a wheel load of 5.0 Tones for heavy vehicle movement, of size Lid for U-300x300 mm. As per standard size reinforced with 8 mm dia main longitudinal & 6 mm nos cross-sectional T'M T. hoop bars, including providing 50 mm dia perforations @ 2 nos. including providing edge binding with M.S. flats of size 50 mm x 1.60 mm complete, all as per direction of Engineer-in-charge		
(i)	Pre Cast U Shape Drain Cover 300x300 mm	RM	1738.00
(ii)	Pre Cast U Shape Drain Cover 450x450 mm	RM	2093.00
(iii)	Pre Cast U Shape Drain Cover 600x600 mm	RM	2471.00
(iv)	Pre Cast U Shape Drain Cover 750x750 mm	RM	2819.00
(v)	Pre Cast U Shape Drain Cover 900x900 mm	RM	3048.00
9.13	Providing and placing in position precast reinforced cement concrete Flume as per design and shape, using coarse aggregate and fine aggregate derived from natural sources, Portland Pozzolana/ Ordinary Portland/ Portland Slag cement, admixtures in recommended proportions as per IS: 456-2000 and standard like India standard, International standards viz. Japanese Industrial Standards (JIS)/ US standard/EU standard/ having of strength not less than M-50. Using Thermo Mechanically Treated bars. (TMT/TMX) FE 500D or more conforming to IS 1786 reinforcement bar and capable of carrying a wheel load of heavy vehicle movement, Precast reinforced cement concrete drains using, Stormwater/roadside drain, etc. Rate includes all cost of material, labor charges at the plant, cost of reinforcement, formwork and lifting accessories, and transportation up to work at the site. Making necessary holes of required sizes for carrying through service lines etc. providing steel hooks for lifting, etc. the work executed as per the direction of Engineer in Charge.		

Item No	Description	Unit	Rate
A	PRE CAST FLUME HEIGHT 900MM		
(i)	Storm Water Drain (900x600) MM	RM	6694.00
(ii)	Storm Water Drain (900x700) MM	RM	6892.00
(iii)	Storm Water Drain (900x800) MM	RM	7135.00
(iv)	~~Storm Water Drain (900x900) MM~~ Storm Water Drain (900x900) MM	~~RM~~ RM	7332.00
(v)	Storm Water Drain (900x1000) MM	RM	7529.00
(vi)	Storm Water Drain (900x1100) MM	RM	7758.00
(vii)	Storm Water Drain (900x1200) MM	RM	7917.00
(viii)	Storm Water Drain (900x1300) MM	RM	8118.00
(ix)	Storm Water Drain (900x1400) MM	RM	8366.00
(x)	Storm Water Drain (900x1500) MM	RM	9412.00
(xi)	~~Storm Water Drain (900x1500) MM~~ Storm Water Drain (900x1500) MM	~~RM~~ RM	9629.00
(xii)	Storm Water Drain (900x1700) MM	RM	9846.00
(xiii)	Storm Water Drain (900x1800) MM	RM	10063.00
B	PRE CAST FLUME HEIGHT 1200MM		
(i)	Storm Water Drain (1200x700) MM	RM	8557.00
(ii)	Storm Water Drain (1200x800) MM	RM	8843.00
(iii)	Storm Water Drain (1200x900) MM	RM	9040.00
(iv)	~~Storm Water Drain (1200x1000) MM~~ Storm Water Drain (1200x1000) MM	~~RM~~ RM	9238.00
(v)	Storm Water Drain (1200x1100) MM	RM	9435.00
(vi)	Storm Water Drain (1200x1200) MM	RM	9632.00
(vii)	Storm Water Drain (1200x1300) MM	RM	9910.00
(viii)	Storm Water Drain (1200x1400) MM	RM	10158.00
(ix)	Storm Water Drain (1200x1500) MM	RM	10360.00
(x)	Storm Water Drain (1200x1600) MM	RM	10561.00
(xi)	~~Storm Water Drain (1200x1700) MM~~ Storm Water Drain (1200x1700) MM	~~RM~~ RM	10763.00
(xii)	Storm Water Drain (1200x1800) MM	RM	11006.00
(xiii)	Storm Water Drain (1200x1900) MM	RM	12229.00
(xiv)	Storm Water Drain (1200x2000) MM	RM	12513.00
(xv)	Storm Water Drain (1200x2100) MM	RM	12731.00
(xvi)	~~Storm Water Drain (1200x2200) MM~~ Storm Water Drain (1200x2200) MM	~~RM~~ RM	12948.00

Item No.	Description	Unit	Rate
(xvii)	Storm Water Drain (1200x2300) MM	RM	13208.00
(xvii)	Storm Water Drain (1200x2400) MM	RM	13425.00
C	PRE CAST FLUME HEIGHT 1300MM		
(i)	Storm Water Drain (1300x800) MM	RM	9719.00
(ii)	Storm Water Drain (1200x900) MM	RM	9917.00
(iii)	Storm Water Drain (1300x1000) MM	RM	10156.00
(iv)	~~Storm Water Drain (1300x1100) MM~~ Storm Water Drain (1300x1200) MM	~~RM~~ RM	10354.00
(v)	Storm Water Drain (1300x1200) MM	RM	10594.00
(vi)	Storm Water Drain (1300x1300) MM	RM	10791.00
(vii)	Storm Water Drain (1300x1400) MM	RM	11077.00
(viii)	Storm Water Drain (1300x1500) MM	RM	11321.00
(ix)	Storm Water Drain (1300x1600) MM	RM	11523.00
(x)	Storm Water Drain (1300x1700) MM	RM	11767.00
(xi)	~~Storm Water Drain (1300x1800) MM~~ Storm Water Drain (1300x1900) MM	~~RM~~ RM	11968.00
(xii)	Storm Water Drain (1300x1900) MM	RM	12170.00
(xiii)	Storm Water Drain (1300x2000) MM	RM	13564.00
(xiv)	Storm Water Drain (1300x2100) MM	RM	13782.00
(xv)	Storm Water Drain (1300x2200) MM	RM	14041.00
(xvi)	~~Storm Water Drain (1300x2300) MM~~ Storm Water Drain (1300x2400) MM	~~RM~~ RM	14259.00
(xvii)	Storm Water Drain (1300x2400) MM	RM	14476.00
(xvii)	Storm Water Drain (1300x2500) MM	RM	14736.00
(xix)	Storm Water Drain (1300x2600) MM	RM	15021.00
D	PRE CAST FLUME HEIGHT 1400MM		
(i)	Storm Water Drain (1400x800) MM	RM	10722.00
(ii)	Storm Water Drain (1400x900) MM	RM	10919.00
(iii)	Storm Water Drain (1400x1000) MM	RM	11159.00
(iv)	~~Storm Water Drain (1400x1100) MM~~ Storm Water Drain (1400x1200) MM	~~RM~~ RM	11357.00
(v)	Storm Water Drain (1400x1200) MM	RM	11597.00
(vi)	Storm Water Drain (1400x1300) MM	RM	11925.00
(vii)	Storm Water Drain (1400x1400) MM	RM	12127.00
(viii)	Storm Water Drain (1400x1500) MM	RM	12369.00
(ix)	Storm Water Drain (1400x1600) MM	RM	12573.00
(x)	Storm Water Drain (1400x1700) MM	RM	12847.00

Item No.	Description	Unit	Rate
(xi)	~~Storm Water Drain (1400x1800) MM~~ Storm Water Drain (1400x1900) MM	~~RM~~ RM	12816.00
(xii)	Storm Water Drain (1400x1900) MM	RM	13061.00
(xiii)	Storm Water Drain (1400x2000) MM	RM	14452.00
(xiv)	Storm Water Drain (1400x2100) MM	RM	14712.00
(xv)	Storm Water Drain (1400x2200) MM	RM	14930.00
(xvi)	~~Storm Water Drain (1400x2300) MM~~ Storm Water Drain (1400x2400) MM	~~RM~~ RM	15190.00
(xvii)	Storm Water Drain (1400x2400) MM	RM	15450.00
(xviii)	Storm Water Drain (1400x2500) MM	RM	15668.00
(xix)	Storm Water Drain (1400x2600) MM	RM	15995.00
(xx)	Storm Water Drain (1400x2700) MM	RM	16213.00
(xxi)	Storm Water Drain (1400x2800) MM	RM	16473.00
E	PRE CAST FLUME HEIGHT 1500MM		
(i)	Storm Water Drain (1500x800) MM	RM	11266.00
(ii)	Storm Water Drain (1500x900) MM	RM	11400.00
(iii)	Storm Water Drain (1500x1000) MM	RM	11598.00
(iv)	~~Storm Water Drain (1500x1100) MM~~ Storm Water Drain (1500x1200) MM	~~RM~~ RM	11838.00
(v)	Storm Water Drain (1500x1200) MM	RM	12099.00
(vi)	Storm Water Drain (1500x1300) MM	RM	12319.00
(vii)	Storm Water Drain (1500x1400) MM	RM	12646.00
(viii)	Storm Water Drain (1500x1500) MM	RM	10419.00
(ix)	Storm Water Drain (1500x1600) MM	RM	13092.00
(x)	Storm Water Drain (1500x1700) MM	RM	13337.00
(xi)	~~Storm Water Drain (1500x1800) MM~~ Storm Water Drain (1500x1900) MM	~~RM~~ RM	13581.00
(xii)	Storm Water Drain (1500x1900) MM	RM	13826.00
(xiii)	Storm Water Drain (1500x2000) MM	RM	15256.00
(xiv)	Storm Water Drain (1500x2100) MM	RM	15516.00
(xv)	Storm Water Drain (1500x2200) MM	RM	15777.00
(xvi)	~~Storm Water Drain (1500x2300) MM~~ Storm Water Drain (1500x2400) MM	~~RM~~ RM	16037.00
(xvii)	Storm Water Drain (1500x2400) MM	RM	16297.00
(xviii)	Storm Water Drain (1500x2500) MM	RM	16515.00
(xix)	Storm Water Drain (1500x2600) MM	RM	16843.00
(xx)	Storm Water Drain (1500x2700) MM	RM	17103.00
(xxi)	Storm Water Drain (1500x2800) MM	RM	17363.00

Item No.	Description	Unit	Rate
(xxii)	Storm Water Drain (1500x2900) MM	RM	17623.00
(xxiii)	Storm Water Drain (1500x3000) MM	RM	17841.00
F	PRE CAST FLUME HEIGHT 1600MM		
(i)	Storm Water Drain (1600x800) MM	RM	11737.00
(ii)	Storm Water Drain (1600x900) MM	RM	11977.00
(iii)	Storm Water Drain (1600x1000) MM	RM	12175.00
(iv)	~~Storm Water Drain (1600x1100) MM~~ Storm Water Drain (1600x1200) MM	~~RM~~ RM	12415.00
(v)	Storm Water Drain (1600x1200) MM	RM	12655.00
(vi)	Storm Water Drain (1600x1300) MM	RM	12895.00
(vii)	Storm Water Drain (1600x1400) MM	RM	13222.00
(viii)	Storm Water Drain (1600x1500) MM	RM	13424.00
(ix)	Storm Water Drain (1600x1600) MM	RM	13668.00
(x)	Storm Water Drain (1600x1700) MM	RM	13913.00
(xi)	~~Storm Water Drain (1600x1800) MM~~ Storm Water Drain (1600x1900) MM	~~RM~~ RM	14157.00
(xii)	Storm Water Drain (1600x1900) MM	RM	14402.00
(xiii)	Storm Water Drain (1600x2000) MM	RM	15868.00
(xiv)	Storm Water Drain (1600x2100) MM	RM	16128.00
(xv)	Storm Water Drain (1600x2200) MM	RM	16388.00
(xvi)	~~Storm Water Drain (1600x2300) MM~~ Storm Water Drain (1600x2400) MM	~~RM~~ RM	16649.00
(xvii)	Storm Water Drain (1600x2400) MM	RM	16909.00
(xviii)	Storm Water Drain (1600x2500) MM	RM	17127.00
(xix)	Storm Water Drain (1600x2600) MM	RM	17454.00
(xx)	Storm Water Drain (1600x2700) MM	RM	17715.00
(xxi)	Storm Water Drain (1600x2800) MM	RM	17975.00
(xxii)	Storm Water Drain (1600x2900) MM	RM	18235.00
(xxiii)	Storm Water Drain (1600x3000) MM	RM	18453.00

9.14 Pre Cast Box Culvert

Providing and placing in position precast cement concrete Box-Culvert as per design and shape, using coarse aggregate and fine aggregate derived from natural sources, ordinary Portland/ admixtures as per design mix IS: 456-2000 and standard like Indian standard international standard viz. japaness industrial standard (JIS) /US standard/ EU standard having of strength not less than M-50, using Thermo-Mechanically Treated bars,(TMT/TMX) FE 500D or more conforming to IS 1786 reinforcement bar and capable of carrying a wheel load of 32.5 Tones with earth cushion 0.20 m to 0.00 m for heavy vehicle movement. Rate includes all cost of material, labor charges at the plant, cost of reinforcement, formwork and lifting accessories, and transportation up to work at the site. Making necessary holes of required sizes for carrying through service lines etc. providing steel hooks for lifting etc. the work to be executed as per the direction of Engineer in-charge.

Item No.	Description	Unit	Rate
(i)	Box Culvert Size 500x500 mm Th 120mm	RM	10818.00
(ii)	Box Culvert Size 600x600 mm Th 120mm	RM	12096.00
(iii)	Box Culvert Size 800x800 mm Th 120 mm	RM	14759.00
(iv)	Box Culvert Size 600x1000 mm Th 130 mm	RM	16985.00
(v)	Box Culvert Size 900x1000 mm Th 130 mm	RM	19350.00
(vi)	Box Culvert Size 1000x1000 mm Th 130 mm	RM	20209.00
(vii)	Box Culvert Size 1200x1000 mm Th 130 mm	RM	21821.00
(viii)	Box Culvert Size 800x1400 mm Th 130 mm	RM	19142.00
(ix)	Box Culvert Size 900x1400 mm Th 130 mm	RM	19781.00
(x)	Box Culvert Size 1000x1400 mm Th 130 mm	RM	20556.00
(xi)	Box Culvert Size 1100x1400 mm Th 130 mm	RM	21300.00
(xii)	Box Culvert Size 1200x1400 mm Th 130 mm	RM	21938.00
(xiii)	Box Culvert Size 1300x1400 mm Th 150 mm	RM	23486.00
(xiv)	Box Culvert Size 1400x1400 mm Th 150 mm	RM	24229.00
(xv)	Box Culvert Size 1500x1400 mm Th 150 mm	RM	24973.00
(xvi)	Box Culvert Size 2000x1200 mm Th 180 mm	RM	40601.00
(xvii)	Box Culvert Size 2000x1500 mm Th 180 mm	RM	42883.00
(xviii)	Box Culvert Size 2000x1800 mm Th 180 mm	RM	45076.00
(xix)	Box Culvert Size 2000x2000 mm Th 180 mm	RM	46651.00
(xx)	Box Culvert Size 2500x1500 mm Th 220 mm	RM	52227.00
(xxi)	Box Culvert Size 2500x1800 mm Th 220 mm	RM	54727.00
(xxii)	Box Culvert Size 2500x2000 mm Th 220 mm	RM	56412.00
(xxiii)	Box Culvert Size 2500x2500 mm Th 220 mm	RM	60542.00

CHAPTER : 10.0

MAINTENANCE OF ROADS

Item No.	Descriptions	Unit	Rate
10.1	Filling Pot- holes and Patch Repairs with open - graded Premix surfacing, 20mm. Removal of all failed material, trimming of completed excavation to provide firm vertical faces, cleaning of surface, painting of tack coat on the sides and base of excavation as per clause 503, back filling the pot holes with hot bituminous material as per clause 510, compacting, trimming and finishing the surface to form a smooth continuous surface, all as per clause 3004.2	Sqm	134.00
10.2	Built-Up-Spray Grout Providing, laying and rolling of built-up-spray grout layer over prepared base consisting of a two layer composite construction of compacted crushed coarse aggregates using motor grader for aggregates key stone chips spreader may be used with application of bituminous binder after each layer, and with key aggregates placed on top of the second layer to serve as a Base conforming to the line, grades and cross-section specified, the compacted layer thickness being 75 mm.	Sqm	296.00
10.3	Repair of Pot Holes, Patch Repair Providing, laying and rolling of built-up-spray grout layer over prepared base consisting of composite construction of compacted crushed coarse aggregates and key stone chips with application of bituminous binder after each layer, and with key aggregates placed on top of the final layer to serve as a Base conforming to the line, grades and cross-section specified, (number of layers of coarse aggregate shall be as per site requirement).	cum	3941.00
10.4	Repair of joint Grooves with Epoxy Mortar Repair of spalled joint grooves of contraction joints, construction joint, longitudinal joints and expansion joints in concrete pavements using epoxy mortar or epoxy concrete.	metre	1529.00
10.5	Repair of old Joints Sealant Removal of existing sealant and re-sealing of contraction, construction longitudinal or expansion joints in concrete pavement with fresh sealant material	metre	42.00
10.6	Land Slide Clearance in soil Clearance of land slides in soil and ordinary rock by a bull-dozer D 80 A-12, 180 HP and disposal of the same on the valley side	cum	39.00
10.7	Land slide Clearance in Hard Rock Requiring Blasting Clearing of land slide in hard rock requiring blasting for 50% of the boulders and disposal of the same on the valley side.	cum	122.00
10.8	Removing all loose concrete which is detached from the substrate, by using a mechanical wire brush, complete with removing dust by compressed air and dampening the surface with water without puddles.	Sqm	30.00

Item No.	Description	Unit	Rate
10.9	Applying one coat of bonding material complying to ASTM C881 Type-2, Grade-2, class-C like Anchorex EPB or equivalent on the cleaned substrate by spray/roller @ 10 sq m per ltr	Sqm	20.00
10.10	M&L Mixing and applying of 30mm thickness Repair material confirming to IRC SP 83-2018 clause 12.1.2.a and 12.1.4 an ultra fast strength concrete repair mortar which does not require external water curing and attains compressive strength of 40N/mm2 @ 5 hours from placing as per IS 516 such as Strexta EFS 4, after diluting it with 10mm aggregates at a proportion of 1:0:5 (concrete 10mm aggregates); mixing and placing the mortar as per manufactures data sheet over the prepared surface of the pavement, complete along strengthening, no water curing and opening the road to traffic within 5-6 hours of placing(the last bag of mortar)	Sqm	655.00
10.11	Providing and applying a dry-shake surface non- metallic floor surface hardner of mohs hardness 6 or more like Topcete 333 over the repair mortar Strexta R-20 or equivalent while the mortar is still green that means the mortar has not achieved final set, consumption @ 7kg/sq.m. applied as per manufactures data sheet, inclusive with finishing material labour.	Sqm	117.00
10.12	Stitching Crack stitching with inclined tie bar (cross Stitching) used for cracks in reasonably good condition in order to arrest movement of slab and slabs pieces by making primer verticals holes,, alternative inclined hole, cleaning the hole through oil free compressor and filled with epoxy resin in enough quality that will coat HYSD bar confirming IS 1786 of 12 mm dia in every hole also groove shall be made along with line cracks display spalling and filled with a low viscosity resin or fire epoxy mortar following the method specified IRC SP 83:2008.	RM	600.00
10.13	Stapling Crack stitching with V-bars (Stapling) to be used for cracks in reasonably good condition in order to arrest movement of slabs and slab pieces by making the position of vertical holes of dia 30 mm at a distance of 228 mm from the crack at spacing of 600 mm center to center, drilling holes, Slit removing, Devris cleaning from the holes, roughen the sites of hole and slit by sand blasting, sand paper. Insert the steel bar (FE 500), fill the holes and silt with epoxy mortar (1:3 epoxy: sand) up to 10mm above the top surface of steel bar. Filling with non-shrinkable concrete or any other equivalent material may be filled up to the top level of PQ2 and fill the sides of the groove with low viscosity epoxy following the IRC SP 83:2008.	RM	401.00
10.14	Stripping excess soil from the shoulder surface to achieve the approved level and compacting with plate compactor at OMC as per drawings and as directed by Engineer charge with Average depth 10 cm. (Stripping of excess soil only) including all material, labour, etc. completed.	Sqm	10.00
10.15	The maintenance of all of drains including erosion, repair, clearing, cleaning. Reshaping, regarding, deepening of side drains as well as catch water drains as per technical specification including all material, labour, etc. complete	Sqm	13.00
10.16	Removal of existing sealant and re sealing of contraction. Longitudinal or expansion joints in concrete pavement with fresh sealant material as directed by Engineer incharge as per specification including all material, labour, etc. complete	Sqm	31.00

Item No.	Description	Unit	Rate
10.17	Filling of crack (in flexible pavement) using slow- curing bitumen emulsion and applying crusher dust in case crack are wider than 3 mm including all material, labour, etc. complete.	M	7.00
10.18	Providing and placing empty cement/fertilizer bags (having capacity not less than 50 kg each) filled with mixture of good earth/Moorum, Gravels etc. for restoration of raincuts & road, bridge section / Ghat section for erosion control & traffic safety etc as per direction of Engineer in charge including all materials, labour etc complete.	Bag	13.00
10.19	Providing painting, figuring and numbering as per IRC specifications complete with Synthetic Enamel Paint for 5th Km. Stone.		
	(i) Two coat on new work	Each	385.00
	(ii) One coat on old work.	Each	293.00
10.20	Providing painting, figuring and numbering as per IRC specifications complete with Synthetic Enamel Paint for ordinary Km. Stone.		
	(i) Two coat on new work	Each	154.00
	(ii) One coat on old work.	Each	99.00
10.21	Providing painting, figuring and numbering as per IRC specifications complete with Synthetic Enamel Paint for 0.2 Km. Stones or Boundary Stones.		
	(i) Two coat on new work	Each	39.00
	(ii) One coat on old work.	Each	25.00
10.22	Providing painting, figuring and numbering to culvert upto 6m. Span complete with Synthetic Enamel Paint.		
	(i) Two coats on new work.	Each	123.00
	(ii) One coat on old work.	Each	94.00
10.23	Providing painting, figuring and numbering to minor bridges upto 30m. Linear water-way complete with Synthetic Enamel Paint .		
	(i) Two coats on new work.	Each	163.00
	(ii) One coat on old work.	Each	141.00
10.24	Providing painting, figuring & numbering to major bridges, linear water-way exceeding 30m.Complete with Synthetic Enamel Paint.		
	(i) Two coats on new work.	Each	268.00
	(ii) One coat on old work.	Each	214.00
10.25	Providing painting to angle Iron posts of road sign boards complete with Synthetic Enamel Paint.		
	(i) Two coats on new work.	Each	114.00
	(ii) One coat on old work.	Each	105.00
10.26	Providing painting and figuring of road sign boards (excluding posts/kerbs)		
	(i) Two coats on new board.	sqm	339. 00
	(ii) One coat on old board.	sqm	295.00

CHAPTER : 11.0

HORTICULTURE

Item No.	Descriptions	Unit	Rate
11.1	Planting Permanent Hedges including Digging of Trenches Planting permanent hedges including digging of trenches, 60 cm wide and 45 cm deep, refilling the excavated earth mixed with farmyard manure, supplied at the rate of 4.65 cum per 100 metres and supplying and planting hedge plants at 30 cm apart.	metre	197.00
11.2	Planting of Trees and their Maintenance for one Year Planting of trees by the road side (Avenue trees) in 0.60 m dia holes, 1 m deep dug in the ground, mixing the soil with decayed farm yard/sludge manure, planting the saplings, backfilling the trench, watering, and maintaining the plants for one year.	each	779.00
11.3	Half Brick Circular Tree Guard, in 2nd class Brick, internal diametre 1.25 metres, and height 1.2 metres, above ground and 0.20 metre below ground Half brick circular tree guard, in 2nd class brick, internal diametre 1.25 metres, and height 1.2 metres, above ground and 0.20 metre below ground, bottom two courses laid dry, and top three courses in cement mortar 1:6 (1 cement 6 sand) and the intermediate courses being in dry honey comb masonry, as per design complete.	each	2416.00
11.4	Edging with 2nd class Bricks, laid dry lengthwise Edging with 2nd class bricks, laid dry lengthwise, including excavation, refilling, consolidation, with a hand packing and spreading nearly surplus earth within a lead of 50 metres.	metre	50.00
11.5	Tree Guard with MS Angle Iron and Steel Wire Providing and fixing tree guard 0.60 metre square, 2.00 metre high fabricated with MS angle iron 30 x 30 x 3 mm, MS iron 25 x 3 mm and steel wire 3 mm dia welded total weight no less than..... kg and fabricated as per design in two halves bolted together.	each tree guard	2958.00
11.6	Transplantation of Trees including trimming the branches of full grown tree as per the requirement, giving a wax treatment of the trimmed area of branches, uprooting the tree i/c trimming and transporting the uprooted tree to the specified site of transplantation as directed by the engineer-in-Charge up to 12 Kms. lead including all lifts, transplanting, the uprooted tree by digging a required size of pit, filling it with fresh garden soil and manure as per the requirement & maintaining it for a period of 4 months by watering, weeding, manuring etc complete.		
A	Trees having trunk girth upto 1.00 M.	Per Tree	5236.00
B	Trees having trunk girth more than 1.00 M. upto 1.5 M.	Per Tree	7854.00
C	Trees having trunk girth more than 1.5 M. to 2.00 M.	Per Tree	10472.00
D	Trees having trunk girth more than 2.00 M.	Per Tree	12566.00
Note:-	60% of the above rates may be paid after the transplantation of tree. If the tree does not survive after maintenance period, remaining 40% shall not be payable. The remaining 40% shall be paid after the expiry of maintenance period i.e. 4 months.		

CHAPTER : 12.0

FOUNDATIONS

Item No.	Descriptions	Unit	Rate
12.1	Excavation for Structures Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom as per relevant clauses of section 300 & 2100 in		
I	Ordinary soil (including back filling with approved material)		
(i)	Depth upto 3 m	cum	61.00
(ii)	Depth 3 m to 6 m	cum	70.00
(iii)	Depth above 6m	cum	86.00
II	Ordinary rock (not requiring blasting)		
(i)	Depth upto 3 m	cum	77.00
(ii)	3 m to 6 m depth	cum	122.00
(iii)	Above 6 m depth	cum	167.00
III	Hard rock (requiring blasting)	cum	466.00
IV	Hard rock (blasting Prohibited)	cum	1037.00
V	Marshy soil	cum	131.00
VI	Back Filling in Marshy Foundation Pits	cum	308.00
12.2	Add extra as follows in the rates of the above items if dewatering is resorted to		
a)	upto 3 m depth		50% extra
b)	beyond 3 m to 6 m depth		75% extra
c)	Above 6 m depth		100% extra
12.3	Providing Plain cement concrete M-15 nominal mix in foundation as per relevant clauses of sections 1500, 1700 and 2100.	Cum	4349.00
12.4	Sand Filling in Foundation Trenches as per Drawing & Technical Specification.	cum	1193.00
12.5	Providing & Filling Annular Space Around Footing in Rock upto top of rock with Lean cement concrete M-15 nominal mix in foundation 1.5 m in soft rock and 0.60 m in hard rock with crushed stone aggregate 40 mm nominal size and as per relevant clauses of sections 1500, 1700 and 2100.	cum	4349.00
	Note:- Only footing size with 15cm off set all around to be considered for pavement .		
12.6	Providing and laying Plain/Reinforced cement concrete in open foundation including form work shuttering etc. complete as per drawing and technical specifications and as per relevant clauses of sections 1500, 1700 & 2100 with .		
A	PCC Grade M15	cum	4617.00
B	PCC Grade M20	cum	5162.00
C	RCC Grade M20	cum	4919.00
D	PCC Grade M25	cum	5375.00
E	RCC Grade M25	cum	5369.00
F	PCC Grade M30	cum	5409.00
G	RCC Grade M30	cum	5419.00

Item No.	Description	Unit	Rate
	H RCC Grade M35	cum	5492.00
	I RCC Grad M 40	cum	5542.00
	J RCC Grad M 45	cum	5592.00
12.7	Providing and laying cutting edge of mild steel weighing 40 kg per metre for well foundation complete as per drawing and technical specification.	tonne	100314.00
12.8	Plain/Reinforced cement concrete, in well foundation complete as per drawing and technical specification		
	A Well curb/ Well staining / Well cap		
	(i) RCC M20 Grade	cum	5489.00
	(ii) RCC M25 Grade	cum	6253.00
	(iii) RCC M30 Grade	cum	6032.00
	(iv) RCC M35 Grade	cum	6418.00
	(v) RCC M40 Grade	cum	6588.00
	(vi) RCC M45 Grade	cum	6688.00
	B Bottom Plug		
	(i) PCC Grade M20	cum	5298.00
	(ii) PCC Grade M25	cum	5579.00
	(iii) PCC Grade M30	cum	5634.00
	(iv) PCC Grade M35	cum	5753.00
	C Intermediate plug / Top plug		
	(i) PCC Grade M20	cum	5206.00
	(ii) PCC Grade M25	cum	5397.00
	(iii) PCC Grade M30	cum	5442.00
12.9	Sinking well circular/ D type / D type twin / square/ hexagonal/ octagonal for foundation to levels as per drawing including dredging, dewatering and drop chiselling as may be necessary, including sinking by loading with necessary kentledges and other usual means for the type of work i/c all the needed plant and machinery etc. complete as directed and removal of boulders or tree trunks etc. complete as per drawing and technical specifications. (Note : Depth of sinking shall be reckoned from bed level or excavated level, if so or water level whichever is higher)		
	A Sandy soil		
	(i) Depth below bed level up to 3 m	cum	267.00
	(ii) Beyond 3m to 10m depth	cum	384.00
	(iii) Beyond 10m to 20m	cum	851.00
	(iv) Beyond 20m to 30 m	cum	1842.00
	(v) Beyond 30m to 40 m	cum	4101.00
	B Clayey soil		
	(i) Depth below bed level up to 3 m	cum	388.00
	(ii) Beyond 3m to 10m depth	cum	809.00
	(iii) Beyond 10 m to 20 m	cum	1878.00
	(iv) Beyond 20m to 30 m	cum	3883.00
	(v) Beyond 30m to 40 m	cum	8648.00

Item No.	Description	Unit	Rate
12.10	Sand filling in wells complete as per drawing and technical specifications as per clause 1210.	Cum	1193.00
12.11	Providing steel liner 10 mm thick for curbs and 6mm thick for steining of wells including fabricating and setting out as per detailed drawing as per section 1200 & 1900.	tonne	92628.00
12.12	Bored cast-in-situ M35 grade R.C.C. pile excluding reinforcement complete as per drawing and technical specifications and removal of excavated earth with all lifts and lead upto 1000 m. (Pile diameter-750 mm) as per specification 1100, 1600 and 1700.	metre	6578.00
12.13	Bored cast-in-situ M35 grade R.C.C. pile excluding reinforcement complete as per drawing and technical specifications and removal of excavated earth with all lifts and lead upto 1000 m. (Pile diameter-1000 mm) as per specification 1100, 1600 and 1700.	metre	10666.00
12.14	Bored cast-in-situ M35 grade R.C.C. pile excluding reinforcement complete as per drawing and technical specifications and removal of excavated earth with all lifts and lead upto 1000 m. (Pile diameter-1200 mm)as per specification 1100, 1600 and 1700.	metre	13463.00
12.15	Bored cast-in-situ M35 grade R.C.C. pile excluding reinforcement complete as per drawing and technical specifications and removal of excavated earth with all lifts and lead upto 1000 m. (Pile diameter-1500 mm)as per specification 1100, 1600 and 1700.	metre	17306.00
12.16	Driven cast-in-place vertical M35 grade R.C.C. pile excluding reinforcement complete as per drawing and & Technical Specification (Pile diameter - 750 mm)as per specification 1100, 1600 and 1700.	metre	5813.00
12.17	Driven cast-in-place vertical M35 grade R.C.C. piles excluding reinforcement complete as per drawing and & Technical Specification (Pile diameter - 1000 mm)as per specification 1100, 1600 and 1700.	metre	8469.00
12.18	Driven cast-in-place vertical M35 grade R.C.C. piles excluding reinforcement complete as per drawing and & Technical Specification (Pile diameter - 1200 mm)as per specification 1100, 1600 and 1700.	metre	11085.00
12.19	Driven precast vertical M35 grade R.C.C. piles excluding reinforcement complete as per drawing and & Technical Specification (Pile Diameter=500 mm)as per specification 1100, 1600 and 1700.	metre	5082.00
12.20	Driven precast vertical M35 grade R.C.C. piles excluding reinforcement complete as per drawing and & Technical Specification (Pile Diameter=750 mm)as per specification 1100, 1600 and 1700.	metre	5898.00
12.21	Driven precast vertical M35 grade R.C.C. piles excluding reinforcement complete as per drawing and & Technical Specification (Pile Diameter=1000 mm)as per specification 1100, 1600 and 1700.	metre	8073.00
12.22	Driven precast vertical M35 grade R.C.C. piles excluding reinforcement complete as per drawing and & Technical Specification (Size of pile - 300 mm x 300 mm)as per specification 1100, 1600 and 1700.	metre	4241.00

Item No.	Description	Unit	Rate
12.23	Driven precast vertical M35 grade R.C.C. piles excluding reinforcement complete as per drawing and & Technical Specification (Size of pile - 500 mm x 500 mm)as per specification 1100, 1600 and 1700.	metre	4557.00
12.24	Driven precast vertical M35 grade R.C.C. piles excluding reinforcement complete as per drawing and & Technical Specification (Size of pile - 750 mm x 750 mm)as per specification 1100, 1600 and 1700.	metre	6410.00
12.25	Driven vertical steel piles complete as per drawing and & Technical Specification (Section of the pile - H Section steel column 400 x 250 mm (ISHB Series)) as per specification 1100, 1600 and 1700.	metre	6441.00
12.26	Driven vertical steel piles complete as per drawing and & Technical Specification (Section of the pile - H Section steel column 450 x 250 mm (ISHB Series))as per specification 1100, 1600 and 1700.	metre	7262.00
12.27	Pile load test on single vertical pile in accordance with IS:2911(Part-IV)	tonne	482.00
12.28	Cement concrete for reinforced concrete in pile cap complete as per drawing and Technical Specification and as per relevant clauses of sections 1100, 1500 & 1700.		
	A RCC Grade M20	cum	4760.00
	B RCC Grade M25	cum	5266.00
	C RCC Grade M30	cum	5325.00
	D RCC Grade M35	cum	5462.00
	E RCC Grade M40	cum	5512.00
	F RCC Grade M45	cum	5562.00
12.29	Levelling course for Pile cap PCC in M-15 below Pile cap as per drawing and as per section 1100 and 1700.	cum	4404.00
12.30	Supplying, fitting and placing un-coated HYSD bar reinforcement in foundation complete as per drawing and technical specifications and as per relevant clauses of section 1600.		
	FE 500	MT	80349.00
	FE 500D/FE 550/FE 550D	MT	81349.00
12.31	Supplying, fitting and placing un-coated Mild steel reinforcement complete in foundation as per drawing and technical specification and as per relevant clauses of section 1600.	Tonne	74808.00
12.32	Taking, exploratory boring 100mm dia at the location of piers and abutments or for high embankments in approaches in all types of strata as per IRC-78-1983 and section 2400 of specifications.		
	a) Upto 1.0 m below bed level	metre	2722.00
	b) Beyond 1.0 m depth upto 5.0 m	metre	2847.00
	c) Beyond 5.0 m depth	metre	2970.00
12.33	Providing and laying 1.5 m deep in rock and 1.5 m above rock 25mm dia tor steel dowel bar in foundation including drilling 65mm dia bore hole in rock necessary bending, hooking tying reinforcement in position and grouting etc. complete as per drawing and specifications.	each	1167.00

CHAPTER : 13.0

SUB-STRUCTURE

Item No.	Descriptions	Unit	Rate
13.1	Plain/Reinforced cement concrete in sub-structure complete as per drawing and technical specifications		
A	PCC Grade M15	cum	5130.00
B	PCC Grade M20	cum	5727.00
C	PCC Grade M25		
	1 Height up to 5 m	cum	5937.00
	2 Height 5 to 10 m	cum	6153.00
D	PCC Grade M30		
	1 Height up to 5 m	cum	5987.00
	2 Height 5 to 10 m	cum	6204.00
E	RCC Grade M20		
	1 Height up to 5 m	cum	5489.00
	2 Height 5 to 10 m	cum	5688.00
	3 Height 10 to 15 M	cum	5938.00
	4 Height Above 15 M	cum	6138.00
F	RCC Grade M25		
	1 Height up to 5 m	cum	6235.00
	2 Height 5 to 10 m	cum	6439.00
	3 Height 10 to 15 M	cum	6745.00
	4 Height Above 15 M	cum	6945.00
G	RCC Grade M30		
	1 Height up to 5 m	cum	6335.00
	2 Height 5 to 10 m	cum	6500.00
	3 Height 10 to 15 M	cum	6750.00
	4 Height Above 15 M	cum	6950.00
H	RCC Grade M35		
	1 Height up to 5 m	cum	6418.00
	2 Height 5 to 10 m	cum	6558.00
	3 Height 10 to 15 M	cum	6768.00
	4 Height Above 15 M	cum	6968.00
I	RCC/PSC Grade M40		
	1 Height up to 5 m	cum	6668.00
	2 Height 5 to 10 m	cum	6808.00
	3 Height 10 to 15 M	cum	7018.00
	4 Height Above 15 M	cum	7218.00
J	RCC/PSC Grade M45		
	1 Height up to 5 m	cum	6693.00
	2 Height 5 to 10 m	cum	6833.00
	3 Height 10 to 15 M	cum	7043.00
	4 Height Above 15 M	cum	7243.00

Item No.	Description	Unit	Rate
K	RCC/PSC Grade M 50		
	1 Height up to 5 m	cum	6718.00
	2 Height 5 to 10 m	cum	6858.00
	3 Height 10 to 15 M	cum	7068.00
	4 Height Above 15 M	cum	7268.00
L	RCC/PSC Grade M 55		
	1 Height up to 5 m	cum	6743.00
	2 Height 5 to 10 m	cum	6883.00
	3 Height 10 to 15 M	cum	7093.00
	4 Height Above 15 M	cum	7293.00
M	RCC/PSC Grade M 60		
	1 Height up to 5 m	cum	6768.00
	2 Height 5 to 10 m	cum	6908.00
	3 Height 10 to 15 M	cum	7118.00
	4 Height Above 15 M	cum	7318.00
13.2	Supplying, fitting and placing HYSD bar reinforcement in sub-structure complete as per drawing and technical specifications and as per relevant clause of section 1600.		
	FE 500	MT	80503.00
	FE 500D/ FE 550/ FE 550D	MT	81530.00
13.8	Supplying, fitting and placing Mild steel reinforcement complete in sub-structure as per drawing and technical specification and as per relevant clause of section 1600.	tonne	73966.00
13.9	Providing weep holes in Brick masonry/Plain/Reinforced concrete abutment, wing wall/return wall with 100 mm dia AC pipe, extending through the full width of the structure with slope of 1V :20H towards drawing face. Complete as per drawing and Technical specifications	metre	185.00
13.10	Back filling behind abutment, wing wall and return wall complete as per drawing and Technical specification and as per relevant clauses 305 of specifications and as per appendix 6 of IRC-78.		
	A Granular material	cum	665.00
	B Sandy material	cum	1193.00
13.11	Providing and laying of Filter media with granular materials/stone crushed aggregates satisfying the requirements laid down in clause 2504.2.2 of MoRTH specifications to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided behind entire surface after abutment, return wall and wing wall to the full height compacted to a firm condition complete as per drawing and technical specification.	cum	750.00
13.12	Supplying, fitting and fixing in position true to line and level sliding plate bearing with PTFE surface sliding on stainless steel complete including all accessories as per drawing and Technical Specifications and BS: 5400, section 9.1 & 9.2 (for PTFE) and clause 2004 of MoRTH Specifications.	tonne capacity	266.00

Item No.	Description	Unit	Rate
13.13	Supplying, fitting and fixing in position true to line and level elastomeric bearing conforming to IRC: 83 (Part-II) section IX and clause 2005 of MoRTH specifications complete including all accessories as per drawing and Technical Specifications.	cubic centimetre	0.86
13.14	Supplying, fitting and fixing in position true to line and level sliding plate bearing with stainless steel plate sliding on stainless steel plate with mild steel matrix complete including all accessories as per drawing and Technical Specifications.	tonne capacity	255.00
13.15	Supplying, fitting and fixing in position true to line and level POT-PTFE bearing consisting of a metal piston supported by a disc or unreinforced elastomer confined within a metal cylinder, sealing rings, dust seals, PTFE surface sliding against stainless steel mating surface, complete assembly to be of cast steel/fabricated structural steel, metal and elastomer elements to be as per IRC: 83 part-I & II respectively and other parts conforming to BS: 5400, section 9.1 & 9.2 and clause 2006 of MoRTH Specifications complete as per drawing and approved technical specifications.	tonne capacity	280.00
13.16	Providing and fixing in position bituminous paper bearing for slabs as per approved drawing and confirming to IS:1398.	sqm	48.00

CHAPTER : 14.0

SUPER-STRUCTURE

Item No.	Descriptions	Unit	Rate
14.1	Providing and Placing Reinforced/Prestressed cement concrete in super-structure e/x reinforcement as per drawing and Technical Specification and as per relevant clauses of sections 1500, 1700 and 2300 in		
A	RCC Grade M 20		
	(i) Solid Slab		
	1 Height up to 5 m	cum	5447.00
	2 Height 5 to 10 m	cum	5674.00
	3 Height 10 to 15 m	cum	5901.00
	4 Height Above 15m	cum	6101.00
B	RCC Grade M25		
	(i) Solid Slab		
	1 Height up to 5 m	cum	6034.00
	2 Height 5 to 10 m	cum	6286.00
	3 Height 10 to 15 m	cum	6537.00
	4 Height Above 15m	cum	6737.00
C	RCC Grade M 30		
	(i) For Solid slab & voided slab		
	1 Height up to 5 m	cum	6113.00
	2 Height 5 to 10 m	cum	6368.00
	3 Height 10 to 15 m	cum	6623.00
	4 Height Above 15m	cum	6823.00
	(ii) For Cast in Situ RCC T beam and slab		
	1 Height up to 5 m	cum	6368.00
	2 Height 5 to 10 m	cum	6623.00
	3 Height 10 to 15 m	cum	6878.00
	4 Height Above 15m	cum	7078.00
D	RCC/PSC Grade M35		
	(i) For solid slab & Voided slab		
	1 Height up to 5 m	cum	6155.00
	2 Height 5 to 10 m	cum	6416.00
	3 Height 10 to 15 m	cum	6677.00
	4 Height Above 15m	cum	6877.00
	(ii) For cast in situ RCC T Beam and slab		
	1 Height up to 5 m	cum	6416.00
	2 Height 5 to 10 m	cum	6677.00
	3 Height 10 to 15 m	cum	6937.00
	4 Height Above 15m	cum	7137.00

Item No.	Description	Unit	Rate
E	(iii) For cast in situ Box Girder and balanced cantilever		
	1 Height up to 5 m	cum	7198.00
	2 Height 5 to 10 m	cum	7720.00
	3 Height 10 to 15 m	cum	8241.00
	4 Height Above 15m	cum	8441.00
	(iv) For RCC/PSC I beam, i/c launching	cum	9261.00
	RCC/PSC Grade M 40		
	(v) For solid slab & Voided slab		
	1 Height up to 5 m	cum	6508.00
	2 Height 5 to 10 m	cum	6784.00
	3 Height 10 to 15 m	cum	7059.00
	4 Height Above 15m	cum	7259.00
	(vi) For cast in situ RCC& PSC T Beam and slab		
	1 Height up to 5 m	cum	6784.00
	2 Height 5 to 10 m	cum	7059.00
	3 Height 10 to 15 m	cum	7335.00
	4 Height Above 15m	cum	7535.00
	(vii) For cast in situ Box Girder and balanced cantilever		
	1 Height up to 5 m	cum	7611.00
	2 Height 5 to 10 m	cum	8162.00
	3 Height 10 to 15 m	cum	8714.00
	4 Height Above 15m	cum	8914.00
	(viii) For RCC/PSC I beam, i/c launching	cum	9461.00
F	Note:- (for deck slab rate as per RCC/PSC T Beam and slab)		
	RCC/PSC Grade M 45		
	(i) For solid slab & Voided slab		
	1 Height up to 5 m	cum	6757.00
	2 Height 5 to 10 m	cum	7048.00
	3 Height 10 to 15 m	cum	7339.00
	4 Height Above 15m	cum	7539.00
	(ii) For cast in situ RCC& PSC T Beam and slab		
	1 Height up to 5 m	cum	7048.00
	2 Height 5 to 10 m	cum	7339.00
	3 Height 10 to 15 m	cum	7630.00
	4 Height Above 15m	cum	7830.00
	(iii) For cast in situ Box Girder and balanced cantilever		
	1 Height up to 5 m	cum	7922.00
	2 Height 5 to 10 m	cum	8504.00
	3 Height 10 to 15 m	cum	9087.00

Item No.	Description	Unit	Rate
	4 Height Above 15m	cum	9287.00
	(iv) For RCC/PSC I beam, i/c launching	cum	9661.00
	Note:- (for deck slab rate as per RCC/PSC T Beam and slab)		
	(v) Segment Construction i/c launching	cum	10034.00
G	PSC Grade M 50		
	(i) For cast in situ Box Girder and balanced cantilever		
	1 Height up to 5 m	cum	8162.00
	2 Height 5 to 10 m	cum	8766.00
	3 Height 10 to 15 m	cum	9371.00
	4 Height Above 15m	cum	9571.00
	(ii) For RCC/PSC I beam, i/c launching	cum	9861.00
	Note:- (for deck slab rate as per RCC/PSC T Beam and slab)		
	(iii) Segment Construction i/c launching	cum	10318.00
H	RCC/PSC Grade M 55		
	(i) For cast in situ Box Girder and balanced cantilever		
	1 Height up to 5 m	cum	8629.00
	2 Height 5 to 10 m	cum	9269.00
	3 Height 10 to 15 m	cum	9908.00
	4 Height Above 15m	cum	10108.00
	(ii) For RCC/PSC I beam, i/c launching	cum	10061.00
	Note:- (for deck slab rate as per RCC/PSC T Beam and slab)		
	(iii) Segment Construction i/c launching	cum	10855.00
I	RCC/PSC Grade M 60		
	(i) For cast in situ Box Girder and balanced cantilever		
	1 Height up to 5 m	cum	8679.00
	2 Height 5 to 10 m	cum	9319.00
	3 Height 10 to 15 m	cum	9958.00
	4 Height Above 15m	cum	10158.00
	(ii) For RCC/PSC I beam, i/c launching	cum	10261.00
	Note:- (for deck slab rate as per RCC/PSC T Beam and slab)		
	(iii) Segment Construction i/c launching	cum	10905.00
14.2	Cable and suspension Superstructure	MT	98000.00
	Supply and installation of PE sheated Galvanised strand dia 15.7mm (1860 Mpa), including 5% expected wastage, along with required cable stand by Anchorages, HOPE ducts (Heical Double Layer) filled with petroleum wax filler in the space in between of strands and sheats and other necessary with cuter stay pipe without filling, including all material, manpower, machinery like movable platform for erection of cables, including from traveller with Design, fabrication supply and installation of upto 21m wide form traveler for erection of cables including material such as		

Item No.	Description	Unit	Rate
	steel sections, hydraulic jack with powerpack complete impaction lift/crane post completion of work. Health monitoring by use of magnetic flux with online system operation and maintenance for 10 years testing of material including fatigue test.		
14.3	Bow string/ Composite Girder Superstructure Providing and fixing in position structural steel work for the superstructure of bridges including cutting, riveting, bolting or welding including launching with required lift arrangement as per the approved design and including hoisting in position etc. complete as per section 1900 of specifications. Note:- (for deck slab rate as per RCC/PSC T Beam and slab)	MT	110000.00
14.4	Supplying, fitting and placing HYSD bar reinforcement in super-structure complete as per drawing and technical specifications as per relevant clauses of section 1600 FE 500	tonne	81810.00
	FE 500D/ FE 550/ FE 550D	tonne	82810.00
14.5	High tensile steel wires/strands including all accessories for stressing, stressing operations and grouting complete as per drawing and Technical Specifications and as per relevant clauses of section 1800.	tonne	112185.00
14.6	Providing and laying Cement concrete wearing coat M-30 grade including reinforcement complete as per drawing and Technical Specifications and as per relevant clauses of sections 1500, 1700 and Clause 2702 of specifications..	cum	11685.00
14.7	Mastic Asphalt (Providing and laying 12 mm thick mastic asphalt wearing course on top of deck slab excluding prime coat with paving grade bitumen meeting the requirements given in table 500-29, prepared by using mastic cooker and laid to required level and slope after cleaning the surface, including providing antiskid surface with bitumen precoated fine grained hard stone chipping of 9.5 mm nominal size at the rate of 0.005cum per 10 sqm and at an approximate spacing of 10 cm center to center in both directions, pressed into surface when the temperature of surfaces not less than 100 deg. C, protruding 1 mm to 4 mm over mastic surface, all complete as per clause 515 and 2702 of specifications.)	sqm	334.00
14.8	Construction of RCC railing with precast rails and cast in situ vertical post of M30 Grade, aggregate size not exceeding 12 mm, true to line and grade, tolerance of vertical RCC post not to exceed 1 in 500, centre to centre spacing between vertical post not to exceed 2000 mm, leaving adequate space between vertical post at expansion joints of superstructure for expansion, complete as per approved drawings and technical and as per relevant clauses of sections 1500, 1600, 1700 and clause 2703 of specifications (as per MoST specification drawing SD/202 or SD/305)	metre	2064.00
14.9	Construction of RCC railing with precast rails and cast in situ vertical post of M30 Grade in-situ with 20 mm nominal size aggregate, true to line and grade, tolerance of vertical RCC post not to exceed 1 in 500, centre to centre spacing between vertical post not to exceed 2000 mm, leaving adequate space between vertical post at expansion joints of superstructure for expansion, complete as per approved drawings and technical specifications and as per relevant clauses of sections 1500, 1600, 1700 and clause 2703 of specifications (as per MoST specification drawing SD/201 or SD/304)	metre	1999.00

Item No.	Description	Unit	Rate
14.10	Providing, fitting and fixing mild steel railing complete as per drawing and Technical Specification and as per relevant clauses of section 1900 and 2700.	metre	3568.00
14.11	Crash Barriers for Bridge provision of an Reinforced cement concrete M40 crash barrier at the bridge decks & approaches to bridge structures, constructed with Reinforced Cement concrete with HYSD reinforcement Conforming MoRT&H Specification and as per details given IRC-S including dowel bars, excluding reinforcement expansion joints filled with pre- moulded asphalt filler board etc. and approved drawing and at locations directed by the Engineer, all as specified.	Cum	7031.00
14.12	Drainage Spouts complete as per MOST standard drawing and Technical specification and as per clause 2705 of specifications.	each	1311.00
14.13	PCC M15 Grade leveling course below approach slab complete as per drawing and Technical specification and as per relevant clauses of section 1700.	cum	4664.00
14.14	Reinforced cement concrete non-structural approach slab (Grade of concrete M 30) as per MOST standard drawing including reinforcement and formwork complete as per drawing and Technical specification and as per relevant clauses of section 1500, 1600, 1700 and clause 2704 of specifications.	cum	9683.00
14.15	Providing anti-corrosive treatment to HYSD reinforcement with Fusion Bonded Epoxy Coating (FBEC) Note:- This item shall be executed only after prior approval of C.E. The measurement of this item shall be taken and recorded by the E.E.	tonne	25343.00
14.16	Providing and fixing Helical pipes in voided concrete slabs including 20mm dia tie rod and sealing joints etc. as per section 1700 and 1800.		
	A 550 mm dia	Meter	1975.00
	B 600 mm Dia.	Metre	2050.00
	C 800 mm dia	Meter	2370.00
14.17	Painting on concrete surface Providing and applying 2 coats of water based cement paint to unplastered concrete surface after cleaning the surface of dirt, dust, oil, grease, efflorescence and applying paint @ of 1 litre for 2 Sq.m.	metre	77.00
14.18	Burried Joint Providing and laying a burried expansion joint, expansion gap being 20 mm, covered with 12 mm thick, 200 mm wide galvanised weldable structural steel plate as per IS: 2062, placed symmetrical to centre line of the joint, resting freely over the top surface of the deck concrete, welding of 8 mm dia. 100 mm long galvanised nails spaced 300 mm c/c along the centre line of the plate, all as specified in clause 2604.	metre	6617.00
14.19	Filler joint		
	(i) Providing & fixing 2 mm thick corrugated copper plate in expansion joint complete as per drawing & Technical Specification.	metre	3664.00
	(ii) Providing & fixing 20 mm thick compressible fibre board in expansion joint complete as per drawing & Technical Specification.	sqm	457.00

Item No.	Description	Unit	Rate
	(iii) Providing and fixing in position 20 mm thick premoulded joint filler in expansion joint for fixed ends of simply supported spans not exceeding 10 m to cater for a horizontal movement upto 20 mm, covered with sealant complete as per drawing and technical specifications.	metre	149.00
	(iv) Providing and filling joint sealing compound as per drawings and technical specifications with coarse sand and 6% bitumen by weight	metre	26.00
14.20	Asphaltic Plug joint Providing and laying of asphaltic plug joint to provide for horizontal movement of 25 mm and vertical movement of 2 mm, depth of joint varying from 75 mm to 100 mm, width varying from 500 mm to 750 mm (in traffic direction), covered with a closure plate of 200mm x 6mm of weldable structural steel conforming to IS: 2062, asphaltic plug to consist of polymer modified bitumen binder, carefully selected single size aggregate of 12.5 mm nominal size and a heat resistant foam caulking/backer rod, all as per approved drawings and specifications.	metre	1258.00
14.21	Elastomeric Slab Steel Expansion Joint Providing and laying of an elastomeric slab steel expansion joint, catering to right or skew (less than 20 deg., moderately curved with maximum horizontal movement upto 50 mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation and clause 2606 of MoRTH specifications for road & bridge works.	metre	13910.00
14.22	Compression Seal Joint Providing and laying of compression seal joint consisting of steel armoured nosing at two edges of the joint gap suitably anchored to the deck concrete and a preformed chloroprene elastomer or closed cell foam joint sealer compressed and fixed into the joint gap with special adhesive binder to cater for a horizontal movement upto 40 mm and vertical movement of 3 mm.	metre	8198.00
14.23	Strip Seal Expansion Joint Providing and laying of a strip seal expansion joint catering to maximum horizontal movement upto 70 mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation.	metre	5532.00
14.24	Modular Strip / Box Seal Joint Providing and laying of a modular strip Box steel expansion joint including anchorage catering to a horizontal movement beyond 70 mm and upto 140mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation.	metre	36535.00
14.25	Modular Strip / Box Seal Joint Providing and laying of a modular strip box seal expansion joint catering to a horizontal movement beyond 140mm and upto 210mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation.	metre	47294.00

Item No.	Description	Unit	Rate
14.26	Testing of span of bridge for deflection due to live load with platforms for loading arrangements apparatus for measurement including unloading etc. complete as per approved drawing.	tonne	905.00
14.27	Providing and fixing in position structural steel work for the superstructure of bridges including cutting, riveting, bolting or welding as per the approved design and including hoisting in position etc. complete as per section 1900 of specifications.	MT	84739.00
14.28	Providing and fixing in position Marble Plates of size 0.9 m. x 1.2 m. with inscribed details as per detailed drawings.	each	1521.00
14.29	Providing and fixing and erecting 40mm dia steel pipe (medium weight) railing in 3 rows on steel channel ISMC-100mmx50mm and 0.95 in height and fixed at 1.8m. center to center and duly painted etc. complete as per standard drawing No.STD-33R, dtd.11.05.1987 of MP Rajya Setu Nirman Nigam Bhopal.	RM	1564.00
14.30	Providing and Fixing Polycarbonate Noise Barrier having solid Polycarbonate sheet thickness not less than 8 mm shall be UV stable, weather resistant, sound insulation shall not be less than 32 dB and meets the requirement of ZTV-LSW06, EN 1793 and EN 1794. Sheet shall be fixed with steel channel of steel I-section 92x104mm, height-2.0 m Z-frame with EPDM Rubber Gasket. The whole assembly shall be fixed with MS Base plate size 220x220x16mm with 4 numbers anchor fastener- M16x250 Each Z- frame shall have spacing of 2.0 m which should be grouted with Epoxy. Steel work shall be well painted with primer etc. as per the direction of Engineer-in-charge.	Sqm	13775.00

CHAPTER : 15.0

RIVER TRAINING AND PROTECTIONWORKS

Item No.	Descriptions	Unit	Rate
15.1	Providing and laying boulders apron on river bed for protection against scour with stone boulders weighing not less than 40 kg each complete as per drawing and Technical specification.		
A	Boulder laid dry without wire crates.	cum	2211.00
15.2	Boulder apron laid in wire crates (Providing and laying of boulder apron laid in wire crates made with 4mm dia GI wire conforming to IS: 280 & IS:4826 in 100mm x 100mm mesh (weaved diagonally) including 10% extra for laps and joints laid with stone boulders weighing not less than 40 kg each.)	cum	2413.00
15.3	Cement concrete blocks (size 0.5 x 0.5 x 0.5 m) (Providing and laying of apron with cement concrete blocks of size 0.5x0.5x0.5 m cast in-situ and made with nominal mix of M-15 grade cement concrete with a minimum cement content of 250 kg/cum as per IRC: 21-2000.)	cum	4947.00
15.4	Providing and laying Pitching on slopes laid over prepared filter media including boulder apron laid dry in front of toe of embankment complete as per drawing and Technical specifications		
A	Stone/Boulder	cum	2211.00
B	Cement Concrete blocks of size 0.3x0.3 x0.3 m cast in cement concrete of Grade M15	cum	4947.00
15.5	Providing and laying suitable designed Filter material underneath pitching in slopes complete as per drawing and Technical specification	cum	750.00
15.6	Geotextile Filter (Laying of a geotextile filter between pitching and embankment slopes on which pitching is laid to prevent escape of the embankment material through the voids of the stone pitching/cement concrete blocks as well as to allow free movement of water without creating any uplift head on the pitching.)	sqm	234.00
15.7	Providing and laying Flooring complete as per drawing and Technical specifications laid over cement concrete bedding.		
A	Rubble stone laid in cement mortar 1:3	cum	5755.00
B	Cement Concrete blocks Grade M15	cum	6515.00
C	Cement Concrete Grade M15	cum	4850.00
15.8	Dry rubble Flooring	cum	2608.00
15.9	Curtain wall complete as per drawing and Technical specification		
A	Stone masonry in cement mortar (1:3)	cum	5244.00
B	Cement concrete Grade M15	cum	4850.00

Item No.	Descriptions	Unit	Rate
15.10	Flexible Apron :Construction of flexible apron 1 m thick comprising of loose stone boulders weighing not less than 40 kg beyond curtain wall.	cum	2279.00
15.11	Gabian Structure for Retaining Earth (Providing and construction of a gabain structure for retaining earth with segments of wire crates of size 7 m x 3 m x 0.6 m each divided into 1.5 m compartments by cross netting, made from 4 mm galvanised steel wire @ 32 kg per 10 sqm having minimum tensile strength of 300 Mpa conforming to IS:280 and galvanizing coating conforming to IS:4826, woven into mesh with double twist, mesh size not exceeding 100 x 100 mm, filled with boulders with least dimension of 200 mm, all loose ends to be tied with 4 mm galvanised steel wire)	cum	2400.00
15.12	Gabian Structure for Erosion Control, River Training Works and Protection works (Providing and constructing gabain structures for erosion control, river training works and protection works with wire crates of size 2 m x 1 m x 0.3 m each divided into 1m compartments by cross netting, made from 4 mm galvanised steel wire @ 32 kg per 10 sqm having minimum tensile strength of 300 Mpa conforming to IS:280 and galvanizing coating conforming to IS:4826, woven into mesh with double twist, mesh size not exceeding 100 mm x 100 mm, filled with boulders with least dimension of 200 mm, all loose ends to be securely tied with 4 mm galvanised steel wire.)	cum	2964.00

CHAPTER : 16.0

REPAIR AND REHABILITATION

Item No.	Descriptions	Unit	Rate
16.1	Removal of existing cement concrete wearing coat including its disposal complete as per Technical specification without causing any detrimental effect to any part of the bridge structure and removal of dismantled material with all lifts and lead upto 1000m (Thickness 75 mm)	sqm	255.00
16.2	Removal of existing asphaltic wearing coat comprising of 50 mm thick asphaltic concrete laid over 12 mm thick mastic asphalt including disposal with all lift and lead upto 1000m.	sqm	191.00
16.3	Guniting concrete surface with cement mortar applied with compressor after cleaning surface and spraying with epoxy complete as per Technical specification	sqm	1422.00
16.4	Providing and inserting nipples with approved fixing compound after drilling holes for grouting as per Technical specifications including subsequent cutting/removal and sealing of the hole as necessary of nipples after completion of grouting with Cement/Epoxy	each	117.00
16.5	Sealing of cracks/porous concrete by injection process through nipples/Grouting complete as per Technical specification.		
A	Cement Grout	kg	65.00
B	Cement mortar (1:1) Grouting	kg	159.00
16.6	Patching of damaged concrete surface with polymer concrete and curing compounds, initiator and promoter, available in present formulations, to be applied as per instructions of manufacturer and as approved by the Engineer.	sqm	1791.00
16.7	Sealing of crack / porous concrete with Epoxy Grout by injection through nipples complete as per clause 2803.1.	kg	1583.00
16.8	Applying epoxy mortar over leached, honey combed and spalled concrete surface and exposed steel reinforcement complete as per Technical specification	sqm	952.00
16.9	Removal of defective concrete, cleaning the surface thoroughly, applying the shotcrete mixture mechanically with compressed air under pressure, comprising of cement, sand, coarse aggregates, water and quick setting compound in the proportion as per clause 2807.1., sand and coarse aggregates conforming to IS: 383 and table 1 of IS: 9012 respectively, water cement ratio ranging from 0.35 to 0.50, density of gunite not less than 2000 kg/cum, strength not less than 25 Mpa and workmanship conforming to clause 2807.6.	sqm	491.00
16.10	Providing and laying in situ/ready mix M35 grade RCC jacketing work around the existing piers of bridges etc. complete. (With fully automatic micro processor based PLC with SCADA enabled concrete batch mix plant/ pan mixer with fine aggregates of required specification (VSI sand finely washed etc.) height of 8 to 10 meter)	Cubic Meter	6509.00
16.11	Applying pre-packed cement based polymer mortar of strength 45 Mpa at 28 days for replacement of spalled concrete	sqm	135.00
16.12	Epoxy bonding of new concrete to old concrete	sqm	1129.00

Item. No.	Descriptions	Unit	Rate
16.13	Supply, Drilling/ Cleaning Hole and injecting hilti make ETA approved RE 500 V3 chemical excluding reinforcement.	Nos.	400.00
16.14	Providing and fixing of carbon fiber sheet of 430 GSM with adhesive including of hanging scaffolding of all manpower and equipment's complete in all respect..	Sqm	8986.00
16.15	Strengthening structural elements by providing & fixing CARBON FIBER (Make sika or BASF or FOSROC or equivalent) surface preparation: Grinding concrete substrate, cleaning it with wire brush removing oil, laitance if present, rounding sharp edges to min 25mm radius etc. complete. Profiling: providing & Applying compatible Mbrace primer on prepared substrate, Filling the holes and uneven surface with high strength epoxy putty etc. complete IF required. Wrapping: Providing & Applying first coat of saturant, cutting the carbon fiber sheet to size, wrapping the fiber sheet to structural element at desired orientation using tamping roller to avoid and air voids etc. complete Sand Pasting: Providing & Applying second coat of saturant after min. 12 hrs. rectify air voids if any paste the rive sand on it to make surface rough to take any further finishes (Mode of measurement: Per sq.mt of Mbrace CF 400 sheet applied and not surface area of concrete application & Quantity will be measured including wastage) The rate includes all type of material, application, equipment & scaffolding etc. complete, Rate is applicable for all height & level.	Sqm	5750.00
16.16	Providing external prestressing with high tensile steel wires/strands including drilling for passage of prestressing steel, all accessories for stressing and stressing operation and grouting complete as per drawing and Technical specification	tonne	359039.00
16.17	Lifting of super-structure of bridge for resetting if required/refixing of new bearings including removal of old bearings and including all higher and running expenses of all plants, jacks, machines and equipments temporary supports, required for keeping the super-structure in lifted position for completing the operation, lowering of super-structure on bearings, without causing any detrimental effect to any part of the bridge structure complete but excluding cost of replaced bearings.		
a)	Span upto 20m	Per Span	62590.00
b)	Span beyond 20m and upto 30m	Per Span	75790.00
c)	Span beyond 30m	Per Span	88990.00

Item No.	Description	Unit	Rate
16.18	Providing and fixing collapsable M.S. railing of channel of size 75x40x6mm length 2.50 m. at bottom and two nos. vertical post height 0.90 m. with top angle size 50x50x6mm and cross flat size 40x06mm diagonally fixed and braced with nut and bolts dully painted in two coats with synthetic enamel paint and grouted on existing kerbs i/c necessary construction of RCC M-20 block of size 0.50x0.45x0.20 m. complete as per approved drawings	RM	3001.00
16.19	Replacement of expansion Joint complete as per drawing. Cost of expansion joint to be paid separately.	RM	292.00
16.20	Removal and refixing of existing Pipe railing before and after rains including transportation of material from bridge to store place which is provided by the department as per under guidance of department.	RM	200.00

CHAPTER : 17.0

**SURVEY INVESTIGATION
AND
PREPRATION OF DPR**

Item No.	Descriptions	Unit	Rate
17.1	Survey and investigation and preparation of DPR for road work with chain and compass, auto level, theodolite or total station i/c fixing of permanent benchmark and also fixing of bench mark on all the permanent structures, along the alignment, like boundary wall, electrical poles etc. Also marking of locations of boundary wall, electric poles, telephone poles, trees etc. in the road plan, collection and submission of existing inventory of the road all along the alignment conducting survey @ 20 metre interval for L-section and for single lane X-section interval will be @ 0.75, 1.25, 1.875, 2.60, 3.75, 4.50, 5.50 and 6.50 metre on both side of centre line for two lane/ four lane interval for x-section shall be as specified in MORT&H Specifications. Data collected as specified above are required to be submitted in both hard and soft copies, L-section, X-section and plan is required to be submitted in the shape of drawing sheets drawn with the help of auto plotter. Soil samples @ every 500 metre or wherever soil appears to change its properties are required to be collected and soil investigation for LL, PL, swelling index and CBR are to be conducted and result too be submitted along with the project report. Job also includes collection of data for traffic census, fixing of RTL, getting it approved from Engineer-in-Charge and accordingly submission of pavement design in accordance with relevant clauses of IRC. Preparation of estimate complete and submission of same in eight copies duly spiral binded.		
	i) For single lane road	Km.	6600.00
	ii) For two lane road	Km.	7300.00
	iii) For four lane road	Km.	8200.00
17.2	Performing detailed survey and investigation and collection of hydraulic data (essential design data as per IRC special publication No.13 guidelines for small bridges and culvert) catchment area, L-section of road and nalla, cross-section of nalla at the point of crossing at upstream and down stream as well as T.P. section result, ascertaining and making of HFL/OFL transferring and fixing of pucca bench mark at site etc. complete i/c of all necessary material and labour required for survey work after collection of all data, prepare all drawing, estimate with computer in five copies, duly spiral binded.		
	a) For catchment area less than 1.25 Sq.Km.	Each	3124.00
	b) For catchment area 1.25 to 2.50 Sq.Km.	Each	3806.00
	c) For catchment area beyond then 2.50 Sq.Km.	Each	4598.00
17.3	Survey of flyover/ROB bridge in 2/4 lane with total station	M	50.00

Item No.	Description	Unit	Rate
17.4	Preparation 2/4 lane Bridge of GAD by autocad and analysis/detailed survey data, submission of the project duly typed & coloring of autocad prints, site plan and other drawings in 5 copies etc. complete. And all types of compliance if required from Department. (Excluding taking trail bores and contouring)		
	(i) Slab Culvert	Each	1000.00
	(ii) Minor Bridge	Each	2500.00
	(iii) Major Bridge	Each	4000.00
	(iv) ROB	Each	10000.00
	(v) Flyover upto 2.00 km	Each	15000.00
	(vi) Flyover 2.00 to 5 km	Each	20000.00
	(vii) Flyover above 5.00 km	Each	25000.00

CHAPTER : 18.0

VIDEO PHOTOGRAPHY

Item No.	Descriptions	Unit	Rate
18.1	Providing and carrying out video shooting of roads, bridges, buildings, other programmes including hiring of vehicle equipments for video shooting, titling, lightening, mixing, lettering, editing, including cost of two colour CDs of approved makes and quality etc. complete.		
	i) Within 50 Kms.	Per day	2500.00
	ii) Beyond 50 kms.	Per day	2700.00
	iii) Work upto 5 hours per day only.	Per day	1500.00
18.2	Shooting of still photographs outdoor and indoor of construction and other works of building, bridges, roads etc. at any distances.		
	i) Post Card size	3 Nos.	60.00
	ii) 4"x6" size	3 Nos.	85.00
	iii) 5"x7" size	3 Nos.	135.00
	iv) 8"x12" Size (A-4 Size)	3 Nos.	250.00
	v) 20"x30" size (Banner Size)	1 No.	600.00
	Extra Copies :		
	Post Card size	1 No.	8.00
	4"x6" size	1 No.	12.00
	5"x7" size	1 No.	15.00
	8"x12" Size (A-4 Size)	1 No.	50.00
	20"x30" size (Banner Size)	1 No.	450.00
18.3	Drone Survey with required Accessories and prepare video film as per requirement.	Per day	5000.00

