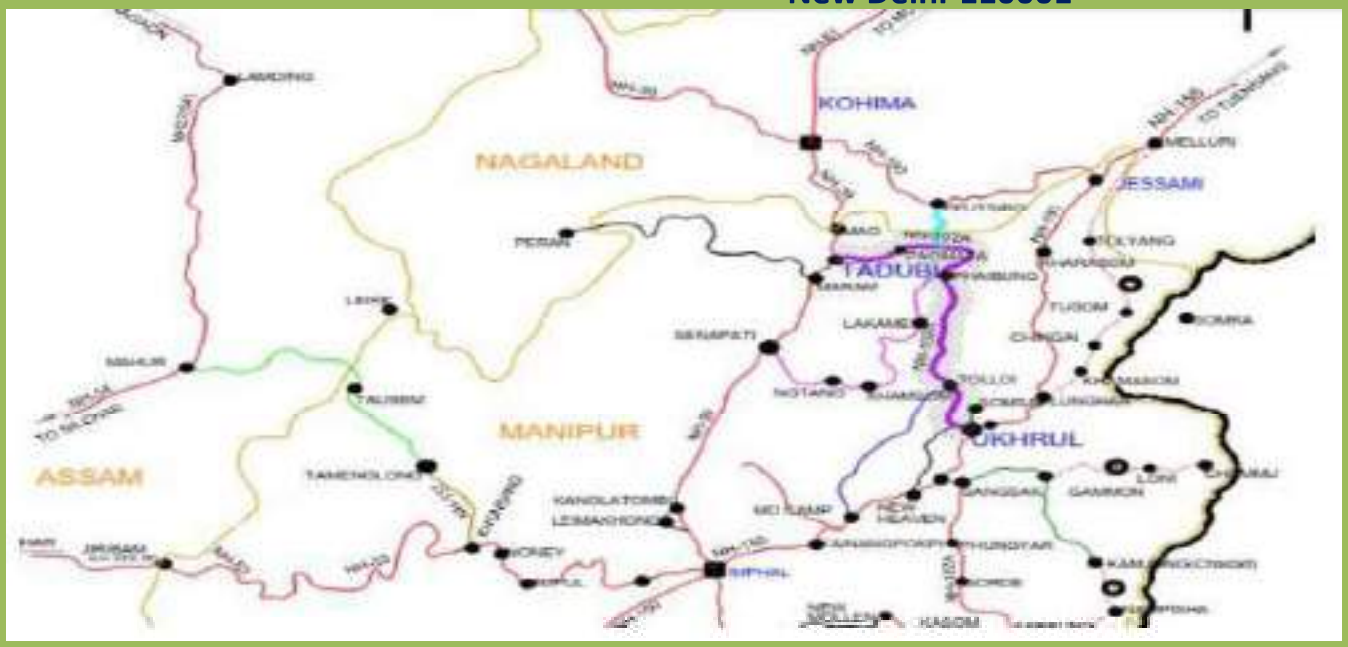
Consultancy Services for preparation of Feasibility Study and Detailed Project Report for Two laning with Hard shoulder of Ukhrul – Toloi - Tadubi section of NH-102A (115 km) in the State of Manipur on EPC mode

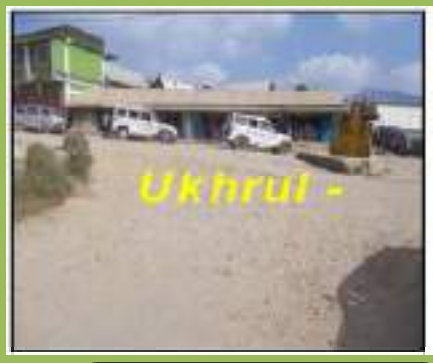
STAGE: IV

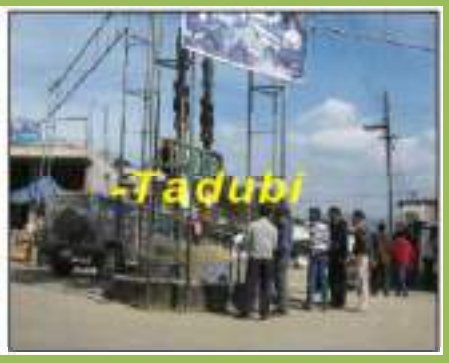
PACKAGE – IV
DESIGN CH:
81+870 KM TO
105+825 KM

FINAL DETAILED PROJECT REPORT
VOLUME – V: TECHNICAL SPECIFICATION
VOLUME – VI: RATE ANALYSIS
VOLUME – VII: COST ESTIMATE
VOLUME – VIII: BILL OF QUANTITY

National Highways & Infrastructure Development Corporation Ltd.
PTI Building, 3rd Floor, 4, Parliament Street, New Delhi-110001







C. E. Testing Company Pvt. Ltd.
124-A, NSC Bose Road, Kolkata -92

CET/3640/NHIDCL/NH-102A/FDPR Rev: R1 June,2021

Road name- Ukhrul-Tolui-Tadobi road section on NH-102A in the State of Manipur

PKG-IV

(FROM DESIGN CH KM 81+870 to 105+825)

GENERAL ABSTRACT OF COST

Length of Road (KM) : 23.955

DESCRIPTION OF WORKS		TOTAL COST (IN Cr.)	COST PER KM. OF TOTAL ROAD LENGTH (IN Cr.)	% of Cost of Civil Works (% of C)
A.	**ROAD WORKS**			
1	Site Clearance and Dismantling	0.51	0.02	0.28%
2	Earth work ,Subgrade and Erosion control	41.54	1.73	22.79%
3	Sub-Base & Base	41.77	1.74	22.91%
4	Bituminous Courses	10.81	0.45	5.93%
5	Junction Improvement	0.40	0.02	0.22%
6	Traffic signs, Road marking & other road appurtenances	3.54	0.15	1.94%
7	Passenger Shelter	0.17	0.01	0.09%
8	Busbay	0.62	0.03	0.34%
	Drainage and Protective Works			
9	Longitudinal Drains	24.76	1.03	13.58%
10	Retaining wall	10.44	0.44	5.73%
11	Breast wall	20.83	0.87	11.43%
12	Protection Work(Parapet Wall)	0.41	0.02	0.22%
B.	**BRIDGES & CULVERTS**			
13	Culvert	14.55	0.61	7.98%
14	Minor Bridge	8.27	0.35	4.54%
C.	**Utility Shifting**			
	Utility Shifting(Electrical+PHE)	3.69	0.15	2.02%
D.	**COST OF CIVIL WORKS IN LAKHS (AS PER SOR 2018)**	**182.31**	**7.61**	
E.	Escalation @ 3% WPI (3% of A+B Only)	5.36		
F.	**Total Civil Cost (D+E)**	**187.67**	**7.83**	
G.	Maintenance for 5 years, i.e 2.5% on civil cost (F-C)	4.60		
H.	GST @ 12% of (F-C)	22.08		
I.	Contingencies @ 2.8% over Civil Cost (F-C)	5.15		
J.	Supervision Charges @ 3% of (F-C)	5.52		
K	Agency Charges @3% of (F-C)	5.52		
l	Escalation Cost @ 2.5% during Construction Period(For 1.5 Yrs of construction period, No escalation in 1st Year and 2.5% for 0.5 Years)	4.60		
M	**TOTAL CONSTRUCTION COST * (F+G+H+I+J+K+L)=M**	**235.14**	**9.82**	
N	**DEPARTMENTAL COST**			
i	LA & Structure Cost(LA+Structure+Horticulture+Fishery)	71.87		
ii	Forest Clearance & Environment Cost (Forest+Avenue Plantation+Environmental Budget+Muck Disposal)	6.06		
	Sub Total (i+ii)= N	**77.93**		
O	**TOTAL PROJECT COST (M+O+P)=Q**	**313.07**	**13.07**	

C.E. TESTING CO. PVT. LTD. KOLKATA 700 092 124, N.S.C. BOSE ROAD

Contents

Volume-v
Technical Specification

Technical Specification

1.1 General

The Technical specifications covering the materials and the workmanship aspects as well as method of measurements and payments are included in this section. These specifications cover the items of civil and non-civil works coming under scope of this document. All work shall be carried out in conformity with the same. The works shall be executed in accordance with good practices followed for achieving high standards of workmanship, thus ensuring safety and durability of the construction. All codes and standards referred to in these specifications shall be the latest thereof unless otherwise stated.

1.1.1. Inclusive Documents

The provisions of special conditions of contract, those specified elsewhere in the tender document, as well as execution drawings and notes, or other specifications issued in writing by the Engineer shall form part of the technical specifications of this project.

The attention of the contractor is drawn to those clauses of codes which require supporting specification either by the Engineer or by 'Mutual agreement between the supplier and purchaser'. In such cases, it is the responsibility of the tenderer /contractor to seek clarification on any uncertainty and obtain prior approval of the Engineer before taking up the supply/construction. In absence of such prior clarification, the Engineer's choice/design will be final and binding on the contractor without involving separately any additional payment.

1.1.2. Defective Works

All defective works are liable to be demolished, rebuilt and defective materials replaced by the contractor at his own cost. In the event of such works being accepted by carrying out repairs etc. as specified by the Engineer the cost of repairs will be borne by the contractor.

1.2 Site Information

The information given hereunder and provided elsewhere in these documents is given in good faith by the Employer but the Contractor shall satisfy himself regarding all aspects of site conditions and no claim will be entertained on the plea that the information supplied by the Employer is erroneous or insufficient.

1.3.1. Location

The area in which the works are located is mostly Steep terrain.

Ukhrul (NH-150) – Toloi – Tadubi (NH-39) are situated in the district of Ukhrul and senapati, Manipur.

1.5.1. General Climatic Conditions

Ukhrul District is bounded by Myanmar in the East, Chandel District in the South, Imphal East and Senapati Districts in the West and Manipur State in the North. The terrain of the district is hilly with varying heights of 913m to 3114m (MSL). The district HQ Ukhrul is linked with Imphal, the state capital by a NH 150 about 84 Km. By ordinary passenger bus it takes about 3 hours.

The Senapati District is located in the northern part of the state of Manipur. It is bounded on the

east by the Ukhrul District; on the west by Tamenglong District; on the north by the Phek District, state of Manipur; and on the south by the Imphal East and Imphal West Districts. The District is at an altitude varying from 1061 m to 1788 m above sea level. The hills run along the north south direction and gradually slope down towards south and meet the Imphal Valley.

1.2.4 Seismic Zone

The works are located in Seismic Zone V as defined in IRC: 6-2000.

2. GENERAL REQUIREMENTS

The Technical Specifications in accordance with which the entire work described hereinafter shall be constructed and completed by the Contractor shall comprise of the following:

2.1 PART-I: General Technical Specifications

The General Technical Specifications shall be the "SPECIFICATIONS FOR ROAD AND BRIDGE WORKS (FIFTH REVISION, April 2013)", issued by the Ministry of Road Transport & Highways, Government of India and published by the Indian Roads Congress (IRC), with a cross reference to relevant Bureau of Indian Standards (BIS) for materials or other aspects not covered by the IRC.

2.2 PART-II: Deviation of Specifications

The deviation of "SPECIFICATIONS FOR ROAD AND BRIDGE WORKS (FIFTH REVISION, April 2013**)" is mention on Schedule D , civil Work Contract Agreement.**

2.3 Additional Technical Specifications

The Additional Specifications shall comprise of specifications for particular item of works not already covered in PART-I.

2.2.6. Additional Specifications

The following Appendices have been added to the "SPECIFICATIONS FOR ROAD AND BRIDGE WORKS" (FIFTH REVISION, April 20013).

1. Appendix A-1 Painting on Structures with Synthetic Enamel paint for Numbering & Span Details of Bridges / Culverts and water Proof Cement Paint for Parapet, Railing Kerb and Crash Barrier

ADDITIONAL TECHNICAL SPECIFICATION

Appendix A-1:: PAINTING OF STRUCTURES WITH SYNTHETIC ENAMEL PAINT FOR NUMBERING & SPAN DETAILS OF BRIGES / CULVERTS AND WATER PROOF CEMENT PAINT FOR PARAPET, RAILING, KERB AND CRASH BARRIER

1. Painting with Synthetic Enamel Paint

Materials

Synthetic enamel paint confirming to IS : 2932 of approved brand and manufacture and of the required colour shall be used for the top coat and an undercoat of ordinary paint of shade to match the top coat as recommended by the same manufacturer as far as top coat shall be used.

Painting on New Surface

Preparation of surface.

The surface shall be thoroughly cleaned and dusted off. All dirt, mortar droppings and grease shall be thoroughly removed before painting is started. The prepared surface shall have received the approval of the Engineer after inspection , before painting is commenced..

Application: The number of coats including the undercoat shall be as stipulated in the item.

(a) **Under coat:** One coat of the specified ordinary paint of shade suited to the shade of the top coat, shall be applied and allowed to dry overnight. It shall be rubbed next day with the finest grade of wet abrasive paper to ensure a smooth and even surface, free from brush marks and all loose particles dusted off.

(b) **Top Coat:** Two top coats of synthetic enamel paint of desired shade shall be applied after the undercoat is thoroughly dry. Additional finishing coats shall be applied if found necessary to ensure properly uniform glossy surface.

Lettering and Numbering on New Surface:

The letters and numbers for bridges/culverts span and number shall be as per IRC-7-1971. The size of area for painting shall be varied depend upon the numbers and letters. The background area and letters/numbers shall be painted with one prime coat (under coat) and two coats(top coat) of synthetic enamel paint.

Measurement for payment:

The painting of culverts /Bridges numbering and span arrangement shall be measured in number of each side facing traffic .

Rate:

Rate shall include the cost of materials, labour and other operation described above to complete set of letters and numbers required in each side facing traffic.

2. Water Proof Cement Painting

Material:

The water proof cement paint shall be (conforming to IS: 5410) of approved brand and manufacture.

The water cement paint shall be brought to the site of work by the contractor in its original container in sealed condition. The material shall be brought in at a time in adequate to suffice for the whole work or at least a fortnight's work, the material be kept in the joint custody of the Contractor and the Engineer-in-Charge. The empties shall not be removed from the site of work till the relevant item of the work has been completed and permission obtained from the Engineer-in-Charge.

Preparation of Surface :

For New work, the surface shall be thoroughly cleaned of all mortar dropping, dirt, dust, algae, grease and other foreign matter by brushing and washing. Pitting in plaster shall be made good and a coat of waterproof cement paint shall be applied over patches after wetting them thoroughly.

Preparation of mix :

Cement paint shall be mixed in such quantities as can be used up within an hour of its mixing as otherwise the mixture will set and thicken, affecting flow and finish, Cement paint shall be mixed with water in two stages. The first stage shall comprise of 2 parts of cement paint and one part of water stirred thoroughly and allowed to stand for 5 minutes. Care shall be taken to add the cement paint gradually to the water and not vice versa. The second stage shall comprise of adding further one part of water to the mix and stirring thoroughly to obtain a liquid of workable and uniform consistency. In all cases the manufacturer's instructions shall be followed meticulously.

The lids of cement paint drums shall be kept tightly closed when not in use, as by exposure to atmosphere the cement paint rapidly becomes air set due to its hygroscopic qualities.

In case of cement paint brought in gunny bags, once the bag is opened, the contents should be consumed in full on the day of its opening. If the same is not likely to be consumed in full, the balance quantity should be transferred and preserved in an airtight container to avoid its exposure to atmosphere.

Application :

The solution shall be applied on the clean and wetted surface with brushes or spraying machine. The solution shall be kept well stirred during the period of application. It shall be applied on the surface which is on the shady side of the building so that the direct heat of the sun on the surface is avoided. The method of application of cement paint shall be as per manufacturer's specification. The completed surface shall be watered after the day's work.

The second coat shall be applied after the first coat has been set for at least 24 hours. Before application of the second or subsequent coats, the surface of the previous coat shall not be wetted.

For the work, the surface shall be treated with three or more coat of waterproof cement paint as found necessary to get a uniform shade.

For old work, the treatment shall be with one or more coats as found necessary to get a uniform shade.

Precaution:

Water proof cement paint shall not be applied on surfaces already treated with white wash, colour wash, distemper dry or oil bound, varnishes, paints, etc. It shall not be applied on gypsums, wood and metal surfaces.

If water proof cement paint is required to be applied on existing surfaces previously treated with white wash, colour wash, etc., the surface shall be thoroughly cleaned by scrapping off all the white wash, colour was etc., completely. Thereafter, a coat of cement primer shall be applied followed by two or more coats of water proof cement paint.

Measurement for Payment:

The painting shall be measured in square metre of surface area treated.

Rate :

Rate shall include one prime coat and two coats of the paint over the prime coat including cost of all labour and materials involved in all operations described above.

VOLUME - VI

RATE ANALYSIS

SCHEDULE OF RATE

Schedule Of Rate

Sl No	SOR Ref	Item description	Unit	SOR Rate
1	02.01/i	Cutting of Trees, including cutting of trunks, branches and removal of stumps including stacking of serviceable materials within a lead of 100 m. and earth filling in the depression/pit. Girth from 300 mm to 600 mm	Each	388.42
2	02.01/ii	Cutting of Trees, including cutting of trunks, branches and removal of stumps including stacking of serviceable materials within a lead of 100 m. and earth filling in the depression/pit. Girth above 600 mm to 900 mm	Each	716.32
3	02.01/iii	Cutting of Trees, including cutting of trunks, branches and removal of stumps including stacking of serviceable materials within a lead of 100 m. and earth filling in the depression/pit. Girth above 900 mm to 1800 mm	Each	1,360.04
4	02.01/iv	Cutting of Trees, including cutting of trunks, branches and removal of stumps including stacking of serviceable materials within a lead of 100 m. and earth filling in the depression/pit. Girth above 1800 mm to 2700 mm	Each	2,550.68
5	02.01/v	Cutting of Trees, including cutting of trunks, branches and removal of stumps including stacking of serviceable materials within a lead of 100 m. and earth filling in the depression/pit. Girth above 2700 mm	Each	4,287.80
6	02.03/a/i	Clearing and grubbing road land including uprooting rank vegetation, grass, brush shrubs, saplings and trees of girth upto 300 mm, removal of stumps, disposal of unserviceable materials and stacking of serviceable materials and stacking of serviceable materials upto 100m. from road boundary. (by manual means) In area of light jungle	Ha	77,440.00
7	02.03/a/ii	Clearing and grubbing road land including uprooting rank vegetation, grass, brush shrubs, saplings and trees of girth upto 300 mm, removal of stumps, disposal of unserviceable materials and stacking of serviceable materials and stacking of serviceable materials upto 100m. from road boundary. (by manual means) In area of thorny jungle	Ha	103,818.00
8	02.03/b	Clearing and grubbing road land including uprooting rank vegetation, grass, brush shrubs, saplings and trees of girth upto 300 mm, removal of stumps, disposal of unserviceable materials and stacking of serviceable materials and stacking of serviceable materials upto 100m. from road boundary. (by mechanical means)	Ha	59,319.65
9	02.04/i/a	Dismantling upto 1.5m in foundation and/or 1.5m above ground level including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of un-serviceable materials and stacking the serviceable materials within a lead of 100m. a) Lime concrete, cement concrete/lean mix concrete.	cum	591.45

Schedule Of Rate

Sl No	SOR Ref	Item description	Unit	SOR Rate
10	02.04/i/b	Dismantling upto 1.5m in foundation and/or 1.5m above ground level including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of un-serviceable materials and stacking the serviceable materials within a lead of 100m. b)Cement concrete M15 and M20	cum	693.57
11	02.04/i/c	Dismantling upto 1.5m in foundation and/or 1.5m above ground level including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of un-serviceable materials and stacking the serviceable materials within a lead of 100m. c)Pre- stressed/ Reinforced Cement Concrete grade M20 & above	cum	1,739.01
12	02.04/ii/a	Dismantling Brick / Tile work a)In lime	cum	387.20
13	02.04/ii/b	Dismantling Brick / Tile work b)In cement mortar	cum	489.32
14	02.04/ii/c	Dismantling Brick / Tile work c)In mud	cum	346.35
15	02.04/ii/d	Dismantling Brick / Tile work d)Dry brick pitching or brick saling	cum	325.93
16	02.04/iii/a	Dismantling stone masonry a) Rubble stone masonry in lime	Cum	423.46
17	02.04/iii/b	Dismantling stone masonry b) Rubble stone masonry in cement mortar	Cum	489.32
18	02.04/iii/c	Dismantling stone masonry c) Rubble stone masonry in mud	Cum	387.20
19	02.04/iii/d	Dismantling stone masonry d) Dry rubble masonry	Cum	366.78
20	02.04/iii/e	Dismantling stone masonry e) Dismantling stone pitching/dry stone spalls	Cum	423.02
21	02.04/iii/f	Dismantling stone masonry f) In wire crates including opening of crates and stacking crates materials.	Cum	387.20

Sl No	SOR Ref	Item description	Unit	SOR Rate
22	02.04/v	Dismantling upto 1.5m in foundation and/or 1.5m above ground level including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of un-serviceable materials and stacking the serviceable materials within a lead of 100m. steel works in all type of sections upto a height of 5m or above plinth level excluding cutting of rivet A) Including Dismembering	cum	2,027.17
23	02.04/vii/a	Removing hume pipes class NP-3 a) 300mm to 600mm dia	rm	264.99
24	02.04/vii/b	Removing hume pipes class NP-4 b) Above 600mm to 900mm dia	rm	358.77
25	02.04/vii/c	Removing hume pipes class NP-5 c) Above 900mm dia	rm	614.08
26	02.04/viii/a	Scarifying including picking up scarified material and stacking of old serviceable material within a lead of 100m a) Top bituminous surface dressing or premix carpet	sqm	41.43
27	02.04/viii/b	Scarifying including picking up scarified material and stacking of old serviceable material within a lead of 100m c) Stone metal crust, 50mm to 100mm thick by road roller with scarifier along with 20mm,premix carpet/surface dressing	sqm	57.31
28	02.04/viii/d	Scarifying including picking up scarified material and stacking of old serviceable material within a lead of 100m d) Kankar/Gravel metal crust upto 150mm thick with pickaxes.	sqm	41.53
29	02.04/viii/e	Scarifying including picking up scarified material and stacking of old serviceable material within a lead of 100m e)Kandar/Gravel metal crust upto 150 mm thick with power Roller with scarifier	sqm	33.99
30	02.04/viii/f/ii	Scarifying including picking up scarified material and stacking of old serviceable material within a lead of 100m f)Bituminous coarses 50-70mm along with premix Carpet and Surface dressing but without disturbing the base ii)With road roller attatched with scarifier	sqm	57.08
31	02.06	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.	rm	118.94
32	02.08	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	258.70

Sl No	SOR Ref	Item description	Unit	SOR Rate
33	02.4/viii/f/i	Scarifying including picking up scarified material and stacking of old serviceable material within a lead of 100m f)Bituminous coarses 50-70mm along with premix Carpet and Surface dressing but without disturbing the base i)Manual Means	sqm	93.23
34	02/nsc/1	Supplying and laying Hydro Seeding on cutting Surface	sqm	315.00
35	03.01/i/a	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, backfilling the excavation earth to the extent required and utilising the remaining earth locally for road work. Ordinary soil a) Manual Means (Depth upto 3m) a) Manual Means (Depth upto 3m)	cum	408.50
36	03.01/i/b	Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom, backfilling the excavation earth to the extent required and utilising the remaining earth locally for road work. Ordinary soil b) Mechanical Means (Depth upto 3m) b) Mechanical Means (Depth upto 3m)	cum	105.88
37	03.01/ii/a	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, backfilling the excavation earth to the extent required and utilising the remaining earth locally for road work. Ordinary Rock (not requiring blasting) a) Manual Means (Depth upto 3m) a) Manual Means (Depth upto 3m)	cum	510.60
38	03.01/ii/b	Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom, backfilling the excavation earth to the extent required and utilising the remaining earth locally for road work. Ordinary Rock (not requiring blasting) b) Mechanical Means b) Mechanical Means	cum	142.33

Sl No	SOR Ref	Item description	Unit	SOR Rate
39	03.01/iii/a	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, backfilling the excavation earth to the extent required and utilising the remaining earth locally for road work. Hard Rock (requiring blasting) a) Manual Means a) Manual Means	cum	982.17
40	03.01/iii/b	Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom, backfilling the excavation earth to the extent required and utilising the remaining earth locally for road work. Hard Rock (requiring blasting) b) Hard Rock (blasting prohibited) Mechanical Means b) Hard Rock (blasting prohibited) Mechanical Means	cum	1,900.61
41	03.01/iv/a	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, backfilling the excavation earth to the extent required and utilising the remaining earth locally for road work. Marshy soil a) Manual Means a) Manual Means	cum	773.37
42	03.01/iv/b	Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom, backfilling the excavation earth to the extent required and utilising the remaining earth locally for road work. Marshy soil b) Mechanical Means b) Mechanical Means	cum	269.34
43	03.02/i	Earth work in excavation of foundation trenches etc. in drains and channels etc. not exceeding 2.00 metres depth including dressing of bottom and sides of trenches, stacking the excavated soil clear from the edge of excavation including disposal of surplus soil as directed within a lead of 30.00 metres. Ordinary Soil	cum	326.80

Sl No	SOR Ref	Item description	Unit	SOR Rate
44	03.02/ii/a	Earth work in excavation of foundation trenches etc. in drains and channels etc. not exceeding 2.00 metres depth including dressing of bottom and sides of trenches, stacking the excavated soil clear from the edge of excavation including disposal of surplus soil as directed within a lead of 30.00 metres. Blasting work a) Soft rock a) Soft rock	cum	785.74
45	03.02/ii/b	Earth work in excavation of foundation trenches etc. in drains and channels etc. not exceeding 2.00 metres depth including dressing of bottom and sides of trenches, stacking the excavated soil clear from the edge of excavation including disposal of surplus soil as directed within a lead of 30.00 metres. Blasting work b) Hard rock b) Hard rock	cum	1,520.49
46	03.02/iii/a	Earth work in excavation of foundation trenches etc. in drains and channels etc. not exceeding 2.00 metres depth including dressing of bottom and sides of trenches, stacking the excavated soil clear from the edge of excavation including disposal of surplus soil as directed within a lead of 30.00 metres. Chiselling/wedging out of rock (where blasting is prohibited). a) Soft rock a) Soft rock	cum	1,765.25
47	03.02/iii/b	Earth work in excavation of foundation trenches etc. in drains and channels etc. not exceeding 2.00 metres depth including dressing of bottom and sides of trenches, stacking the excavated soil clear from the edge of excavation including disposal of surplus soil as directed within a lead of 30.00 metres. Chiselling/wedging out of rock (where blasting is prohibited). b) Hard rock b) Hard rock	cum	2,647.87
48	03.03/a	Filling in foundation trenches as per drawing and Technical specification a) Sandy Soil	cum	326.10
49	03.03/b	Filling in foundation trenches as per drawing and Technical specification b) Sand Gravell	cum	692.96
50	03.04/i	Earth filling with surplus soil excavated from foundation and taken only from outside of building plinth in 15 cm layers including watering and consolidation lead 30 meters Ordinary Soil	cum	217.49
51	03.12	Construction of Embankment with Material Obtained from Borrow Pits Construction of embankment with approved material obtained from borrow pits with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement of table 300-2	cum	226.26

Sl No	SOR Ref	Item description	Unit	SOR Rate
52	03.13	Construction of Embankment with Material Deposited from Roadway Cutting Construction of embankment with approved materials deposited at site from roadway cutting and excavation from drain and foundation of other structures graded and compacted to meet requirement of table 300-2	cum	160.20
53	03.14/Nsc	Construction of Subgrade and Earthen Shoulders Construction of subgrade and earthen shoulders with approved material obtained from Roadway Cutting with all lifts & leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of table No. 300-2	cum	246.28
54	03.14	Construction of Subgrade and Earthen Shoulders Construction of subgrade and earthen shoulders with approved material obtained from borrow pits with all lifts & leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of table No. 300-2	cum	312.34
55	03.15	Compacting original ground supporting subgrade Loosening of the ground upto a level of 500 mm below the subgrade level, watered, graded and compacted in layers to meet requirement of table 300-2 for subgrade construction.	cum	86.65
56	03.16	Compacting original ground supporting embankment Loosening, leveling and compacting original ground supporting embankment to facilitate placement of first layer of embankment, scarified to a depth of 150mm, mixed with water at OMC and then compacted dry rolling so as to achieve minimum dry density as given in Table 300-2 for embankment construction.	cum	42.00
57	03.17	Stripping and Storing Top Soil Stripping, storing of top soil by road side at 15 m internal and re-application on embankment slopes, cut slopes and other areas in localities where the available embankment material is not conducive to plant growth	cum	302.68
58	03.19	Turfing with Sods Furnishing and laying of the live sods of perennial turf forming grass on embankment slope, verges or other locations shown on the drawing or as directed by the engineer including preparation of ground, fetching of sods and watering	sqm	61.87
59	03.31	Excavation in Hill Area in Soil by Mechanical Means Excavation in soil in hilly area by mechanical means including cutting and trimming of side slopes and disposing of excavated earth with all lifts and lead upto 1000 metres	cum	211.39
60	03.32	Excavation in Hilly Area in Ordinary Rock by Mechanical Means not Requiring Blasting. Excavation in hilly area in ordinary rock not requiring ballasting by mechanical means including cutting and trimming of slopes and disposal of cut material with all lift and lead upto 1000 metres	cum	304.56
61	03.33	Excavation in Hilly Areas in Hard Rock Requiring Blasting Excavation in hilly areas in hard rock requiring blasting, by mechanical means including trimming of slopes and disposal of cut material with all lifts and lead upto 1000 metres.	cum	423.10
62	03/nsc/1	Island and Median Filling From Roadway Cutting	cum	108.52

Sl No	SOR Ref	Item description	Unit	SOR Rate
63	04.01/i	Sub-base with Close Graded Material (Table:- 400-1) Plant Mix Method Construction of granular sub-base by providing close graded Material, mixing in a mechanical mix plant at OMC, carriage of mixed Material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per clause 401 For Grading- II Material	Cum	2,949.87
66	04.01/ii	Sub-base with Close Graded Material (Table:- 400-1) Plant Mix Method Construction of granular sub-base by providing close graded Material, mixing in a mechanical mix plant at OMC, carriage of mixed Material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per clause 401 For Grading-III Material	Cum	2,893.00
69	04.01/Nsc1	Sub-base with Close Graded Material (Table:- 400-1) Plant Mix Method Construction of granular sub-base by providing close graded Material, mixing in a mechanical mix plant at OMC, carriage of mixed Material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per clause 401 For Grading- V Material	Cum	2,997.00
72	04.02/i	Sub-base with Close Graded Material (Table:- 400-1) By Mix in Place Method Construction of granular sub-base by providing close graded material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with vibratory roller to achieve the desired density, complete as per clause 401 For Grading- II Material	Cum	2,413.12
75	04.02/ii	Sub-base with Close Graded Material (Table:- 400-1) By Mix in Place Method Construction of granular sub-base by providing close graded material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with vibratory roller to achieve the desired density, complete as per clause 401 For Grading-III Material	Cum	2,356.25
78	04.03/i	Granular Sub-Base with Coarse Graded Material (Table:- 400- 2) Construction of granular sub-base by providing coarse graded material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with vibratory roller to achieve the desired density, complete as per clause 401 For Grading- II Material	Cum	2,285.30
80	04.03/ii	Granular Sub-Base with Coarse Graded Material (Table:- 400- 2) Construction of granular sub-base by providing coarse graded material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with vibratory roller to achieve the desired density, complete as per clause 401 For Grading-III Material	Cum	2,230.59

Sl No	SOR Ref	Item description	Unit	SOR Rate
82	04.04	Granular Sub-Base with Naturally Occuring Sand Gravel Material Providing, laying, spreading and compacting granular base/sub-base according to lines, grades and cross sections by using naturally occurred sand gravel/conforming to IRC-Grd-II of MOST specification free from organic or other deletereous constituent spreading with motor grader and compacted by rolling with power roller of 8-10 capacity in layers not exceeding 150mm (spread thickness) i/c rolling of the road surface to proper level and grades 30 cm width edging on both side etc. complete as directed by Engineer-in-charge.	Cum	782.55
84	04.06/a	Lime Stabilisation for Improving Subgrade (Laying and spreading available soil in the subgrade on a prepared surface, pulverising, 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 the road roller at OMC to the desired density to form a layer of improved sub grade) By Mechanical Means	Cum	1,652.44
85	04.06/b	Lime Stabilisation for Improving Subgrade (Laying and spreading available soil in the subgrade on a prepared surface, pulverising, 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 the road roller at OMC to the desired density to form a layer of improved sub grade) By Manual Means	Cum	1,662.67
86	04/nsc1	Plant Mix Method (material Reuse) Construction of granular sub-base by providing close graded Material, mixing in a mechanical mix plant at OMC, carriage of mixed Material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per clause 401	Cum	2,063.00
87	05.01/b/a	WBM/Providing, laying, spreading and compacting stone aggregate of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing, rolling with power roller 8-10 tones in stages to proper grade and camber, applying and brooming requisite type of screening & binding materials to fill up the interstices of coarse aggregates, watering and rolling making necessary earthen bund to protect edges, lighting, guarding, barricading and maintenance of diversion etc.	cum	2,216.15
90	05.02	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 uniform layers with paver in sub- base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density.)	Cum	2,965.34
92	05.03	Construction of footpath/separator by providing a 150 mm compacted granular sub base as per clause 401 and 25 mm thick cement concrete grade M15, over laid with pre-cast concrete tiles in cement mortar including provision of all drainage arrangements but excluding kerb channel.	sqm	1,374.51
96	06.01/a	Prime coat (Providing and applying primer coat with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer using mechanical means.) A) On WBM/ WMM Surface @ 0.70-1.00 kg/sqm	sqm	57.54

Schedule Of Rate

Sl No	SOR Ref	Item description	Unit	SOR Rate
97	06.01/b	Prime coat (Providing and applying primer coat with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer using mechanical means.) B) Stabilised Soil Based / Crusher run macadam 0.9 - 1.2kg /sqm	sqm	97.04
98	06.02/i	Tack coat Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor m on the prepared bituminous/ granular surface cleaned with mechanical broom. i) On bituminious Surface @ 0.20 - 0.30 kg/sqm	sqm	15.63
99	06.02/ii	Tack coat Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor m on the prepared bituminous/ granular surface cleaned with mechanical broom. ii) On granular Surface Pre treated with prime Coat @ 0.25 - 0.30 kg/sqm	sqm	17.16
100	06.02/iii	Tack coat Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor m on the prepared bituminous/ granular surface cleaned with mechanical broom. iii) On cement concrete pavement @ 0.300 - 0.35 kg/sqm	sqm	22.22
101	06.06/i	Dense Graded Bituminous Macadam (Providing and laying dense bituminous macadam with 40-60 TPH batch type HMP producing an average output of 35 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.25 % by weight of total mix of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specification clause No. 507 complete in all respects.) for Grading I (40 mm nominal size) Using bitumen 60/70	cum	10,661.33
104	06.06/ii	Dense Graded Bituminous Macadam (Providing and laying dense bituminous macadam with 40-60 TPH batch type HMP producing an average output of 35 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.25 % by weight of total mix of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specification clause No. 507 complete in all respects.) for GradingII(19 mm nominal size) Using bitumen 60/70	cum	10,707.15
107	06.08/i/a	Bituminous Concrete (Providing and laying bituminous concrete with 40-600 TPH batch type hot mix plant producing an average output of 35 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 5.5 % of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 509 complete in all respects) for Grading-I (19 mm nominal size) A) Using Bitumen 60/70	cum	12,064.76

Sl No	SOR Ref	Item description	Unit	SOR Rate
110	06.08/i/b	Bituminous Concrete (Providing and laying bituminous concrete with 40-600 TPH batch type hot mix plant producing an average output of 35 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 5.5 % of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 509 complete in all respects) for Grading-I (19 mm nominal size) B) Using Bitumen CRMB Gr-55	cum	12,622.49
111	06.08/i/c	Bituminous Concrete (Providing and laying bituminous concrete with 40-600 TPH batch type hot mix plant producing an average output of 35 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 5.5 % of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 509 complete in all respects) for Grading-I (19 mm nominal size) C) Using Bitumen PMB 70	cum	15,913.73
112	06.08/ii/a	Bituminous Concrete (Providing and laying bituminous concrete with 40-600 TPH batch type hot mix plant producing an average output of 35 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 5.5 % of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 509 complete in all respects) for Grading-II(13 mm nominal size) A) Using Bitumen 60/70	cum	11,950.36
115	06.08/ii/b	Bituminous Concrete (Providing and laying bituminous concrete with 40-600 TPH batch type hot mix plant producing an average output of 35 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 5.5 % of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 509 complete in all respects) for Grading-II(13 mm nominal size) B) Using Bitumen CRMB Gr-55	cum	15,599.71

Sl No	SOR Ref	Item description	Unit	SOR Rate
116	06.08/ii/c	Bituminous Concrete (Providing and laying bituminous concrete with 40-600 TPH batch type hot mix plant producing an average output of 35 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 5.5 % of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 509 complete in all respects) for Grading-II(13 mm nominal size) C) Using Bitumen PMB 70	cum	15,898.91
117	06.10/A	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. A)Mechanical method using Penetration grade Bitumen and HMP of appropriate capacity not less than 75 tonnes/hour .	Sqm	149.23
119	06.10/C	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. C)Open-Graded Premix Surfacing using cationic Bitumen Emulsion	Sqm	183.17
121	06.12/I	Providing and laying seal coat sealing in the voids in a bituminous surface laid to the specific levels,grade and cross fall using Type A and B Seal Coats Type A	sqm	67.22
122	06.12/II	Providing and laying seal coat sealing in the voids in a bituminous surface laid to the specific levels,grade and cross fall using Type A and B Seal Coats Type B/Providing and Laying of premix sand seal coat with HMP of approprite capacity not less than 75 tonns/hour using crushed stone chipping 6.7mm size and penetration bitumen of suitable grade	sqm	53.67
123	06.16	Mastic Asphalt (Providing and laying 25 mm thick mastic asphalt wearing course with paving grade bitumen meeting the requirements given in table 500-29, prepared by using mastic cooker and laid to required level and slope after cleaning the surface, including providing antiskid surface with bitumen precoated 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 1000C, protruding 1 mm to 4 mm over mastic surface, all complete as per clause 515.)	sqm	1,182.63

Schedule Of Rate

Sl No	SOR Ref	Item description	Unit	SOR Rate
129	06/Nsc1	Providing and laying dense bituminous macadam with 40-60 TPH batch type HMP producing an average output of 35 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.25 % by weight of total mix of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specification clause No. 507 complete in all respects. B) GradingII(19 mm nominal size) iii)Using bitumen 30/40	cum	11,264.00
132	06/Nsc2	Providing and laying bituminous concrete with 40-600 TPH batch type hot mix plant producing an average output of 35 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 5.5 % of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 509 complete in all respects B) Grading-II (13 mm nominal size) iii)Using bitumen 30/40	cum	12,371.00
135	08.01	Precast Cement concrete M20 Kerb including fixing at site	rm	622.79
138	08.02/a	Reinforced cement concrete M15 kilometer stone of standard design fixed in Position including painting and painting letters etc. a) 5th KM stone	each	4,556.84
142	08.02/b	Reinforced cement concrete M15 kilometer stone of standard design fixed in Position including painting and painting letters etc. b) Ordinary kilometer stone	each	2,676.24
146	08.02/nsc	M15 stone of standard design fixed in Position including painting and painting letters etc. Hectometer stone (precast)	each	2,269.00
150	08.04	Reinforced Cement Concrete M15 Boundary pillars of standard design,fixed in position including finishing but excluding painting	each	843.03
153	08.05	Painting two coat after filling the surface with synthetic enamel paint in all shades on new plastered concrete surface.	sqm	93.41
154	08.06	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	85.06
155	08.11/i	Retro- reflectorised Traffic signs Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC :67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing) 90 cm equilateral triangle	each	4,931.35

Sl No	SOR Ref	Item description	Unit	SOR Rate
159	08.11/ii	Retro- reflectorised Traffic signs Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC :67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing) 60 cm equilateral triangle	each	3,621.96
163	08.11/iii	Retro- reflectorised Traffic signs Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC :67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing) 60 cm circular	each	4,440.80
167	08.11/iv	Retro- reflectorised Traffic signs Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC :67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing) 80 mm x 60 mm rectangular	each	5,706.23
171	08.11/v	Retro- reflectorised Traffic signs Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC :67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing) 60 cm x 45 cm rectangular	each	4,249.15
175	08.11/vi	Retro- reflectorised Traffic signs Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC :67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing) 60 cm x 60 cm square	each	5,200.94
179	08.11/vii	Retro- reflectorised Traffic signs Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC :67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing) 90 cm high octagon	each	8,165.25

Schedule Of Rate

Sl No	SOR Ref	Item description	Unit	SOR Rate
183	08.12	Direction and Place Identification signs upto 0.9 sqm size board. (Providing and erecting direction and place identification retro-reflectorised sign asper IRC:67 made of high intensity grade sheeting vide clause 801.3, fixed over aluminium sheeting, 2 mm thick with area not exceeding 0.9 sqm supported on a mild steel single angle iron post 75 x 75 x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 x 45 x 60 cm, 60 cm below ground level as per approved drawing)	sqm	12,223.04
187	08.13	Direction and Place Identification signs with size more than 0.9 sqm size board. (Providing and erecting direction and place identification retro- reflectorised sign asper IRC :67 made of high intensity grade sheeting vide clause 801.3, fixed over aluminium sheeting, 2 mm thick with area exceeding 0.9 sqm supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm, 2 Nos. firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing)	sqm	12,831.40
191	08.14	Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads on Bituminous Surface (Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35 .The finished surface to be level, uniform and free from streaks and holes.)	sqm	1,002.14
192	08.15/a	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 toIRC-79 and the drawings.) a)Cat Eye	Nos	296.53
193	08.15/b	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 toIRC-79 and the drawings.) b)Median Marker	Nos	545.50
194	08.15/c/v	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 toIRC-79 and the drawings.) 120x120 -Road Delineator	each	1,063.19
195	08.15/f/iii	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 toIRC-79 and the drawings.) f)Speed Bumps(500mm x 425mm x 75mm)	Piece	3,078.32

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Sl No	SOR Ref	Item description	Unit	SOR Rate
196	08.17/nsc	RCC Crash Barrier	m	6,947.00
200	08.18/A/a	Metal Beam Crash Barrier 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, 1.8 m high, 1.1 m below ground/road level, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a spacer of channel section 150 x 75 x 5 mm, 330 mm long complete as per clause 810) For post Height of 1.2 m	Rm	2,757.81
201	08.18/A/b	Metal Beam Crash Barrier 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, 1.8 m high, 1.1 m below ground/road level, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a spacer of channel section 150 x 75 x 5 mm, 330 mm long complete as per clause 810) For post Height of 1.5 m	Rm	3,334.08
202	08.18/A/c	Metal Beam Crash Barrier 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, 1.8 m high, 1.1 m below ground/road level, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a spacer of channel section 150 x 75 x 5 mm, 330 mm long complete as per clause 810) For post Height of 1.8 m	Rm	3,591.20
203	08.19	Cable Duct Accross the Road Single row for one utility service	m	3,039.00
204	08.20/ii	Road Markers/Road stud with lense reflector Providing & fixing of road stud 100x100 mm, die-cast in aluminium , resistance to corrosive effect of salt and grit, fitted with lense reflectors, installed in concrete or asphaltic surface by drilling hole 30mm upto a depth of 60mm and bedded in a suitable bituminous grout or epoxy morter, all as per BS 873 part 4:1973 Light Reflecting Lense Type	nos	383.64

Sl No	SOR Ref	Item description	Unit	SOR Rate
205	08.21/i	Road Markers/Road stud with lense reflector Providing & fixing of road stud 100x100 mm, die-cast in aluminium , resistance to corrosive effect of salt and grit, fitted with lense reflectors, installed in concrete or asphaltic surface by drilling hole 30mm upto a depth of 60mm and bedded in a suitable bituminous grout or epoxy morter, all as per BS 873 part 4:1973 Solar light emiiting Diodes	nos	2,595.21
206	08.22	Lighting on BridgesProviding & fixing lighting on Bridges, mounted on steel hollow circular poles of standard specification, 5 m high fixed on parapets with cement concrete, 20 m apart and fitted with sodium vapour lamp	nos	21,165.02
207	08/nsc/2	Convex Mirror For Blind Curve	nos	5,000.00
208	08/nsc/4/a	Overhead Signs Providing and erecting overhead signs with a corrosion resistant 2mm thick aluminium alloy sheet reflectorised with high intensity retro-reflective sheeting of encapsulated lense type with vertical and lateral clearance given in clause 802.2 and 802.3 and installed as per clause 802.7 over a designed support system of aluminium alloy or galvanised steel trestles and trusses of sections and type as per structural design requirements and approved plans A)Truss and Vertical Support with Base plate on foundation column.	Ton	183,662.00
209	08/nsc/4/b	Overhead Signs Providing and erecting overhead signs with a corrosion resistant 2mm thick aluminium alloy sheet reflectorised with high intensity retro-reflective sheeting of encapsulated lense type with vertical and lateral clearance given in clause 802.2 and 802.3 and installed as per clause 802.7 over a designed support system of aluminium alloy or galvanised steel trestles and trusses of sections and type as per structural design requirements and approved plans B)Aluminium Alloy Plate for Over Head Sign	sqm	695.00
210	08/nsc/5	Reinforced Cement Concrete Crash Barrier-Provision 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 MOST 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	m	6,927.00
211	08/nsc/6	Rumble Strips Provision of 15 nos rumble strips covered with premix bituminous carpet, 15-20 mm high at center, 250 mm wide placed at 1 m center to center at approved locations to control speed, marked with white strips of road marking paint.	sqm	1,224.98
212	09.01/nsc1	Laying Reinforced Cement Concrete Pipe NP4 / Prestressed Concrete Pipe on First Class Bedding in Single Row . B)1200 mm dia	Rm	11,638.00
215	10.02/Nsc	Plain cement concrete M-15 mix with stone aggregate 20mm. Nominal size mechanically mixed and vibrated in foundation depth of 1.5m. below ground / bed level and or 1.5m. above ground/bed level i/c formrvork. At Protection	cum	7,496.35

C.E. TESTING CO. PVT. LTD. KOLKATA 700 092 124, N.S.C. BOSE ROAD

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C.E. TESTING CO. PVT. LTD. KOLKATA 700 092 124, N.S.C. BOSE ROAD

Sl No	SOR Ref	Item description	Unit	SOR Rate
218	10.06/a	Steel reinforcement for R.C.C. works including bending, binding and placing in position. A) for Sub-Structure	Ton	72,983.59
219	10.06/b	Steel reinforcement for R.C.C. works including bending, binding and placing in position. A) for Super-Structure	Ton	72,983.59
220	10.11	Random rubble masonary (uncoursed) in cement sand mortar 1:3 in foundation upto a depth of 1.5m. and 1.5m. above ground/bed level.	cum	5,662.85
221	10.16	Cement Plaster 12mm Thick in Cement Morter 1:3	sqm	223.49
222	10.19	Dry Boulder pitching	cum	1,701.75
223	10.20/a	Providing and filling in foundation trenches and at the back of abutments, wing walls etc. and below pipe bed in layers not exceeding 150mm thick including watering and compacting a)Good Sandy Soil free from organic material	cum	785.50
224	10.20/b	Providing and filling in foundation trenches and at the back of abutments, wing walls etc. and below pipe bed in layers not exceeding 150mm thick including watering and compacting b)Selected Granular Material in Filling	cum	1,174.31
225	10.20/c	Providing and filling in foundation trenches and at the back of abutments, wing walls etc. and below pipe bed in layers not exceeding 150mm thick including watering and compacting c)Filler Media behind abutment ,wing and return wall	cum	1,157.28
226	10.20	Plain cement concrete M-15 mix with stone aggregate 20mm. Nominal size mechanically mixed and vibrated in foundation depth of 1.5m. below ground / bed level and or 1.5m. above ground/bed level i/c formrvork.	cum	7,496.35
229	10.23/a	Reinforced Cement Concrete M-30 Mixed with Stone aggregate 20 mm nominal soze mechanical mixed and vibrated for reinforced concrete work in slab excluding steel reinforcement but including centering and shuttering and laied in position. a)For Sub-Structure	cum	14,404.16
232	10.23/b	Reinforced Cement Concrete M-30 Mixed with Stone aggregate 20 mm nominal soze mechanical mixed and vibrated for reinforced concrete work in slab excluding steel reinforcement but including centering and shuttering and laied in position. b)For Super-Structure	cum	14,404.16
235	10.24/a	Laying Reinforced Cement Concrete Pipe(Hume Pipe)/Prestressed Concrete Pipe on First Class Beading in Single ROW(Cost of NP 4 To be Paid Seperately). This includes fixing collar with cement morter 1:2 but excluding excavation,protection works,backfilling,concrete and masonry works in heads walls and parapet a)1000 mm dia	m	711.07

Schedule Of Rate

Sl No	SOR Ref	Item description	Unit	SOR Rate
236	10.24/b	Laying Reinforced Cement Concrete Pipe(Hume Pipe)/Prestressed Concrete Pipe on First Class Beading in Single ROW(Cost of NP 4 To be Paid Seperately). This includes fixing collar with cement morter 1:2 but excluding excavation,protection works,backfilling,concrete and masonry works in heads walls and parapet b)1200 mm dia	m	877.98
237	12/Nsc1	Geo-synthetics and Reinforced Earth With reinforcing elements of synthetic geogrids	Sqm	512.00
238	12/Nsc2	Geo-synthetics and Reinforced Earth Facing elements of RCC	Sqm	3,873.00
242	23/Nsc1	560 mm Dia cover with frame(Heavy Duty)[Ref: Delhi CPWD SOR 2007 Code 3860]	Nos	9,160.80
243	23/Nsc2	Rectangular shape 600x450 mm precast R.C.C. manhole cover(CPWD; Delhi SOR 2014)	Each	958.00
244	24/i/b	Galvanised Mild steel J /L hook	kg	120.00
245	40	Gextextile material (fine net)	sqm	25.50
246	9.2/b/Nsc	Laying Reinforced Cement Concrete Pipe(Hume Pipe)/Prestressed Concrete Pipe on First Class Beading in Single ROW(Cost of NP 4 To be Paid Seperately). This includes fixing collar with cement morter 1:2 but excluding excavation,protection works,backfilling,concrete and masonry works in heads walls and parapet b)1200 mm dia	m	11,638.00

Schedule Of Rate

Sl No	SOR Ref	Item description	Unit	SOR Rate
1	10.06/Nsc	Supply, fabrication, delivery at bridge site and erection of structural steel works as per IS 2062, including two coats of primer, one at shop and the other at site and two coats of aluminium paints including all labour, material, consumables etc. Structural steel	Ton	82,834.00
2	10.20/a	Providing and filling in foundation tranches and at the back of abutments, return walls and below pipe bed in layers not excedding 150 mm thick including watering and compacting a) good sandy soil free from organic material	cum	785.50
3	13.01/a/i/Nsc	Earth work in excavation Ordinary soil For Protection Work	cum	218.93
4	13.01/a/i	Earth work in excavation of foundation for structures as per drawing and technical specification Ordinary soil Depth upto 3 m	cum	218.93
5	13.01/a/ii	Earth work in excavation of foundation for structures as per drawing and technical specification Ordinary soil Depth 3 m to 6 m	cum	294.28
6	13.01/a/iii	Earth work in excavation of foundation for structures as per drawing and technical specification Ordinary soil Above 6 m depth	cum	409.42
7	13.01/b/i	Earth work in excavation of foundation for structures as per drawing and technical specification Ordinary rock if blasting is resorted to	cum	312.75
8	13.01/b/ii	Earth work in excavation of foundation for structures as per drawing and technical specification Ordinary rock if blasting is not resorted to	cum	209.22
9	13.01/c	Hard rock (requiring blasting)	cum	765.10
10	13.01/d	Hard rock (blasting prohibited)	cum	670.52

Sl No	SOR Ref	Item description	Unit	SOR Rate
11	13.01/e	Marshy soil (upto 3 m depth)	cum	947.09
12	13.02/i	Filling in Foundation Trenches as per drawing & technical specification using Coarse sand	cum	2,528.78
13	13.02/ii	Filling in Foundation Trenches as per drawing & technical specification using Sandy soil with PI value less than 6	cum	362.40
14	13.03/a	Backfilling abutment, wing wall and Return walls complete as per drawing and technical specification Granular materials	cum	1,007.86
15	13.03/b	Backfilling abutment, wing wall and Return walls complete as per drawing and technical specification Good Sandy Soil free from organic material	cum	617.02
16	13.04	Filter medium behind abutment,wing wall and return wall complete as per drawing and technical specification .	cum	1,274.65
17	14.01	Brick masonry work in cement mortar 1:3 in foundation complete excluding pointing and plastering, as per drawing and technical specifications	cum	11,849.87
18	14.02/a	Stone masonry work in cement mortar 1:3 in foundation complete as drawing and Technical Specification Coursed rubble masonry(first sort)	cum	6,418.90
19	14.02/b	Stone masonry work in cement mortar 1:3 in foundation complete as drawing and Technical Specification Random Rubble Masonry (coursed/uncoursed)	cum	6,306.36
22	14.03/a	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications PCC M15 Grade	cum	8,348.21
25	14.03/b	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications PCC M20 Grade	cum	9,333.75
28	14.03/c	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications PCC M25 Grade	cum	8,949.09
29	14.03/d	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications PCC M30 Grade	cum	10,864.50

Sl No	SOR Ref	Item description	Unit	SOR Rate
30	14.03/e/II	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications RCC M25Grade	cum	9,077.25
33	14.03/e	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications RCC M20 Grade	cum	8,327.62
34	14.03/g	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications RCC M30 Grade	cum	10,966.06
37	14.03/h	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications RCC M35 Grade	cum	11,122.30
38	14.04	Providing and laying cutting edge of mild steel for well foundation complete as per drawing and technical specification	MT	114,794.69
39	14.08	HYSD bar reinforcement in foundation complete as per drawing and technical specification	MT	77,427.65
40	14.10	Providing and laying steel liner for cubs and steining for wells including fabrication and setting out as per detailed drawing	MT	112,802.59
41	14.11.I/a	Bored Cast in situ of different grades RCC pile excluding reinforcement complete as per drawing and technical specifications and removal of excavated earth with all lifts and lead upto 1000m I.M35 Grade a)1200 mm Dia	m	20,126.29
42	14.11.I/b	Bored Cast in situ of different grades RCC pile excluding reinforcement complete as per drawing and technical specifications and removal of excavated earth with all lifts and lead upto 1000m I.M35 Grade b)1000 mm Dia	m	15,667.89
43	14.11/a/I	Initial and Routine Load test(for 750mm to 1200 mm dia)	Ton	503.12
44	14.11/a/II	Lateral Load test(for 750mm to 1200 mm dia)	Ton	15,901.68

Sl No	SOR Ref	Item description	Unit	SOR Rate
45	14.11/a	Boring, Providing and installing bored cast-in-situ reinforcement cement concrete pile of specified dia and length below the pile cape in cement concrete of M20 grade subject to a min cement content of 400 kg per cubic metre of concrete , mix water cement ratio of 0.5 , slum range from 150 mm to 200 mm (max), to carry a safe working load not les than specified i/c the cost of boring with casing and /or bentonite solution and length of pile to be embeded in the pile cap (length of pile for payment shall be measured upto bottom of pile cap),but excluding the cost of steel reinforcement which shall be paid separately (pile test as per relevent ISI/IRC codes shall be carried out for the same where required shall be made separately 1200 mm dia (M30 grade)	Rm	19,896.77
46	14.11/b	Boring, Providing and installing bored cast-in-situ reinforcement cement concrete pile of specified dia and length below the pile cape in cement concrete of M20 grade subject to a min cement content of 400 kg per cubic metre of concrete , mix water cement ratio of 0.5 , slum range from 150 mm to 200 mm (max), to carry a safe working load not les than specified i/c the cost of boring with casing and /or bentonite solution and length of pile to be embeded in the pile cap (length of pile for payment shall be measured upto bottom of pile cap),but excluding the cost of steel reinforcement which shall be paid separately (pile test as per relevent ISI/IRC codes shall be carried out for the same where required shall be made separately 1000 mm dia (M30 grade)	Rm	15,508.44
47	14.11/c	Boring, Providing and installing bored cast-in-situ reinforcement cement concrete pile of specified dia and length below the pile cape in cement concrete of M20 grade subject to a min cement content of 400 kg per cubic metre of concrete , mix water cement ratio of 0.5 , slum range from 150 mm to 200 mm (max), to carry a safe working load not les than specified i/c the cost of boring with casing and /or bentonite solution and length of pile to be embeded in the pile cap (length of pile for payment shall be measured upto bottom of pile cap),but excluding the cost of steel reinforcement which shall be paid separately (pile test as per relevent ISI/IRC codes shall be carried out for the same where required shall be made separately 750 mm dia (M30 grade)	Rm	9,441.59
48	14.11/note /a	Boring, Providing and installing bored cast-in-situ reinforcement cement concrete pile of specified dia and length below the pile cape in cement concrete of M20 grade subject to a min cement content of 400 kg per cubic metre of concrete , mix water cement ratio of 0.5 , slum range from 150 mm to 200 mm (max), to carry a safe working load not les than specified i/c the cost of boring with casing and /or bentonite solution and length of pile to be embeded in the pile cap (length of pile for payment shall be measured upto bottom of pile cap),but excluding the cost of steel reinforcement which shall be paid separately (pile test as per relevent ISI/IRC codes shall be carried out for the same where required shall be made separately For load testing assume Initial & Routine test L.S. cost	tonne	503.12

Sl No	SOR Ref	Item description	Unit	SOR Rate
49	14.11/note /b	Boring, Providing and installing bored cast-in-situ reinforcement cement concrete pile of specified dia and length below the pile cape in cement concrete of M20 grade subject to a min cement content of 400 kg per cubic metre of concrete , mix water cement ratio of 0.5 , slum range from 150 mm to 200 mm (max), to carry a safe working load not les than specified i/c the cost of boring with casing and /or bentonite solution and length of pile to be embeded in the pile cap (length of pile for payment shall be measured upto bottom of pile cap),but excluding the cost of steel reinforcement which shall be paid separately (pile test as per relevent ISI/IRC codes shall be carried out for the same where required shall be made separately For load testing assume For lateral testing test L.S. cost	tonne	15,901.68
50	14.12/a	Boring, Providing and installing bored cast-in-situ reinforcement cement concrete pile of specified dia and length below the pile cape in cement concrete of M35 grade subject to a min cement content of 475 kg per cubic metre of concrete , mix water cement ratio of 0.5 , slum range from 150 mm to 200 mm (max), to carry a safe working load not les than specified i/c the cost of boring with casing and /or bentonite solution and length of pile to be embeded in the pile cap (length of pile for payment shall be measured upto bottom of pile cap),but excluding the cost of steel reinforcement which shall be paid separately (pile test as per relevent ISI/IRC codes shall be carried out for the same where required shall be made separately 1200 mm dia (M35 grade)	Rm	20,126.29
51	14.12/b	Boring, Providing and installing bored cast-in-situ reinforcement cement concrete pile of specified dia and length below the pile cape in cement concrete of M35 grade subject to a min cement content of 475 kg per cubic metre of concrete , mix water cement ratio of 0.5 , slum range from 150 mm to 200 mm (max), to carry a safe working load not les than specified i/c the cost of boring with casing and /or bentonite solution and length of pile to be embeded in the pile cap (length of pile for payment shall be measured upto bottom of pile cap),but excluding the cost of steel reinforcement which shall be paid separately (pile test as per relevent ISI/IRC codes shall be carried out for the same where required shall be made separately 1000 mm dia (M35 grade)	Rm	15,667.89
52	14.12/c	Boring, Providing and installing bored cast-in-situ reinforcement cement concrete pile of specified dia and length below the pile cape in cement concrete of M35 grade subject to a min cement content of 475 kg per cubic metre of concrete , mix water cement ratio of 0.5 , slum range from 150 mm to 200 mm (max), to carry a safe working load not les than specified i/c the cost of boring with casing and /or bentonite solution and length of pile to be embeded in the pile cap (length of pile for payment shall be measured upto bottom of pile cap),but excluding the cost of steel reinforcement which shall be paid separately (pile test as per relevent ISI/IRC codes shall be carried out for the same where required shall be made separately 750 mm dia (M35 grade)	Rm	9,531.23

Sl No	SOR Ref	Item description	Unit	SOR Rate
53	14.12/note /a	Boring, Providing and installing bored cast-in-situ reinforcement cement concrete pile of specified dia and length below the pile cape in cement concrete of M35 grade subject to a min cement content of 475 kg per cubic metre of concrete , mix water cement ratio of 0.5 , slum range from 150 mm to 200 mm (max), to carry a safe working load not les than specified i/c the cost of boring with casing and /or bentonite solution and length of pile to be embeded in the pile cap (length of pile for payment shall be measured upto bottom of pile cap),but excluding the cost of steel reinforcement which shall be paid separately (pile test as per relevent ISI/IRC codes shall be carried out for the same where required shall be made separately Initial & Routine test L.S. cost	tonne	503.12
54	14.12/note /b	Boring, Providing and installing bored cast-in-situ reinforcement cement concrete pile of specified dia and length below the pile cape in cement concrete of M35 grade subject to a min cement content of 475 kg per cubic metre of concrete , mix water cement ratio of 0.5 , slum range from 150 mm to 200 mm (max), to carry a safe working load not les than specified i/c the cost of boring with casing and /or bentonite solution and length of pile to be embeded in the pile cap (length of pile for payment shall be measured upto bottom of pile cap),but excluding the cost of steel reinforcement which shall be paid separately (pile test as per relevent ISI/IRC codes shall be carried out for the same where required shall be made separately For lateral testing test L.S. cost	tonne	15,901.68
55	14.15/a	Cement concrete for Reinforced concrete in pile cap i/c form work complete as per drawing and technical specification M-40 Grade	cum	10,230.57
56	14.15/b	Cement concrete for Reinforced concrete in pile cap i/c form work complete as per drawing and technical specification M-35 Grade	cum	11,182.62
57	14.15/c	Cement concrete for Reinforced concrete in pile cap i/c form work complete as per drawing and technical specification M-30 Grade	cum	10,973.48
58	14.15/d	Cement concrete for Reinforced concrete in pile cap i/c form work complete as per drawing and technical specification M-25 Grade	cum	9,020.31
59	14.2/b/nsc/ 1	Random Rubble Masonry 1:3 Foundation Cement Morter	cum	7,060.53
62	14.3/i	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications RCC M40 Grade	cum	12,859.89

Sl No	SOR Ref	Item description	Unit	SOR Rate
65	14/nsc1/i	Filler joint i)Providing & fixing 2 mm thick corrugated copper plate in expansion joint complete as per drawing & Technical Specification.	m	2,060.00
66	14/nsc1/ii	Filler joint Providing & fixing 20 mm thick compressible fibre board in expansion joint complete as per drawing & Technical Specification.	m	698.00
67	14/nsc1/iii	Filler joint 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.	m	223.00
68	14/nsc1/iv	Filler joint iv)Providing and filling joint sealing compound as per drawings and technical specifications with coarse sand and 6 per cent bitumen by weight.	m	36.00
69	14/nsc2	Brick Flat Soling at Foundation	Sqm	1,077.89
70	15.01	Brick masonry work in cement mortar 1:3 in Sub-structure complete excluding pointing and plastering, as per drawing and technical specifications	cum	11,961.59
71	15.02/a	Stone masonry work in cement mortar 1:3 in Sub-structure complete as drawing and Technical Specification Coursed rubble masonry(first sort)	cum	6,382.55
74	15.02/b	Stone masonry work in cement mortar 1:3 in Sub-structure complete as drawing and Technical Specification Random Rubble Masonry (coursed/uncoursed)	cum	6,787.85
77	15.03/a/i	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification PCC M15 Grade upto 5m height	cum	8,705.63
80	15.03/a/ii	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification PCC M15 Grade Between 5 to 10 m height	cum	8,943.91
81	15.03/a/iii	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification PCC M15 Grade Above 10 m	cum	9,241.76

Sl No	SOR Ref	Item description	Unit	SOR Rate
82	15.03/b/i	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification PCC M20 Grade Upto 5m	cum	9,067.33
85	15.03/b/ii	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification PCC M20 Grade Between 5 to 10 m height	cum	9,999.78
86	15.03/b/iii	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification PCC M20 Grade Above 10 m	cum	10,332.79
87	15.03/c/i	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification PCC M25 Grade upto 5m height	cum	9,801.62
88	15.03/c/ii	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification PCC M25 Grade Between 5 to 10 m height	cum	10,810.22
89	15.03/c/iii	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification PCC M25 Grade Above 10 m	cum	11,170.43
90	15.03/d/i	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification PCC M30 Grade upto 5m height	cum	11,691.53
91	15.03/d/ii	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification PCC M30 Grade Between 5 to 10 m height	cum	12,895.37
92	15.03/d/iii	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification PCC M30 Grade Above 10 m	cum	13,325.31

Sl No	SOR Ref	Item description	Unit	SOR Rate
93	15.03/e/i	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification RCC M20 Grade upto 5m height	cum	9,188.78
96	15.03/e/ii	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification RCC M20 Grade Between 5 to 10 m height	cum	9,529.56
97	15.03/e/iii	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification RCC M20 Grade Above 10 m	cum	10,133.71
98	15.03/f/i	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification RCC M25 Grade upto 5m height	cum	9,938.25
101	15.03/f/ii	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification RCC M25 Grade Between 5 to 10 m height	cum	10,945.65
102	15.03/f/iii	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification RCC M25 Grade Above 10 m	cum	11,325.25
103	15.03/g/i	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification RCC M30 Grade upto 5m height	cum	11,786.08
106	15.03/g/ii	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification RCC M30 Grade Between 5 to 10 m height	cum	12,921.64
109	15.03/g/iii	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification RCC M30 Grade Above 10 m	cum	14,299.92

Sl No	SOR Ref	Item description	Unit	SOR Rate
110	15.03/h/i	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification RCC M35 Grade Pedestal	cum	11,975.71
111	15.03/h/ii	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification RCC M35 Grade Between 5 to 10 m height	cum	13,069.28
114	15.03/h/iii	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification RCC M35 Grade Above 10 m	cum	13,386.77
115	15.03/i/i	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification RCC M40 Grade upto 5m height	cum	11,992.30
116	15.03/i/ii	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification RCC M40 Grade Between 5 to 10 m height	cum	13,068.11
117	15.03/i/iii	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification RCC M40 Grade Above 10 m	cum	13,380.45
118	15.05	HYSD bar reinforcement in Sub-structure complete as per drawing and technical specification	MT	77,427.65
119	15.06	Supplying, fitting and fixing in position true to line and level cast steel rocker bearing conforming to IRC: 83(Pt.-1) section IX and clause 2003 of MoRTH specifications complete including all accessories as per drawing and Technical Specifications.	nne capaci	3.18
120	15.07	Supplying, fitting and fixing in position true to line and level forged steel roller bearing conforming to IRC: 83(Pt.-1) section IX and clause 2003 of MoRTH specifications complete including all accessories as per drawing and Technical Specifications.	nne capaci	3.18
121	15.08	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.	nne capaci	16.22

Sl No	SOR Ref	Item description	Unit	SOR Rate
122	15.09	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.	cc	3.19
123	15.10	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, completre 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 asper drawing and approved technical specifications.	Ton	505.27
124	15.11	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.	nne capaci	7.25
125	15.12	Providing weep holes in concrete/Reinforced concrete abutment, wing wall/return wall Complete as per drawing and Technical specifications	Rm	445.75
127	16.01/a/i	cement concrete Reinforced concrete in super-structure as per drawing and Technical Specification i/c form work complet eas per drawing and technical specification RCC Grade M25 For solid slab super-structure Upto 5m Upto 5m	cum	10,446.36
130	16.01/a/ii	cement concrete Reinforced concrete in super-structure as per drawing and Technical Specification i/c form work complet eas per drawing and technical specification RCC Grade M25 For T-beam & slab Upto 5m Upto 5m	cum	10,881.62
133	16.01/b/i/c 2/ii	RCC Grade M30 For solid slab super-structure Approach Slab	cum	13,287.15
134	16.01/b/i	cement concrete Reinforced concrete in super-structure as per drawing and Technical Specification i/c form work complet eas per drawing and technical specification RCC Grade M30 For solid slab super-structure Upto 5m	cum	12,755.67

Sl No	SOR Ref	Item description	Unit	SOR Rate
137	16.01/c/i	cement concrete Reinforced concrete in super-structure as per drawing and Technical Specification i/c form work complet eas per drawing and technical specification RCC Grade M35 For solid slab super-structure Upto 5m Upto 5m	cum	12,747.64
138	16.01/d/i	cement concrete Reinforced concrete in super-structure as per drawing and Technical Specification i/c form work complet eas per drawing and technical specification RCC Grade M40 For solid slab super-structure Upto 5m Upto 5m	cum	13,811.60
139	16.01/d/ii	cement concrete Reinforced concrete in super-structure as per drawing and Technical Specification i/c form work complet eas per drawing and technical specification RCC Grade M40 For T beam and slab using batching plant, Transit Mixure and concrete pump Upto 5m	cum	14,396.84
142	16.01/e/ii	cement concrete Reinforced concrete in super-structure as per drawing and Technical Specification i/c form work complet eas per drawing and technical specification RCC Grade M45 For T beam and slab using batching plant, Transit Mixure and concrete pump Upto 5m	cum	14,801.35
145	16.02/b/i	cement concrete for Prestressed concrete in super-structure as per drawing and Technical Specification i/c form work complet eas per drawing and technical specification M-40 grade For girder and slab superstructure Upto 5m Upto 5m	cum	16,026.75
146	16.02/b/ii	cement concrete for Prestressed concrete in super-structure as per drawing and Technical Specification i/c form work complet eas per drawing and technical specification M-40 grade For box girder abnd balance cantelever Upto 5m Upto 5m	cum	16,152.55

Sl No	SOR Ref	Item description	Unit	SOR Rate
147	16.02/c/i	cement concrete for Prestressed concrete in super-structure as per drawing and Technical Specification i/c form work complet eas per drawing and technical specification M-45 grade For girder and slab superstructure Upto 5m Upto 5m	cum	14,189.73
148	16.02/d/i	cement concrete for Prestressed concrete in super-structure as per drawing and Technical Specification i/c form work complet eas per drawing and technical specification M-50 grade For girder and slab superstructure Upto 5m Upto 5m	cum	17,022.83
149	16.03	HYSD bar reinforcement in super-structure complete as per drawing and technical specifications	MT	85,183.86
150	16.04	High tensile steel wires/strands including all accessories for stressing, stressing operations and grouting complete as per drawing and Technical Specifications	MT	193,515.71
151	16.05	Cement concrete wearing coat M-30 grade including reinforcement complete as per drawing and Technical Specifications	cum	18,782.51
154	16.06	Asphaltic concrete wearing coat of 25mm compacted thickness complete as per drawing and Technical Specifications	cum	16,677.31
155	16.07	Bituminous Mastic wearing coat excluding tack coat complete as per drawing and Technical Specification	sqm	750.12
156	16.08	Reinforced concrete railing of M30 Gradecomplete as per approved drawings and technical specification	Rm	2,711.68
160	16.09	Mild steel railling complete as per drawing and Technical Specifications	Rm	4,559.31
161	16.11	Drainage Spouts complete as per drawing and Technical specification	each	2,158.99
162	16.12/Nsc	Reinforced cement concrete approach slab M-30 including reinforcement and formwork complete as per drawing and Technical specification	cum	15,325.00

Sl No	SOR Ref	Item description	Unit	SOR Rate
166	16.12	Reinforced cement concrete approach slab M-25 including reinforcement and formwork complete as per drawing and Technical specification	cum	14,481.39
167	16.13	PCC M15 ordinary Grade leveling course below approach slab complete as per drawing and Technical specification Below Approach Slab	cum	8,109.93
170	16.14	Painting in Kerb in black and yellow alternate bands complete as per drawing and Technical specification	metre	139.81
171	16.15/i	Providing Reinforced Elasomeric (neoprene) slab seal type of expansion joint complete as per approved design and standard i/c acceptable, testing as specified to be installed under supervision of a specialist manufacture i/c temp correction during installation Expansion joint for movement upto 50mm	Rm	77,723.80
172	16.16	Providing single gap(unitary) strip/seal type of expansion joint of movement capacity of 80 mm with fatigue tested structure section at the nosing and ancourage assembly complete as per approved drawing and standard specification to be installed under supervision of a specialist manufacture	Rm	41,863.77
173	16.17	Mastic asphalt (providing and laying 12mm thik mastic asphalt wearing coures on top of deck slab excluding prime coat with paving grade bitumem meeting the requirement 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 aproximate spacing of 10cm centre in both direction ,pressed into surface not less than 100 deg. C. protruding 1mm to 4mm over mastic surface ,all complete as per clause 515) using Bitumen VG-40 (3/40)	sqm	532.56
176	16/nsc	For Protection Work - cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification PCC M20 Grade upto 5m height	cum	9,067.33
179	16/Nsc1	Supply, fabrication, delivery at bridge site and erection of structural steel works as per IS 2062, including two coats of primer, one at shop and the other at site and two coats of aluminium paints including all labour, material, consumables etc.	MT	120,762.00
180	17.01/a	laying apron complete as per drawing and Technical specification. Boulder	cum	2,280.25
181	17.01/b	laying apron complete as per drawing and Technical specification. Boulder in wire crates.	cum	2,169.83

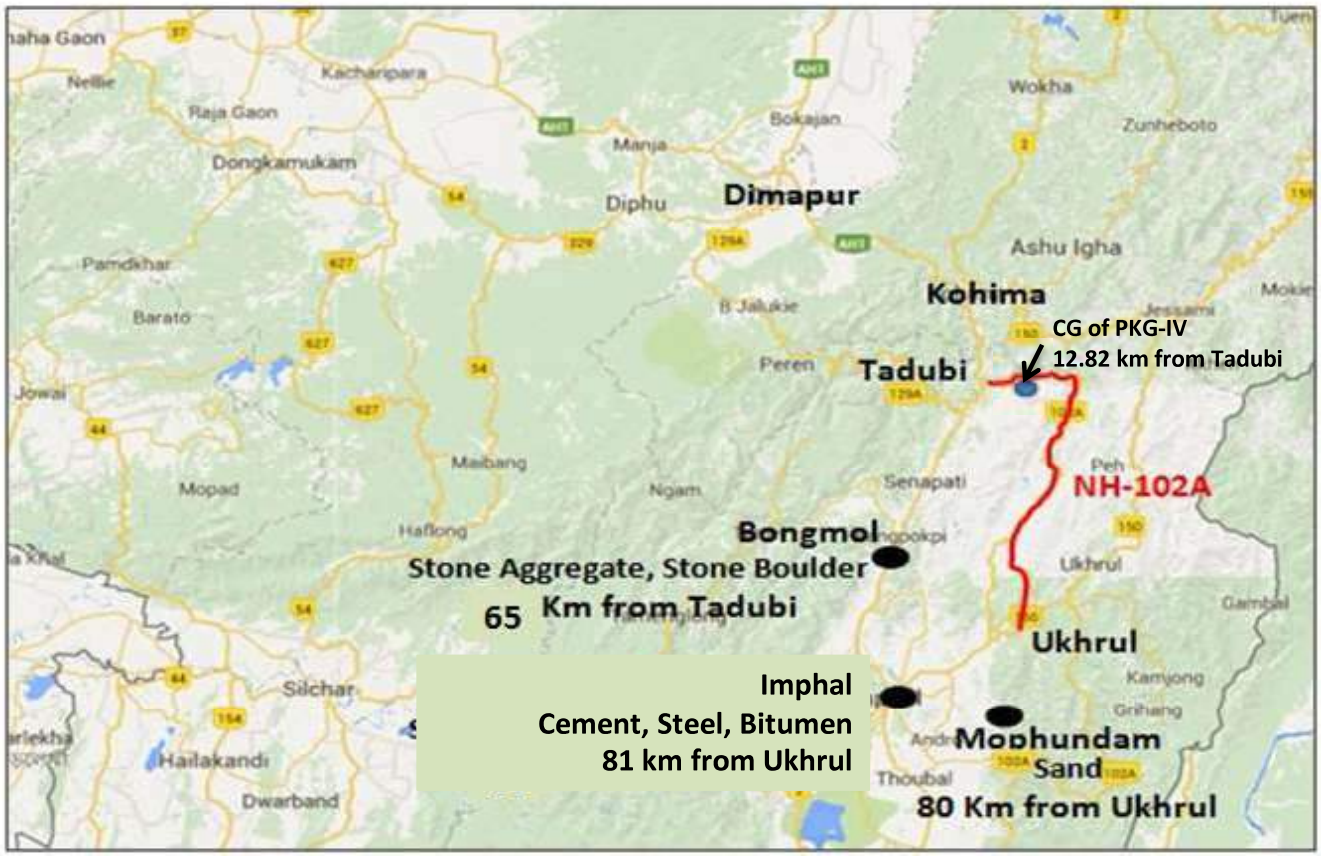
Schedule Of Rate

Sl No	SOR Ref	Item description	Unit	SOR Rate
182	17.01/c	laying apron complete as per drawing and Technical specification. Cement concrete block (M-15grade) (Filter Blanket+Toe Wall)	cum	8,348.21
185	17.02	Filter material underneath pitching in slopes complete as per drawing and Technical specification	cum	2,426.95
186	17.03/a	Pitching on slopes complete as per drawing and Technical specifications Stone	cum	1,655.65
187	17.03/b	Pitching on slopes complete as per drawing and Technical specifications Cement concrete block (M-15grade)	cum	8,515.17
188	17/nsc1	Flexible Apron - Construction of flexible apron 750mm thick comprising of loose stone boulders weighing not less than 40 kg beyond curtain wall.	cum	1,638.00
189	18.01	Removal of existing cement concrete wearing coat manually or jack hammer including its disposal complete as per drawing and technical specification without causing any detrimental effect to any part of bridge structure	sqm	328.23
190	18.04/a	Sealing of Cracks by Injection process through nipples complete as per technical specification with	cum	412,296.00

Lead Chart

Leads for Various Materials for PKG-IV

Sl. No.	Name of Material	Name of Source	Distance from Source to Start/ End Point of Project Road	Distance on Project Road (CG of Project Road)	Remarks	Total Lead
1	Sand (Fine)	Mophundam	80 km by road to Ukhrul	12.82 Km	(114.165-88.520)/2	181.34 Km
2	Filling Material	Local	-	-		10.00 Km
3	Stone Metal	Local				10.00 Km
4	Stone Boulder	Local				10.00 Km
5	Stone Chips, Aggregate	Local				10.00 Km
6	Coarse Sand	Mophundam	80 km by road to Ukhrul	12.82 Km	(114.165-88.520)/2	182.34 Km
7	Cement	Imphal	81 km by road to Tadubi	12.82 Km	(114.165-88.520)/2	182.34 Km
8	Steel	Imphal	81 km by road to Tadubi	12.82 Km	(114.165-88.520)/2	182.34 Km
9	Bitumen	Imphal	81 km by road to Tadubi	12.82 Km	(114.165-88.520)/2	182.34 Km
10	Bitumen Emulsion	Imphal	81 km by road to Tadubi	12.82 Km	(114.165-88.520)/2	182.34 Km
11	Structural Steel	Imphal	81 km by road to Tadubi	12.82 Km	(114.165-88.520)/2	182.34 Km



Carriage Cost

Carriage Cost of Material (Including loading & unloading)

Rubbish

Name of Quarries **Local**
Lead Upto Site (KM)= **10**

Sl.No.	Lead (km)	Kilometer	Unit	Carriage (Km)	Rate (Rs)	Cost of Carriage (In Rs)
1	10.00	Upto 1	per m^3		163.65	
		Upto 2	per m^3		190.55	
		Upto 3	per m^3		216.97	
		Upto 4	per m^3		242.32	
		Upto 5	per m^3	5	266.68	266.68
		for Every km beyond 5 km up to 10 km	per m^3	5	26.51	132.55
					Total	**399.23**

Stone aggregate below 40mm nominal size

Name of Quarries **Bongmol**
Lead Upto Tadubi (KM)= **0**
Lead on Project Road (KM)= **10.00** **Design length of PKG-IV/2**
Total Lead (KM)= **10.00**

Sl.No.	Lead in km	Kilometer	Unit	Carriage (Km)	Rate (Rs)	Cost of Carriage (In Rs)
2	10.00	Upto 1	per m^3		156.35	`
		Upto 2	per m^3		182.05	
		Upto 3	per m^3		207.29	
		Upto 4	per m^3		231.51	
		Upto 5	per m^3	5	254.79	254.79
		for Every km beyond 5 km up to 10 km	per m^3	5	25.33	126.65
		for Every km beyond10 km up to 20 km	per m^3	0.00	20.42	0.00
		for Every km beyond 20 km	per m^3	0.00	16.51	0.00
					Total	**381.44**

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Sand

Name of Quarries **Mophundam**
Total Lead (KM)= **181.34**

Sl.No.	Lead in km	Kilometer	Unit	Carriage (Km)	Rate (Rs)	Cost of Carriage (In Rs)
3	181.34	Upto 1	per m^3		156.35	`
		Upto 2	per m^3		182.05	
		Upto 3	per m^3		207.29	
		Upto 4	per m^3		231.51	
		Upto 5	per m^3	5	254.79	254.79
		for Every km beyond 5 km up to 10 km	per m^3	5	25.33	126.65
		for Every km beyond10 km up to 20 km	per m^3	10	20.42	204.20
		for Every km beyond 20 km	per m^3	161.34	16.51	2663.76
					Total	**3249.40**

Boulder

Name of Quarries **Bongmol**
Total Lead (KM)= **10.00**

Sl.No.	Lead in km	Kilometer	Unit	Carriage	Rate (Rs)	Cost of Carriage (In Rs)
4	10.00	Upto 1	per m^3		173.23	
		Upto 2	per m^3		201.95	
		Upto 3	per m^3		229.94	
		Upto 4	per m^3		256.81	
		Upto 5	per m^3	5	282.63	282.63
		for Every km beyond 5 km up to 10 km	per m^3	5.00	28.10	140.50
		for Every km beyond10 km up to 20 km	per m^3	0.00	22.65	0.00
		for Every km beyond 20 km	per m^3	0.00	18.31	0.00
					Total	**423.13**

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Cement, Steel

Name of Quarries **Imphal**
Total Lead (KM)= **182.34**

Sl.No.	Lead in km	Kilometer	Unit	Carriage	Rate (Rs)	Cost of Carriage (In Rs)
5	182.34	Upto 1	per Tone		112.15	
		Upto 2	per Tone		130.59	
		Upto 3	per Tone		148.70	
		Upto 4	per Tone		166.07	
		Upto 5	per Tone	5	182.77	182.77
		for Every km beyond 5 km up to 10 km	per Tone	5	18.17	90.85
		for Every km beyond10 km up to 20 km	per Tone	10	14.65	146.50
		for Every km beyond 20 km	per Tone	162.34	11.84	1922.14
					Total	**2342.26**

Bitumen

Name of Quarries **Imphal**
Total Lead (KM)= **182.34**

Sl.No.	Lead in km	Kilometer	Unit	Carriage	Rate (Rs)	Cost of Carriage (In Rs)
6	182.34	Upto 1	per Tone		112.15	
		Upto 2	per Tone		130.59	
		Upto 3	per Tone		148.70	
		Upto 4	per Tone		166.07	
		Upto 5	per Tone	5	182.77	182.77
		for Every km beyond 5 km up to 10 km	per Tone	5	18.17	90.85
		for Every km beyond10 km up to 20 km	per Tone	10	14.65	146.50
		for Every km beyond 20 km	per Tone	162.34	11.84	1922.14
					Total	**2342.26**

C.E. TESTING CO. PVT. LTD. KOLKATA 700 092 124A, N.S.C. BOSE ROAD

FINISHER RATE

Road Works

Sl No	State SOR Ref	Item description	Unit	SOR Rate	Material	Material Qty/Unit	Material Unit	Material Carr Cost	Carriage Cost	Finished Rate
1	02.01/i	Cutting of Trees, including cutting of trunks, branches and removal of stumps including stacking of serviceable materials within a lead of 100 m. and earth filling in the depression/pit. Girth from 300 mm to 600 mm	Each	388.42					0.00	392.30
2	02.01/ii	Cutting of Trees, including cutting of trunks, branches and removal of stumps including stacking of serviceable materials within a lead of 100 m. and earth filling in the depression/pit. Girth above 600 mm to 900 mm	Each	716.32					0.00	723.48
3	02.01/iii	Cutting of Trees, including cutting of trunks, branches and removal of stumps including stacking of serviceable materials within a lead of 100 m. and earth filling in the depression/pit. Girth above 900 mm to 1800 mm	Each	1,360.04					0.00	1,373.64
4	02.01/iv	Cutting of Trees, including cutting of trunks, branches and removal of stumps including stacking of serviceable materials within a lead of 100 m. and earth filling in the depression/pit. Girth above 1800 mm to 2700 mm	Each	2,550.68					0.00	2,576.19

**Note: Finished Rate inclusive of 1% labour cess

en done considering *Manipur Schedule of Rates For National Highways - Works 2018(PWD,Manipur)*

FINISHER RATE

Road Works

Sl No	State SOR Ref	Item description	Unit	SOR Rate	Material	Material Qty/Unit	Material Unit	Material Carr Cost	Carriage Cost	Finished Rate
5	02.01/v	Cutting of Trees, including cutting of trunks, branches and removal of stumps including stacking of serviceable materials within a lead of 100 m. and earth filling in the depression/pit. Girth above 2700 mm	Each	4,287.80					0.00	4,330.68
6	02.03/b	Clearing and grubbing road land including uprooting rank vegetation, grass, brush shrubs, saplings and trees of girth upto 300 mm, removal of stumps, disposal of unserviceable materials and stacking of serviceable materials and stacking of serviceable materials upto 100m. from road boundary. (by mechanical means)	Ha	59,319.65					0.00	59,912.85
7	02.04/i/c	Dismantling upto 1.5m in foundation and/or 1.5m above ground level including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of un-serviceable materials and stacking the serviceable materials within a lead of 100m. c)Pre- stressed/ Reinforced Cement Concrete grade M20 & above	cum	1,739.01					0.00	1,756.40
8	02.04/iii/b	Dismantling stone masonry b) Rubble stone masonry in cement mortar	Cum	489.32					0.00	494.21
9	02.04/vii/a	Removing hume pipes class NP-3 a) 300mm to 600mm dia	rm	264.99					0.00	267.64

**Note: Finished Rate inclusive of 1% labour cess

FINISHER RATE

Road Works

Sl No	State SOR Ref	Item description	Unit	SOR Rate	Material	Material Qty/Unit	Material Unit	Material Carr Cost	Carriage Cost	Finished Rate
10	02.04/vii/b	Removing hume pipes class NP-4 b) Above 600mm to 900mm dia	rm	358.77					0.00	362.36
11	02.04/vii/c	Removing hume pipes class NP-5 c) Above 900mm dia	rm	614.08					0.00	620.22
12	02.04/viii/e	Scarifying including picking up scarified material and stacking of old serviceable material within a lead of 100m e)Kandar/Gravel metal crust upto 150 mm thick with power Roller with scarifier	sqm	33.99					0.00	34.33
13	02.04/viii/f /ii	Scarifying including picking up scarified material and stacking of old serviceable material within a lead of 100m f)Bituminous coarses 50-70mm along with premix Carpet and Surface dressing but without disturbing the base ii)With road roller attatched with scarifier	sqm	57.08					0.00	57.65
14	02/nsc/1	Supplying and laying Hydro Seeding on cutting Surface	sqm	315.00					0.00	318.15

**Note: Finished Rate inclusive of 1% labour cess

FINISHER RATE

Road Works

Sl No	State SOR Ref	Item description	Unit	SOR Rate	Material	Material Qty/Unit	Material Unit	Material Carr Cost	Carriage Cost	Finished Rate
15	03.13	Construction of Embankment with Material Deposited from Roadway Cutting Construction of embankment with approved materials deposited at site from roadway cutting and excavation from drain and foundation of other structures graded and compacted to meet requirement of table 300-2	cum	160.20					0.00	161.80
16	03.14/Nsc	Construction of Subgrade and Earthen Shoulders Construction of subgrade and earthen shoulders with approved material obtained from Roadway Cutting with all lifts & leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of table No. 300-2	cum	246.28					0.00	248.74
17	03.15	Compacting original ground supporting subgrade Loosening of the ground upto a level of 500 mm below the subgrade level, watered, graded and compacted in layers to meet requirement of table 300-2 for subgrade construction.	cum	86.65					0.00	87.52
18	03.31	Excavation in Hill Area in Soil by Mechanical Means Excavation in soil in hilly area by mechanical means including cutting and trimming of side slopes and disposing of excavated earth with all lifts and lead upto 1000 metres	cum	211.39					0.00	213.50

**Note: Finished Rate inclusive of 1% labour cess

FINISHER RATE

Road Works

Sl No	State SOR Ref	Item description	Unit	SOR Rate	Material	Material Qty/Unit	Material Unit	Material Carr Cost	Carriage Cost	Finished Rate
19	03.32	Excavation in Hilly Area in Ordinary Rock by Mechanical Means not Requiring Blasting. Excavation in hilly area in ordinary rock not requiring ballasting by mechanical means including cutting and trimming of slopes and disposal of cut material with all lift and lead upto 1000 metres	cum	304.56					0.00	307.61
20	04.01/Nsc1	Sub-base with Close Graded Material (Table:- 400-1) Plant Mix Method Construction of granular sub-base by providing close graded Material, mixing in a mechanical mix plant at OMC, carriage of mixed Material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per clause 401 For Grading- V Material	Cum	2,997.00					1,574.25	4,616.96
					Course Sand	0.380	cum	3,249.40		
					Stone Chips/Aggregate	0.250	cum	381.44		
					Stone Metal Cat1	0.640	cum	381.44		
21	04/nsc1	Plant Mix Method (material Reuse) Construction of granular sub-base by providing close graded Material, mixing in a mechanical mix plant at OMC, carriage of mixed Material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per clause 401	Cum	2,063.00					0.00	2,083.63

**Note: Finished Rate inclusive of 1% labour cess

...en done considering

FINISHER RATE

Road Works

Sl No	State SOR Ref	Item description	Unit	SOR Rate	Material	Material Qty/Unit	Material Unit	Material Carr Cost	Carriage Cost	Finished Rate
22	05.03	Construction of footpath/separator by providing a 150 mm compacted granular sub base as per clause 401 and 25 mm thick cement concrete grade M15, over laid with pre-cast concrete tiles in cement mortar including provision of all drainage arrangements but excluding kerb channel.	sqm	1,374.51					305.11	1,696.42
					Cement	0.012	Ton	2,342.26		
					Sand	0.064	cum	3,249.40		
					Stone Chips/Aggregate	0.112	cum	381.44		
					Stone Metal Cat1	0.069	cum	381.44		
23	06.01/a	Prime coat (Providing and applying primer coat with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer using mechanical means.) A) On WBM/ WMM Surface @ 0.70-1.00 kg/sqm	sqm	57.54					1.64	59.77
					Bitumen Emulsion	0.001	Ton	2,342.26		
24	06.02/i	Tack coat Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor m on the prepared bituminous/ granular surface cleaned with mechanical broom. i) On bituminious Surface @ 0.20 - 0.30 kg/sqm	sqm	15.63					0.47	16.26
					Bitumen Emulsion	0.000	Ton	2,342.26		
25	06.02/ii	Tack coat Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor m on the prepared bituminous/ granular surface cleaned with mechanical broom. ii) On granular Surface Pre treated with prime Coat @ 0.25 - 0.30 kg/sqm	sqm	17.16					0.59	17.93

**Note: Finished Rate inclusive of 1% labour cess

FINISHER RATE

Road Works

Sl No	State SOR Ref	Item description	Unit	SOR Rate	Material	Material Qty/Unit	Material Unit	Material Carr Cost	Carriage Cost	Finished Rate
					Bitumen Emulsion	0.000	Ton	2,342.26		
26	06/Nsc2	Providing and laying bituminous concrete with 40-600 TPH batch type hot mix plant producing an average output of 35 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 5.5 % of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 509 complete in all respects B) Grading-II (13 mm nominal size) iii)Using bitumen 30/40	cum	12,371.00					871.85	13,375.28
					Aggregate	1.456	cum	381.44		
					Bitumen 30/40	0.130	Ton	2,342.26		
					Filler	0.030	Ton	399.23		
27	08.01	Precast Cement concrete M20 Kerb including fixing at site	rm	622.79					158.23	788.83
					Cement	0.016	Ton	2,342.26		
					Course Sand	0.030	cum	3,249.40		
					Stone Chips/Aggregate	0.061	cum	381.44		
28	08.02/a	Reinforced cement concrete M15 kilometer stone of standard design fixed in Position including painting and painting letters etc. a) 5th KM stone	each	4,556.84					968.88	5,580.98
					Cement	0.108	Ton	2,342.26		
					Sand	0.176	cum	3,249.40		

**Note: Finished Rate inclusive of 1% labour cess

FINISHER RATE

Road Works

Sl No	State SOR Ref	Item description	Unit	SOR Rate	Material	Material Qty/Unit	Material Unit	Material Carr Cost	Carriage Cost	Finished Rate
					Steel	0.004	Ton	2,342.26		
					Stone Chips/Aggregate	0.353	cum	381.44		
29	08.02/b	Reinforced cement concrete M15 kilometer stone of standard design fixed in Position including painting and painting letters etc. b) Ordinary kilometer stone	each	2,676.24					663.26	3,372.90
					Cement	0.074	Ton	2,342.26		
					Sand	0.121	cum	3,249.40		
					Steel	0.002	Ton	2,342.26		
					Stone Chips/Aggregate	0.242	cum	381.44		
30	08.04	Reinforced Cement Concrete M15 Boundary pillars of standard design,fixed in position including finishing but excluding painting	each	843.03					2,465.20	3,341.31
					Sand	0.566	cum	3,249.40		
					Steel	0.080	Ton	2,342.26		
					Stone Chips/Aggregate	1.150	cum	381.44		
31	08.05	Painting two coat after filling the surface with synthetic enamel paint in all shades on new plastered concrete surface.	sqm	93.41					0.00	94.34
32	08.06	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	85.06					0.00	85.91

**Note: Finished Rate inclusive of 1% labour cess

FINISHER RATE

Road Works

Sl No	State SOR Ref	Item description	Unit	SOR Rate	Material	Material Qty/Unit	Material Unit	Material Carr Cost	Carriage Cost	Finished Rate
33	08.11/i	Retro- reflectorised Traffic signs Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC :67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing) 90 cm equilateral triangle	each	4,931.35					1,917.67	6,917.51
					Cement	0.033	Ton	2,342.26		
					Sand	0.540	cum	3,249.40		
					Steel	0.019	Ton	2,342.26		
					Stone Chips/Aggregate	0.108	cum	381.44		
34	08.11/iii	Retro- reflectorised Traffic signs Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC :67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing) 60 cm circular	each	4,440.80					1,917.67	6,422.05
					Cement	0.033	Ton	2,342.26		
					Sand	0.540	cum	3,249.40		
					Steel	0.019	Ton	2,342.26		

**Note: Finished Rate inclusive of 1% labour cess

Sl No	State SOR Ref	Item description	Unit	SOR Rate	Material	Material Qty/Unit	Material Unit	Material Carr Cost	Carriage Cost	Finished Rate
					Stone Chips/Aggregate	0.108	cum	381.44		
35	08.11/iv	Retro- reflectorised Traffic signs Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC :67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing) 80 mm x 60 mm rectangular	each	5,706.23					1,917.67	7,700.14
					Cement	0.033	Ton	2,342.26		
					Sand	0.540	cum	3,249.40		
					Steel	0.019	Ton	2,342.26		
					Stone Chips	0.108	cum	381.44		
36	08.11/vii	Retro- reflectorised Traffic signs Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC :67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing) 90 cm high octagon	each	8,165.25					1,917.67	10,183.75
					Cement	0.033	Ton	2,342.26		
					Sand	0.540	cum	3,249.40		

**Note: Finished Rate inclusive of 1% labour cess

FINISHER RATE

Road Works

Sl No	State SOR Ref	Item description	Unit	SOR Rate	Material	Material Qty/Unit	Material Unit	Material Carr Cost	Carriage Cost	Finished Rate
					Steel	0.019	Ton	2,342.26		
					Stone Chips/Aggregate	0.108	cum	381.44		
37	08.12	Direction and Place Identification signs upto 0.9 sqm size board. (Providing and erecting direction and place identification retro-reflectorised sign asper IRC:67 made of high intensity grade sheeting vide clause 801.3, fixed over aluminium sheeting, 2 mm thick with area not exceeding 0.9 sqm supported on a mild steel single angle iron post 75 x 75 x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 x 45 x 60 cm, 60 cm below ground level as per approved drawing)	sqm	12,223.04					376.59	12,725.63
					Cement	0.037	Ton	2,342.26		
					Sand	0.060	cum	3,249.40		
					Steel	0.021	Ton	2,342.26		
					Stone Chips/Aggregate	0.120	cum	381.44		
38	08.14	Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads on Bituminous Surface (Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35 .The finished surface to be level, uniform and free from streaks and holes.)	sqm	1,002.14					0.00	1,012.16

**Note: Finished Rate inclusive of 1% labour cess

FINISHER RATE

Road Works

Sl No	State SOR Ref	Item description	Unit	SOR Rate	Material	Material Qty/Unit	Material Unit	Material Carr Cost	Carriage Cost	Finished Rate
39	08.15/c/v	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 toIRC-79 and the drawings.) 120x120 -Road Delineator	each	1,063.19					0.00	1,073.82
40	08.18/A/b	Metal Beam Crash Barrier 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, 1.8 m high, 1.1 m below ground/road level, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a spacer of channel section 150 x 75 x 5 mm, 330 mm long complete as per clause 810) For post Height of 1.5 m	Rm	3,334.08					0.00	3,367.42

**Note: Finished Rate inclusive of 1% labour cess

FINISHER RATE

Road Works

Sl No	State SOR Ref	Item description	Unit	SOR Rate	Material	Material Qty/Unit	Material Unit	Material Carr Cost	Carriage Cost	Finished Rate
41	08/nsc/4/a	Overhead Signs Providing and erecting overhead signs with a corrosion resistant 2mm thick aluminium alloy sheet reflectorised with high intensity retro-reflective sheeting of encapsulated lense type with vertical and lateral clearance given in clause 802.2 and 802.3 and installed as per clause 802.7 over a designed support system of aluminium alloy or galvanised steel trestles and trusses of sections and type as per structural design requirements and approved plans A)Truss and Vertical Support with Base plate on foundation column.	Ton	183,662.00	Steel	1.050	Ton	2,342.26	2,459.37	187,982.58
42	08/nsc/4/b	Overhead Signs Providing and erecting overhead signs with a corrosion resistant 2mm thick aluminium alloy sheet reflectorised with high intensity retro-reflective sheeting of encapsulated lense type with vertical and lateral clearance given in clause 802.2 and 802.3 and installed as per clause 802.7 over a designed support system of aluminium alloy or galvanised steel trestles and trusses of sections and type as per structural design requirements and approved plans B)Aluminium Alloy Plate for Over Head Sign	sqm	695.00					0.00	701.95

**Note: Finished Rate inclusive of 1% labour cess

...en done considering

FINISHER RATE

Road Works

Sl No	State SOR Ref	Item description	Unit	SOR Rate	Material	Material Qty/Unit	Material Unit	Material Carr Cost	Carriage Cost	Finished Rate
43	08/nsc/5	Reinforced Cement Concrete Crash Barrier-Provision 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 MOST 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	m	6,927.00					0.00	6,996.27
44	08/nsc/6	Rumble Strips Provision of 15 nos rumble strips covered with premix bituminous carpet, 15-20 mm high at center, 250 mm wide placed at 1 m center to center at approved locations to control speed, marked with white strips of road marking paint.	sqm	1,224.98					0.00	1,237.23
45	10.02/Nsc	Plain cement concrete M-15 mix with stone aggregate 20mm. Nominal size mechanically mixed and vibrated in foundation depth of 1.5m. below ground / bed level and or 1.5m. above ground/bed level i/c formrvork. At Protection	cum	7,496.35					2,559.40	10,156.31
					Aggregate	0.850	cum	381.44		
					Cement	0.330	Ton	2,342.26		
					Sand	0.450	cum	3,249.40		

**Note: Finished Rate inclusive of 1% labour cess

en done considering

FINISHER RATE

Road Works

Sl No	State SOR Ref	Item description	Unit	SOR Rate	Material	Material Qty/Unit	Material Unit	Material Carr Cost	Carriage Cost	Finished Rate
46	10.06/a	Steel reinforcement for R.C.C. works including bending, binding and placing in position. A) for Sub-Structure	Ton	72,983.59	Steel	1.050	Ton	2,342.26	2,459.37	76,197.39
47	10.06/b	Steel reinforcement for R.C.C. works including bending, binding and placing in position. A) for Super-Structure	Ton	72,983.59	Steel	1.050	Ton	2,342.26	2,459.37	76,197.39
48	10.11	Random rubble masonary (uncoursed) in cement sand mortar 1:3 in foundation upto a depth of 1.5m. and 1.5m. above ground/bed level.	cum	5,662.85					0.00	5,719.48
49	10.16	Cement Plaster 12mm Thick in Cement Morter 1:3	sqm	223.49					0.00	225.72
50	10.20/c	Providing and filling in foundation trenches and at the back of abutments, wing walls etc. and below pipe bed in layers not exceeding 150mm thick including watering and compacting c)Filler Media behind abutment ,wing and return wall	cum	1,157.28	Stone Chips/Aggregate	1.200	cum	381.44	457.73	1,631.16
51	10.20	Plain cement concrete M-15 mix with stone aggregate 20mm. Nominal size mechanically mixed and vibrated in foundation depth of 1.5m. below ground / bed level and or 1.5m. above ground/bed level i/c formrvork.	cum	7,496.35	Aggregate	0.850	cum	381.44	2,559.40	10,156.31

**Note: Finished Rate inclusive of 1% labour cess

...en done considering

FINISHER RATE

Road Works

Sl No	State SOR Ref	Item description	Unit	SOR Rate	Material	Material Qty/Unit	Material Unit	Material Carr Cost	Carriage Cost	Finished Rate
					Cement	0.330	Ton	2,342.26		
					Sand	0.450	cum	3,249.40		
52	NS1	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 the road roller at OMC to achieve the desired unconfined compressive strength and to form a layer of sub-base/base.) For Sub-Base course	cum	3,114.00					1,499.68	4,659.82
					Aggregate	0.960	cum	381.44		
					Cement	0.040	Ton	2,342.26		
					Sand	0.320	cum	3,249.40		
53	NS3	RAP Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechanical mix plant carriage of mixed Material by tipper to site, laying in uniform layers with paver in sub- base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density.	cum	2,017.00					227.80	2,267.25
					Aggregate	0.370	cum	381.44		
					Cement	0.037	Ton	2,342.26		

**Note: Finished Rate inclusive of 1% labour cess

en done considering

FINISHER RATE

Minor Bridge

Sl No	State SOR Ref	Item description	Unit	SOR Rate	Material	Material Qty/Unit	Material Unit	Material Carr Cost	Carriage Cost	Finished Rate
1	10.06/Nsc	Supply, fabrication, delivery at bridge site and erection of structural steel works as per IS 2062, including two coats of primer, one at shop and the other at site and two coats of aluminium paints including all labour, material, consumables etc. Structural steel	Ton	82,834.00	Steel	1.050	Ton	2,342.26	2,459.37	86,146.30
2	10.20/a	Providing and filling in foundation tranches and at the back of abutments, return walls and below pipe bed in layers not excedding 150 mm thick including watering and compacting a) good sandy soil free from organic material	cum	785.50					0.00	793.36
3	13.01/a/i/Nsc	Earth work in excavation Ordinary soil For Protection Work	cum	218.93					0.00	221.12
4	13.01/a/i	Earth work in excavation of foundation for structures as per drawing and technical specification Ordinary soil Depth upto 3 m	cum	218.93					0.00	221.12

**Note: Finished Rate inclusive of 1% labour cess

...en done considering *Manipur Schedule of Rates For National Highways - Works 2018(PWD,Manipur)*

FINISHER RATE

Minor Bridge

Sl No	State SOR Ref	Item description	Unit	SOR Rate	Material	Material Qty/Unit	Material Unit	Material Carr Cost	Carriage Cost	Finished Rate
5	13.01/a/ii	Earth work in excavation of foundation for structures as per drawing and technical specification Ordinary soil Depth 3 m to 6 m	cum	294.28					0.00	297.22
6	13.01/a/iii	Earth work in excavation of foundation for structures as per drawing and technical specification Ordinary soil Above 6 m depth	cum	409.42					0.00	413.51
7	13.01/b/ii	Earth work in excavation of foundation for structures as per drawing and technical specification Ordinary rock if blasting is not resorted to	cum	209.22					0.00	211.31
8	13.02/ii	Filling in Foundation Trenches as per drawing & technical specification using Sandy soil with PI value less than 6	cum	362.40					0.00	366.02
9	13.03/a	Backfilling abutment, wing wall and Return walls complete as per drawing and technical specification Granular materials	cum	1,007.86	Stone Chips/Aggregate	1.200	cum	381.44	457.73	1,480.25
10	13.03/b	Backfilling abutment, wing wall and Return walls complete as per drawing and technical specification Good Sandy Soil free from organic material	cum	617.02	Sand	1.200	cum	3,249.40	3,899.28	4,561.46

**Note: Finished Rate inclusive of 1% labour cess

FINISHER RATE

Minor Bridge

Sl No	State SOR Ref	Item description	Unit	SOR Rate	Material	Material Qty/Unit	Material Unit	Material Carr Cost	Carriage Cost	Finished Rate
11	13.04	Filter medium behind abutment,wing wall and return wall complete as per drawing and technical specification .	cum	1,274.65					457.73	1,749.70
					Stone Chips/Aggregate	1.200	cum	381.44		
12	14.01	Brick masonry work in cement mortar 1:3 in foundation complete excluding pointing and plastering, as per drawing and technical specifications	cum	11,849.87					0.00	11,968.37
13	14.02/b	Stone masonry work in cement mortar 1:3 in foundation complete as drawing and Technical Specification Random Rubble Masonry (coursed/uncoursed)	cum	6,306.36					1,815.47	8,203.05
					Cement	0.170	Ton	2,342.26		
					Sand	0.300	cum	3,249.40		
					Stone Metal Cat1	1.160	cum	381.44		
14	14.03/a	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications PCC M15 Grade	cum	8,348.21					2,559.40	11,016.69
					Aggregate	0.850	cum	381.44		
					Cement	0.330	Ton	2,342.26		
					Sand	0.450	cum	3,249.40		
15	14.03/e/II	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications RCC M25Grade	cum	9,077.25					2,765.85	11,961.53
					Aggregate	0.900	cum	381.44		

**Note: Finished Rate inclusive of 1% labour cess

FINISHER RATE

Minor Bridge

Sl No	State SOR Ref	Item description	Unit	SOR Rate	Material	Material Qty/Unit	Material Unit	Material Carr Cost	Carriage Cost	Finished Rate
					Cement	0.410	Ton	2,342.26		
					Sand	0.450	cum	3,249.40		
16	14.03/g	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications RCC M30 Grade	cum	10,966.06					2,779.30	13,882.81
					Aggregate	0.860	cum	381.44		
					Cement	0.450	Ton	2,342.26		
					Sand	0.430	cum	3,249.40		
17	14.08	HYSD bar reinforcement in foundation complete as per drawing and technical specification	MT	77,427.65					2,459.37	80,685.89
					Steel	1.050	Ton	2,342.26		
18	14/nsc1/i	Filler joint i)Providing & fixing 2 mm thick corrugated copper plate in expansion joint complete as per drawing & Technical Specification.	m	2,060.00					0.00	2,080.60
19	14/nsc1/ii	Filler joint Providing & fixing 20 mm thick compressible fibre board in expansion joint complete as per drawing & Technical Specification.	m	698.00					0.00	704.98

**Note: Finished Rate inclusive of 1% labour cess

FINISHER RATE

Minor Bridge

Sl No	State SOR Ref	Item description	Unit	SOR Rate	Material	Material Qty/Unit	Material Unit	Material Carr Cost	Carriage Cost	Finished Rate
20	14/nsc1/iii	Filler joint 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.	m	223.00					0.00	225.23
21	14/nsc1/iv	Filler joint iv)Providing and filling joint sealing compound as per drawings and technical specifications with coarse sand and 6 per cent bitumen by weight.	m	36.00					0.00	36.36
22	14/nsc2	Brick Flat Soling at Foundation	Sqm	1,077.89					40.00	1,129.07
					Brick	1.000	Sqm	40.00		
23	15.01	Brick masonry work in cement mortar 1:3 in Sub-structure complete excluding pointing and plastering, as per drawing and technical specifications	cum	11,961.59					0.00	12,081.21
24	15.02/b	Stone masonry work in cement mortar 1:3 in Sub-structure complete as drawing and Technical Specification Random Rubble Masonry (coursed/uncoursed)	cum	6,787.85					1,815.47	8,689.35
					Cement	0.170	Ton	2,342.26		
					Sand	0.300	cum	3,249.40		
					Stone Metal Cat1	1.160	cum	381.44		

**Note: Finished Rate inclusive of 1% labour cess

FINISHER RATE

Minor Bridge

Sl No	State SOR Ref	Item description	Unit	SOR Rate	Material	Material Qty/Unit	Material Unit	Material Carr Cost	Carriage Cost	Finished Rate
25	15.03/a/i	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification PCC M15 Grade upto 5m height	cum	8,705.63					2,449.65	11,266.83
					Cement	0.275	Ton	2,342.26		
					Sand	0.450	cum	3,249.40		
					Stone Chips/Aggregate	0.900	cum	381.44		
26	15.03/e/i	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification RCC M20 Grade upto 5m height	cum	9,188.78					2,618.29	11,925.14
					Cement	0.347	Ton	2,342.26		
					Sand	0.450	cum	3,249.40		
					Stone Chips/Aggregate	0.900	cum	381.44		
27	15.03/f/i	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification RCC M25 Grade upto 5m height	cum	9,938.25					2,749.46	12,814.59
					Cement	0.403	Ton	2,342.26		
					Sand	0.450	cum	3,249.40		
					Stone Chips/Aggregate	0.900	cum	381.44		

**Note: Finished Rate inclusive of 1% labour cess

FINISHER RATE

Minor Bridge

Sl No	State SOR Ref	Item description	Unit	SOR Rate	Material	Material Qty/Unit	Material Unit	Material Carr Cost	Carriage Cost	Finished Rate
28	15.03/g/i	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification RCC M30 Grade upto 5m height	cum	11,786.08					2,758.83	14,690.36
					Aggregate	0.900	cum	381.44		
					Cement	0.407	Ton	2,342.26		
					Sand	0.450	cum	3,249.40		
29	15.03/g/ii	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification RCC M30 Grade Between 5 to 10 m height	cum	12,921.64					2,758.83	15,837.27
					Aggregate	0.900	cum	381.44		
					Cement	0.407	Ton	2,342.26		
					Sand	0.450	cum	3,249.40		
30	15.03/g/iii	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification RCC M30 Grade Above 10 m	cum	14,299.92					0.00	14,442.92

**Note: Finished Rate inclusive of 1% labour cess

FINISHER RATE

Minor Bridge

Sl No	State SOR Ref	Item description	Unit	SOR Rate	Material	Material Qty/Unit	Material Unit	Material Carr Cost	Carriage Cost	Finished Rate
31	15.03/h/i	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification RCC M35 Grade Pedestal	cum	11,975.71					0.00	12,095.47
32	15.04	Point with cement Mortar 1:3 in substructure		922.56					1,105.54	2,048.38
					Cement	0.122	Ton	2,342.26		
					Sand	0.252	cum	3,249.40		
33	15.05	HYSD bar reinforcement in Sub-structure complete as per drawing and technical specification	MT	77,427.65					2,459.37	80,685.89
					Steel	1.050	Ton	2,342.26		
34	15.06	Supplying, fitting and fixing in position true to line and level cast steel rocker bearing conforming to IRC: 83(Pt.-1) section IX and clause 2003 of MoRTH specifications complete including all accessories as per drawing and Technical Specifications.	tonne c	3.18					0.00	3.21
35	15.09	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.	cc	3.19					0.00	3.22

**Note: Finished Rate inclusive of 1% labour cess

FINISHER RATE

Minor Bridge

Sl No	State SOR Ref	Item description	Unit	SOR Rate	Material	Material Qty/Unit	Material Unit	Material Carr Cost	Carriage Cost	Finished Rate
36	15.12	Providing weep holes in concrete/Reinforced concrete abutment, wing wall/return wall Complete as per drawing and Technical specifications	Rm	445.75					7.96	458.25
					Cement	0.001	Ton	2,342.26		
					Sand	0.002	cum	3,249.40		
37	16.01/a/i	cement concrete Reinforced concrete in super-structure as per drawing and Technical Specification i/c form work complet eas per drawing and technical specification RCC Grade M25 For solid slab super-structure Upto 5m Upto 5m	cum	10,446.36					2,748.93	13,327.24
					Cement	0.400	Ton	2,342.26		
					Course Sand	0.452	cum	3,249.40		
					Stone Chips/Aggregate	0.900	cum	381.44		
38	16.01/b/i/c 2/ii	RCC Grade M30 For solid slab super-structure Approach Slab	cum	13,287.15					0.00	13,420.02

**Note: Finished Rate inclusive of 1% labour cess

FINISHER RATE

Minor Bridge

Sl No	State SOR Ref	Item description	Unit	SOR Rate	Material	Material Qty/Unit	Material Unit	Material Carr Cost	Carriage Cost	Finished Rate
39	16.01/d/i	cement concrete Reinforced concrete in super-structure as per drawing and Technical Specification i/c form work complet eas per drawing and technical specification RCC Grade M40 For solid slab super-structure Upto 5m Upto 5m	cum	13,811.60					0.00	13,949.72
40	16.01/e/ii	cement concrete Reinforced concrete in super-structure as per drawing and Technical Specification i/c form work complet eas per drawing and technical specification RCC Grade M45 For T beam and slab using batching plant, Transit Mixure and concrete pump Upto 5m	cum	14,801.35					2,906.95	17,885.38
					Aggregate	0.850	cum	381.44		
					Cement	0.520	Ton	2,342.26		
					Course Sand	0.420	cum	3,249.40		
41	16.03	HYSD bar reinforcement in super-structure complete as per drawing and technical specifications	MT	85,183.86					2,459.37	88,519.66
					Steel	1.050	Ton	2,342.26		
42	16.05	Cement concrete wearing coat M-30 grade including reinforcement complete as per drawing and Technical Specifications	cum	18,782.51					2,779.30	21,777.43
					Aggregate	0.860	cum	381.44		

**Note: Finished Rate inclusive of 1% labour cess

FINISHER RATE

Minor Bridge

Sl No	State SOR Ref	Item description	Unit	SOR Rate	Material	Material Qty/Unit	Material Unit	Material Carr Cost	Carriage Cost	Finished Rate
					Cement	0.450	Ton	2,342.26		
					Course Sand	0.430	cum	3,249.40		
43	16.08	Reinforced concrete railing of M30 Gradecomplete as per approved drawings and technical specification	Rm	2,711.68					279.42	3,021.01
					Cement	0.035	Ton	2,342.26		
					Sand	0.039	cum	3,249.40		
					Steel	0.018	Ton	2,342.26		
					Stone Chips/Aggregate	0.077	cum	381.44		
44	16.11	Drainage Spouts complete as per drawing and Technical specification	each	2,158.99					9.37	2,190.04
					Structural Steel	0.004	Ton	2,342.26		
45	16.12/Nsc	Reinforced cement concrete approach slab M-30 including reinforcement and formwork complete as per drawing and Technical specification	cum	15,325.00					5,201.80	20,732.07
					Aggregate	0.900	cum	381.44		
					Cement	0.400	Ton	2,342.26		
					Course Sand	0.450	cum	3,249.40		
					Steel	1.050	Ton	2,342.26		
46	16.13	PCC M15 ordinary Grade leveling course below approach slab complete as per drawing and Technical specification Below Approach Slab	cum	8,109.93					2,450.35	10,665.88
					Cement	0.275	Ton	2,342.26		

**Note: Finished Rate inclusive of 1% labour cess

FINISHER RATE

Minor Bridge

Sl No	State SOR Ref	Item description	Unit	SOR Rate	Material	Material Qty/Unit	Material Unit	Material Carr Cost	Carriage Cost	Finished Rate
					Sand	0.450	cum	3,249.40		
					Stone Chips/Aggregate	0.900	cum	381.44		
47	16.16	Providing single gap(unitary) strip/seal type of expansion joint of movement capacity of 80 mm with fatigue tested structure section at the nosing and ancourage assembly complete as per approved drawing and standard specification to be installed under supervision of a specialist manufacture	Rm	41,863.77					0.00	42,282.41
48	16.17	Mastic asphalt (providing and laying 12mm thik mastic asphalt wearing coures on top of deck slab excluding prime coat with paving grade bitumem meeting the requirement 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 aproximate spacing of 10cm centre in both direction ,pressed into surface not less than 100 deg. C. protruding 1mm to 4mm over mastic surface ,all complete as per clause 515) using Bitumen VG-40 (3/40)	sqm	532.56					13.70	551.72
					Bitumen	0.003	Ton	2,342.26		
					Lime	0.005	Ton	399.23		
					Stone Chips/Aggregate	0.014	cum	381.44		

**Note: Finished Rate inclusive of 1% labour cess

FINISHER RATE

Minor Bridge

Sl No	State SOR Ref	Item description	Unit	SOR Rate	Material	Material Qty/Unit	Material Unit	Material Carr Cost	Carriage Cost	Finished Rate
49	16/nsc	For Protection Work - cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification PCC M20 Grade upto 5m height	cum	9,067.33					2,611.26	11,795.38
					Cement	0.344	Ton	2,342.26		
					Sand	0.450	cum	3,249.40		
					Stone Chips/Aggregate	0.900	cum	381.44		
50	17.01/a	laying apron complete as per drawing and Technical specification. Boulder	cum	2,280.25					507.76	2,815.89
					Stone Bolder	1.200	cum	423.13		
51	17.01/c	laying apron complete as per drawing and Technical specification. Cement concrete block (M-15grade) (Filter Blanket+Toe Wall)	cum	8,348.21					3,675.16	12,143.60
					Aggregate	0.275	cum	381.44		
					Cement	0.900	Ton	2,342.26		
					Sand	0.450	cum	3,249.40		
52	17.02	Filter material underneath pitching in slopes complete as per drawing and Technical specification	cum	2,426.95					457.73	2,913.53
					Aggregate	1.200	cum	381.44		
53	17.03/a	Pitching on slopes complete as per drawing and Technical specifications Stone	cum	1,655.65					507.76	2,185.04

**Note: Finished Rate inclusive of 1% labour cess

FINISHER RATE

Minor Bridge

Sl No	State SOR Ref	Item description	Unit	SOR Rate	Material	Material Qty/Unit	Material Unit	Material Carr Cost	Carriage Cost	Finished Rate
					Stone Bolder	1.200	cum	423.13		

**Note: Finished Rate inclusive of 1% labour cess

NON SCHEDULE ITEM

Analysis of Non-Schedule Rate

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

Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs
4.1	**401**		**Granular Sub-Base with Close Graded Material (Table:- 400-1) (Material Reuse)**				
		A	**Plant Mix Method**				
			Construction of granular sub-base by providing close graded Material, mixing in a mechanical mix plant at OMC, carriage of mixed Material to work site, spreading in uniform layers with motor grader on				
			Unit = cum				
			Taking output = 225 cum (450 tonne)				
			a) Labour				
			Mate	day	0.400	550.000	220.00
			Mazdoor skilled	day	2.000	450.000	900.00
			Mazdoor Unskilled	day	8.000	400.000	3200.00
			b) Machinery				
			Wet mix plant @ 60 tonne capacity per hour	hour	6.000	5362.583	32175.50
			Electric generator 160 KVA	hour	6.000	2202.500	13215.00
			Water tanker	hour	4.500	992.333	4465.50
			Excavator Cum Loader	hour	6.000	1755.333	10532.00
			Tipper 6.5-10 tonne	tonne.	450 x L	63.897	258782.51
			Add 10 per cent of cost of carriage to cover loading and unloading				25878.25
			Motor Grader (BEML-092)	hour	6.000	5049.167	30295.00
			Vibratory roller 8-10 t	hour	6.000	1743.333	10460.00
			c) Material				
			Close graded Granular sub-base Material as per table 400-1				
			For Grading-II Material				
			26.5 mm to 9.5 mm @ 35 per cent	cum	100.800	0.00	0.00
			9.5 mm to 2.36 mm @ 25 per cent	cum	72.000	0.00	0.00
			2.36 mm below @ 40 per cent	cum	115.200	0.00	0.00
			Cost of water	KL	27.000	125.00	3375.00
4.1A		**(i)**	**Rate per cum for grading-II Material**				
			d) Overhead charges @ input on (a+b+c)				31479.90
			e) Contractor's profit @ input on (a+b+c+d)				42497.87
			Cost for 225 cum = a+b+c+d+e				464101.53
			Rate per cum = (a+b+c+d+e)/225				2062.67
						say	***2063.00***
			Labour Cess@1%				20.63
			Rate per cum =				***2083.63***

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CHAPTER - 3							
EARTH WORK, EROSION CONTROL AND DRAINAGE							
Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs
3.12	305		**Construction of Embankment with Material obtained from Borrowpits**				
			Construction of embankment with approved material obtained from borrow pits with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement of table 300-2.	cum		226.26	----------i
3.13	305		**Construction of Embankment with Material Deposited from Roadway Cutting**				
			Construction of embankment with approved materials deposited at site from roadway cutting and excavation from drain and foundation of other structures graded and compacted to meet requirement of table 300-2.	cum		160.20	----------ii
			So, Cost of Material obtained from Borrow Pit is Rs. =			66.06	----------(iii=i-ii)
3.14	305		**Construction of Subgrade and Earthen Shoulders**				
			Construction of sub-grade and earthen shoulders with approved material obtained from borrow pits with all lifts & leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of table No. 300-2	cum		312.34	----------iv
			So,				
			Construction of Subgrade and Earthen Shoulders				
			Construction of embankment with approved material obtained from borrow pits with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement of table 300-2.	cum		246.28	----------(v=iv-iii)

CHAPTER-8

TRAFFIC SIGNS, MARKINGS & OTHER ROAD APPURTENANCES

Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
8.7	802		**Overhead Signs**					
			Providing and erecting overhead signs with a corrosion resistant 2mm thick aluminium alloy sheet reflectorised with high intensity retro-reflective sheeting of encapsulated lense type with vertical and lateral clearance given in clause 802.2 and 802.3 and installed as per clause 802.7 over a designed support system of aluminium alloy or galvanised steel trestles and trusses of sections and type as per structural design requirements and approved plans					
		A	**Truss and Vertical Support**					
			Unit = tonne					
			Taking output = 1 tonne					
			a) Labour					
			Mate	day	0.240	550.00	132.00	L-12
			Blacksmith	day	2.000	550.00	1100.00	L-02
			Mazdoor including for handling & fixing at site.	day	4.000	450.00	1800.00	L-13
			b) Material					
			Aluminium alloy/galvanised steel including 5 per cent wastage	tonne	1.050	120000.00	126000.00	M-060
			Add 1 per cent on cost of material for nuts, bolts and drilling and welding consumables				1260.00	
			Add 15 per cent on cost of material for fabrication of trusses as per approved design				19089.00	
			c) Machinery					
			Crane 3 tonne capacity	hour	3.000	1525.88	4577.65	P&M-013
			Truck	hour	0.500	1277.94	638.97	P&M-057
			d) Overhead charges @ 8% on (a+b+c)				12367.81	
			e) Contractor's profit @ 10% on (a+b+c+d)				16696.54	
			Rate per tonne = (a+b+c+d+e)				183661.97	
						say	***183662.00***	
8.7		B	**Aluminium Alloy Plate for Over Head Sign**					
			Unit = sqm					
			Taking output = 1 sqm					
			a) Labour					
			Mate	day	0.020	550.00	11.00	L-12
			Blacksmith	day	0.100	550.00	55.00	L-02
			Mazdoor	day	0.150	450.00	67.50	L-13
			b) Material					
			Aluminium alloy plate,2 mm thick, fixed with high intensity grade sheeting vide clause 801.3	sqm	1.000	450.00	450.00	M-059
			Miscellaneous					
			Add 1 per cent of cost of labour for lifting arrangement, like ladders, pulleys, ropes etc				1.34	
			c) Overhead charges @ 8% on (a+b)				46.79	
			d) Contractor's profit @ 10% on (a+b+c)				63.16	
			Rate per sqm = (a+b+c+d)				694.78	
						say	***695.00***	
		Note	1. The cost of excavation and foundation concrete for fixing of vertical support system to be worked out separately as per the approved drawing/design and to be included in the estimate.					
			2. Lettering and arrow marks on sign board to be provided separately as per actual requirement. Rates for these items have been included separately in this chapter.					

CHAPTER-8								
TRAFFIC SIGNS, MARKINGS & OTHER ROAD APPURTENANCES								
Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.

Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
8.22	809		**Reinforced Cement Concrete Crash Barrier**					
			Provision 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 MOST 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					
			Unit = Linear metre					
			Taking output = 10 m					
		(i)	**a) M 40 grade concrete**					
			M 40 grade concrete	cum	3.000	11992.30	35976.90	0.00
			b) Labour					
			Mate	day	0.040	550.00	22.00	0.00
			Mazdoor	day	1.000	450.00	450.00	0.00
			c) Material					
			HYSD steel reinforcement including dowel bars	tonne	0.280	77427.65	21679.74	0.00
			Pre-moulded asphalt filler board	sqm	0.320	1084.84	347.15	0.00
			d) Overhead charges @ on (b+c)				4678.06	
			e) Contractor's profit @ on (b+c+d)				6315.39	
			Cost for 10 metre = a+b+c+d+e				69469.24	
			Rate per metre = (a+b+c+d+e)/10				6946.92	
						say	***6947.00***	

Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
14.18	2605		**Filler joint**					
		(i)	**Providing & fixing 2 mm thick corrugated copper plate in expansion joint complete as per drawing & Technical Specification.**					
			Unit = Running meter					
			Taking output = 12 m					
			a) Labour					
			Cutting, bending, carrying & fixing etc.					
			Mate	day	0.04	550.00	22.00	L-12
			Mazdoor	day	0.50	400.00	200.00	L-13
			Mazdoor (Skilled)	day	0.50	450.00	225.00	L-15
			b) Material					
			Copper plate - 12m long x 250 mm wide	kg	55.00	325.45	17899.75	M-086
			Area = 12 x 0.25 = 3 sqm					
			Weight = 3 x 0.002 x 8900 = 53.4 kg					
			Wastage @ 2.5 per cent = 1.33 kg/54.73 kg say = 55 kg.					
			c) Overhead charges @ 0.25 on (a+b)				4586.69	
			d) Contractor's profit @ 0.1 on (a+b+c)				2293.34	
			Cost for 12 m = (a+b+c+d)				25226.78	
			Rate per m = (a+b+c+d)/12				2102.23	
						say	***2102.00***	
							2102.00	
14.18		(ii)	**Providing & fixing 20 mm thick compressible fibre board in expansion joint complete as per drawing & Technical Specification.**					
			Unit = Running meter					
			Taking output = 12 m					
			a) Labour					
			For carrying, placing & fixing.					
			Mate	day	0.01	550.00	4.40	L-12
			Mazdoor	day	0.10	400.00	40.00	L-13
			Mazdoor (Skilled)	day	0.10	450.00	45.00	L-15
			b) Material					
			20 mm thick compressible fibre board 12 m long x 25 cm deep.	sqm	3.00	2042.05	6126.15	M-084
			Area = 12 x 0.25 = 3 sqm					
			c) Overhead charges @ 0.25 on (a+b)				1553.89	
			d) Contractor's profit @ 0.1 on (a+b+c)				776.94	
			Cost for 12 m = (a+b+c+d)				8546.38	
			Rate per m = (a+b+c+d)/12				712.20	
						say	***712.00***	
							712.00	
14.18		(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.**					
			Unit = Running meter					
			Taking output = 12 m					
			a) Labour					
			Mate	day	0.01	550.00	5.50	L-12
			Mazdoor	day	0.20	400.00	80.00	L-13
			Mazdoor (Skilled)	day	0.10	450.00	45.00	L-15
			b) Material					
			Premoulded joint filler 12 m long,20 mm thick and 300 mm deep.	sqm	3.60	516.12	1858.03	M-141
			c) Overhead charges @ 0.25 on (a+b)				497.13	
			d) Contractor's profit @ 0.1 on (a+b+c)				248.57	
			Cost for 12 m = (a+b+c+d)				2734.23	
			Rate per m = (a+b+c+d)/12				227.85	
						say	***228.00***	
							228.00	

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Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
14.18		(iv)	**Providing and filling joint sealing compound as per drawings and technical specifications with coarse sand and 6 per cent bitumen by weight**					
			Unit = Running meter					
			Taking output = 12 m					
			12m long x 100 mm wide x 10mm deep recess					
			a) Labour					
			Mate	day	0.02	550.00	11.00	L-12
			Mazdoor	day	0.50	400.00	200.00	L-13
			Mazdoor (Skilled)	day	0.10	450.00	45.00	L-15
			b) Material					
			Sand	cum	0.012	1612.00	19.34	M-005
			Volume 12 x 0.1 x 0.01 = 0.012 cum					
			Weight 0.012 x 1400 = 16.8kg					
			Bitumen	cum	0.001	42361.44	42.36	Schedule M-4 (xix)
			16.8 x 0.06 = 1 kg					
			c) Overhead charges @ 0.25 on (a+b)				79.43	
			d) Contractor's profit @ 0.1 on (a+b+c)				39.71	
			Cost for 12 m = (a+b+c+d)				436.84	
			Rate per m = (a+b+c+d)/12				36.40	
						say	***36.40***	
							36.00	
		Note	For arriving at the final rate of filler joints per m					
			length and per cm depth of joint filling compound,					
			the rates at Sl. No. i), ii), iii) & iv) shall be added					

Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs
Rate Analysis performed on basis of sample analysis published in "Guidebook for Fabrication & Erection of Steel Structures" by Alok Baishya, BE(Civil), MBA and published by Institute for Steel Development & Growth (INSDAG)		**Supply, fabrication, delivery at bridge site and erection of structural steel works as per IS 2062, including two coats of primer, one at shop and the other at site and two coats of aluminium paints including all labour, material, consumables etc.**				
		Unit =1MT				
		Taking output = 1MT				
		a) Material				
		Structural Steel	tonne	1.05	61092.77	64147.41
		Permanent Bolts of tested quality	kg	7.00	105.00	735.00
		Electrode (@10 kg of weld metal (approx 275 nos. of 4mm electrode / ton of fabrication)	nos.	275.00	9.35	2570.70
		Electrode (@2 kg of weld metal (approx 275 nos. of 4mm electrode / ton of erection)	nos.	50.00	9.35	467.40
		DA Gas for fabrication	cum	2.00	734.40	1468.80
		DA Gas for erection	cum	0.50	734.40	367.20
		Oxygen for fabrication	cum	6.00	126.84	761.04
		Oxygen for erection	cum	1.50	126.84	190.26
		Red Lead Primer for fabrication	l	1.50	160.27	240.41
		Red Lead Primer for erection	l	1.00	160.27	160.27
		Paint	l	2.00	191.44	382.88
		Service bolts for erection	kg	7.00	105.00	735.00
		b) Labour				
		Marker for fabrication	day	0.60	450.00	270.00
		Fitter-I for fabrication	day	0.90	550.00	495.00
		Gas Cutter for fabrication	day	0.90	450.00	405.00
		Hammer man	day	0.30	400.00	120.00
		Welder-I for fabrication	day	1.50	450.00	675.00
		Foreman for fabrication	day	0.90	450.00	405.00
		Grinder for fabrication	day	0.90	450.00	405.00
		Work Supervisor for fabrication	day	0.30	550.00	165.00
		Unskilled for fabrication	day	6.00	400.00	2400.00
		Painter for fabrication	day	1.52	550.00	836.00
		Painter for erection	day	5.05	550.00	2777.50
		Sarang for erection	day	1.00	450.00	450.00
		Riggers for erection	day	8.00	400.00	3200.00
		Welder for erection	day	1.00	450.00	450.00
		Gas Cutter for erection	day	1.00	450.00	450.00
		Fitter for erection	day	1.00	550.00	550.00
		Semi skilled for erection	day	3.00	350.00	1050.00
		c) Machinery				
		Welding machine, grinding machine for fabrication	LS		890.40	890.40
		Tools, Zigs and fixtures for fabrication	LS		254.40	254.40
		Crane, inch, Welding generator, rectifier, transformer, etc. for erection	LS		890.40	890.40
		Tools, tackles, safety appliances, etc for erection	LS		254.40	254.40
		d)Overheads @ 22.5% on (a+b+c)				**20164.38**
		e)Contractor's profit @ 10% on (a+b+c+d)				**10978.39**
		Rate for per MT (a+b+c+d+e)				**120762.24**
					say	**120762.00**

Flexible Apron

Sr No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
15.11	**2507.2**	**Flexible Apron :Construction of flexible apron 1 m thick comprising of loose stone boulders weighing not less than 40 kg beyond curtain wall.**					
		Unit = cum					
		Taking Output = 1 cum					
		a) Material					
		Stone	cum	1.00	575.00	575.00	M-003
		Stone Spalls	cum	0.20	66.00	13.20	M-008
		b) Labour					
		Mate	day	0.05	450.00	22.50	L-12
		Mason	day	0.25	500.00	125.00	L-11
		Mazdoor	day	1.00	400.00	400.00	L-13
		Add 1 per cent of cost of (a+b) for trimming and preparation of bed.				11.36	
		c) Overhead charges @ 8% on (a+b)				91.76	
		d) Contractor's profit @ 10% on (a+b+c)				123.88	
		Rate per cum = (a+b+c+d)				1362.70	
					say	***1363.00***	

Approach Slab

Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks / Input ref.
14.11	**1500,1600,1700 & 2704**		**Reinforced cement concrete approach slab including reinforcement and formwork complete as per drawing and Technical specification**					
			Unit = 1 cum					
			Taking output = 1 cum					
			a) Material					
			Cement concreteM30 Grade Refer relevant item of concrete in item 12.8(G)by using batching plant, excluding formwork i.e. per cum basic cost (a+b+c) (Excluding OH & CP)	cum	1.00	8235.60	8235.60	Item 12.8 (G)
			(Refer relevant item of concrete in item No. 13.8 (G) except that form work may be added at the rate of 2 per cent of cost against 3.5 per cent provided in the foundation concrete.				164.71	
			HYSD bar reinforcement Rate as per item No 14.2(Excluding OH & CP)	tonne	0.05	59458.22	2972.91	Item 14.2 A
			b) Overhead charges @ 22.5%on (a)				2558.97	
			c) Contractor's profit @ 10% on(a+b)				1393.22	
			Rate per cum (a+b+c)				15325.42	
						say	***15325.00***	
							15325.00	

BASES AND SURFACE COURSES (BITUMINOUS VG-40)								
Sr No	**Ref. to MoRTH Spec.**		**Description**	**Unit**	**Quantity**	**Rate Rs**	**Cost Rs**	**Remarks/ Input ref.**
5.6	**507**		**Dense Graded Bituminous Macadam**					
			Providing and laying dense graded bituminous macadam with 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.0 to 4.5 per cent by weight of total mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specification clause No. 507 complete in					
			Unit = cum					
			Taking output = 195 cum (450 tonnes)					
			a) Labour					
			Mate	day	0.840	550.00	462.00	L-12
			Mazdoor working with HMP, mechanical broom, paver, roller, asphalt cutter and assistance for setting out lines, levels and layout of construction	day	16.000	400.00	6400.00	L-13
			Skilled mazdoor for checking line & levels	day	5.000	450.00	2250.00	L-15
			b) Machinery					
			Batch mix HMP @ 75 tonne per hour	hour	6.000	49595.33	297572.00	P&M-022
			Paver finisher hydrostatic with sensor control @ 75 cum per hour	hour	6.000	6852.67	41116.00	P&M-034
			Generator 250 KVA	hour	6.000	3441.41	20648.44	P&M-081
			Front end loader 1 cum bucket capacity	hour	6.000	1755.33	10532.00	P&M-017
			Tipper 10 tonne capacity	tonne.km	450 x L	547.69	246459.54	Lead =1 km & P&M-058
			Add 10 per cent of cost of carriage to cover cost of loading and unloading				24645.95	
			smooth wheeled roller 8-10 tonnes for initial break down rolling.	hour	6.00x0.65*	1072.88	4184.25	P&M-044
			Vibratory roller 8 tonnes for intermediate rolling.	hour	6.00x0.65*	1743.33	6799.00	P&M-059
			Finish rolling with 6-8 tonnes smooth wheeled tandem roller.	hour	6.00x0.65*	1191.66	4647.47	P&M-045

			c) Materials					
			Bitumen @ 4.25 per cent of weight of mix	tonne	19.130	42361.44	810374.35	M-074
			Aggregate					
			Total weight of mix = 450 tonnes					
			Weight of bitumen = 19.13 tonnes					
			Weight of aggregate = 450 -19.13 = 430.87 tonnes					
			Taking density of aggregate = 1.5 ton/cum					
			Volume of aggregate = 287.25 cum					
			Grading - I (40 mm Nominal Size)					
			37.5 - 25 mm 22 per cent	cum	63.190	1214.45	76741.10	M-049
			25 - 10 mm 13 per cent	cum	37.340	1351.50	50464.92	M-046
			10 -4.75 mm 19 per cent	cum	54.580	1224.55	66835.94	M-040
			4.75 mm and below 44 per cent	cum	126.390	1174.20	148407.14	M-030
			Filler @ 2 per cent of weight of aggregates.	tonne	8.620	2653.22	22870.79	M-188
			or					
			Grading - II (19 mm Nominal Size)					
			25 - 10 mm 30 per cent	cum	86.160	1351.50	116445.02	M-046
			10 - 5 mm 28 per cent	cum	80.430	1224.55	98490.56	M-040
			5 mm and below 40 per cent	cum	114.900	1174.20	134915.58	M-030
			Filler @ 2 per cent of weight of aggregates.	tonne	8.620	2653.22	22870.79	M-188
			* Any one of the alternative may be adopted as per approved design					
		(i)	**For Grading I (40 mm nominal size)**					
			d) Overhead charges @ 0.08 on (a+b+c)				147312.87	
			e) Contractor's profit @ 0.1 on (a+b+c+d)				198872.37	
			Cost for 205 cum = a+b+c+d+e				2187596.12	
			Rate per cum = (a+b+c+d+e)/195 (For Grading I)				11218.44	
						say	***11218.00***	
		(ii)	**For GradingII(19 mm nominal size)**					
			d) Overhead charges @ 0.08 on (a+b+c)				147905.04	
			e) Contractor's profit @ 0.1 on (a+b+c+d)				199671.80	
			Cost for 205 cum = a+b+c+d+e				2196389.78	
			Rate per cum = (a+b+c+d+e)/195 (For Grading-II)				11263.54	
						say	***11264.00***	

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		Note	*1. Although the roller are required only for 3 hours as per norms of output, but the same have to be available at site for six hours as the hot mix plant and paver will take six hours for mixing and paving the output of 450 tonnes considered in this analysis. To cater for the idle period of these rollers, their usage rates have been multiplied by a factor of 0.65					
			2.Quantity of Bitumen has been taken for analysis purpose. The actual quantity will depend upon job mix formula.					
			3. Labour for traffic control, watch and ward and other miscellaneous duties at site including sundries have been included in administrative overheads of the contractor.					
			4. In case DBM is laid over freshly laid tack coat, provision of mechanical broom and 2 mazdoors shall be deleted as the same has been included in the cost of tack coat.					
			5. The individual density for each size of aggregates to be used for construction I.e. 37.5-25 mm, 25-10 mm etc. should be found in the laboratory and accordingly the quantities should be ammended for use in field. The average density of 1.5 tonne/cum is only a reference density in this Data Book					
			6. The individual percentage of aggregates should be calculated from the total weight of dry aggregates i.e.. excluding the weight of bitumen. The weight of filler will also be 2 per cent by weight of dry aggregates					

5.8	**509**		**Bituminous Concrete**					
			Providing and laying bituminous concrete with 100-120 TPH batch type hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 5.4 to 5.6 per cent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 509 complete in all					
			Unit = cum					
			Taking output = 191 cum (450 tonnes)					
			a) Labour					
			Mate	day	0.840	550.00	462.00	L-12
			Mazdoor working with HMP, mechanical broom, paver, roller, asphalt cutter and assistance for setting out lines, levels and layout of construction	day	16.000	400.00	6400.00	L-13
			Skilled mazdoor for checking line & levels	day	5.000	450.00	2250.00	L-15
			b) Machinery					
			Batch mix HMP @ 75 tonne per hour	hour	6.000	49595.33	297572.00	P&M-022
			Paver finisher hydrostatic with sensor control @ 75 cum per hour	hour	6.000	6852.67	41116.00	P&M-034
			Generator 250 KVA	hour	6.000	3441.41	20648.44	P&M-081
			Front end loader 1 cum bucket capacity	hour	6.000	1755.33	10532.00	P&M-017
			Tipper 10 tonne capacity	tonne.km	450 x L	547.69	246459.54	Lead =1 km & P&M-058
			Add 10 per cent of cost of carriage to cover cost of loading and unloading				24645.95	
			Smooth wheeled roller 8-10 tonnes for initial break down rolling.	hour	6.00x0.65*	1072.88	4184.25	P&M-044
			Vibratory roller 8 tonnes for intermediate rolling.	hour	6.00x0.65*	1743.33	6799.00	P&M-059
			Finish rolling with 6-8 tonnes smooth wheeled tandem roller.	hour	6.00x0.65*	1191.66	4647.47	P&M-045
			c) Material					
			i) Bitumen@ 5 per cent of weight of mix	tonne	22.500	42361.44	953132.40	M-074
			ii) Aggregate					
			Total weight of mix = 450 tonnes					
			Weight of bitumen = 22.5 tonnes					
			Weight of aggregate = 450 -22.50 = 427.50 tonnes					
			Taking density of aggregate = 1.5 ton/cum					
			Volume of aggregate = 285 cum					
			Grading - I (19 mm Nominal Size)					
			20 - 10 mm 35 per cent	cum	99.750	1399.51	139601.46	M-045
			10 - 5 mm 23 per cent	cum	65.550	1224.55	80269.25	M-040
			5 mm and below 40 per cent	cum	114.000	1174.20	133858.80	M-030
			Filler @ 2 per cent of weight of aggregates.	tonne	8.620	2653.22	22870.79	M-188
			or					
			Grading - II (13 mm Nominal Size)					
			13.2 - 10 mm30 per cent	cum	85.500	1358.50	116151.75	M-044
			10 - 5 mm 25 per cent	cum	71.250	1224.55	87249.19	M-040
			5 mm and below 43 per cent	cum	122.550	1174.20	143898.21	M-030
			Filler @ 2 per cent of weight of aggregates.	tonne	8.620	2653.22	22870.79	M-188
			***Any one of the alternative may be adopted as per approved design**					

		(i)	**for Grading-I (19 mm nominal size)**					
			d) Overhead charges @ 0.08 on (a+b+c)				159635.95	
			e) Contractor's profit @ 0.1 on (a+b+c+d)				215508.53	
			Cost for 205 cum = a+b+c+d+e				2370593.82	
			Rate per cum = (a+b+c+d+e)/191				12411.49	
						say	***12411.00***	
5.8		(ii)	**for Grading-II(13 mm nominal size)**					
			d) Overhead charges @ 0.08 on (a+b+c)				159121.52	
			e) Contractor's profit @ 0.1 on (a+b+c+d)				214814.05	
			Cost for 205 cum = a+b+c+d+e				2362954.55	
			Rate per cum = (a+b+c+d+e)/191 (For Grading-II)				12371.49	
						say	***12371.00***	
		Note	*1. Although the rollers are required only for 3 hours as per norms of output, but the same have to be available at site for six hours as the hot mix plant and paver will take six hours for mixing and paving the output of 450 tonnes considered in this analysis. To cater for the idle period of these rollers, their usage rates have been multiplied by a factor of 0.65					
			2.Quantity of Bitumen has been taken for analysis purpose. The actual quantity will depend upon job mix formula.					
			3. Labour for traffic control, watch and ward and other miscellaneous duties at site including sundries have been included in administrative overheads of the contractor.					
			4. In case BC is laid over freshly laid tack coat, provision of mechanical broom and 2 mazdoors shall be deleted as the same has been included in the cost of tack coat.					
			5. The individual density for each size of aggregates to be used for construction i.e. 37.5-25 mm, 25-10 mm etc. should be found in the laboratory and accordingly the quantities should be ammended for use in field. The average density of 1.5 tonne/cum is only a reference density in this Data Book.					
			6. The individual percentage of aggregates should be calculated from the total weight of dry aggregates i.e.. excluding the weight of bitumen. The weight of filler will also be 2 per cent by weight of dry aggregates.					

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CHAPTER-9

PIPE CULVERTS

Sr No	to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs
9.2	**2900**		**Laying Reinforced Cement Concrete Pipe NP4 / Prestressed Concrete Pipe on First Class Bedding in Single Row .**				
			Laying Reinforced cement concrete pipe NP4/prestressed concrete pipe for culverts on first class bedding of granular material in single row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets .				
			Unit = metre				
			Taking output = 12.5 metres (5 pipes of 2.5 m length each)				
9.2		**B**	**1200 mm dia**				
			a) Labour				
			Mate	day	0.280	550.00	154.00
			Mason	day	1.000	400.00	400.00
			Mazdoor	day	6.000	450.00	2700.00
			b) Material				
			Sand at site	cum	0.090	1612.00	145.08
			Cement at site	tonne	0.070	9830.60	688.14
			RCC pipe NP-4/prestressed concrete pipe including collar	metre	12.500	8970.00	112125.00
			Granular material passing 5-6 mm sieve for class bedding	cum	5.000	1174.20	5871.00
			c) Overhead charges @ on (a+b)				9766.66
			d) Contractor's profit @ on (a+b+c)				13184.99
			Cost for 12.5 metres = a+b+c+d				145034.87
			Rate per metre= (a+b+c+d)/12.5				11602.79
						say	***11603.00***
		Note	1. In case of cement craddle bedding, quantity of PCC M15 is to be calculated as per design and priced separately and added .				
			2. The rate analysis does not include excavation, cement /masonry works in head walls, backfilling, protection works and parapet walls. The same are to be calculated as per approved design and drawings and priced separately on rates available under respective sections				

CHAPTER - 4

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

Sr No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate Rs	Cost Rs
4.1	401	**Granular Sub-Base with Close Graded Material (Table:- 400-1)**				
	A	**Plant Mix Method**				
		Construction of granular sub-base by providing close graded Material, mixing in a mechanical mix plant at OMC, carriage of mixed Material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per clause 401				
		Unit = cum				
		Taking output = 225 cum (450 tonne)				
		a) Labour				
		Mate	day	0.400	550.00	220.00
		Mazdoor skilled	day	2.000	450.00	900.00
		Mazdoor	day	8.000	400.00	3200.00
		b) Machinery				
		Wet mix plant @ 75 tonne capacity per hour	hour	6.000	5362.58	32175.50
		Electric generator 125 KVA	hour	6.000	2202.50	13215.00
		Water tanker 6 KL capacity 5 km lead with one trip per hour	hour	4.500	992.33	4465.50
		Front end loader 1 cum bucket capacity	hour	6.000	1755.33	10532.00
		Tipper 10 tonne (taking Lead, L= 2km)	tonne.km	450 x L	63.90	57507.23
		Add 10 per cent of cost of carriage to cover loading and unloading				5750.72
		Motor Grader 110 HP	hour	6.000	5049.17	30295.00
		Vibratory roller 8-10 t	hour	6.000	1743.33	10460.00
		c) Material				
		Close graded Granular sub-base Material as per table 400-1				
		For Grading-V Material				
		53 mm to 9.5 mm @ 50 per cent	cum	144.000	1325.49	190870.27
		9.5 mm to 2.36 mm @ 20 per cent	cum	57.000	1224.55	69799.35
		2.36 mm below @ 30 per cent	cum	86.400	1560.72	134846.21
		Cost of water	KL	27.000	125.00	3375.00
4.1A	(i)	**Rate per cum for grading-V Material**				
		d) Overhead charges @ on (a+b+c)				45408.94
		e) Contractor's profit @ on (a+b+c+d)				61302.07
		Cost for 225 cum = a+b+c+d+e				674322.79
		Rate per cum = (a+b+c+d+e)/225				2996.99
					say	***2997.00***
	Note	Any one of the grading for material may be adopted as per design				

8.38	**Sug ges tive**		**Rumble Strips**				
			Provision of 15 nos rumble strips covered with premix bituminous carpet, 15-20 mm high at center, 250 mm wide placed at 1 m center to center at approved locations to control speed, marked with white strips of road marking paint.				
			Unit = sqm				
			Taking output = 1 sqm (including gaps)				
			The rate per sqm of premix carpet and road marking may be adopted				
6.1	**511**		**Open - Graded Premix Surfacing By Manual Method**				222.54
8.14			Road Marking With Hot Applied Thermo Plastic Compound				1002.44
			Rate per sqm =				**1224.98**

4.6	403		**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 the road roller at OMC to achieve the desired unconfined compressive strength and to form a layer of sub-base/base.					
			Unit* = *cum					
			Taking output* = *300 cum (600 tonnes)					
			Quantity of cement assumed as 4 per cent of quantity of crushed rock by weight.					
			a) Labour					
			Mate	day	0.480	450.00	216.00	L-12
			Mazdoor skilled	day	2.000	450.00	900.00	L-15
			Mazdoor	day	10.000	400.00	4000.00	L-13
			b) Machinery					
			Motor Grader 110 HP @ 50 cum per hour	hour	6.000	3786.88	22721.25	P&M-032
			Vibratory roller 8 - 10 tonne	hour	6.000	1743.33	10460.00	P&M-059
			Tractor with Rotavator and blade @ 25 cum per hour	hour	12.000	561.57	6738.86	P&M-054
			Water tanker 6 KL capacity	hour	10.000	744.25	7442.50	P&M-060
			c) Material					
			Cement at site @ 4 per cent by weight of crushed aggregate (600 tonne)	tonne	24.000	9830.60	235934.40	M-086
			Grading of material for sub-base course					
			37.5 mm to 9.5 mm @ 55 per cent	cum	211.200	1325.49	279943.07	M-014
			9.5 mm to 4.75 mm @ 20 per cent	cum	76.800	1274.00	97843.20	M-025
			4.75 mm to 75 micron @ 25 per cent	cum	96.000	1174.00	112704.00	M-019
			Cost of water	KL	60.000	125.00	7500.00	M-195
			or					
			Grading of material for Base course					
			37.5 mm to 9.5 mm @ 32.5 per cent	cum	124.800	1325.49	165420.90	M-028
			9.5 mm to 4.75 mm @ 5 per cent	cum	19.200	1274.00	24460.80	M-025
			4.75 mm to 75 micron @ 62.5 per cent	cum	240.000	1174.00	281760.00	M-023
			Cost of water	KL	60.000	125.00	7500.00	M-195
4.6		(i)	**For Sub-Base course**					
			d) Overhead charges @ 8% on (a+b+c)				62912.26	
			e) Contractor's profit @ 10% on (a+b+c+d)				84931.55	
			Cost for 300 cum = a+b+c+d+e				934247.09	
			Rate per cum = (a+b+c+d+e)/300				3114.16	
						say	***3114.00***	
			Add extra cost of VAT on Materials				***3114.00***	
4.6		(ii)	**For Base course**					
			d) Overhead charges @ 8% on (a+b+c)				61404.38	
			e) Contractor's profit @ 10% on (a+b+c+d)				82895.91	
			Cost for 300 cum = a+b+c+d+e				911855.00	
			Rate per cum = (a+b+c+d+e)/300				3039.52	
						say	***3040.00***	
							3040.00	

CHAPTER - 4

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

Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs
4.12	406		**RAP**				
			Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechanical mix plant carriage of mixed Material by tipper to site, laying in uniform layers with paver in sub-base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density.				
			Unit = cum				
			Taking output = 225 cum (495 tonnes)				
			a) Labour				
			Mate	day	0.480	450.00	216.00
			Mazdoor skilled	day	2.000	450.00	900.00
			Mazdoor	day	10.000	400.00	4000.00
			b) Machinery				
			Wet mix plant of 75 tonne hourly capacity	hour	6.600	2010.94	13272.19
			Electric generator 125 KVA	hour	6.000	1651.88	9911.25
			Front end loader 1 cum capacity	hour	6.000	1316.50	7899.00
			Paver finisher	hour	6.000	2569.75	15418.50
			Vibratory roller 8 - 10 tonne	hour	6x0.65	1743.33	6799.00
			or				
			Smooth 3 wheeled steel roller @ 8-10 tonnes.	hour	12.000		
			Water tanker 6 KL capacity	hour	3.000	744.25	2232.75
			Tipper	tonne.km	495 x L	81.48	120993.35
			Add 10 per cent of cost of carriage to cover cost of loading and unloading				12099.33
			c) Material (Table 400-11)				
			Use of Dismantling pavement(@60%)	cum	2024.400		0.00
			45 mm to 22.4 mm@ 30 per cent	cum	35.640	1303.48	46456.03
			22.4 mm to 2.36 mm @ 40 per cent	cum	47.520	1343.19	63828.15
			2.36 mm to 75 micron@ 30 per cent	cum		1560.72	0.00
			Cost of water	KL	18.000	125.00	2250.00
			Cement @ 1 0 per cent of weight of aggregates.	tonne	8.316	9830.60	81751.27
			d) Overhead charges @ 8% on (a+b+c)				24502.04
			e) Contractor's profit @ 10% on (a+b+c+d)				41252.89
			Cost for 225 cum = a+b+c+d+e				453781.74
			Rate per cum = (a+b+c+d+e)/225				2016.81
						say	***2017.00***
							2017.00

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VOLUME VII

COST ESTIMATE

ABSTRACT OF COST

Road name- Ukhrul-Tolui-Tadobi road section on NH-102A in the State of Manipur

PKG-IV

(FROM DESIGN CH KM 81+870 to 105+825)

GENERAL ABSTRACT OF COST

Length of Road (KM) : 23.955

DESCRIPTION OF WORKS		TOTAL COST (IN Cr.)	COST PER KM. OF TOTAL ROAD LENGTH (IN Cr.)	% of Cost of Civil Works (% of C)
A.	ROAD WORKS			
1	Site Clearance and Dismantling	0.51	0.02	0.28%
2	Earth work ,Subgrade and Erosion control	41.54	1.73	22.79%
3	Sub-Base & Base	41.77	1.74	22.91%
4	Bituminous Courses	10.81	0.45	5.93%
5	Junction Improvement	0.40	0.02	0.22%
6	Traffic signs, Road marking & other road appurtenances	3.54	0.15	1.94%
7	Passenger Shelter	0.17	0.01	0.09%
8	Busbay	0.62	0.03	0.34%
	Drainage and Protective Works			
9	Longitudinal Drains	24.76	1.03	13.58%
10	Retaining wall	10.44	0.44	5.73%
11	Breast wall	20.83	0.87	11.43%
12	Protection Work(Parapet Wall)	0.41	0.02	0.22%
B.	**BRIDGES & CULVERTS**			
13	Culvert	14.55	0.61	7.98%
14	Minor Bridge	8.27	0.35	4.54%
C.	**Utility Shifting**			
	Utility Shifting(Electrical+PHE)	3.69	0.15	2.02%
D.	**COST OF CIVIL WORKS IN LAKHS (AS PER SOR 2018)**	**182.31**	**7.61**	
E.	Escalation @ 3% WPI (3% of A+B Only)	5.36		
F.	**Total Civil Cost (D+E)**	**187.67**	**7.83**	
G.	Maintenance for 5 years, i.e 2.5% on civil cost (F-C)	4.60		
H.	GST @ 12% of (F-C)	22.08		
I.	Contingencies @ 2.8% over Civil Cost (F-C)	5.15		
J.	Supervision Charges @ 3% of (F-C)	5.52		
K	Agency Charges @3% of (F-C)	5.52		
l	Escalation Cost @ 2.5% during Construction Period(For 1.5 Yrs of construction period, No escalation in 1st Year and 2.5% for 0.5 Years)	4.60		
M	**TOTAL CONSTRUCTION COST * (F+G+H+I+J+K+L)=M**	**235.14**	**9.82**	
N	**DEPARTMENTAL COST**			
i	LA & Structure Cost(LA+Structure+Horticulture+Fishery)	71.87		
ii	Forest Clearance & Environment Cost (Forest+Avenue Plantation+Environmental Budget+Muck Disposal)	6.06		
	Sub Total (i+ii)= N	**77.93**		
O	**TOTAL PROJECT COST (M+O+P)=Q**	**313.07**	**13.07**	

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BILL

(ROAD PART)

Summary of Bill of Quantity

Bill No : 01. Site Clearance and Dismantling

Sl No	SOR Ref No	Description	Unit	Quantity	Rate	Cost
1	02.01/i	Cutting of Girth 300-600mm	Each	36.00	392.30	14,123
2	02.01/ii	Cutting of Girth 600-900mm	Each	95.00	723.48	68,731
3	02.01/iii	Cutting of Girth 900-1800mm	Each	56.00	1,373.64	76,924
4	02.01/iv	Cutting of Girth 1800-2700mm	Each	2.00	2,576.19	5,152
5	02.01/v	Cutting of Girth 2700mm more	Each	1.00	4,330.68	4,331
6	02.03/b	Clearing & grubbing(Mechanical - Light Jungle)	Ha	22.45	59,912.85	1,345,043
7	02.04/i/c	Dismantling Structure RCC	cum	48.00	1,756.40	84,307
8	02.04/iii/b	Dismantling Structure Rubble Stone Masonry Cement Morter	Cum	120.00	494.21	59,305
9	02.04/vii/a	Dismantle HP (300-600)	rm	192.00	267.64	51,387
10	02.04/vii/b	Dismantle HP (upto 600 - 900 mm dia)	rm	55.00	362.36	19,930
11	02.04/vii/c	Dismantle HP (above 900 mm dia)	rm	492.00	620.22	305,148
12	02.04/viii/e	Dismantle Flexible Pavement Granular	sqm	70,292.00	34.33	2,413,124
13	02.04/viii/f/ii	Dismantle Flexible Pavement Bituminous(Roller & Scarifier)	sqm	11,247.00	57.65	648,390
					Total of Bill	**5,095,895**

Bill No : 02. Earth work,Subgrade and Erosion control

Sl No	SOR Ref No	Description	Unit	Quantity	Rate	Cost
1	02/nsc/1	Hydro Seeding On Cutting Surface	sqm	68,246.00	318.15	21,712,465
2	03.13	Embankment fill from Roadway Cutting	cum	159,651.00	161.80	25,831,532
3	03.14/Nsc	Subgrade and Earthen Shoulder Fill From Roadway Cutting	cum	67,485.04	248.74	16,786,228
4	03.15	Compacting original ground supporting sub-grade	cum	39,345.25	87.52	3,443,496
5	03.31	Excavation in Hill in Soil For Roadway	cum	1,298,397.10	213.50	277,207,781
6	03.32	Excavation for Roadway Ordinary Rock Mechanical (Without Blasting)	cum	229,128.90	307.61	70,482,341
					Total of Bill	**415,463,842**

Bill No : 03. Sub-Base & Base Courses

Sl No	SOR Ref No	Description	Unit	Quantity	Rate	Cost
1	03.15	Compacting original ground supporting sub-grade	cum	945.00	87.52	82,706
2	04.01/Nsc1	GSB Close Graded GR V	Cum	4,869.24	4,616.96	22,481,096
3	04/nsc1	GSB Reuse	Cum	8,578.41	2,083.63	17,874,228

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Item Rate Analysis has been done considering

Summary of Bill of Quantity

Bill No : 03. Sub-Base & Base Courses

Sl No	SOR Ref No	Description	Unit	Quantity	Rate	Cost
4	05.02	WMM	Cum	28,222.28	4,650.60	131,250,531
5	NS1	CT Subbase	cum	52,798.20	4,659.82	246,030,108
					Total of Bill	**417,718,669**

Bill No : 04. Bituminous Courses

Sl No	SOR Ref No	Description	Unit	Quantity	Rate	Cost
1	06.01/a	Prime Coat	sqm	176,393.00	59.77	10,543,010
2	06.02/i	Tack Coat(Bituminous Layer)	sqm	11,067.00	16.26	179,949
3	06.02/ii	Tack Coat(Granular Layer)	sqm	165,326.00	17.93	2,964,295
4	06/Nsc2	BC GR II	cum	7,055.72	13,375.28	94,372,231
					Total of Bill	**108,059,485**

Bill No : 05. Junction Improvement (Major & Minor)

Sl No	SOR Ref No	Description	Unit	Quantity	Rate	Cost
1	03.13	Embankment fill from Roadway Cutting	cum	233.28	161.80	37,745
2	06.01/a	Prime Coat	sqm	5,851.00	59.77	349,714
3	06.02/i	Tack Coat(Bituminous Layer)	sqm	5,851.00	16.26	95,137
4	06/Nsc2	BC GR II	cum	234.04	13,375.28	3,130,351
5	08.01	Precast Concrete Kerb(M20) fix at site	rm	481.00	788.83	379,427
6	08.14	Paint on Bituminous Surface	sqm	30.00	1,012.16	30,365
					Total of Bill	**4,022,739**

Bill No : 06. Traffic signs, Road marking & other road appurtenances

Sl No	SOR Ref No	Description	Unit	Quantity	Rate	Cost
1	08.02/a	5 th km Stone	each	5.00	5,580.98	27,905
2	08.02/b	Ordinary km Stone	each	19.00	3,372.90	64,085
3	08.04	Boundary Stone	each	242.00	3,341.31	808,597
4	08.06	Paint on Steel Surface	sqm	72.00	85.91	6,186
5	08.11/i	90 cm equilateral triangle	each	628.00	6,917.51	4,344,196
6	08.11/iii	60 cm circular	each	1,100.00	6,422.05	7,064,255
7	08.11/iv	80 cm x 60 cm rectangular	each	590.00	7,700.14	4,543,083
8	08.11/vii	90 cm high octagon	each	2.00	10,183.75	20,368

C.E. TESTING CO. PVT. LTD. KOLKATA 700 092 124, N.S.C. BOSE ROAD

Item Rate Analysis has been done considering Manipur Schedule of Rates For National Highways - Works 2018(PWD,Manipur)

Summary of Bill of Quantity

Bill No : 06. Traffic signs, Road marking & other road appurtenances

Sl No	SOR Ref No	Description	Unit	Quantity	Rate	Cost
9	08.12	Direction Sign(<.0.9 sqm)	sqm	8.00	12,725.63	101,805
10	08.14	Paint on Bituminous Surface	sqm	8,084.67	1,012.16	8,182,976
11	08.15/c/v	Road Delineators(100 cm long above Road)	each	1,836.00	1,073.82	1,971,534
12	08.18/A/b	Type-A, "W" Metal Beam Crash Barrier	Rm	2,210.00	3,367.42	7,441,998
13	08/nsc/4/a	Overhead Signs-Truss and Vertical Support	Ton	2.09	187,982.58	392,508
14	08/nsc/4/b	Overhead Signs-Aluminium Alloy Plate for Over Head Sign	sqm	72.00	701.95	50,540
15	08/nsc/6	Rumble Strip	sqm	0.10	1,237.23	124
16	13.01/a/i	Foundation Earthwork Ordinary Soil (0 -3m)	cum	52.49	221.12	11,606
17	14.03/a	Foundation PCC M15	cum	1.94	11,016.69	21,328
18	14.03/e/II	Foundation RCC M25	cum	11.41	11,961.53	136,457
19	14.08	Foundation Steel (HYSD)	MT	1.71	80,685.89	138,054
20	15.03/f/i	Sub Structure RCC M25 (Upto 5m)	cum	4.00	12,814.59	51,258
21	15.05	Sub Structure Steel (HYSD)	MT	0.60	80,685.89	48,412
					Total of Bill	**35,427,273**

Bill No : 07. Passenger Shelter

Sl No	SOR Ref No	Description	Unit	Quantity	Rate	Cost
1	08.05	Paint on Concrete Surface(2 Coat)	sqm	528.54	94.34	49,862
2	10.16	Sub Structure Plaster with 1:3 Cement Morter	sqm	528.54	225.72	119,302
3	13.01/a/i	Foundation Earthwork Ordinary Soil (0 -3m)	cum	79.27	221.12	17,527
4	14.01	Foundation Brick Work C.M. 1:3	cum	12.15	11,968.37	145,416
5	14.03/a	Foundation PCC M15	cum	8.05	11,016.69	88,684
6	14.03/e/II	Foundation RCC M25	cum	5.55	11,961.53	66,386
7	14.08	Foundation Steel (HYSD)	MT	0.67	80,685.89	53,737
8	14/nsc2	Brick Flat Soling	Sqm	107.50	1,129.07	121,375
9	15.01	Sub Structure Brick Work	cum	25.91	12,081.21	313,024
10	16.01/a/i	Super Structure RCC M25 - Solid Slab Super Structure(Upto 5m)	cum	33.21	13,327.24	442,624
11	16.03	Super Structure Steel(HYSD)	MT	3.32	88,519.66	293,974
					Total of Bill	**1,711,912**

C.E. TESTING CO. PVT. LTD. KOLKATA 700 092 124, N.S.C. BOSE ROAD

Item Rate Analysis has been done considering Manipur Schedule of Rates For National Highways - Works 2018(PWD,Manipur)

Summary of Bill of Quantity

Bill No : 08. Bus Bay

Sl No	SOR Ref No	Description	Unit	Quantity	Rate	Cost
1	03.14/Nsc	Subgrade and Earthen Shoulder Fill From Roadway	cum	1,416.00	248.74	352,216
2	05.02	Cutting WMM	Cum	424.80	4,650.60	1,975,575
3	05.03	Foothpath Area	sqm	1,180.00	1,696.42	2,001,776
4	06.01/a	Prime Coat	sqm	2,832.00	59.77	169,269
5	06.02/i	Tack Coat(Bituminous Layer)	sqm	2,832.00	16.26	46,048
6	06/Nsc2	BC GR II	cum	113.28	13,375.28	1,515,152
7	08.14	Paint on Bituminous Surface	sqm	120.00	1,012.16	121,459
					Total of Bill	**6,181,494**

Bill No : 09. Longitudinal Drains

Sl No	SOR Ref No	Description	Unit	Quantity	Rate	Cost
1	13.01/a/i	Foundation Earthwork Ordinary Soil (0 -3m)	cum	20,679.01	221.12	4,572,543
2	13.01/b/ii	Foundation Earthwork Ordinary Rock(0-3m)	cum	3,987.72	211.31	842,645
3	13.02/ii	Filling in Foundation by Sandy Soil	cum	778.08	366.02	284,794
4	14.02/b	Foundation Random Rubble Masonry (	cum	8,274.68	8,203.05	67,877,614
5	14.03/a	coursed/uncoursed) Cement Morter(1:3) Foundation PCC M15	cum	5,224.72	11,016.69	57,559,077
6	15.03/a/i	Sub Structure PCC M15	cum	874.50	11,266.83	9,852,843
7	15.03/e/i	Sub Structure RCC M20 (Upto 5m)	cum	2,623.50	11,925.14	31,285,605
8	15.04	Cement Morter 1:3		31,123.28	2,048.38	63,752,300
9	16.03	Super Structure Steel(HYSD)	MT	131.18	88,519.66	11,611,566
					Total of Bill	**247,638,986**

Bill No : 10. Retaining wall

Sl No	SOR Ref No	Description	Unit	Quantity	Rate	Cost
1		Sub Structure Weepholes		2,100.00		
2	03.32	Excavation for Roadway Ordinary Rock Mechanical (Without Blasting)	cum	292.33	307.61	89,924
3	13.01/a/i	Foundation Earthwork Ordinary Soil (0 -3m)	cum	4,718.57	221.12	1,043,371
4	13.01/b/ii	Foundation Earthwork Ordinary Rock(0-3m)	cum	822.39	211.31	173,780
5	13.04	Sub Structure Filter Media	cum	4,582.79	1,749.70	8,018,499
6	14.02/b	Foundation Random Rubble Masonry (	cum	2,874.66	8,203.05	23,581,013
		coursed/uncoursed) Cement Morter(1:3)				

C.E. TESTING CO. PVT. LTD. KOLKATA 700 092 1244, N.S.C. BOSE ROAD

Summary of Bill of Quantity

Bill No : 10. Retaining wall

Sl No	SOR Ref No	Description	Unit	Quantity	Rate	Cost
7	14.03/a	Foundation PCC M15	cum	1,357.16	11,016.69	14,951,389
8	15.02/b	Sub Structure Random Rubble Masonry Cement Morter(1:3)	cum	6,190.49	8,689.35	53,791,369
9	15.12	Sub Structure Weepholes per Meter	Rm	6,070.00	458.25	2,781,578
					Total of Bill	**104,430,922**

Bill No : 11. Breast wall

Sl No	SOR Ref No	Description	Unit	Quantity	Rate	Cost
1	13.01/a/i	Foundation Earthwork Ordinary Soil (0 -3m)	cum	18,274.66	221.12	4,040,893
2	13.01/b/ii	Foundation Earthwork Ordinary Rock(0-3m)	cum	4,568.67	211.31	965,405
3	13.03/a	Sub Structure Backfill Granular Material	cum	1,980.09	1,480.25	2,931,028
4	13.03/b	Sub Structure Backfill Sandy Material	cum	848.61	4,561.46	3,870,901
5	14.02/b	Foundation Random Rubble Masonry (coursed/uncoursed) Cement Morter(1:3)	cum	8,608.30	8,203.05	70,614,315
6	14.03/a	Foundation PCC M15	cum	4,148.76	11,016.69	45,705,603
7	15.02/b	Sub Structure Random Rubble Masonry Cement Morter(1:3)	cum	8,957.55	8,689.35	77,835,287
8	15.12	Sub Structure Weepholes per Meter	Rm	5,028.80	458.25	2,304,448
					Total of Bill	**208,267,879**

Bill No : 12. Protection Work

Sl No	SOR Ref No	Description	Unit	Quantity	Rate	Cost
1	13.01/a/i	Foundation Earthwork Ordinary Soil (0 -3m)	cum	126.60	221.12	27,993
2	14.02/b	Foundation Random Rubble Masonry (coursed/uncoursed) Cement Morter(1:3)	cum	303.83	8,203.05	2,492,365
3	14.03/a	Foundation PCC M15	cum	126.60	11,016.69	1,394,691
4	15.03/a/i	Sub Structure PCC M15	cum	12.66	11,266.83	142,638
					Total of Bill	**4,057,688**

Bill No : 01. Site Clearance and Dismantling

Sl No	SOR Ref No	Description	Unit	Quantity	Rate(Rs)	Cost(Rs)
1	02.01/i	Cutting of Trees, including cutting of trunks, branches and removal of stumps including stacking of serviceable materials within a lead of 100 m. and earth filling in the depression/pit. Girth from 300 mm to 600 mm	Each	36.00	392.30	14,122.80
2	02.01/ii	Cutting of Trees, including cutting of trunks, branches and removal of stumps including stacking of serviceable materials within a lead of 100 m. and earth filling in the depression/pit. Girth above 600 mm to 900 mm	Each	95.00	723.48	68,730.60
3	02.01/iii	Cutting of Trees, including cutting of trunks, branches and removal of stumps including stacking of serviceable materials within a lead of 100 m. and earth filling in the depression/pit. Girth above 900 mm to 1800 mm	Each	56.00	1,373.64	76,923.84
4	02.01/iv	Cutting of Trees, including cutting of trunks, branches and removal of stumps including stacking of serviceable materials within a lead of 100 m. and earth filling in the depression/pit. Girth above 1800 mm to 2700 mm	Each	2.00	2,576.19	5,152.38
5	02.01/v	Cutting of Trees, including cutting of trunks, branches and removal of stumps including stacking of serviceable materials within a lead of 100 m. and earth filling in the depression/pit. Girth above 2700 mm	Each	1.00	4,330.68	4,330.68
6	02.03/b	Clearing and grubbing road land including uprooting rank vegetation, grass, brush shrubs, saplings and trees of girth upto 300 mm, removal of stumps, disposal of unserviceable materials and stacking of serviceable materials and stacking of serviceable materials upto 100m. from road boundary. (by mechanical means)	Ha	22.45	59,912.85	1,345,043.48

Bill No : 01. Site Clearance and Dismantling

Sl No	SOR Ref No	Description	Unit	Quantity	Rate(Rs)	Cost(Rs)
7	02.04/i/c	Dismantling upto 1.5m in foundation and/or 1.5m above ground level including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of un-serviceable materials and stacking the serviceable materials within a lead of 100m. c)Pre- stressed/ Reinforced Cement Concrete grade M20 & above	cum	48.00	1,756.40	84,307.20
8	02.04/iii/b	Dismantling stone masonry b) Rubble stone masonry in cement mortar	Cum	120.00	494.21	59,305.20
9	02.04/vii/a	Removing hume pipes class NP-3 a) 300mm to 600mm dia	rm	192.00	267.64	51,386.88
10	02.04/vii/b	Removing hume pipes class NP-4 b) Above 600mm to 900mm dia	rm	55.00	362.36	19,929.80
11	02.04/vii/c	Removing hume pipes class NP-5 c) Above 900mm dia	rm	492.00	620.22	305,148.24
12	02.04/viii/e	Scarifying including picking up scarified material and stacking of old serviceable material within a lead of 100m e)Kandar/Gravel metal crust upto 150 mm thick with power Roller with scarifier	sqm	70,292.00	34.33	2,413,124.36
13	02.04/viii/f/ii	Scarifying including picking up scarified material and stacking of old serviceable material within a lead of 100m f)Bituminous coarses 50-70mm along with premix Carpet and Surface dressing but without disturbing the base ii)With road roller attatched with scarifier	sqm	11,247.00	57.65	648,389.55
		Total of Bill 01. Site Clearance and Dismantling				**5,095,895.01**

Item Rate Analysis has been done considering

Bill No : 02. Earth work,Subgrade and Erosion control

Sl No	SOR Ref No	Description	Unit	Quantity	Rate(Rs)	Cost(Rs)
1	02/nsc/1	Supplying and laying Hydro Seeding on cutting Surface	sqm	68,246.00	318.15	21,712,464.90
2	03.13	Construction of Embankment with Material Deposited from Roadway Cutting Construction of embankment with approved materials deposited at site from roadway cutting and excavation from drain and foundation of other structures graded and compacted to meet requirement of table 300-2	cum	159,651.00	161.80	25,831,531.80
3	03.14/Nsc	Construction of Subgrade and Earthen Shoulders Construction of subgrade and earthen shoulders with approved material obtained from Roadway Cutting with all lifts & leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of table No. 300-2	cum	67,485.04	248.74	16,786,227.61
4	03.15	Compacting original ground supporting subgrade Loosening of the ground upto a level of 500 mm below the subgrade level, watered, graded and compacted in layers to meet requirement of table 300-2 for subgrade construction.	cum	39,345.25	87.52	3,443,496.28
5	03.31	Excavation in Hill Area in Soil by Mechanical Means Excavation in soil in hilly area by mechanical means including cutting and trimming of side slopes and disposing of excavated earth with all lifts and lead upto 1000 metres	cum	1,298,397.10	213.50	277,207,780.85
6	03.32	Excavation in Hilly Area in Ordinary Rock by Mechanical Means not Requiring Blasting. Excavation in hilly area in ordinary rock not requiring ballasting by mechanical means including cutting and trimming of slopes and disposal of cut material with all lift and lead upto 1000 metres	cum	229,128.90	307.61	70,482,340.93
		Total of Bill 02. Earth work,Subgrade and Erosion control				**415,463,842.36**

Bill No : 03. Sub-Base & Base Courses

Sl No	SOR Ref No	Description	Unit	Quantity	Rate(Rs)	Cost(Rs)
1	03.15	Compacting original ground supporting subgrade Loosening of the ground upto a level of 500 mm below the subgrade level, watered, graded and compacted in layers to meet requirement of table 300-2 for subgrade construction.	cum	945.00	87.52	82,706.40
2	04.01/Nsc1	Sub-base with Close Graded Material (Table:-400-1) Plant Mix Method Construction of granular sub-base by providing close graded Material, mixing in a mechanical mix plant at OMC, carriage of mixed Material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per clause 401 For Grading- V Material	Cum	4,869.24	4,616.96	22,481,095.54
3	04/nsc1	Plant Mix Method (material Reuse) Construction of granular sub-base by providing close graded Material, mixing in a mechanical mix plant at OMC, carriage of mixed Material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per clause 401	Cum	8,578.41	2,083.63	17,874,228.26
4	05.02	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 uniform layers with paver in sub- base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density.)	Cum	28,222.28	4,650.60	131,250,530.72

Bill No : 03. Sub-Base & Base Courses

Sl No	SOR Ref No	Description	Unit	Quantity	Rate(Rs)	Cost(Rs)
5	NS1	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 the road roller at OMC to achieve the desired unconfined compressive strength and to form a layer of sub-base/base.) For Sub-Base course	cum	52,798.20	4,659.82	246,030,108.32
		Total of Bill 03. Sub-Base & Base Courses				**417,718,669.25**

Item Rate Analysis has been done considering

Bill No : 04. Bituminous Courses

Sl No	SOR Ref No	Description	Unit	Quantity	Rate(Rs)	Cost(Rs)
1	06.01/a	Prime coat (Providing and applying primer coat with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer using mechanical means.) A) On WBM/ WMM Surface @ 0.70-1.00 kg/sqm	sqm	176,393.00	59.77	10,543,009.61
2	06.02/i	Tack coat Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor m on the prepared bituminous/ granular surface cleaned with mechanical broom. i) On bituminious Surface @ 0.20 - 0.30 kg/sqm	sqm	11,067.00	16.26	179,949.42
3	06.02/ii	Tack coat Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor m on the prepared bituminous/ granular surface cleaned with mechanical broom. ii) On granular Surface Pre treated with prime Coat @ 0.25 - 0.30 kg/sqm	sqm	165,326.00	17.93	2,964,295.18
4	06/Nsc2	Providing and laying bituminous concrete with 40-600 TPH batch type hot mix plant producing an average output of 35 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 5.5 % of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 509 complete in all respects B) Grading-II (13 mm nominal size) iii)Using bitumen 30/40	cum	7,055.72	13,375.28	94,372,230.60
		Total of Bill 04. Bituminous Courses				**108,059,484.81**

Bill No : 05. Junction Improvement (Major & Minor)

Sl No	SOR Ref No	Description	Unit	Quantity	Rate(Rs)	Cost(Rs)
1	03.13	Construction of Embankment with Material Deposited from Roadway Cutting Construction of embankment with approved materials deposited at site from roadway cutting and excavation from drain and foundation of other structures graded and compacted to meet requirement of table 300-2	cum	233.28	161.80	37,744.70
2	06.01/a	Prime coat (Providing and applying primer coat with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer using mechanical means.) A) On WBM/ WMM Surface @ 0.70-1.00 kg/sqm	sqm	5,851.00	59.77	349,714.27
3	06.02/i	Tack coat Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor m on the prepared bituminous/ granular surface cleaned with mechanical broom. i) On bituminious Surface @ 0.20 - 0.30 kg/sqm	sqm	5,851.00	16.26	95,137.26
4	06/Nsc2	Providing and laying bituminous concrete with 40-600 TPH batch type hot mix plant producing an average output of 35 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 5.5 % of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 509 complete in all respects B) Grading-II (13 mm nominal size) iii)Using bitumen 30/40	cum	234.04	13,375.28	3,130,350.53
5	08.01	Precast Cement concrete M20 Kerb including fixing at site	rm	481.00	788.83	379,427.23

Bill No : 05. Junction Improvement (Major & Minor)

Sl No	SOR Ref No	Description	Unit	Quantity	Rate(Rs)	Cost(Rs)
6	08.14	Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads on Bituminous Surface (Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35 .The finished surface to be level, uniform and free from streaks and holes.)	sqm	30.00	1,012.16	30,364.80
		Total of Bill 05. Junction Improvement (Major & Minor)				**4,022,738.80**

Bill No : 06. Traffic signs, Road marking & other road appurtenances

Sl No	SOR Ref No	Description	Unit	Quantity	Rate(Rs)	Cost(Rs)
1	08.02/a	Reinforced cement concrete M15 kilometer stone of standard design fixed in Position including painting and painting letters etc. a) 5th KM stone	each	5.00	5,580.98	27,904.90
2	08.02/b	Reinforced cement concrete M15 kilometer stone of standard design fixed in Position including painting and painting letters etc. b) Ordinary kilometer stone	each	19.00	3,372.90	64,085.10
3	08.04	Reinforced Cement Concrete M15 Boundary pillars of standard design,fixed in position including finishing but excluding painting	each	242.00	3,341.31	808,597.02
4	08.06	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	72.00	85.91	6,185.52
5	08.11/i	Retro- reflectorised Traffic signs Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC :67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing) 90 cm equilateral triangle	each	628.00	6,917.51	4,344,196.28

Bill No : 06. Traffic signs, Road marking & other road appurtenances

Sl No	SOR Ref No	Description	Unit	Quantity	Rate(Rs)	Cost(Rs)
6	08.11/iii	Retro- reflectorised Traffic signs Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC :67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing) 60 cm circular	each	1,100.00	6,422.05	7,064,255.00
7	08.11/iv	Retro- reflectorised Traffic signs Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC :67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing) 80 mm x 60 mm rectangular	each	590.00	7,700.14	4,543,082.60
8	08.11/vii	Retro- reflectorised Traffic signs Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC :67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing) 90 cm high octagon	each	2.00	10,183.75	20,367.50

Bill No : 06. Traffic signs, Road marking & other road appurtenances

Sl No	SOR Ref No	Description	Unit	Quantity	Rate(Rs)	Cost(Rs)
9	08.12	Direction and Place Identification signs upto 0.9 sqm size board. (Providing and erecting direction and place identification retro-reflectorised sign asper IRC:67 made of high intensity grade sheeting vide clause 801.3, fixed over aluminium sheeting, 2 mm thick with area not exceeding 0.9 sqm supported on a mild steel single angle iron post 75 x 75 x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 x 45 x 60 cm, 60 cm below ground level as per approved drawing)	sqm	8.00	12,725.63	101,805.04
10	08.14	Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads on Bituminous Surface (Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35 .The finished surface to be level, uniform and free from streaks and holes.)	sqm	8,084.67	1,012.16	8,182,975.54
11	08.15/c/v	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 toIRC-79 and the drawings.) 120x120 -Road Delineator	each	1,836.00	1,073.82	1,971,533.52

Bill No : 06. Traffic signs, Road marking & other road appurtenances

Sl No	SOR Ref No	Description	Unit	Quantity	Rate(Rs)	Cost(Rs)
12	08.18/A/b	Metal Beam Crash Barrier 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, 1.8 m high, 1.1 m below ground/road level, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a spacer of channel section 150 x 75 x 5 mm, 330 mm long complete as per clause 810) For post Height of 1.5 m	Rm	2,210.00	3,367.42	7,441,998.20
13	08/nsc/4/a	Overhead Signs Providing and erecting overhead signs with a corrosion resistant 2mm thick aluminium alloy sheet reflectorised with high intensity retro-reflective sheeting of encapsulated lense type with vertical and lateral clearance given in clause 802.2 and 802.3 and installed as per clause 802.7 over a designed support system of aluminium alloy or galvanised steel trestles and trusses of sections and type as per structural design requirements and approved plans A)Truss and Vertical Support with Base plate on foundation column.	Ton	2.09	187,982.58	392,507.63
14	08/nsc/4/b	Overhead Signs Providing and erecting overhead signs with a corrosion resistant 2mm thick aluminium alloy sheet reflectorised with high intensity retro-reflective sheeting of encapsulated lense type with vertical and lateral clearance given in clause 802.2 and 802.3 and installed as per clause 802.7 over a designed support system of aluminium alloy or galvanised steel trestles and trusses of sections and type as per structural design requirements and approved plans B)Aluminium Alloy Plate for Over Head Sign	sqm	72.00	701.95	50,540.40

Item Rate Analysis has been done considering

Bill No : 06. Traffic signs, Road marking & other road appurtenances

Sl No	SOR Ref No	Description	Unit	Quantity	Rate(Rs)	Cost(Rs)
15	08/nsc/6	Rumble Strips Provision of 15 nos rumble strips covered with premix bituminous carpet, 15-20 mm high at center, 250 mm wide placed at 1 m center to center at approved locations to control speed, marked with white strips of road marking paint.	sqm	0.10	1,237.23	123.72
16	13.01/a/i	Earth work in excavation of foundation for structures as per drawing and technical specification Ordinary soil Depth upto 3 m	cum	52.49	221.12	11,606.15
17	14.03/a	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications PCC M15 Grade	cum	1.94	11,016.69	21,328.31
18	14.03/e/II	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications RCC M25Grade	cum	11.41	11,961.53	136,457.13
19	14.08	HYSD bar reinforcement in foundation complete as per drawing and technical specification	MT	1.71	80,685.89	138,053.56
20	15.03/f/i	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification RCC M25 Grade upto 5m height	cum	4.00	12,814.59	51,258.36
21	15.05	HYSD bar reinforcement in Sub-structure complete as per drawing and technical specification	MT	0.60	80,685.89	48,411.53
		Total of Bill 06. Traffic signs, Road marking & other road appurtenances				**35,427,273.01**

Bill No : 07. Passenger Shelter

Sl No	SOR Ref No	Description	Unit	Quantity	Rate(Rs)	Cost(Rs)
1	08.05	Painting two coat after filling the surface with synthetic enamel paint in all shades on new plastered concrete surface.	sqm	528.54	94.34	49,862.46
2	10.16	Cement Plaster 12mm Thick in Cement Morter 1:3	sqm	528.54	225.72	119,302.05
3	13.01/a/i	Earth work in excavation of foundation for structures as per drawing and technical specification Ordinary soil Depth upto 3 m	cum	79.27	221.12	17,527.30
4	14.01	Brick masonry work in cement mortar 1:3 in foundation complete excluding pointing and plastering, as per drawing and technical specifications	cum	12.15	11,968.37	145,415.70
5	14.03/a	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications PCC M15 Grade	cum	8.05	11,016.69	88,684.35
6	14.03/e/II	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications RCC M25Grade	cum	5.55	11,961.53	66,386.49
7	14.08	HYSD bar reinforcement in foundation complete as per drawing and technical specification	MT	0.67	80,685.89	53,736.80
8	14/nsc2	Brick Flat Soling at Foundation	Sqm	107.50	1,129.07	121,375.03
9	15.01	Brick masonry work in cement mortar 1:3 in Sub-structure complete excluding pointing and plastering, as per drawing and technical specifications				

Bill No : 07. Passenger Shelter

Sl No	SOR Ref No	Description	Unit	Quantity	Rate(Rs)	Cost(Rs)
			cum	25.91	12,081.21	313,024.15
10	16.01/a/i	cement concrete Reinforced concrete in super-structure as per drawing and Technical Specification i/c form work complet eas per drawing and technical specification RCC Grade M25 For solid slab super-structure Upto 5m Upto 5m	cum	33.21	13,327.24	442,624.29
11	16.03	HYSD bar reinforcement in super-structure complete as per drawing and technical specifications	MT	3.32	88,519.66	293,973.79
		Total of Bill 07. Passenger Shelter				**1,711,912.42**

Bill No : 08. Bus Bay

Sl No	SOR Ref No	Description	Unit	Quantity	Rate(Rs)	Cost(Rs)
1	03.14/Nsc	Construction of Subgrade and Earthen Shoulders Construction of subgrade and earthen shoulders with approved material obtained from Roadway Cutting with all lifts & leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of table No. 300-2	cum	1,416.00	248.74	352,215.84
2	05.02	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 uniform layers with paver in sub- base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density.)	Cum	424.80	4,650.60	1,975,574.88
3	05.03	Construction of footpath/separator by providing a 150 mm compacted granular sub base as per clause 401 and 25 mm thick cement concrete grade M15, over laid with pre-cast concrete tiles in cement mortar including provision of all drainage arrangements but excluding kerb channel.	sqm	1,180.00	1,696.42	2,001,775.60
4	06.01/a	Prime coat (Providing and applying primer coat with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer using mechanical means.) A) On WBM/ WMM Surface @ 0.70-1.00 kg/sqm	sqm	2,832.00	59.77	169,268.64
5	06.02/i	Tack coat Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor m on the prepared bituminous/ granular surface cleaned with mechanical broom. i) On bituminious Surface @ 0.20 - 0.30 kg/sqm	sqm	2,832.00	16.26	46,048.32

Bill No : 08. Bus Bay

Sl No	SOR Ref No	Description	Unit	Quantity	Rate(Rs)	Cost(Rs)
6	06/Nsc2	Providing and laying bituminous concrete with 40-600 TPH batch type hot mix plant producing an average output of 35 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 5.5 % of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 509 complete in all respects B) Grading-II (13 mm nominal size) iii)Using bitumen 30/40	cum	113.28	13,375.28	1,515,151.72
7	08.14	Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads on Bituminous Surface (Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35 .The finished surface to be level, uniform and free from streaks and holes.)	sqm	120.00	1,012.16	121,459.20
		Total of Bill 08. Bus Bay				**6,181,494.20**

Bill No : 09. Longitudinal Drains

Sl No	SOR Ref No	Description	Unit	Quantity	Rate(Rs)	Cost(Rs)
1	13.01/a/i	Earth work in excavation of foundation for structures as per drawing and technical specification Ordinary soil Depth upto 3 m	cum	20,679.01	221.12	4,572,543.13
2	13.01/b/ii	Earth work in excavation of foundation for structures as per drawing and technical specification Ordinary rock if blasting is not resorted to	cum	3,987.72	211.31	842,645.11
3	13.02/ii	Filling in Foundation Trenches as per drawing & technical specification using Sandy soil with PI value less than 6	cum	778.08	366.02	284,793.57
4	14.02/b	Stone masonry work in cement mortar 1:3 in foundation complete as drawing and Technical Specification Random Rubble Masonry (coursed/uncoursed)	cum	8,274.68	8,203.05	67,877,613.77
5	14.03/a	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications PCC M15 Grade	cum	5,224.72	11,016.69	57,559,076.51
6	15.03/a/i	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification PCC M15 Grade upto 5m height	cum	874.50	11,266.83	9,852,842.84
7	15.03/e/i	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification RCC M20 Grade upto 5m height	cum	2,623.50	11,925.14	31,285,604.79

Bill No : 09. Longitudinal Drains

Sl No	SOR Ref No	Description	Unit	Quantity	Rate(Rs)	Cost(Rs)
8	15.04	Point with cement Mortar 1:3 in substructure		31,123.28	2,048.38	63,752,300.19
9	16.03	HYSD bar reinforcement in super-structure complete as per drawing and technical specifications	MT	131.18	88,519.66	11,611,566.40
		Total of Bill 09. Longitudinal Drains				**247,638,986.32**

Bill No : 10. Retaining wall

Sl No	SOR Ref No	Description	Unit	Quantity	Rate(Rs)	Cost(Rs)
1				2,100.00		
2	03.32	Excavation in Hilly Area in Ordinary Rock by Mechanical Means not Requiring Blasting. Excavation in hilly area in ordinary rock not requiring ballasting by mechanical means including cutting and trimming of slopes and disposal of cut material with all lift and lead upto 1000 metres	cum	292.33	307.61	89,924.25
3	13.01/a/i	Earth work in excavation of foundation for structures as per drawing and technical specification Ordinary soil Depth upto 3 m	cum	4,718.57	221.12	1,043,370.86
4	13.01/b/ii	Earth work in excavation of foundation for structures as per drawing and technical specification Ordinary rock if blasting is not resorted to	cum	822.39	211.31	173,779.65
5	13.04	Filter medium behind abutment,wing wall and return wall complete as per drawing and technical specification .	cum	4,582.79	1,749.70	8,018,498.91
6	14.02/b	Stone masonry work in cement mortar 1:3 in foundation complete as drawing and Technical Specification Random Rubble Masonry (coursed/uncoursed)	cum	2,874.66	8,203.05	23,581,012.53
7	14.03/a	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications PCC M15 Grade	cum	1,357.16	11,016.69	14,951,388.97
8	15.02/b	Stone masonry work in cement mortar 1:3 in Sub-structure complete as drawing and Technical Specification Random Rubble Masonry (coursed/uncoursed)	cum	6,190.49	8,689.35	53,791,369.04

Bill No : 10. Retaining wall

Sl No	SOR Ref No	Description	Unit	Quantity	Rate(Rs)	Cost(Rs)
9	15.12	Providing weep holes in concrete/Reinforced concrete abutment, wing wall/return wall Complete as per drawing and Technical specifications	Rm	6,070.00	458.25	2,781,577.50
		Total of Bill 10. Retaining wall				**104,430,921.71**

Bill No : 11. Breast wall

Sl No	SOR Ref No	Description	Unit	Quantity	Rate(Rs)	Cost(Rs)
1	13.01/a/i	Earth work in excavation of foundation for structures as per drawing and technical specification Ordinary soil Depth upto 3 m	cum	18,274.66	221.12	4,040,892.60
2	13.01/b/ii	Earth work in excavation of foundation for structures as per drawing and technical specification Ordinary rock if blasting is not resorted to	cum	4,568.67	211.31	965,404.60
3	13.03/a	Backfilling abutment, wing wall and Return walls complete as per drawing and technical specification Granular materials	cum	1,980.09	1,480.25	2,931,028.22
4	13.03/b	Backfilling abutment, wing wall and Return walls complete as per drawing and technical specification Good Sandy Soil free from organic material	cum	848.61	4,561.46	3,870,900.57
5	14.02/b	Stone masonry work in cement mortar 1:3 in foundation complete as drawing and Technical Specification Random Rubble Masonry (coursed/uncoursed)	cum	8,608.30	8,203.05	70,614,315.32
6	14.03/a	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications PCC M15 Grade	cum	4,148.76	11,016.69	45,705,602.80
7	15.02/b	Stone masonry work in cement mortar 1:3 in Sub-structure complete as drawing and Technical Specification Random Rubble Masonry (coursed/uncoursed)	cum	8,957.55	8,689.35	77,835,287.09
8	15.12	Providing weep holes in concrete/Reinforced concrete abutment, wing wall/return wall Complete as per drawing and Technical specifications	Rm	5,028.80	458.25	2,304,447.60

		Total of Bill 11. Breast wall	**208,267,878.80**

Bill No : 12. Protection Work

Sl No	SOR Ref No	Description	Unit	Quantity	Rate(Rs)	Cost(Rs)
1	13.01/a/i	Earth work in excavation of foundation for structures as per drawing and technical specification Ordinary soil Depth upto 3 m	cum	126.60	221.12	27,993.35
2	14.02/b	Stone masonry work in cement mortar 1:3 in foundation complete as drawing and Technical Specification Random Rubble Masonry (coursed/uncoursed)	cum	303.83	8,203.05	2,492,365.49
3	14.03/a	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications PCC M15 Grade	cum	126.60	11,016.69	1,394,690.92
4	15.03/a/i	cement concrete for Plain/Reinforced concrete in open foundation complete as per drawing and technical specifications i/c work complete as per drawing and technical specification PCC M15 Grade upto 5m height	cum	12.66	11,266.83	142,638.07
		Total of Bill 12. Protection Work				**4,057,687.83**