Schedule-A

(See Clauses 2.1 and 8.1)

Site of the Project

1 The Site

(i) Site of the [Two-Lane/Intermediate Lane] Project Highway shall include the land, buildings, structures and road works as described in Annex-I of this Schedule-A.

(ii) The dates of handing over the Right of Way to the Contractor are specified in Annex-II of this Schedule-A.

(iii) An inventory of the Site including the land, buildings, structures, road works, trees and any other immovable property on, or attached to, the Site shall be prepared jointly by the Authority Representative and the Contractor, and such inventory shall form part of the memorandum referred to in Clause 8.2 (i) of this Agreement.

(iv) The alignment plans of the Project Highway are specified in Annex-III. In the case of sections where no modification in the existing alignment of the Project Highway is contemplated, the alignment plan has not been provided. Alignment plans have only been given for sections where the existing alignment is proposed to be upgraded. The proposed profile of the Project Highways shall be followed by the contractor with minimum FRL as indicated in the alignment plan. The Contractor, however, improve/upgrade the Road Profile as indicated in Annex-III based on site/design requirement.

(v) The status of the environment clearances obtained or awaited is given in Annex-IV.

Annex –I

(Schedule-A)

Site

[Note: Through suitable drawings and description in words, the land, buildings, structures, and road works comprising the Site shall be specified briefly but precisely in this Annex-I. All the chainages/ location referred to in Annex-I to Schedule-A shall be existing chainages.]

1. Site

The Site of the [Two-Lane/Intermediate Lane] Project Highway comprises the section of NH-53 commencing from km 175+105 to km 214+289 i.e., Nungkao Village to Jiribam Village in the state of Manipur.
The land, carriageway and structures comprising the Site are described below.

2. Land

The Site of the Project Highway comprises the land (total of land already in possession and land to be possessed) as described below:

SL No.	Chainage (Km)		Existing Right of Way (m)	Proposed Right of Way (m)	Remarks
	From	To			
1	175.105	205.000	7.450	24.00	-
2	205.000	214.289	10.000	24.00	-

3. Carriageway

The present carriageway of the Project Highway is Two-Lane Lane from km 175+105 to km 214.289. The type of the existing pavement is flexible.

4. Major Bridges
The Site includes the following Major Bridges: -

S. No.	Chainage (km)	Type of Structure			No. of Spans with span length (m)	Width (m)
		Foundation	Sub- structure	Super-structure		
Nil						

5. Road over-bridges (ROB)/ Road under-bridges (RUB)
The Site includes the following ROB (road over railway line)/RUB (road under railway line):

S. No.	Chainage (km)	Type of Structure		No. of Spans with span length (m)	Width (m)	ROB/RUB
		Foundation	Superstructure			
Nil						

6. Grade separators

The Site includes the following grade separators:

S. No.	Chainage (km)	Type of Structure		No. of Spans with span length (m)	Width (m)
		Foundation	Superstructure		
Nil					

7. Minor bridges

The Site includes the following minor bridges:

Sl. No.	Survey Chainage (Km)	Type of Structure			No. of Spans with span length (m)	Width (m)
		Foundation	Sub-structure	Super- structure		
1.	182+272	Open	Wall	RCC Box Girder	1 X 41m	12.2
2.	183+775	Open	Wall	Truss Bridge	-	15
3.	184+109	Bailey Bridge			1 X 30.4m	5.45
4.	184+389	Open	Wall	RCC Box Girder	1 X 41m	12.2
5.	185+299	Open	Wall	RCC Box Girder	1 X 31m	12.2
6.	186+615	Open	Wall	RCC Box Girder	1 X 31m	12.2
7.	196+498	Open	Wall	RCC Slab Bridge	1 X 7.1m	9.98
8.	197+053	Open	Wall	RCC Slab Bridge	1 X 11.93m	4.35
9.	198+698	Open	Wall	RCC Slab Bridge	1 X 6.32m	11.28
10.	202+031	Open	Wall	RCC Slab Bridge	1 X 10.36m	4.75
11.	202+960	Open	Wall	RCC Slab Bridge	1 X 10.56m	4.52
12.	203.674	Open	Wall	RCC T Girder	1 X 24.5m	12
13.	204+975	Open	Wall	RCC Box Girder	1 X 41.33m	12.26
14.	205+207	Open	Wall	RCC T Girder	1 X 24.98m	12.06
15.	205+656	Open	Wall	Steel T Girder	1 X 11.02m	4.62
16.	205+786	Open	Wall	Steel T Girder	1 X 10.91m	4.43
17.	206+602	Open	Wall	RCC T Girder	1 X 24.6m	12.1
18.	208.859	Open	Wall	RCC Box Girder	1 X 46.6m	12.1

8. Railway level crossings

The Site includes the following railway level crossings:

S. No.	Location(km)	Remarks
Nil		

9. Underpasses (vehicular, non-vehicular)

The Site includes the following underpasses:

S. No.	Chainage (km)	Type of Structure	No. of Spans with span length (m)	Width (m)
Nil				

10. Culverts

The Site has the following culverts:

Sl. No.	Chainage (km)	Type of Culvert	Span/Opening with Span Length
1	175.278	R.C.C SLAB	1 X 5.33m
2	175.349	R.C.C SLAB	1 X 0.90m
3	175.600	R.C.C SLAB	1 X 0.94m
4	175.852	R.C.C SLAB	1 X 1.56m
5	176.012	R.C.C SLAB	1 X 1.50m
6	176.072	R.C.C SLAB	1 X 0.87m
7	176.231	R.C.C SLAB	1 X 0.84m
8	176.346	R.C.C SLAB	1 X 1.43m
9	176.506	R.C.C SLAB	1 X 4.49m
10	176.753	R.C.C SLAB	1 X 4.66m
11	176.842	R.C.C SLAB	1 X 1.52m

Sl. No.	Chainage (km)	Type of Culvert	Span/Opening with Span Length
12	176.876	R.C.C SLAB	1 X 4.60m
13	177.061	R.C.C SLAB	1 X 0.96m
14	177.325	R.C.C SLAB	1 X 0.80m
15	177.547	R.C.C SLAB	1 X 0.85m
16	177.636	R.C.C SLAB	1 X 1.52m
17	177.745	R.C.C SLAB	1 X 1.63m
18	177.786	R.C.C SLAB	1 X 3.04m
19	177.953	R.C.C SLAB	1 X 3.18m
20	178.196	R.C.C SLAB	1 X 1.49m
21	178.441	R.C.C SLAB	1 X 3.04m
22	178.477	R.C.C SLAB	1 X 4.43m
23	178.636	R.C.C SLAB	1 X 1.44m
24	178.760	R.C.C SLAB	1 X 0.97m
25	179.007	R.C.C SLAB	1 X 0.85m
26	179.054	R.C.C SLAB	1 X 0.92m
27	179.187	R.C.C SLAB	1 X 0.83m
28	179.286	R.C.C SLAB	1 X 1.38m
29	179.356	R.C.C SLAB	1 X 2.84m
30	179.930	R.C.C SLAB	1 X 1.13m
31	180.195	R.C.C SLAB	1 X 1.02m
32	180.278	R.C.C SLAB	1 X 1.52m
33	180.389	R.C.C SLAB	1 X 0.90m
34	180.714	R.C.C SLAB	1 X 3.07m
35	180.875	R.C.C SLAB	1 X 3.87m
36	180.938	R.C.C SLAB	1 X 2.86m
37	181.007	R.C.C SLAB	1 X 2.74m
38	181.126	R.C.C SLAB	1 X 3.04m
39	181.365	R.C.C SLAB	1 X 1.14m
40	181.478	R.C.C SLAB	1 X 5.45m
41	181.605	R.C.C SLAB	1 X 2.64m
42	181.969	R.C.C SLAB	1 X 0.92m
43	182.132	R.C.C SLAB	1 X 2.70m
44	184.805	R.C.C SLAB	1 X 1.85m
45	184.905	R.C.C SLAB	1 X 1.41m
46	185.251	R.C.C SLAB	1 X 1.61m
47	185.364	R.C.C SLAB	1 X 3.35m
48	185.525	R.C.C SLAB	1 X 2.79m
49	185.862	R.C.C SLAB	1 X 1.44m
50	186.017	R.C.C SLAB	1 X 1.14m
51	186.260	R.C.C SLAB	1 X 0.95m
52	186.436	R.C.C SLAB	1 X 1.55m
53	186.721	R.C.C SLAB	1 X 0.99m
54	187.030	R.C.C SLAB	1 X 1.18m
55	187.234	R.C.C SLAB	1 X 0.96m
56	187.371	R.C.C SLAB	1 X 1.10m
57	187.472	R.C.C SLAB	1 X 0.95m

Sl. No.	Chainage (km)	Type of Culvert	Span/Opening with Span Length
58	187.850	R.C.C SLAB	1 X 0.84m
59	188.240	R.C.C SLAB	1 X 1.51m
60	188.347	R.C.C SLAB	1 X 0.89m
61	188.452	R.C.C SLAB	1 X 1.08m
62	188.554	R.C.C SLAB	1 X 0.90m
63	188.705	R.C.C SLAB	1 X 1.37m
64	188.796	R.C.C SLAB	1 X 0.85m
65	188.900	R.C.C SLAB	1 X 1.16m
66	189.086	R.C.C SLAB	1 X 1.51m
67	189.268	R.C.C SLAB	1 X 0.91m
68	189.331	R.C.C SLAB	1 X 1.17m
69	189.404	R.C.C SLAB	1 X 0.87m
70	189.622	R.C.C SLAB	1 X 0.90m
71	189.835	R.C.C SLAB	1 X 1.51m
72	190.051	R.C.C SLAB	1 X 1.46m
73	190.164	R.C.C SLAB	1 X 1.47m
74	190.269	R.C.C SLAB	1 X 0.95m
75	190.309	R.C.C SLAB	1 X 1.03m
76	190.554	R.C.C SLAB	1 X 0.94m
77	190.651	R.C.C SLAB	1 X 1.01m
78	190.820	R.C.C SLAB	1 X 1.42m
79	190.876	R.C.C SLAB	1 X 1.58m
80	191.772	R.C.C SLAB	1 X 0.95m
81	191.894	R.C.C SLAB	1 X 4.65m
82	192.019	R.C.C SLAB	1 X 1.02m
83	192.107	R.C.C SLAB	1 X 0.91m
84	192.271	R.C.C SLAB	1 X 1.03m
85	192.381	R.C.C SLAB	1 X 1.16m
86	192.658	R.C.C SLAB	1 X 1.33m
87	192.723	R.C.C SLAB	1 X 1.55m
88	193.018	R.C.C SLAB	1 X 1.26m
89	193.113	R.C.C SLAB	1 X 0.97m
90	193.616	R.C.C SLAB	1 X 0.85m
91	193.744	R.C.C SLAB	1 X 0.78m
92	193.978	R.C.C SLAB	1 X 4.21m
93	194.140	R.C.C SLAB	1 X 4.51m
94	194.457	R.C.C SLAB	1 X 2.15m
95	194.630	R.C.C SLAB	1 X 5.27m
96	194.699	R.C.C SLAB	1 X 2.57m
97	194.788	R.C.C SLAB	1 X 3.53m
98	194.866	R.C.C SLAB	1 X 5.01m
99	195.159	R.C.C SLAB	1 X 2.85m
100	195.256	R.C.C SLAB	1 X 3.13m
101	195.290	R.C.C SLAB	1 X 2.04m
102	196.023	R.C.C SLAB	1 X 2.71m
103	196.130	R.C.C SLAB	1 X 2.97m

Sl. No.	Chainage (km)	Type of Culvert	Span/Opening with Span Length
104	196.197	R.C.C SLAB	1 X 2.39m
105	196.412	R.C.C SLAB	1 X 2.28m
106	196.478	R.C.C SLAB	1 X 2.90m
107	196.595	R.C.C SLAB	1 X 2.26m
108	196.804	R.C.C SLAB	1 X 2.35m
109	196.872	R.C.C SLAB	1 X 1.61m
110	196.980	R.C.C SLAB	1 X 0.95m
111	197.204	R.C.C SLAB	1 X 4.21m
112	197.336	R.C.C SLAB	1 X 2.89m
113	197.566	R.C.C SLAB	1 X 2.04m
114	197.816	R.C.C SLAB	1 X 2.21m
115	198.278	R.C.C SLAB	1 X 1.71m
116	198.401	R.C.C SLAB	1 X 1.80m
117	198.512	R.C.C SLAB	1 X 1.55m
118	199.028	R.C.C SLAB	1 X 4.20m
119	199.299	R.C.C SLAB	1 X 1.85m
120	199.438	R.C.C SLAB	1 X 1.86m
121	199.534	R.C.C SLAB	1 X 1.91m
122	199.710	R.C.C SLAB	1 X 5.47m
123	200.199	R.C.C SLAB	1 X 1.71m
124	200.289	R.C.C SLAB	1 X 1.53m
125	200.354	R.C.C SLAB	1 X 1.36m
126	200.441	R.C.C SLAB	1 X 1.53m
127	200.560	R.C.C SLAB	1 X 1.08m
128	200.637	R.C.C SLAB	1 X 1.08m
129	200.784	R.C.C SLAB	1 X 1.85m
130	200.831	R.C.C SLAB	1 X 1.86m
131	200.946	R.C.C SLAB	1 X 1.70m
132	201.178	R.C.C SLAB	1 X 2.66m
133	201.434	R.C.C SLAB	1 X 1.75m
134	201.505	R.C.C SLAB	1 X 1.93m
135	201.553	R.C.C SLAB	1 X 1.56m
136	201.609	R.C.C SLAB	1 X 1.93m
137	201.818	R.C.C SLAB	1 X 2.45m
138	201.912	R.C.C SLAB	1 X 2.54m
139	202.226	R.C.C SLAB	1 X 1.78m
140	202.405	R.C.C SLAB	1 X 2.04m
141	202.688	R.C.C SLAB	1 X 1.05m
142	203.105	R.C.C SLAB	1 X 2.28m
143	203.326	R.C.C SLAB	1 X 1.08m
144	204.472	R.C.C SLAB	1 X 3.16m
145	204.529	R.C.C SLAB	1 X 1.11m
146	205.312	R.C.C SLAB	1 X 1.81m
147	205.492	R.C.C SLAB	1 X 1.65m
148	206.176	R.C.C SLAB	1 X 2.80m
149	206.899	R.C.C SLAB	1 X 1.80m

Sl. No.	Chainage (km)	Type of Culvert	Span/Opening with Span Length
150	207.017	R.C.C SLAB	1 X 1.50m
151	207.178	R.C.C SLAB	1 X 1.30m
152	207.387	R.C.C SLAB	1 X 2.70m
153	207.581	R.C.C SLAB	1 X 1.80m
154	207.685	R.C.C SLAB	1 X 2.10m
155	207.836	R.C.C SLAB	1 X 1.40m
156	207.911	R.C.C SLAB	1 X 3.70m
157	208.103	R.C.C SLAB	1 X 1.70m
158	208.186	R.C.C SLAB	1 X 2.40m
159	208.308	R.C.C SLAB	1 X 2.00m
160	208.593	R.C.C SLAB	1 X 1.50m
161	208.705	R.C.C SLAB	1 X 1.70m
162	209.825	R.C.C SLAB	1 X 2.10m
163	209.998	R.C.C SLAB	1 X 2.40m
164	210.141	R.C.C SLAB	1 X 2.30m
165	210.904	R.C.C SLAB	1 X 3.10m
166	211.060	R.C.C SLAB	1 X 3.90m
167	212.376	Box	1 X 2.00m
168	213.011	Box	1 X 2.00m
169	213.868	Box	1 X 2.50m
170	214.061	R.C.C SLAB	1 X 3.00m

11. Bus bays

The details of bus bays on the Site are as follows:

S. No.	Chainage (km)	Length (m)	Left Hand Side	Right Hand Side
Nil				

12. Truck Lay byes

The details of truck lay byes are as follows:

S. No.	Chainage (km)	Length (m)	Left Hand Side	Right Hand Side
Nil				

13. Roadside drains

The details of the roadside drains are as follows:

Sl. No.	Chainage (km)		Length	Side	Type
	From	To	(m)		
1	175.105	175.325	220	Right	Kacha
2	175.900	176.500	600	Right	Kacha
3	177.475	177.675	200	Right	Kacha
4	177.725	179.385	1660	Right	Kacha
5	179.975	180.125	150	Right	Kacha
6	180.975	181.725	750	Right	Kacha
7	181.980	182.125	145	Right	Kacha
8	183.830	183.925	95	Right	Kacha
9	184.139	184.675	536	Right	Kacha
10	185.125	185.675	550	Right	Kacha

Sl. No.	Chainage (km)		Length	Side	Type
	From	To	(m)		
11	188.550	188.685	135	Right	Kacha
12	188.925	189.525	600	Right	Kacha
13	190.100	190.425	325	Left	Kacha
14	191.175	191.470	295	Left	Kacha
15	191.600	191.780	180	Left	Kacha
16	191.900	192.175	275	Left	Kacha
17	192.275	192.375	100	Left	Kacha
18	192.580	192.700	120	Left	Kacha
19	192.975	193.120	145	Left	Kacha
20	193.825	203.470	9645	Left	Kacha
21	203.870	204.180	310	Left	Kacha
22	205.325	206.210	885	Left	Kacha
23	206.380	206.500	120	Left	Kacha
24	206.875	208.325	1450	Left	Kacha
25	208.660	208.800	140	Left	Kacha
26	213.800	213.870	70	Left	Kacha

14. Major junctions

The details of major junctions are as follows:

S. No.	Location		At grade	Separated	Category of Cross Road			
	From km	to km			NH	SH	MDR	Others
1	214.000		yes	no			√	

(NH: National Highway, SH: State Highway, MDR: Major District Road)

15. Minor junctions

The details of the minor junctions are as follows:

Sl. No.	Location	Type of intersection	
		T-Junction	Cross Road
1.	176.870	T- type	3- legged
2.	189.690	T- type	3- legged
3.	204.300	Y- type	3- legged
4.	204.575	T- type	3- legged
5.	204.900	Y- type	3- legged
6.	205.775	T- type	3- legged
7.	207.975	T- type	3- legged
8.	208.575	Y- type	3- legged
9.	209.075	T- type	3- legged
10.	209.575	T- type	3- legged
11.	210.175	T- type	3- legged
12.	210.775	T- type	3- legged
13.	211.100	T- type	3- legged
14.	211.275	Y- type	3- legged
15.	211.425	Y- type	3- legged
16.	211.670	T- type	3- legged
17.	211.700	T- type	3- legged
18.	212.175	Y- type	3- legged
19.	212.275	T- type	3- legged

Sl. No.	Location	Type of intersection	
		T-Junction	Cross Road
20.	212.400	T- type	3- legged
21.	212.675	T- type	3- legged
22.	212.900	T- type	3- legged
23.	213.275	Y- type	3- legged
24.	213.375	T- type	3- legged
25.	213.900	Y- type	3- legged
26.	214.100	Y- type	3- legged
27.	214.110	T- type	3- legged
28.	214.225	T- type	3- legged

6. Bypasses

The details of the existing road sections proposed to be bypassed are as follows:

Sl. No.	Name of bypass (town)	Chainage (km) From km to km	Length (in Km)
Nil			

17. Other structures

[Provide details of other structures, if any.]

18 . **Existing utilities**

(i) Electrical utilities

The site includes the following electrical utilities:-

a) Extra High-Tension Lines (EHT Lines)*

SL. NO	Chainage		Length (in Km)				Crossings			
	From	To	400KV	220KV	110KV	66KV	400KV	220KV	110KV	66KV
Nil										

b) High Tension/Low Tension Lines (HT/LT Lines)*

SL. NO	Chainage		HT/LT Lines (Nos.)			Crossings			Transformer		Conductor	
	From	To	33KV	11KV	LT	33KV	11KV	LT	No	Capacity	Type	Length
1	175105	214289	12	8	34							

(ii) Public Health utilities (Water/Sewage Pipe Lines)*

The site includes the following Public Health utilities:-

SL. NO	Chainage		Length (in Km)				Crossings				Water Tank	
	From	To	Water Supply Line		Sewage Line		Water Supply Line		Sewage Line		Capacity (in lts)	Nos.
			Wit	With	With	With	With	With	With	With		

			h Pu mpi ng	Gravity Flow	Pumping	Gravity Flow	Pump ing	Gravity Flow	Pum ping	Gravit y Flow		
1			12.380								18000	2

Annex – II

(As per Clause 8.3 (i))

(Schedule-A)

Dates for providing Right of Way of Construction Zone

The dates on which the Authority shall provide Right of Way of Construction Zone to the Contractor on different stretches of the Site is stated below:

The Construction of Project Highway will be implemented as per Manual, details of which are already given in Article-2 of Annexure – I of Schedule – A.

Annex - III

(Schedule-A)

Alignment Plans

The existing alignment of the Project Highway shall be modified in the following sections as per the alignment plan indicated below:

(i) The alignment of the Project Highway is enclosed in alignment plan. Finished road level indicated in the alignment plan shall be followed by the contractor as minimum FRL. In any case, the finished road level of the project highway shall not be less than those indicated in the alignment plan. The contractor shall, however, improve/upgrade the Road profile as indicated in Annex-III based on site/design requirement.

(ii) Traffic Signage plan of the Project Highway showing numbers & location of traffic signs is enclosed. The contractor shall, however, improve/upgrade upon the traffic signage plan as indicated in Annex-III based on site/design requirement as per the relevant specifications/IRC Codes/Manual.

Annex – IV

(Schedule-A)

Environment Clearances

The following environment clearances have been obtained: [***]

The following environment clearances are awaited: [***]

Environmental Clearances are not required for the project.

Schedule - B

(See Clause 2.1)

Development of the Project Highway

1. Development of the Project Highway

Development of the Project Highway shall include design and construction of the Project Highway as described in this Schedule-B and in Schedule-C.

2. Rehabilitation and augmentation

Rehabilitation and augmentation shall include Two-Lanning and Strengthening of the Project Highway as described in Annex-I of this Schedule-B and in Schedule-C.

3. Specifications and Standards

The Project Highway shall be designed and constructed in conformity with the Specifications and Standards specified in Annex-I of Schedule-D.

Annex – I

(Schedule-B)

Description of [Two-Lanning]

[Note: Description of the Project Highway shall be given by the Authority in detail together with explanatory drawings (where necessary) to explain the Authority's requirements precisely in order to avoid subsequent changes in the Scope of the Project. The particulars that must be specified in this Schedule-B are listed below as per the requirements of the Manual of Specifications and Standards for [Two Lanning of Highways (IRC: SP: 73-2018)] referred to as the Manual. If any standards specifications or details are not given in the Manual the minimum design/construction requirements shall be specified in this Schedule. In addition to these particulars all other essential project specific details as required should be provided to define the Scope of the Project clearly and precisely.]

1. Widening of the Existing Highway

(i) The Project Highway shall follow the existing alignment unless otherwise specified by the Authority and shown in the alignment plans specified in Annex-III of Schedule-A. Geometric deficiencies, if any, in the existing horizontal and vertical profiles shall be corrected as per the prescribed standards for hilly terrain to the extent land is available.

(ii) Width of Carriageway

(a) Two-Lanning with paved shoulders shall be undertaken. The paved carriageway shall be 7(seven) m wide and paved shoulder shall be 1.5m wide both side.

Provided that in the built-up areas: the width of the carriageway shall be as specified in the following table:

Sl. No.	Built-up stretch (Township)	Location (km)		Width (m)	Typical Cross Section (Refer to Manual)	Remarks
		From	To			
1.	Nungkao	171.250	171.550	7	As per attached TCS drawing	7 m Carriageway
2.	New Kaiphundai	182.650	182.780	7	As per attached TCS drawing	7 m Carriageway
3.		182.780	182.910	7	As per attached TCS drawing	7 m Carriageway
4.		182.910	183.030	7	As per attached TCS drawing	7 m Carriageway
5.		183.030	183.080	7	As per attached TCS drawing	7 m Carriageway
6.		183.080	183.160	7	As per attached TCS drawing	7 m Carriageway
7.		183.160	183.210	7	As per attached TCS drawing	7 m Carriageway
8.		183.210	183.300	7	As per attached TCS drawing	7 m Carriageway
9.	Old Kaiphundai	189.120	189.250	7	As per attached TCS drawing	7 m Carriageway
10.		189.530	190.060	7	As per attached TCS drawing	7 m Carriageway

Sl. No.	Built-up stretch (Township)	Location (km)		Width (m)	Typical Cross Section (Refer to Manual)	Remarks
		From	To			
11.	Old Kaiphundai	190.060	190.200	7	As per attached TCS drawing	7 m Carriageway
12.	Lhangnom	196.260	196.330	7	As per attached TCS drawing	7 m Carriageway
13.		196.330	196.380	7	As per attached TCS drawing	7 m Carriageway
14.		196.380	197.200	7	As per attached TCS drawing	7 m Carriageway
15.		197.400	197.800	7	As per attached TCS drawing	7 m Carriageway
16.	Muktokhal	200.050	200.200	7	As per attached TCS drawing	7 m Carriageway
17.		200.200	200.400	7	As per attached TCS drawing	7 m Carriageway
18.	Muktokhal, Phaitol	200.580	202.700	7	As per attached TCS drawing	7 m Carriageway
19.	Jiribam	203.150	205.974	7	As per attached TCS drawing	7 m Carriageway

(b) Except as otherwise provided in this Agreement the width of the paved carriageway and cross-sectional features shall conform to paragraph 1.1 above.

2. Geometric Design and General Features

(i) General

Geometric design and general features of the Project Highway shall be in accordance with Section 2 of the Manual.

(ii) Design speed

For Mountainous terrain design speed shall be the minimum design speed of 40km/hr and for sharp curve and hair pin bend locations speed reduces up to 30kmph & 20 kmph, respectively.

(iii) Improvement of the existing road geometrics

The stretches where design speed reduces below 40kmph are summarized below:

Sl. No.	Stretch	Type of Deficiency	Remarks
1	169.625 to 169.671	Sharp Bend	Design Speed 30 kmph
2	169.837 to 169.927	Sharp Bend	Design Speed 30 kmph
3	169.975 to 170.030	Sharp Bend	Design Speed 30 kmph
4	170.250 to 170.261	Sharp Bend	Design Speed 30 kmph
5	170.319 to 170.336	Sharp Bend	Design Speed 30 kmph
6	170.408 to 170.428	Sharp Bend	Design Speed 30 kmph
7	170.501 to 170.563	Sharp Bend	Design Speed 30 kmph
8	170.708 to 170.745	Sharp Bend	Design Speed 20 kmph
9	170.776 to 170.800	Sharp Bend	Design Speed 20 kmph
10	170.830 to 170.866	Sharp Bend	Design Speed 20 kmph
11	170.958 to 170.984	Sharp Bend	Design Speed 30 kmph
12	171.053 to 171.085	Sharp Bend	Design Speed 30 kmph
13	171.117 to 171.150	Sharp Bend	Design Speed 30 kmph

Sl. No.	Stretch	Type of Deficiency	Remarks
14	171.180 to 171.197	Sharp Bend	Design Speed 30 kmph
15	171.257 to 171.284	Sharp Bend	Design Speed 30 kmph
16	171.473 to 171.527	Sharp Bend	Design Speed 30 kmph
17	171.563 to 171.576	Sharp Bend	Design Speed 30 kmph
18	171.694 to 171.749	Sharp Bend	Design Speed 20 kmph
19	171.931 to 171.945	Sharp Bend	Design Speed 30 kmph
20	171.996 to 172.005	Sharp Bend	Design Speed 30 kmph
21	172.072 to 172.114	Sharp Bend	Design Speed 30 kmph
22	172.175 to 172.182	Sharp Bend	Design Speed 30 kmph
23	172.243 to 172.277	Sharp Bend	Design Speed 30 kmph
24	172.362 to 172.368	Sharp Bend	Design Speed 30 kmph
25	172.554 to 172.645	Sharp Bend	Design Speed 30 kmph
26	172.727 to 172.806	Sharp Bend	Design Speed 30 kmph
27	173.011 to 173.043	Sharp Bend	Design Speed 30 kmph
28	173.104 to 173.136	Sharp Bend	Design Speed 30 kmph
29	173.177 to 173.209	Sharp Bend	Design Speed 30 kmph
30	173.279 to 173.321	Sharp Bend	Design Speed 30 kmph
31	173.432 to 173.470	Sharp Bend	Design Speed 30 kmph
32	173.525 to 173.531	Sharp Bend	Design Speed 30 kmph
33	173.562 to 173.583	Sharp Bend	Design Speed 30 kmph
34	173.608 to 173.681	Sharp Bend	Design Speed 30 kmph
35	173.813 to 173.888	Sharp Bend	Design Speed 30 kmph
36	173.997 to 174.077	Sharp Bend	Design Speed 30 kmph
37	174.228 to 174.249	Sharp Bend	Design Speed 30 kmph
38	175.020 to 175.043	Sharp Bend	Design Speed 30 kmph
39	175.074 to 175.119	Sharp Bend	Design Speed 30 kmph
40	175.148 to 175.162	Sharp Bend	Design Speed 30 kmph
41	175.188 to 175.224	Sharp Bend	Design Speed 30 kmph
42	175.254 to 175.262	Sharp Bend	Design Speed 30 kmph
43	175.314 to 175.320	Sharp Bend	Design Speed 30 kmph
44	175.417 to 175.454	Sharp Bend	Design Speed 20 kmph
45	175.499 to 175.537	Sharp Bend	Design Speed 30 kmph
46	176.039 to 176.070	Sharp Bend	Design Speed 30 kmph
47	176.337 to 176.385	Sharp Bend	Design Speed 20 kmph
48	176.444 to 176.457	Sharp Bend	Design Speed 20 kmph
49	176.765 to 176.935	Sharp Bend	Design Speed 30 kmph
50	177.059 to 177.123	Sharp Bend	Design Speed 30 kmph
51	178.446 to 178.477	Sharp Bend	Design Speed 30 kmph
52	178.550 to 178.581	Sharp Bend	Design Speed 20 kmph
53	178.672 to 178.704	Sharp Bend	Design Speed 20 kmph
54	179.100 to 179.130	Sharp Bend	Design Speed 20 kmph
55	179.295 to 179.366	Sharp Bend	Design Speed 30 kmph
56	179.417 to 179.444	Sharp Bend	Design Speed 30 kmph
57	179.521 to 179.554	Sharp Bend	Design Speed 30 kmph
58	179.630 to 179.655	Sharp Bend	Design Speed 30 kmph
59	179.692 to 179.731	Sharp Bend	Design Speed 30 kmph

Sl. No.	Stretch	Type of Deficiency	Remarks
60	179.770 to 179.787	Sharp Bend	Design Speed 30 kmph
61	179.840 to 179.855	Sharp Bend	Design Speed 20 kmph
62	179.950 to 179.965	Sharp Bend	Design Speed 20 kmph
63	180.014 to 180.022	Sharp Bend	Design Speed 30 kmph
64	180.060 to 180.091	Sharp Bend	Design Speed 30 kmph
65	180.137 to 180.167	Sharp Bend	Design Speed 30 kmph
66	180.978 to 181.082	Sharp Bend	Design Speed 30 kmph
67	181.230 to 181.301	Sharp Bend	Design Speed 30 kmph
68	181.367 to 181.403	Sharp Bend	Design Speed 30 kmph
69	181.481 to 181.525	Sharp Bend	Design Speed 30 kmph
70	181.570 to 181.577	Sharp Bend	Design Speed 30 kmph
71	181.616 to 181.626	Sharp Bend	Design Speed 30 kmph
72	181.685 to 181.717	Sharp Bend	Design Speed 30 kmph
73	181.747 to 181.769	Sharp Bend	Design Speed 30 kmph
74	181.799 to 181.820	Sharp Bend	Design Speed 30 kmph
75	181.910 to 181.923	Sharp Bend	Design Speed 30 kmph
76	181.973 to 181.979	Sharp Bend	Design Speed 30 kmph
77	182.019 to 182.027	Sharp Bend	Design Speed 30 kmph
78	182.068 to 182.074	Sharp Bend	Design Speed 30 kmph
79	182.116 to 182.121	Sharp Bend	Design Speed 30 kmph
80	182.172 to 182.183	Sharp Bend	Design Speed 30 kmph
81	182.238 to 182.293	Sharp Bend	Design Speed 30 kmph
82	182.349 to 182.364	Sharp Bend	Design Speed 30 kmph
83	183.011 to 183.037	Sharp Bend	Design Speed 30 kmph
84	183.092 to 183.188	Sharp Bend	Design Speed 30 kmph
85	183.331 to 183.348	Sharp Bend	Design Speed 30 kmph
86	183.809 to 183.828	Sharp Bend	Design Speed 30 kmph
87	183.935 to 184.020	Sharp Bend	Design Speed 30 kmph
88	184.098 to 184.115	Sharp Bend	Design Speed 30 kmph
89	184.697 to 184.735	Sharp Bend	Design Speed 30 kmph
90	184.976 to 185.015	Sharp Bend	Design Speed 30 kmph
91	185.555 to 185.562	Sharp Bend	Design Speed 30 kmph
92	185.613 to 185.642	Sharp Bend	Design Speed 20 kmph
93	185.729 to 185.809	Sharp Bend	Design Speed 30 kmph
94	185.889 to 185.922	Sharp Bend	Design Speed 20 kmph
95	186.038 to 186.074	Sharp Bend	Design Speed 30 kmph
96	186.105 to 186.125	Sharp Bend	Design Speed 30 kmph
97	186.152 to 186.160	Sharp Bend	Design Speed 30 kmph
98	186.216 to 186.237	Sharp Bend	Design Speed 30 kmph
99	186.452 to 186.485	Sharp Bend	Design Speed 30 kmph
100	186.524 to 186.555	Sharp Bend	Design Speed 30 kmph
101	186.616 to 186.649	Sharp Bend	Design Speed 30 kmph
102	187.285 to 187.328	Sharp Bend	Design Speed 30 kmph
103	187.902 to 187.962	Sharp Bend	Design Speed 30 kmph
104	188.054 to 188.069	Sharp Bend	Design Speed 30 kmph
105	188.183 to 188.228	Sharp Bend	Design Speed 20 kmph

Sl. No.	Stretch	Type of Deficiency	Remarks
106	188.270 to 188.304	Sharp Bend	Design Speed 20 kmph
107	188.360 to 188.381	Sharp Bend	Design Speed 30 kmph
108	188.434 to 188.469	Sharp Bend	Design Speed 30 kmph
109	188.518 to 188.529	Sharp Bend	Design Speed 30 kmph
110	188.586 to 188.644	Sharp Bend	Design Speed 30 kmph
111	188.677 to 188.718	Sharp Bend	Design Speed 30 kmph
112	188.757 to 188.764	Sharp Bend	Design Speed 30 kmph
113	188.835 to 188.844	Sharp Bend	Design Speed 30 kmph
114	189.343 to 189.379	Sharp Bend	Design Speed 30 kmph
115	189.819 to 189.859	Sharp Bend	Design Speed 30 kmph
116	190.005 to 190.043	Sharp Bend	Design Speed 30 kmph
117	190.658 to 190.663	Sharp Bend	Design Speed 30 kmph
118	190.719 to 190.737	Sharp Bend	Design Speed 30 kmph
119	190.871 to 190.897	Sharp Bend	Design Speed 30 kmph
120	190.957 to 190.964	Sharp Bend	Design Speed 30 kmph
121	191.025 to 191.061	Sharp Bend	Design Speed 30 kmph
122	191.122 to 191.161	Sharp Bend	Design Speed 30 kmph
123	191.244 to 191.288	Sharp Bend	Design Speed 30 kmph
124	191.350 to 191.388	Sharp Bend	Design Speed 30 kmph
125	191.525 to 191.571	Sharp Bend	Design Speed 30 kmph
126	191.639 to 191.679	Sharp Bend	Design Speed 30 kmph
127	193.275 to 193.290	Sharp Bend	Design Speed 30 kmph
128	193.527 to 193.606	Sharp Bend	Design Speed 30 kmph
129	194.184 to 194.221	Sharp Bend	Design Speed 30 kmph
130	194.317 to 194.343	Sharp Bend	Design Speed 30 kmph
131	194.411 to 194.424	Sharp Bend	Design Speed 30 kmph
132	194.487 to 194.500	Sharp Bend	Design Speed 30 kmph
133	194.636 to 194.739	Sharp Bend	Design Speed 30 kmph
134	194.790 to 194.826	Sharp Bend	Design Speed 30 kmph
135	194.865 to 194.897	Sharp Bend	Design Speed 30 kmph
136	194.933 to 194.967	Sharp Bend	Design Speed 30 kmph
137	195.445 to 195.480	Sharp Bend	Design Speed 30 kmph
138	195.733 to 195.746	Sharp Bend	Design Speed 30 kmph
139	195.856 to 195.883	Sharp Bend	Design Speed 30 kmph
140	195.952 to 196.076	Sharp Bend	Design Speed 30 kmph
141	196.153 to 196.222	Sharp Bend	Design Speed 30 kmph
142	196.283 to 196.333	Sharp Bend	Design Speed 30 kmph
143	196.477 to 196.482	Sharp Bend	Design Speed 30 kmph
144	196.618 to 196.649	Sharp Bend	Design Speed 30 kmph
145	196.726 to 196.750	Sharp Bend	Design Speed 30 kmph
146	196.794 to 196.806	Sharp Bend	Design Speed 30 kmph
147	196.824 to 196.858	Sharp Bend	Design Speed 30 kmph
148	196.895 to 196.920	Sharp Bend	Design Speed 30 kmph
149	196.985 to 196.994	Sharp Bend	Design Speed 30 kmph
150	197.429 to 197.448	Sharp Bend	Design Speed 30 kmph
151	197.489 to 197.497	Sharp Bend	Design Speed 30 kmph

Sl. No.	Stretch	Type of Deficiency	Remarks
152	197.559 to 197.586	Sharp Bend	Design Speed 20 kmph
153	197.630 to 197.663	Sharp Bend	Design Speed 20 kmph
154	200.019 to 200.047	Sharp Bend	Design Speed 30 kmph
155	200.171 to 200.202	Sharp Bend	Design Speed 30 kmph
156	200.270 to 200.282	Sharp Bend	Design Speed 30 kmph
157	200.317 to 200.462	Sharp Bend	Design Speed 30 kmph
158	200.606 to 200.623	Sharp Bend	Design Speed 20 kmph
159	205.331 to 205.405	Sharp Bend	Design Speed 30 kmph

In the following sections where improvement of the existing road geometrics to the prescribed standards is not possible the existing road geometrics shall be improved to the extent possible within the existing right of way and proper road signs and safety.
Measures shall be provided.

(iv) Right of Way
Details of the Right of Way are given in Annex-II of Schedule-A.

(v) Type of shoulders
[Refer to provision of relevant Manual and specify]

(a) In built up sections footpaths / fully paved shoulders shall be provided in the following stretches:

Sl. No.	Stretch (from Km to Km)	Fully Paved shoulders/ footpaths	Reference to cross section
1.	171.250 to 171.550	2X1.5 m paved shoulder & 2X1.0 m footpath	TCS-10
2.	182.650 to 182.780	2X1.5 m paved shoulder & 2X1.0 m footpath	TCS-7
3.	182.780 to 182.910	2X1.5 m paved shoulder & 2X1.0 m footpath	TCS-6
4.	182.910 to 183.030	2X1.5 m paved shoulder & 2X1.0 m footpath	TCS-7
5.	183.030 to 183.080	2X1.5 m paved shoulder & 2X1.0 m footpath	TCS-7B
6.	183.080 to 183.160	2X1.5 m paved shoulder & 2X1.0 m footpath	TCS-7
7.	183.160 to 183.210	2X1.5 m paved shoulder & 2X1.0 m footpath	TCS-7B
8.	183.210 to 183.300	2X1.5 m paved shoulder & 2X1.0 m footpath	TCS-7
9.	189.120 to 189.250	2X1.5 m paved shoulder & 2X1.0 m footpath	TCS-7B
10.	189.530 to 190.060	2X1.5 m paved shoulder & 2X1.0 m footpath	TCS-7B
11.	190.060 to 190.200	2X1.5 m paved shoulder & 2X1.0 m footpath	TCS-7
12.	196.260 to 196.330	2X1.5 m paved shoulder & 2X1.0 m footpath	TCS-6
13.	196.330 to 196.380	2X1.5 m paved shoulder & 2X1.0 m footpath	TCS-10
14.	196.380 to 197.200	2X1.5 m paved shoulder & 2X1.0 m footpath	TCS-6
15.	197.400 to 197.800	2X1.5 m paved shoulder & 2X1.0 m footpath	TCS-6
16.	200.050 to 200.200	2X2.5 m paved shoulder & 2X1.75 m footpath	TCS-1A
17.	200.200 to 200.400	2X2.5 m paved shoulder & 2X1.75 m footpath	TCS-1
18.	200.580 to 201.500	2X2.5 m paved shoulder & 2X1.75 m footpath	TCS-1
19.	201.500 to 202.700	2X2.5 m paved shoulder & 2X1.75 m footpath	TCS-1B_1
20.	203.150 to 203.500	2X2.5 m paved shoulder & 2X1.75 m footpath	TCS-1B_1
21.	203.500 to 205.974	2X2.5 m paved shoulder & 2X1.75 m footpath	TCS-1

(b) Earthen shoulders of 1.0 m width shall be provided with selected earth wherever

applicable as per TCS drawing.

(c) Design and specifications of paved shoulders and granular material shall conform to the requirements specified in the relevant Manual.

(vi) Lateral and vertical clearances at underpasses

(a) Lateral and vertical clearances at underpasses and provision of guards/crash barriers shall be as per requirements specified in the relevant Manual.

(b) Lateral clearance: The width of the opening at the underpasses shall be as follows:

Sl. No.	Location (Chainage) (from km to km)	Span/ opening(m)	Remarks
Nil			

(vii) Lateral and vertical clearances at overpasses

(a) Lateral and vertical clearances at over passes shall be as per requirements specified in the relevant Manual.

(b) Lateral clearance: The width of the opening at the overpasses shall be as follows:

Sl. No.	Location (Chainage) (from km to km)	Span/Opening(m)	Remarks
Nil			

(viii) Service roads

Service roads shall be constructed at the locations and for the lengths indicated below: [Refer requirements specified in the relevant Manual]

Sl. No.	Location of service road(from km to km)	Right hand side(RHS)/Left hand side(LHS)/or Both sides	Length(km)of service road
Nil			

(ix) Grade separated structures

(a) Grade separated structures shall be provided as per provision of the Manual. The requisite is given below:

[Refer to requirements specified in the relevant Manual]

Sl. No.	Location of Structure (VUP)	Length (m)	Number and length of spans	Approach gradient	Remarks. if any
Nil					

(b) In the case of grade separated structures the type of structure and the level of the Project Highway and the cross-roads shall be as follows: [Refer to provision of the Manual and specify the type of vehicular underpass/ overpass structure and whether the cross road is to be carried at the existing Level. Raised or lowered]

Sl. No.	Location	Type of structure Length(m)	Cross road at			Remarks. If any
			Existing Level	Raised Level	Lowered Level	
Nil						

(x) Cattle and pedestrian underpass /overpass

Cattle and pedestrian underpass/overpass shall be constructed as follows: [Refer to provision of the relevant Manual and specify the requirements of cattle and pedestrian underpass/overpass]

Sl. No.	Location	Type of crossing
Nil		

(xi) Typical cross-sections of the Project Highway

[Give typical cross-sections of the Project Highway by reference to the Manual] As per attached Drawings

TCS Number	TCS Description	Length (km)
TCS-1	Typical Cross Section of Two Lane Carriageway with Paved Shoulder in Built up area with Both side covered drain cum footpath in plain terrain (Reconstruction)	3594
TCS-1A	Typical Cross Section of Two Lane Carriageway with Paved Shoulder in Built up area with Both side covered drain cum footpath in plain terrain (New Construction)	150
TCS-1B_1	Typical Cross Section of Two Lane Carriageway with Paved Shoulder with Stabil road Technology in Built up area with Both side covered drain cum footpath	1550
TCS-1B_2	Typical Cross Section of Two Lane Carriageway with Paved Shoulder with Stabil road Technology in Rural area	450
TCS-2	Typical Cross Section of Two Lane Carriageway with Paved Shoulder in Rural area in Plain Terrain (Reconstruction)	180
TCS-2A	Typical Cross Section of Two Lane Carriageway with Paved Shoulder in Rural area in Plain Terrain (New Construction)	300
TCS-3	Typical Cross Section of Two Lane Carriageway with Paved Shoulder in Rural area with trapezoidal open drain on hill side and earthen shoulder on valley side	14925
TCS-3A	Typical Cross Section of Two Lane Carriageway with Paved Shoulder in Rural area with trapezoidal open drain on hill side and earthen shoulder on valley side (New	3915
TCS-4	Typical Cross Section of Two Lane Carriageway with Paved Shoulder In Rural Area With Retaining Wall on Valley Side And Trapezoidal Open drain on Hill side	1010
TCS-5	Typical Cross Section of Two Lane Carriageway with Paved Shoulder In Rural Area With Breast Wall on Hill Side And Earthen Shoulder on Valley side (Reconstruction)	830
TCS-5A	Typical Cross Section of Two Lane Carriageway with Paved Shoulder In Rural Area With Breast Wall on Hill Side And Earthen Shoulder on Valley side (New Construction)	570
TCS-6	Typical Cross Section of Two Lane Carriageway with Paved Shoulder In Built Up Area With Both Side Footpath Cum RCC Rectangular Covered Drain in Hilly Terrain	1420
TCS-7	Typical Cross Section of Two Lane Carriageway with Paved Shoulder In Built-Up Area With Breast Wall on Hill Side And Footpath Cum RCC Rectangular Covered Drain on Valley side (Reconstruction)	560
TCS-7A	Typical Cross Section of Two Lane Carriageway with Paved Shoulder In Rural Area With Breast Wall on Hill Side And Trapezoidal Open Drain on Valley side (New Construction)	1210
TCS-7B	Typical Cross Section of Two Lane Carriageway with Paved Shoulder In Built-Up Area With Breast Wall on Hill Side And Footpath Cum RCC Rectangular Covered Drain on Valley side (New Construction)	760

TCS Number	TCS Description	Length (km)
TCS-8	Typical Cross Section of Two Lane Carriageway with Paved Shoulder In Rural Area With Retaining Wall on One Side And Earthen Shoulder on both side (Reconstruction)	80
TCS-10	Typical Cross Section of Two Lane Carriageway with Paved Shoulder In Built-Up Area With Covered Drain on Hill Side and Retaining Wall on Valley side (Reconstruction)	350
TCS-11	Typical Cross Section of Two Lane Carriageway with Paved Shoulder In Rural Area With Retaining Wall on Valley Side And Breast Wall on Hill side (Reconstruction)	140
TCS-11A	Typical Cross Section of Two Lane Carriageway with Paved Shoulder In Rural Area With Retaining Wall on Valley Side And Breast Wall on Hill side (New Construction)	315
TCS-12	Typical Cross Section of Two Lane Carriageway with Paved Shoulder In Rural Area With Both Side Trapezoidal Open Drain (New Construction)	2625
TCS-15	Typical Cross Section of Two Lane Carriageway with Paved Shoulder In Rural Area With Breast Wall on Hill side and Gabion wall on Valley side	420
	Makru Bridge Portion	1050
Total =		**36404**

Design Chainage (m)		Net Length (m)	TCS No.
From	To		
169570	169630	60	TCS-3A
169630	169680	50	TCS-4
169680	169825	145	TCS-3
169825	169875	50	TCS-12
169875	170275	400	TCS-3
170275	170375	100	TCS-3A
170375	170450	75	TCS-3
170450	170500	50	TCS-3A
170500	170600	100	TCS-3
170600	170700	100	TCS-5A
170700	170750	50	TCS-3
170750	170800	50	TCS-3A
170800	170975	175	TCS-3
170975	171030	55	TCS-3A
171030	171110	80	TCS-3
171110	171160	50	TCS-3A
171160	171250	90	TCS-3
171250	171550	300	TCS-10
171550	171575	25	TCS-3
171575	171675	100	TCS-3A
171675	172000	325	TCS-3
172000	172225	225	TCS-7A
172225	172275	50	TCS-3
172275	172325	50	TCS-3A
172325	172475	150	TCS-3
172475	172525	50	TCS-4
172525	172820	295	TCS-3
172820	172910	90	TCS-12

Design Chainage (m)		Net Length (m)	TCS No.
From	To		
172910	173025	115	TCS-3
173025	173125	100	TCS-4
173125	173200	75	TCS-3
173200	173500	300	TCS-3A
173500	173625	125	TCS-3
173625	173675	50	TCS-12
173675	173775	100	TCS-3
173775	173850	75	TCS-3A
173850	174125	275	TCS-3
174125	174200	75	TCS-3A
174200	174250	50	TCS-3
174250	174475	225	TCS-3A
174475	174525	50	TCS-3
174525	174575	50	TCS-5A
174575	174625	50	TCS-3
174625	174930	305	TCS-3A
174930	174980	50	TCS-12
174980	175310	330	TCS-3
175310	175380	70	TCS-3A
175380	175750	370	TCS-3
175750	176025	275	TCS-4
176025	176275	250	TCS-3
176275	176375	100	TCS-7A
176375	177425	1050	Makru Bridge Portion
177425	177475	50	TCS-4
177475	177575	100	TCS-3
177575	177660	85	TCS-3A
177660	177725	65	TCS-4
177725	177850	125	TCS-11A
177850	178025	175	TCS-7A
178025	178180	155	TCS-12
178180	178400	220	TCS-15
178400	178550	150	TCS-3
178550	178610	60	TCS-11
178610	178660	50	TCS-3
178660	178730	70	TCS-5A
178730	178780	50	TCS-5
178780	178910	130	TCS-5A
178910	178980	70	TCS-4
178980	179375	395	TCS-3
179375	179475	100	TCS-3A
179475	179780	305	TCS-3
179780	179850	70	TCS-7A
179850	179930	80	TCS-3
179930	179990	60	TCS-7A

Design Chainage (m)		Net Length (m)	TCS No.
From	To		
179990	180060	70	TCS-5
180060	180160	100	TCS-3A
180160	180260	100	TCS-3
180260	180340	80	TCS-11
180340	180390	50	TCS-5A
180390	180560	170	TCS-3
180560	180670	110	TCS-3A
180670	180720	50	TCS-7A
180720	180820	100	TCS-3A
180820	180950	130	TCS-3
180950	181150	200	TCS-15
181150	181280	130	TCS-3A
181280	181380	100	TCS-3
181380	181480	100	TCS-3A
181480	182130	650	TCS-3
182130	182180	50	TCS-3A
182180	182340	160	TCS-3
182340	182420	80	TCS-3A
182420	182470	50	TCS-3
182470	182520	50	TCS-12
182520	182650	130	TCS-3
182650	182780	130	TCS-7
182780	182910	130	TCS-6
182910	183030	120	TCS-7
183030	183080	50	TCS-7B
183080	183160	80	TCS-7
183160	183210	50	TCS-7B
183210	183300	90	TCS-7
183300	183480	180	TCS-5
183480	183530	50	TCS-5A
183530	183660	130	TCS-3
183660	183710	50	TCS-3A
183710	184260	550	TCS-3
184260	184330	70	TCS-5A
184330	184900	570	TCS-3
184900	185080	180	TCS-5
185080	185330	250	TCS-3
185330	185480	150	TCS-5
185480	185730	250	TCS-3
185730	185780	50	TCS-3A
185780	186160	380	TCS-3
186160	186210	50	TCS-3A
186210	186310	100	TCS-3
186310	186480	170	TCS-12
186480	186630	150	TCS-3
186630	186730	100	TCS-3A

Design Chainage (m)		Net Length (m)	TCS No.
From	To		
186730	186830	100	TCS-3
186830	186930	100	TCS-3A
186930	186980	50	TCS-3
186980	187030	50	TCS-12
187030	187130	100	TCS-3
187130	187180	50	TCS-11A
187180	187320	140	TCS-3
187320	187370	50	TCS-4
187370	187440	70	TCS-3
187440	187560	120	TCS-3A
187560	187660	100	TCS-3
187660	187710	50	TCS-3A
187710	187760	50	TCS-3
187760	187810	50	TCS-7A
187810	187925	115	TCS-3
187925	187980	55	TCS-3A
187980	188260	280	TCS-3
188260	188310	50	TCS-3A
188310	188410	100	TCS-3
188410	188460	50	TCS-3A
188460	188730	270	TCS-3
188730	188810	80	TCS-3A
188810	188860	50	TCS-3
188860	188960	100	TCS-4
188960	189020	60	TCS-11A
189020	189120	100	TCS-3
189120	189250	130	TCS-7B
189250	189350	100	TCS-3
189350	189430	80	TCS-11A
189430	189530	100	TCS-3A
189530	190060	530	TCS-7B
190060	190200	140	TCS-7
190200	190680	480	TCS-3
190680	190760	80	TCS-3A
190760	190810	50	TCS-12
190810	191030	220	TCS-3
191030	191130	100	TCS-3A
191130	191280	150	TCS-7A
191280	191380	100	TCS-3A
191380	191500	120	TCS-3
191500	191560	60	TCS-3A
191560	191780	220	TCS-3
191780	191960	180	TCS-12
191960	192020	60	TCS-3
192020	192080	60	TCS-12
192080	192160	80	TCS-8

Design Chainage (m)		Net Length (m)	TCS No.
From	To		
192160	192210	50	TCS-12
192210	192280	70	TCS-4
192280	192330	50	TCS-3A
192330	192530	200	TCS-5
192530	192580	50	TCS-5A
192580	193330	750	TCS-3
193330	193460	130	TCS-7A
193460	193780	320	TCS-3
193780	193860	80	TCS-3A
193860	193910	50	TCS-3
193910	194030	120	TCS-7A
194030	194080	50	TCS-3
194080	194230	150	TCS-12
194230	194610	380	TCS-3
194610	194710	100	TCS-12
194710	194780	70	TCS-3
194780	194830	50	TCS-3A
194830	195060	230	TCS-3
195060	195130	70	TCS-3A
195130	195180	50	TCS-3
195180	195260	80	TCS-7A
195260	195960	700	TCS-3
195960	196030	70	TCS-12
196030	196160	130	TCS-4
196160	196210	50	TCS-3A
196210	196260	50	TCS-3
196260	196330	70	TCS-6
196330	196380	50	TCS-10
196380	197200	820	TCS-6
197200	197400	200	TCS-3
197400	197800	400	TCS-6
197800	198450	650	TCS-3
198450	199750	1300	TCS-12
199750	200050	300	TCS-2A
200050	200200	150	TCS-1A
200200	200400	200	TCS-1
200400	200580	180	TCS-2
200580	201500	920	TCS-1
201500	202700	1200	TCS-1B_1
202700	203150	450	TCS-1B_2
203150	203500	350	TCS-1B_1
203500	205974	2474	TCS-1

3. Intersections and Grade Separators

All intersections and grade separators shall be as per Section 3 of the Manual. Existing

intersections which are deficient shall be improved to the prescribed standards.

[Refer to provision of the relevant Manual and specify the requirements. Explain where necessary with drawings/sketches/general arrangement]

Properly designed intersections shall be provided at the locations and of the types and features given in the tables below:

(i) At-grade intersections

Major Intersections

Sl. No.	Location of intersection (Km)	Type of intersection	Other features	Remarks
1	205.700	T- Type	3 Legged	Junction with MDR

Minor Intersections

Sl. No.	Location of intersection (Km)	Type of intersection	Other features
1.	171.200	T- type	3- legged
2.	182.900	T- type	3- legged
3.	196.450	Y- type	3- legged
4.	196.670	T- type	3- legged
5.	197.000	Y- type	3- legged
6.	197.750	T- type	3- legged
7.	199.700	T- type	3- legged
8.	200.260	Y- type	3- legged
9.	200.800	T- type	3- legged
10.	201.300	T- type	3- legged
11.	201.900	T- type	3- legged
12.	202.450	T- type	3- legged
13.	202.800	T- type	3- legged
14.	202.900	Y- type	3- legged
15.	203.200	Y- type	3- legged
16.	203.350	T- type	3- legged
17.	203.400	T- type	3- legged
18.	203.850	Y- type	3- legged
19.	204.000	T- type	3- legged
20.	204.100	T- type	3- legged
21.	204.400	T- type	3- legged
22.	204.600	T- type	3- legged
23.	205.000	Y- type	3- legged
24.	205.600	T- type	3- legged
25.	205.650	Y- type	3- legged
26.	205.800	Y- type	3- legged
27.	205.810	T- type	3- legged
28.	205.925	T- type	3- legged

(ii) Grade separated intersection with/without ramps

Sl. No.	Location	Salient features	Minimum length of viaduct to be provided	Road to be carried over/under the structures
Nil				

4. Road Embankment and Cut Section

(i) Widening and improvement of the existing road embankment/cuttings and construction of new road embankment/cuttings shall conform to the Specifications and Standards given in Section 4 of the Manual and the specified cross-sectional details. Deficiencies in the plan and profile of the existing road shall be corrected.

(ii) Raising of the existing road [Refer to provision of the relevant Manual and specify sections to be raised]

The existing road shall be raised in the following sections:

Sl. No.	Section (from km to km)	Length (km)	Extent of raising [Top of finished road level]
Nil			

5. Pavement Design

(i) Pavement design shall be carried out in accordance with provision of the relevant manual.

(ii) Type of pavement

Flexible Pavement

From Ch. Km 201.500 to km 203.500 Stabil-Road technology should be used as per IRC SP 89-2018.

(iii) Design requirements

[Refer to provision of the relevant Manual and specify design requirements and strategy]

(a) Design Period and strategy

Flexible pavement for new pavement or for widening and strengthening of the existing pavement shall be designed for a minimum design period of 20 years. Stage construction shall not be permitted.

(b) Design Traffic

Not with standing anything to the contrary contained in this Agreement or the Manual. The Contractor shall design the pavement for design traffic of 20 msa.

(iv) Reconstruction of stretches.

[Refer to provision of the relevant Manual and specify the stretches if any to be reconstructed.]

The following stretches of the existing road shall be reconstructed. These shall be designed as new pavement.

Sl. No.	Stretch from Km to Km	Remarks	TCS No.
1	169.630 to 169.680	Reconstruction	TCS-4
2	169.680 to 169.825	Reconstruction	TCS-3
3	169.875 to 170.275	Reconstruction	TCS-3
4	170.375 to 170.450	Reconstruction	TCS-3
5	170.500 to 170.600	Reconstruction	TCS-3
6	170.700 to 170.750	Reconstruction	TCS-3

Sl. No.	Stretch from Km to Km	Remarks	TCS No.
7	170.800 to 170.975	Reconstruction	TCS-3
8	171.030 to 171.110	Reconstruction	TCS-3
9	171.160 to 171.250	Reconstruction	TCS-3
10	171.250 to 171.550	Reconstruction	TCS-10
11	171.550 to 171.575	Reconstruction	TCS-3
12	171.675 to 172.000	Reconstruction	TCS-3
13	172.225 to 172.275	Reconstruction	TCS-3
14	172.325 to 172.475	Reconstruction	TCS-3
15	172.475 to 172.525	Reconstruction	TCS-4
16	172.525 to 172.820	Reconstruction	TCS-3
17	172.910 to 173.025	Reconstruction	TCS-3
18	173.025 to 173.125	Reconstruction	TCS-4
19	173.125 to 173.200	Reconstruction	TCS-3
20	173.500 to 173.625	Reconstruction	TCS-3
21	173.675 to 173.775	Reconstruction	TCS-3
22	173.850 to 174.125	Reconstruction	TCS-3
23	174.200 to 174.250	Reconstruction	TCS-3
24	174.475 to 174.525	Reconstruction	TCS-3
25	174.575 to 174.625	Reconstruction	TCS-3
26	174.980 to 175.310	Reconstruction	TCS-3
27	175.380 to 175.750	Reconstruction	TCS-3
28	175.750 to 176.025	Reconstruction	TCS-4
29	176.025 to 176.275	Reconstruction	TCS-3
30	177.425 to 177.475	Reconstruction	TCS-4
31	177.475 to 177.575	Reconstruction	TCS-3
32	177.660 to 177.725	Reconstruction	TCS-4
33	178.400 to 178.550	Reconstruction	TCS-3
34	178.550 to 178.610	Reconstruction	TCS-11
35	178.610 to 178.660	Reconstruction	TCS-3
36	178.730 to 178.780	Reconstruction	TCS-5
37	178.910 to 178.980	Reconstruction	TCS-4
38	178.980 to 179.375	Reconstruction	TCS-3
39	179.475 to 179.780	Reconstruction	TCS-3
40	179.850 to 179.930	Reconstruction	TCS-3
41	179.990 to 180.060	Reconstruction	TCS-5
42	180.160 to 180.260	Reconstruction	TCS-3
43	180.260 to 180.340	Reconstruction	TCS-11
44	180.390 to 180.560	Reconstruction	TCS-3
45	180.820 to 180.980	Reconstruction	TCS-3
46	181.280 to 181.380	Reconstruction	TCS-3
47	181.480 to 182.130	Reconstruction	TCS-3
48	182.180 to 182.340	Reconstruction	TCS-3
49	182.420 to 182.470	Reconstruction	TCS-3
50	182.520 to 182.650	Reconstruction	TCS-3

Sl. No.	Stretch from Km to Km	Remarks	TCS No.
51	182.650 to 182.780	Reconstruction	TCS-7
52	182.780 to 182.910	Reconstruction	TCS-6
53	182.910 to 183.030	Reconstruction	TCS-7
54	183.080 to 183.160	Reconstruction	TCS-7
55	183.210 to 183.300	Reconstruction	TCS-7
56	183.300 to 183.480	Reconstruction	TCS-5
57	183.530 to 183.660	Reconstruction	TCS-3
58	183.710 to 184.260	Reconstruction	TCS-3
59	184.330 to 184.900	Reconstruction	TCS-3
60	184.900 to 185.080	Reconstruction	TCS-5
61	185.080 to 185.330	Reconstruction	TCS-3
62	185.330 to 185.480	Reconstruction	TCS-5
63	185.480 to 185.730	Reconstruction	TCS-3
64	185.780 to 186.160	Reconstruction	TCS-3
65	186.210 to 186.310	Reconstruction	TCS-3
66	186.480 to 186.630	Reconstruction	TCS-3
67	186.730 to 186.830	Reconstruction	TCS-3
68	186.930 to 186.980	Reconstruction	TCS-3
69	187.030 to 187.130	Reconstruction	TCS-3
70	187.180 to 187.320	Reconstruction	TCS-3
71	187.320 to 187.370	Reconstruction	TCS-4
72	187.370 to 187.440	Reconstruction	TCS-3
73	187.560 to 187.660	Reconstruction	TCS-3
74	187.710 to 187.760	Reconstruction	TCS-3
75	187.810 to 187.925	Reconstruction	TCS-3
76	187.980 to 188.260	Reconstruction	TCS-3
77	188.310 to 188.410	Reconstruction	TCS-3
78	188.460 to 188.730	Reconstruction	TCS-3
79	188.810 to 188.860	Reconstruction	TCS-3
80	188.860 to 188.960	Reconstruction	TCS-4
81	189.020 to 189.120	Reconstruction	TCS-3
82	189.250 to 189.350	Reconstruction	TCS-3
83	190.060 to 190.200	Reconstruction	TCS-7
84	190.200 to 190.680	Reconstruction	TCS-3
85	190.810 to 191.030	Reconstruction	TCS-3
86	191.380 to 191.500	Reconstruction	TCS-3
87	191.560 to 191.780	Reconstruction	TCS-3
88	191.960 to 192.020	Reconstruction	TCS-3
89	192.080 to 192.160	Reconstruction	TCS-8
90	192.210 to 192.280	Reconstruction	TCS-4
91	192.330 to 192.530	Reconstruction	TCS-5
92	192.580 to 193.330	Reconstruction	TCS-3
93	193.460 to 193.780	Reconstruction	TCS-3
94	193.860 to 193.910	Reconstruction	TCS-3

Sl. No.	Stretch from Km to Km	Remarks	TCS No.
95	194.030 to 194.080	Reconstruction	TCS-3
96	194.230 to 194.610	Reconstruction	TCS-3
97	194.710 to 194.780	Reconstruction	TCS-3
98	194.830 to 195.060	Reconstruction	TCS-3
99	195.130 to 195.180	Reconstruction	TCS-3
100	195.260 to 195.960	Reconstruction	TCS-3
101	196.030 to 196.160	Reconstruction	TCS-4
102	196.210 to 196.260	Reconstruction	TCS-3
103	196.260 to 196.330	Reconstruction	TCS-6
104	196.330 to 196.380	Reconstruction	TCS-10
105	196.380 to 197.200	Reconstruction	TCS-6
106	197.200 to 197.400	Reconstruction	TCS-3
107	197.400 to 197.800	Reconstruction	TCS-6
108	197.800 to 198.450	Reconstruction	TCS-3
109	200.200 to 200.400	Reconstruction	TCS-1
110	200.400 to 200.580	Reconstruction	TCS-2
111	200.580 to 201.500	Reconstruction	TCS-1
112	201.500 to 202.700	Reconstruction	TCS-1B_1
113	202.700 to 203.150	Reconstruction	TCS-1B_2
114	203.150 to 203.500	Reconstruction	TCS-1B_1
115	203.500 to 205.974	Reconstruction	TCS-1

6. Roadside Drainage

Drainage system including surface and subsurface drains for the Project Highway has been provided in the table given below:

RCC Covered Drain

Chainage (m)		Length of CD (m)	Net Length (m)	Side
From	To			
171250	171550	2.6	297.4	One side
182650	182780	0	130.0	One side
182780	182910	2.6	254.8	Both side
182910	183030	2.6	117.4	One side
183030	183080	0	50.0	One side
183080	183160	0	80.0	One side
183160	183210	0	50.0	One side
183210	183300	2.6	87.4	One side
189120	189250	0	130.0	One side
189530	190060	27.37	502.6	One side
190060	190200	3.84	136.2	One side
196260	196330	0	140.0	Both side
196330	196380	2.6	47.4	One side
196380	197200	50.37	1539.3	Both side

197400	197800	24.53	750.9	Both side
200050	200200	0	300.0	Both side
200200	200400	5.3	389.4	Both side
200580	202700	19.32	4201.4	Both side
203150	205974	23.48	5601.0	Both side
Total =			**14805**	

RR Masonry Triangular Open Drain

Chainage (m)		Length of CD	Net Length (m)	Side
From	To			
169570	169630	0	60.0	One
169630	169680	0	50.0	One
169680	169825	8.66	136.3	One
169825	169875	0	100.0	Both
169875	170275	6.56	393.4	One
170275	170375	0	100.0	One
170375	170450	2.6	72.4	One
170450	170500	0	50.0	One
170500	170600	0	100.0	One
170700	170750	2.6	47.4	One
170750	170800	0	50.0	One
170800	170975	6.06	168.9	One
170975	171030	0	55.0	One
171030	171110	6.4	73.6	One
171110	171160	2.6	47.4	One
171160	171250	6.4	83.6	One
171550	171575	0	25.0	One
171575	171675	2.6	97.4	One
171675	172000	5.3	319.7	One
172000	172225	7.8	217.2	One
172225	172275	3.96	46.0	One
172275	172325	0	50.0	One
172325	172475	0	150.0	One
172475	172525	2.6	47.4	One
172525	172820	8.96	286.0	One
172820	172910	0	180.0	Both
172910	173025	2.6	112.4	One
173025	173125	2.6	97.4	One
173125	173200	0	75.0	One
173200	173500	7.8	292.2	One
173500	173625	6.44	118.6	One
173625	173675	0	100.0	Both
173675	173775	0	100.0	One
173775	173850	0	75.0	One
173850	174125	2.6	272.4	One
174125	174200	2.6	72.4	One
174200	174250	0	50.0	One

Chainage (m)		Length of CD	Net Length (m)	Side
From	To			
174250	174475	2.6	222.4	One
174475	174525	0	50.0	One
174575	174625	2.6	47.4	One
174625	174930	6.44	298.6	One
174930	174980	0	100.0	Both
174980	175310	16.64	313.4	One
175310	175380	0	70.0	One
175380	175750	12.58	357.4	One
175750	176025	0	275.0	One
176025	176275	6.44	243.6	One
176275	176375	0	100.0	One
177425	177475	40	10.0	One
177475	177575	0	100.0	One
177575	177660	0	85.0	One
177660	177725	30	35.0	One
177850	178025	0	175.0	One
178025	178200	2.6	344.8	Both
178300	178550	5.2	244.8	One
178610	178660	30	20.0	One
178910	178980	0	70.0	One
178980	179375	2.6	392.4	One
179375	179475	0	100.0	One
179475	179780	5.2	299.8	One
179780	179850	0	70.0	One
179850	179930	20	60.0	One
179930	179990	0	60.0	One
180060	180160	0	100.0	One
180160	180260	0	100.0	One
180390	180560	2.6	167.4	One
180560	180670	2.6	107.4	One
180670	180720	0	50.0	One
180720	180820	2.6	97.4	One
180820	180980	2.6	157.4	One
181200	181280	0	80.0	One
181280	181380	2.6	97.4	One
181380	181480	0	100.0	One
181480	182130	18.2	631.8	One
182130	182180	0	50.0	One
182180	182340	2.6	157.4	One
182340	182420	0	80.0	One
182420	182470	2.6	47.4	One
182470	182520	0	100.0	Both
182520	182650	5.2	124.8	One
183530	183660	0	130.0	One
183660	183710	5.26	44.7	One
183710	184260	7.8	542.2	One

Chainage (m)		Length of CD	Net Length (m)	Side
From	To			
184330	184900	7.8	562.2	One
185080	185330	5.2	244.8	One
185480	185730	5.26	244.7	One
185730	185780	0	50.0	One
185780	186160	10.4	369.6	One
186160	186210	0	50.0	One
186210	186310	2.6	97.4	One
186310	186480	0	340.0	Both
186480	186630	2.6	147.4	One
186630	186730	0	100.0	One
186730	186830	2.6	97.4	One
186830	186930	0	100.0	One
186930	186980	6.06	43.9	One
186980	187030	0	100.0	Both
187030	187130	6.4	93.6	One
187180	187320	0	140.0	One
187320	187370	0	50.0	One
187370	187440	2.6	67.4	One
187440	187560	0	120.0	One
187560	187660	9.1	90.9	One
187660	187710	0	50.0	One
187710	187760	5	45.0	One
187760	187810	0	50.0	One
187810	187925	6.06	108.9	One
187925	187980	0	55.0	One
187980	188260	10.38	269.6	One
188260	188310	0	50.0	One
188310	188410	0	100.0	One
188410	188460	2.6	47.4	One
188460	188730	2.6	267.4	One
188730	188810	0	80.0	One
188810	188860	0	50.0	One
188860	188960	3.84	96.2	One
189020	189120	3.84	96.2	One
189250	189350	7.68	92.3	One
189430	189530	3.84	96.2	One
190200	190680	6.54	473.5	One
190680	190760	0	80.0	One
190760	190810	0	100.0	Both
190810	191030	2.6	217.4	One
191030	191130	0	100.0	One
191130	191280	2.6	147.4	One
191280	191380	6.32	93.7	One
191380	191500	0	120.0	One
191500	191560	0	60.0	One
191560	191780	6.4	213.6	One

Chainage (m)		Length of CD	Net Length (m)	Side
From	To			
191780	191960	2.7	354.6	Both
191960	192020	2.6	57.4	One
192020	192080	0	120.0	Both
192160	192210	0	100.0	Both
192210	192280	0	70.0	One
192280	192330	0	50.0	One
192580	193330	24.12	725.9	One
193330	193460	0	130.0	One
193460	193780	8	312.0	One
193780	193860	0	80.0	One
193860	193910	2.6	47.4	One
193910	194030	0	120.0	One
194030	194080	2.7	47.3	One
194080	194230	0	300.0	Both
194230	194610	12.96	367.0	One
194610	194710	2.6	194.8	Both
194710	194780	0	70.0	One
194780	194830	0	50.0	One
194830	195060	2.7	227.3	One
195060	195130	10.56	59.4	One
195130	195180	0	50.0	One
195180	195260	0	80.0	One
195260	195960	24.28	675.7	One
195960	196030	0	140.0	Both
196030	196160	2.6	127.4	One
196160	196210	0	50.0	One
196210	196260	0	50.0	One
197200	197400	28.94	171.1	One
197800	198450	9.04	641.0	One
198450	199750	49.38	2501.2	Both
Total =			**25721**	

Catch water Drain

Chainage (m)		Length of CD (m)	Net Length (m)
From	To		
169570	169630	0	60.0
169825	169875	0	50.0
170275	170375	0	100.0
170450	170500	0	50.0
170600	170700	3.96	96.0
170750	170800	0	50.0
170975	171030	0	55.0
171110	171160	2.6	47.4
171575	171675	2.6	97.4
172000	172225	7.8	217.2
172275	172325	0	50.0

Chainage (m)		Length of CD (m)	Net Length (m)
From	To		
172820	172910	0	90.0
173200	173500	7.8	292.2
173625	173675	0	50.0
173775	173850	0	75.0
174125	174200	2.6	72.4
174250	174475	2.6	222.4
174525	174575	2.6	47.4
174625	174930	6.44	298.6
174930	174980	0	50.0
175310	175380	0	70.0
176275	176375	0	100.0
177575	177660	0	85.0
177725	177850	0	125.0
177850	178025	0	175.0
178025	178200	2.6	172.4
178200	178300	2.6	97.4
178660	178730	0	70.0
178730	178780	0	50.0
178780	178910	0	130.0
179375	179475	0	100.0
179780	179850	0	70.0
179930	179990	0	60.0
179990	180060	5.26	64.7
180060	180160	0	100.0
180340	180390	0	50.0
180560	180670	2.6	107.4
180670	180720	0	50.0
180720	180820	2.6	97.4
180980	181200	2.6	217.4
181200	181280	0	80.0
181380	181480	0	100.0
182130	182180	0	50.0
182340	182420	0	80.0
182470	182520	0	50.0
183300	183480	9.16	170.8
183480	183530	0	50.0
183660	183710	5.26	44.7
184260	184330	0	70.0
184900	185080	6.14	173.9
185330	185480	6.56	143.4
185730	185780	0	50.0
186160	186210	0	50.0
186310	186480	0	170.0
186630	186730	0	100.0
186830	186930	0	100.0
186980	187030	0	50.0

Chainage (m)		Length of CD (m)	Net Length (m)
From	To		
187130	187180	0	50.0
187440	187560	0	120.0
187660	187710	0	50.0
187760	187810	0	50.0
187925	187980	0	55.0
188260	188310	0	50.0
188410	188460	2.6	47.4
188730	188810	0	80.0
188960	189020	3.84	56.2
189350	189430	7.1	72.9
189430	189530	3.84	96.2
190680	190760	0	80.0
190760	190810	0	50.0
191030	191130	0	100.0
191130	191280	2.6	147.4
191280	191380	6.32	93.7
191500	191560	0	60.0
191780	191960	2.7	177.3
192020	192080	0	60.0
192160	192210	0	50.0
192280	192330	0	50.0
192330	192530	5.2	194.8
192530	192580	0	50.0
193330	193460	0	130.0
193780	193860	0	80.0
193910	194030	0	120.0
194080	194230	0	150.0
194610	194710	2.6	97.4
194780	194830	0	50.0
195060	195130	10.56	59.4
195180	195260	0	80.0
195960	196030	0	70.0
196160	196210	0	50.0
198450	199750	49.38	1250.6
Total =		**9574**	

Chute Drain (avg. 8 m height @ 50m Interval) =1532 m

7. Design of Structures

(i) General

(a) All bridges culverts and structures shall be designed and constructed in accordance with provision of the relevant Manual and shall conform to the cross- sectional features and other details specified there in.

(b) Width of the carriageway of new bridges and structures shall be as follows:

Sl. No.	Bridge/Structure at km	Width of carriageway and cross-sectional features
1.	189+355	Carriageway Width = 11.0m Width of Railings = 1.0m (2x0.50m) Overall width = 12 m
2.	189+895	
3.	191+368	
4.	194+260	
5.	195+104	
6.	197+055	
7.	197+226	
8.	197+644	
9.	197+776	
10.	198+573	

(c) The following structures shall be provided with footpaths:

[Refer to provision of the relevant Manual and provide details of new Structures with footpath]

Sl. No.	Bridge/Structure at km	Width of carriageway and cross-sectional features
Nil		

(d) All bridges shall be high-level bridges.

[Refer to provision of the relevant Manual and state if there is any exception]

(e) The following structures shall be designed to carry utility service specified in Table below:

[Refer to provision of the relevant Manualand provide details]

Sl. No.	Bridge at km	Utility service to be carried	Remarks
Nil			

(f) Cross-section of the new culverts and bridges at deck level for the Project Highway shall conform to the typical cross-sections given in provision of the relevant Manual.

(ii) Culverts

(a) Overall width of all culverts shall be equal to the roadway width of the approaches.
(b) Reconstruction of existing culverts:

The existing culverts at the following locations shall be re-constructed as new culverts:

Sl No	Culvert Location (km)	Span /Opening (m)	Remarks*
1.	169.730	5.0 X 4.0	Reconstruction
2.	169.796	2.0 X 2.0	Reconstruction
3.	170.013	3.0 X 4.0	Reconstruction
4.	170.263	2.0 X 2.0	Reconstruction
5.	170.415	2.0 X 2.0	Reconstruction
6.	170.618	3.0 X 4.0	Reconstruction
7.	170.732	2.0 X 2.0	Reconstruction
8.	170.840	5.0 X 4.0	Reconstruction
9.	171.062	5.0 X 5.0	Reconstruction

Sl No	Culvert Location (km)	Span /Opening (m)	Remarks*
10.	171.150	2.0 X 2.0	Reconstruction
11.	171.190	5.0 X 5.0	Reconstruction
12.	171.380	2.0 X 2.0	Reconstruction
13.	171.633	2.0 X 2.0	Reconstruction
14.	171.864	2.0 X 3.0	Reconstruction
15.	171.957	2.0 X 2.0	Reconstruction
16.	172.065	3.0 X 4.0	Reconstruction
17.	172.122	3.0 X 3.0	Reconstruction
18.	172.266	3.0 X 4.0	Reconstruction
19.	172.497	2.0 X 2.0	Reconstruction
20.	172.740	3.0 X 3.0	Reconstruction
21.	172.782	4.0 X 4.0	Reconstruction
22.	172.925	2.0 X 2.0	Reconstruction
23.	173.044	2.0 X 2.0	Reconstruction
24.	173.284	2.0 X 2.0	Reconstruction
25.	173.340	2.0 X 2.0	Reconstruction
26.	173.463	2.0 X 2.0	Reconstruction
27.	173.537	2.0 X 2.0	Reconstruction
28.	173.606	3.0 X 3.0	Reconstruction
29.	174.193	2.0 X 2.0	Reconstruction
30.	174.442	2.0 X 2.0	Reconstruction
31.	174.531	2.0 X 2.0	Reconstruction
32.	174.625	2.0 X 2.0	Reconstruction
33.	174.926	3.0 X 3.0	Reconstruction
34.	175.013	4.0 X 4.0	Reconstruction
35.	175.080	3.0 X 3.0	Reconstruction
36.	175.147	3.0 X 3.0	Reconstruction
37.	175.270	3.0 X 3.0	Reconstruction
38.	175.499	2.0 X 2.0	Reconstruction
39.	175.611	5.0 X 3.0	Reconstruction
40.	175.737	3.0 X 3.0	Reconstruction
41.	176.097	2.0 X 2.0	Reconstruction
42.	176.257	3.0 X 3.0	Reconstruction
43.	178.122	2.0 X 2.0	Reconstruction
44.	178.213	2.0 X 2.0	Reconstruction
45.	178.550	2.0 X 2.0	Reconstruction
46.	179.325	2.0 X 2.0	Reconstruction
47.	179.536	2.0 X 2.0	Reconstruction
48.	179.709	2.0 X 2.0	Reconstruction
49.	180.028	4.0 X 5.0	Reconstruction
50.	180.327	2.0 X 3.0	Reconstruction
51.	180.514	2.0 X 2.0	Reconstruction
52.	180.635	2.0 X 2.0	Reconstruction
53.	180.744	2.0 X 2.0	Reconstruction
54.	181.130	2.0 X 2.0	Reconstruction
55.	181.505	2.0 X 2.0	Reconstruction
56.	181.612	2.0 X 2.0	Reconstruction
57.	181.700	2.0 X 2.0	Reconstruction
58.	181.798	2.0 X 2.0	Reconstruction
59.	181.946	2.0 X 2.0	Reconstruction

Sl No	Culvert Location (km)	Span /Opening (m)	Remarks*
60.	182.035	2.0 X 2.0	Reconstruction
61.	182.127	2.0 X 2.0	Reconstruction
62.	182.292	2.0 X 2.0	Reconstruction
63.	182.456	2.0 X 2.0	Reconstruction
64.	182.523	2.0 X 2.0	Reconstruction
65.	182.602	2.0 X 2.0	Reconstruction
66.	182.816	2.0 X 2.0	Reconstruction
67.	183.028	2.0 X 2.0	Reconstruction
68.	183.217	2.0 X 2.0	Reconstruction
69.	183.330	2.0 X 2.0	Reconstruction
70.	183.439	3.0 X 4.0	Reconstruction
71.	183.479	2.0 X 2.0	Reconstruction
72.	183.705	4.0 X 5.0	Reconstruction
73.	183.798	2.0 X 2.0	Reconstruction
74.	183.948	2.0 X 2.0	Reconstruction
75.	184.010	2.0 X 2.0	Reconstruction
76.	184.874	2.0 X 2.0	Reconstruction
77.	184.990	5.0 X 3.0	Reconstruction
78.	185.123	2.0 X 2.0	Reconstruction
79.	185.205	2.0 X 2.0	Reconstruction
80.	185.350	3.0 X 4.0	Reconstruction
81.	185.457	2.0 X 2.0	Reconstruction
82.	185.724	4.0 X 5.0	Reconstruction
83.	185.800	2.0 X 2.0	Reconstruction
84.	186.058	2.0 X 2.0	Reconstruction
85.	186.153	2.0 X 2.0	Reconstruction
86.	186.628	2.0 X 2.0	Reconstruction
87.	186.757	2.0 X 2.0	Reconstruction
88.	186.969	5.0 X 4.0	Reconstruction
89.	187.099	5.0 X 5.0	Reconstruction
90.	187.408	2.0 X 2.0	Reconstruction
91.	187.584	5.0 X 5.0	Reconstruction
92.	187.655	2.0 X 3.0	Reconstruction
93.	187.732	4.0 X 3.0	Reconstruction
94.	187.818	5.0 X 4.0	Reconstruction
95.	188.084	3.0 X 3.0	Reconstruction
96.	188.180	3.0 X 3.0	Reconstruction
97.	188.219	2.0 X 3.0	Reconstruction
98.	188.895	3.0 X 3.0	Reconstruction
99.	189.000	3.0 X 3.0	Reconstruction
100.	189.075	3.0 X 3.0	Reconstruction
101.	189.265	3.0 X 3.0	Reconstruction
102.	189.332	3.0 X 3.0	Reconstruction
103.	189.460	3.0 X 3.0	Reconstruction
104.	189.653	3.0 X 3.0	Reconstruction
105.	189.719	2.0 X 2.0	Reconstruction
106.	189.815	2.0 X 2.0	Reconstruction
107.	190.015	5.0 X 5.0	Reconstruction
108.	190.143	3.0 X 3.0	Reconstruction
109.	190.372	2.0 X 3.0	Reconstruction

Sl No	Culvert Location (km)	Span /Opening (m)	Remarks*
110.	190.617	3.0 X 3.0	Reconstruction
111.	191.013	2.0 X 2.0	Reconstruction
112.	191.255	2.0 X 2.0	Reconstruction
113.	191.659	5.0 X 5.0	Reconstruction
114.	191.885	2.0 X 3.0	Reconstruction
115.	191.980	2.0 X 2.0	Reconstruction
116.	192.514	2.0 X 2.0	Reconstruction
117.	192.600	2.0 X 3.0	Reconstruction
118.	192.666	2.0 X 3.0	Reconstruction
119.	192.750	2.0 X 3.0	Reconstruction
120.	192.867	3.0 X 4.0	Reconstruction
121.	192.942	3.0 X 4.0	Reconstruction
122.	193.083	2.0 X 3.0	Reconstruction
123.	193.132	2.0 X 3.0	Reconstruction
124.	193.247	2.0 X 3.0	Reconstruction
125.	193.470	2.0 X 3.0	Reconstruction
126.	193.710	2.0 X 3.0	Reconstruction
127.	193.780	2.0 X 2.0	Reconstruction
128.	193.880	2.0 X 2.0	Reconstruction
129.	194.062	2.0 X 3.0	Reconstruction
130.	194.443	2.0 X 2.0	Reconstruction
131.	194.616	2.0 X 2.0	Reconstruction
132.	194.862	2.0 X 3.0	Reconstruction
133.	196.557	3.0 X 3.0	Reconstruction
134.	197.318	3.0 X 4.0	Reconstruction
135.	197.485	2.0 X 2.0	Reconstruction
136.	198.154	3.0 X 3.0	Reconstruction
137.	198.865	2.0 X 2.0	Reconstruction
138.	198.970	2.0 X 2.0	Reconstruction
139.	199.100	3.0 X 4.0	Reconstruction
140.	199.330	3.0 X 4.0	Reconstruction
141.	199.423	3.0 X 4.0	Reconstruction
142.	199.570	2.0 X 3.0	Reconstruction
143.	199.643	4.0 X 3.0	Reconstruction
144.	199.817	3.0 X 4.0	Reconstruction
145.	199.905	3.0 X 4.0	Reconstruction
146.	200.028	2.0 X 3.0	Reconstruction
147.	200.292	2.0 X 2.0	Reconstruction
148.	200.397	2.0 X 3.0	Reconstruction
149.	201.520	2.0 X 2.0	Reconstruction
150.	201.692	3.0 X 3.0	Reconstruction
151.	201.835	3.0 X 3.0	Reconstruction
152.	202.597	3.0 X 3.0	Reconstruction
153.	202.756	4.0 X 3.0	Reconstruction
154.	204.067	2.0 X 3.0	Reconstruction
155.	204.702	2.0 X 3.0	Reconstruction
156.	205.553	3.0 X 3.0	Reconstruction
157.	205.747	3.0 X 3.0	Reconstruction

*[Specify modifications, if any, required in the road level, etc.]

(c) Widening of existing culverts:

All existing culverts which are not to be reconstructed shall be widened to the Roadway width of the Project Highway as per the typical cross section given in provision of the relevant Manual. Repairs and strengthening of existing structures where required shall be carried out.

Sl. No.	Culvert location	Type, span, height, and width of existing culvert(m)	Repairs to be carried out[specify]
Nil			

(d) Additional new culverts shall be constructed as per particulars given in the table below:

Sl no.	Culvert Location (km)	Span /Opening (m)	Remarks*
1.	173.975	2.0 X 2.0	Box Culvert
2.	174.754	2.0 X 2.0	Box Culvert
3.	178.358	2.0 X 2.0	Box Culvert
4.	180.958	2.0 X 2.0	Box Culvert
5.	181.300	2.0 X 2.0	Box Culvert
6.	184.390	2.0 X 2.0	Box Culvert
7.	184.615	2.0 X 2.0	Box Culvert
8.	185.973	2.0 X 2.0	Box Culvert
9.	186.240	2.0 X 2.0	Box Culvert
10.	188.444	2.0 X 2.0	Box Culvert
11.	188.647	2.0 X 2.0	Box Culvert
12.	192.139	2.0 X 3.0	Box Culvert
13.	192.374	2.0 X 2.0	Box Culvert
14.	196.118	3.0 X 4.0	Box Culvert
15.	196.354	3.0 X 4.0	Box Culvert
16.	196.765	2.0 X 2.0	Box Culvert
17.	196.900	2.0 X 2.0	Box Culvert
18.	197.961	2.0 X 2.0	Box Culvert
19.	198.305	2.0 X 2.0	Box Culvert
20.	200.846	2.0 X 2.0	Box Culvert
21.	202.100	2.0 X 2.0	Box Culvert
22.	203.108	2.0 X 2.0	Box Culvert
23.	203.700	2.0 X 2.0	Box Culvert
24.	204.579	2.0 X 2.0	Box Culvert
25.	204.849	2.0 X 2.0	Box Culvert
26.	205.179	2.0 X 2.0	Box Culvert

(e) Repairs/replacements of railing/parapets, flooring and protection works of the existing culverts shall be undertaken as follows:

[Refer provision of the relevant Manualand provide details]

Sl. No.	Location at km	Type of repair required
Nil		

(e) Floor protection works shall be as specified in the relevant IRC Codes and Specifications.

(iii) Bridges

(a) Existing bridges to be re-constructed/widened.

[(i) The existing bridges at the following locations shall be re-constructed as new Structures]

Sl. No.	Bridge location (km)	Salient details of existing bridge		Adequacy or otherwise of the existing waterway, vertical clearance etc.*	Remarks
		Type of Structures	Span Arrangement and Total Vent way (No. x Length) (m)		
1	189+355	RCC Slab Bridge	1 X 7.1m	Insufficient width and not conform to IRC Loading	Proposed as RCC Box (1 x 6 x 5m)
2	189+895	RCC Slab Bridge	1 X 11.93m	Insufficient width and not conform to IRC Loading	Proposed as R.C.C T-Girder (1 x 21m)
3	191+368	RCC Slab Bridge	1 X 6.32m	Insufficient width and not conform to IRC Loading	Proposed as RCC Box (1 x 6 x 4m)
4	194+260	RCC Slab Bridge	1 X 10.36m	Insufficient width and not conform to IRC Loading	Proposed as R.C.C Solid Slab (1 x 10m)
5	195+104	RCC Slab Bridge	1 X 10.56m	Insufficient width and not conform to IRC Loading	Proposed as RCC Box (2 x 5 x 5m)
6	197+055	RCC Box Girder	1 X 41.33m	Insufficient width and not conform to IRC Loading	Proposed as R.C.C T-Girder (2x 24m)
7	197+226	RCC T Girder	1 X 24.98m	Insufficient width and not conform to IRC Loading	Proposed as R.C.C T-Girder (1 x 24m)
8	197+644	Steel T Girder	1 X 11.02m	Insufficient width and not conform to IRC Loading	Proposed as RCC Box (2 x 6 x 3m)
9	197+776	Steel T Girder	1 X 10.91m	Insufficient width and not conform to IRC Loading	Proposed as RCC Box (2 x 6 x 3m)
10	198+573	RCC T Girder	1 X 24.6m	Insufficient width and not conform to IRC Loading	Proposed as R.C.C T-Girder (1 x 24m)

(ii) The following narrow bridges shall be widened:

Sl. No.	Location (km)	Existing width(m)	Extent of widening(m)	Cross-section at deck level for widening@
Nil				

(b) Additional new bridges

[Specify additional new bridges if required. And attach GAD]

New bridges at the following locations on the Project Highway shall be constructed. GADs for the new bridges are attached in the drawings folder.

Sl. No.	Location (km)	Total Length (m)	Remarks. If any
Nil			

(c) Maintenance and Repair works for Existing Bridge

[Refer provision of the relevant Manualand provide details:]

Sl. No.	Survey Chainage	Design Chainage	Type of Existing Structure	Proposal Type
1.	182+272	176+423	RCC Box Girder (1 X 41m)	Maintenance & Repair work should be done as per site condition
2.	183+775	177+000	-	Retained
3.	184+109	177+438	Bailey Bridge (1 X 30.4m)	Maintenance & Repair work should be done as per site condition
4.	184+389	177+718	RCC Box Girder (1 X 41m)	Maintenance & Repair work should be done as per site condition
5.	185+299	178+627	RCC Box Girder (1 X 31m)	Maintenance & Repair work should be done as per site condition
6.	186+615	179+900	RCC Box Girder (1 X 31m)	Maintenance & Repair work should be done as per site condition
7.	203.674	195+785	RCC T Girder (1 X 24.5m)	Maintenance & Repair work should be done as per site condition
8.	208.859	200+553	RCC BOX Girder (1 X 46.6m)	Maintenance & Repair work should be done as per site condition

(e) Drainage system for bridge decks

An effective drainage system for bridge decks shall be provided as specified in provision of the relevant Manual

(f) Structures in marine environment

[Refer to provision of the relevant Manual and specify the necessary measures/ treatments for protecting structures in marine environment. Where applicable]

(v) Rail-road bridges

(a) Design construction and detailing of ROB/RUB shall be as specified in provision of the relevant Manual [Refer to provision of the relevant Manual and specify modification, if any]

(b) Road over-bridges

Road over-bridges (road over rail) shall be provided at the following level crossings. As per GAD drawings attached:

Sl. No.	Location of Level crossing (Chainage km)	Length of bridge (m)
Nil		

(c) Road under-bridges

Road under-bridges (road under railway line) shall be provided at the following level crossings as per GAD drawings attached:

Sl. No.	Location of Level crossing (Chainage km)	Number and length of span(m)
Nil		

(v) Grade separated structures

[Refer provision of the relevant Manual]

Thegradeseparatedstructuresshallbeprovidedatthelocationsandofthetypeand length specified in paragraphs 2(ix) and3 of this Annex-I.

(vi) Repairs and strengthening of bridges and structures

[Refer to provision of the relevant Manual and provide details]

The existing bridges and structures to be repaired / strengthened and the nature and extent of repairs /strengthening required are given below:

(a) Bridges

Sl. No.	Location of bridge (km)	Nature and extent of repairs /strengthening to be carried out
Nil		

(b)ROB / RUB

Sl. No.	Location of ROB/RUB (km)	Nature and extent of repairs/strengthening to be carried out
Nil		

(c) Overpasses/Underpasses and other structures

Sl. No.	Location of Structure(km)	Nature and extent of repairs/strengthening to be carried out
Nil		

(vii) List of Major Bridges and Structures

The following is the list of the Major Bridges and Structures:

Sl. No.	Location (Km)
Nil	

8. Traffic Control Devices and Road Safety Works

(i) Traffic control devices and road safety works shall be provided in accordance with provisions of relevant Manual.

Sl. No	Traffic Signages, Road Marking and other appurtenances	Quantity	unit
1	Total No of Street Light=	393	Nos
2	Kilometer stones=	29	Nos
3	5th Kilometer stones=	7	Nos

4	Boundary Stones=	367	Nos
5	Delineators (100 cm long and circular shaped)+Hazard marker =	3490	Nos
6	Road Stud=	18847	Nos
7	900 mm Octagonal	54	Nos
8	600 mm circular	107	Nos
9	900 mm Tringular	203	Nos
10	800 mm x 600 mm rectangular	1180	Nos
11	Pavement marking	12555	sqm

(ii) Specifications of the reflective sheeting. [Refer to provision of relevant Manual and specify]

9. Roadside Furniture

(i) Roadside furniture shall be provided in accordance with article 8 (i) of this schedule.

(ii) Overhead traffic signs: location and size

Sl. No.	Location (Km)	Size
Nil		

10. Compulsory Afforestation

[Refer to provision of relevant Manual and specify the number of trees which are required to be planted by the concerned department as compensatory afforestation.]

11. Bamboo Plantation :

[Refer to provision of relevant Manual and specify the number of bamboo which are required to be planted by the concerned department as compensatory afforestation.] Minimum area for bamboo plantation is required **90911 sqm.**

12. Hazardous Locations

The safety barriers shall also be provided at the following hazardous locations:

a) Hydro seeding

Chainage (m)		Length of CD	Net Length (m)	Side
From	To			
169570	169630	0	60.0	One
169825	169875	0	100.0	Both
170275	170375	0	100.0	One
170450	170500	0	50.0	One
170600	170700	3.96	96.0	One
170750	170800	0	50.0	One
170975	171030	0	55.0	One
171110	171160	2.6	47.4	One
171575	171675	2.6	97.4	One
172000	172225	7.8	217.2	One
172275	172325	0	50.0	One
172820	172910	0	180.0	Both
173200	173500	7.8	292.2	One

Chainage (m)		Length of CD	Net Length (m)	Side
From	To			
173625	173675	0	100.0	Both
173775	173850	0	75.0	One
174125	174200	2.6	72.4	One
174250	174475	2.6	222.4	One
174525	174575	2.6	47.4	One
174625	174930	6.44	298.6	One
174930	174980	0	100.0	Both
175310	175380	0	70.0	One
176275	176375	0	100.0	One
177575	177660	0	85.0	One
177725	177850	0	125.0	One
177850	178025	0	175.0	One
178025	178200	2.6	344.8	Both
178200	178300	2.6	97.4	One
178660	178730	0	70.0	One
178780	178910	0	130.0	One
179375	179475	0	100.0	One
179780	179850	0	70.0	One
179930	179990	0	60.0	One
180060	180160	0	100.0	One
180340	180390	0	50.0	One
180560	180670	2.6	107.4	One
180670	180720	0	50.0	One
180720	180820	2.6	97.4	One
180980	181200	2.6	217.4	One
181200	181280	0	80.0	One
181380	181480	0	100.0	One
182130	182180	0	50.0	One
182340	182420	0	80.0	One
182470	182520	0	100.0	Both
183480	183530	0	50.0	One
183660	183710	5.26	44.7	One
184260	184330	0	70.0	One
185730	185780	0	50.0	One
186160	186210	0	50.0	One
186310	186480	0	340.0	Both
186630	186730	0	100.0	One
186830	186930	0	100.0	One
186980	187030	0	100.0	Both
187130	187180	0	50.0	One
187440	187560	0	120.0	One
187660	187710	0	50.0	One
187760	187810	0	50.0	One
187925	187980	0	55.0	One
188260	188310	0	50.0	One
188410	188460	2.6	47.4	One

Chainage (m)		Length of CD	Net Length (m)	Side
From	To			
188730	188810	0	80.0	One
188960	189020	3.84	56.2	One
189350	189430	7.1	72.9	One
189430	189530	3.84	96.2	One
190680	190760	0	80.0	One
190760	190810	0	100.0	Both
191030	191130	0	100.0	One
191130	191280	2.6	147.4	One
191280	191380	6.32	93.7	One
191500	191560	0	60.0	One
191780	191960	2.7	354.6	Both
192020	192080	0	120.0	Both
192160	192210	0	100.0	Both
192280	192330	0	50.0	One
192530	192580	0	50.0	One
193330	193460	0	130.0	One
193780	193860	0	80.0	One
193910	194030	0	120.0	One
194080	194230	0	300.0	Both
194610	194710	2.6	194.8	Both
194780	194830	0	50.0	One
195060	195130	10.56	59.4	One
195180	195260	0	80.0	One
195960	196030	0	140.0	Both
196160	196210	0	50.0	One
198450	199750	49.38	2501.2	Both
Total =			**11364**	

Avg. Height of Hydro seeding = 8 m

Area of Hydro seeding = 90911 sqm.

13. Special Requirement for Hill Roads

a) Retaining Wall

Chainage (m)		Length of CD (m)	Net Length (m)	Side	Avg. Height (m)
From	To				
169630	169680	0	50.0	Valley	2
171250	171550	2.6	297.4	Valley	3
172475	172525	2.6	47.4	Valley	2
173025	173125	2.6	97.4	Valley	2
175750	176025	0	275.0	Valley	2
177425	177475	40	10.0	Valley	2
177660	177725	30	35.0	Valley	2
177725	177850	0	125.0	Valley	2
178550	178610	0	60.0	Valley	2
178910	178980	0	70.0	Valley	2
180260	180340	2.7	77.3	Valley	2

187130	187180	0	50.0	Valley	2
187320	187370	0	50.0	Valley	2
188860	188960	3.84	96.2	Valley	2
188960	189020	3.84	56.2	Valley	2
189350	189430	7.1	72.9	Valley	2
192080	192160	2.6	77.4	Valley	2
192210	192280	0	70.0	Valley	2
196030	196160	2.6	127.4	Valley	3
196330	196380	2.6	47.4	Valley	2
Total =		**1792**			

Length of 2.0 m Retaining Wall = 1367 m

Length of 3.0 m Retaining Wall = 425 m

b) Breast Wall

Chainage (m)		Length of CD	Net Length (m)	Side	Avg. Height (m)
From	To				
170600	170700	3.96	96.0	Hill	2
172000	172225	7.8	217.2	Hill	2
174525	174575	2.6	47.4	Hill	2
176275	176375	0	100.0	Hill	2
177725	177850	0	125.0	Hill	2
177850	178025	0	175.0	Hill	2
178200	178400	2.6	97.4	Hill	2
178660	178730	0	70.0	Hill	2
178730	178780	0	50.0	Hill	2
178780	178910	0	130.0	Hill	2
179780	179850	0	70.0	Hill	2
179930	179990	0	60.0	Hill	2
179990	180060	5.26	64.7	Hill	2
180340	180390	0	50.0	Hill	2
180670	180720	0	50.0	Hill	2
180980	181200	2.6	217.4	Hill	2
182650	182780	0	130.0	Hill	2
182910	183030	2.6	117.4	Hill	2
183030	183080	0	50.0	Hill	2
183080	183160	0	80.0	Hill	2
183160	183210	0	50.0	Hill	2
183210	183300	2.6	87.4	Hill	2
183300	183480	9.16	170.8	Hill	2
183480	183530	0	50.0	Hill	2
184260	184330	0	70.0	Hill	2
184900	185080	6.14	173.9	Hill	2
185330	185480	6.56	143.4	Hill	2
187130	187180	0	50.0	Hill	2
187760	187810	0	50.0	Hill	2
188960	189020	3.84	56.2	Hill	2

Chainage (m)		Length of CD	Net Length (m)	Side	Avg. Height (m)
From	To				
189120	189250	0	130.0	Hill	2
189350	189430	7.1	72.9	Hill	2
189530	190060	27.37	502.6	Hill	2
190060	190200	3.84	136.2	Hill	2
191130	191280	2.6	147.4	Hill	2
192330	192530	5.2	194.8	Hill	2
192530	192580	0	50.0	Hill	2
193330	193460	0	130.0	Hill	2
193910	194030	0	120.0	Hill	2
195180	195260	0	80.0	Hill	2
Total =			**4463**		

c) Metal Beam Crash Barrier

Chainage (m)		Net Length (m)	Side
From	To		
169595	169702	107	Valley
169672	169853	181	Valley
169823	169943	120	Valley
169928	169960	32	Valley
169945	170060	115	Valley
170030	170251	220	Valley
170221	170292	71	Valley
170262	170325	63	Valley
170295	170362	67	Valley
170337	170403	67	Valley
170378	170458	80	Valley
170428	170507	78	Valley
170477	170589	112	Valley
170564	170718	155	Valley
170693	170761	67	Valley
170746	170776	30	Valley
170761	170815	54	Valley
170800	170830	30	Valley
170815	170881	66	Valley
170866	170944	78	Valley
170929	171014	85	Valley
170984	171053	69	Valley
171023	171116	92	Valley
171086	171148	62	Valley
171151	171228	77	Valley
171198	171258	60	Valley
171228	171314	86	Valley
171284	171381	97	Valley
171351	171397	46	Valley
171377	171426	48	Valley
171454	171548	94	Valley

Chainage (m)		Net Length	Side
171528	171569	41	Valley
171549	171591	42	Valley
171576	171689	113	Valley
171674	171769	95	Valley
171749	171921	172	Valley
171901	171975	74	Valley
171945	172006	61	Valley
171976	172025	49	Valley
172005	172062	57	Valley
172042	172145	103	Valley
172115	172176	61	Valley
172146	172213	67	Valley
172183	172243	61	Valley
172213	172307	94	Valley
172277	172362	85	Valley
172332	172399	67	Valley
172369	172569	200	Valley
172539	172661	122	Valley
172646	172722	76	Valley
172707	172827	119	Valley
172807	173012	205	Valley
172992	173064	72	Valley
173044	173125	81	Valley
173147	173240	92	Valley
173210	173279	70	Valley
173249	173351	102	Valley
173321	173432	111	Valley
173402	173501	98	Valley
173471	173531	60	Valley
173501	173557	56	Valley
173532	173587	56	Valley
173584	173706	123	Valley
173681	173823	142	Valley
173798	173904	105	Valley
173889	173993	104	Valley
173978	174098	120	Valley
174078	174218	141	Valley
174198	174280	82	Valley
174250	174440	190	Valley
174410	174550	141	Valley
174515	174697	181	Valley
174662	174759	97	Valley
174719	174804	85	Valley
174764	174829	64	Valley
174814	174860	46	Valley
174845	174941	96	Valley
174901	175031	130	Valley
174991	175074	83	Valley
175044	175105	61	Valley

Chainage (m)		Net Length	Side
175123	175188	65	Valley
175163	175214	51	Valley
175224	175293	69	Valley
175263	175324	61	Valley
175294	175340	46	Valley
175320	175417	97	Valley
175397	175475	77	Valley
175455	175520	65	Valley
175581	175664	83	Valley
175649	175683	34	Valley
175668	175745	77	Valley
175725	175780	55	Valley
175887	175940	53	Valley
175920	175963	43	Valley
175943	175995	52	Valley
175975	176029	54	Valley
176009	176101	92	Valley
176071	176204	133	Valley
176322	176400	78	Valley
176385	176459	74	Valley
Total =		**8724**	

Total no. of Bridges on the project=	17 nos.
Approach length on valley side for each bridge (25 m on both side)	50 m
Hence, Crash barrier length for 17 bridges =	1700 m
Therefore, total length of crash barrier =	**10424 m**

d) Gabion Wall at Land Slide Zone

Chainage		side	Length (m)
From	To		
178180	178400	Valley	220
180950	181150	Valley	200

Avg Height of Gabion Wall 8.4 mt

e) Hydroseeding

Total Area of Hydroseeding: 90911 Sqm

f)

Railing :

Chainage (km)		Length(km)	Side	Length of CD(m)	Net Length
From	To				

					(m)
200050	200200	150	Both	0	300
200200	200400	200	Both	5.3	389.4
200580	202700	2120	Both	19.32	4201.36
203150	205974	2824	Both	23.48	5601.04
				Net Length	**10492**

14. Change of Scope

The length of Structures and bridges specified herein above shall be treated as an approximate assessment. The actual lengths as required based on detailed investigations shall be determined by the Contractor in accordance with the Specifications and Standards. Any variations in the lengths specified in this Schedule- B shall not constitute a Change of Scope save and except any variations in the length arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.

(Schedule-B1)

The details of utilities are as follows:

Shifting of obstructing existing utilities indicated in Schedule A to an appropriate location in accordance with the standards and Specification of concern Utility Owning Departments is a part of scope of work for the Contractor/Concessionaire. The bidder may visit the site and assess the quantum of shifting of utilities for the project before submission of the bid. The specifications of concerned Utility Owning Department shall be applicable and followed.

Note-The details are given in utility shifting plan in Schedule - A. The actual as required on the basis of detailed investigations shall be determined by the Contractor in accordance with the Specifications and Standards. Any variations in the specified in this Schedule B shall not constitute a Change of Scope.

(i) Any Other Line

(a) The type/spacing/size/specifications of poles/towers/lines/cables to be used in shifting work are as per the guidelines of utility owning department and it is solely between the Contractor and the utility owning department. No change of scope shall be eligible or no cost shall be paid for using different type/spacing /size/specifications in shifted work in comparison to those in the existing or for making any overhead crossings to underground as per requirement of utility owning department/construction of project highway. The Contractor shall carry out joint inspection with utility owning department and get the estimates sanctioned from utility owning department. The assistance of the Authority is limited to giving forwarding letter on the proposal of Contractor to utility owning department whenever asked by the Contractor. The decision/approval of utility owning department shall be binding on the Contractor. No CoS or no cost shall, be eligible on any account.

(b) The supervision charges at the rates/charges applicable between implementing agencies of MoRTH and utility owning department shall be paid directly by the Authority to the Utility Owning Entity as and when Contractor furnishing a demand of Utility Owning Department along with a copy of sanctioned estimate.

(c) The credit of dismantled materials has been accounted for in the estimated cost. The dismantled material /scrap of existing Utility to be shifted/dismantled shall belong to the Contractor/Concessionaire who would be free to dispose-off the dismantled material as deemed fit by them. If the Contractor is forced to deposit the dismantled material to utility owning department then the amount of credit for dismantled material indicated in the sanctioned estimates of utility owning department will be reimbursed to the Contractor after submitting the duly authenticated receipt of the dismantled material from utility owning department to the Authority.

(d) The utilities shall be handed over after shifting work is completed to Utility Owning Department up to their entire satisfaction. The maintenance liability shall rest with the Utility Owning Department after handing over process is complete as far as utility shifting works are concerned.

(e) No change of scope shall be paid for any over-ground utilities. However, for any underground utilities not mentioned in Schedule B shall form change of scope, which shall be worked out as per the estimation of the concerned utility owning dept. and shall be payable to the contractor accordingly.

Schedule - C

(See Clause 2.1)

Project Facilities

1. ProjectFacilities

TheContractorshallconstructtheProjectFacilitiesinaccordancewiththeprovisions of this Agreement. Such Project Facilities shallinclude:

(a) Toll plaza[s]

(b) Roadsidefurniture;

(c) Pedestrianfacilities;

(d) Truck Lay byes;

(e) Bus-bays and passenger shelters;

(f) Rest areas; and

(g) Others to bespecified

2. DescriptionofProject Facilities

Each of theProject Facilities is described below:

a) TollPlaza: -

Sl. No.	Design Chainage(km)	Name of the Place
Nil		

b) Roadsidefurniture: -

Sl. No.	Description	Location	Design Standard
1	Traffic sign & pavement marking	Entire Length (As per Schedule B)	As per Manual
2	Km Stone, 5th kilometre stone	Entire Length	As per Manual
3	Boundary Stone	Entire Length	As per Manual
4	Roadside Delineator, marker & Road Stud	As per Schedule B	As per Manual
5	Metal beam crash barrier	As per Schedule B	As per Manual

C) Pedestrian Facility: -

Pedestrian facilities in the form of foot path shall be provided in the built up area (refer typical cross – section drawing). Pedestrian facilities shall be provided at the locations of urban sections in order to ensure safety of pedestrians while crossing in consultation with NHIDCL.

d) Truck Lay bye:-

Sl. No.	Truck lay bye Chainage(Both Side)	Name of the Place
Nil		

e) Bus Bay &Passenger shelter: -

Sl. No.	Project Facility	Location (km)	Design Requirements	Other Essential Details
1.	Bus Bay & Passenger shelter	171+650 (Both Side)	Bus Bays & Passenger shelter have been placed on both side of proposed roadway	Dimension of Bus Bay (L X B = 59.0 m X 3.0 m) Dimension of Passenger Shelter (L X B = 6.0 m X 2.0 m) (Refer Passenger Shelter Drawing)
2.	Bus Bay & Passenger shelter	182+780 (Both Side)		
3.	Bus Bay & Passenger shelter	190+100 (Both Side)		
4.	Bus Bay & Passenger shelter	197+800 (Both Side)		
5.	Bus Bay & Passenger shelter	202+750 (Both Side)		
6.	Bus Bay & Passenger shelter	203+230 (Both Side)		
7.	Bus Bay & Passenger shelter	205+610 (Both Side)		

f) Rest Areas

Sl. No.	Rest Area Chainage	Name of the Place
Nil		

g) Others to be specified

Street Lighting:
Total 393 Nos. Street lighting shall be provided in built-upareas, bus bays and passenger shelters locations.

Note:Provideadequate detailsof eachProjectFacility toensuretheirdesignand completionin accordancewiththeproject-specificrequirementsandtheprovisions of the Manual.

Schedule - D

(See Clause 2.1)

Specifications and Standards

1. Construction

The Contractor shall comply with the Specifications and Standards set forth in Annex- I of this Schedule-D for construction of the Project Highway.

2. Design Standards

The Project Highway including Project Facilities shall conform to design requirements set out in the following documents:

[Manual of Specifications and Standards for Two Lanning of Highways (IRC: SP: 73-2018), referred to herein as the Manual]

[Note: Specify the relevant Manual, Specifications and Standards]

Annex – I

(Schedule-D)

Specifications and Standards for Construction

1. Specifications and Standards

All Materials, works and construction operations shall conform to theManual of Specifications and Standards for [Two-Lanning of Highways (IRC: SP: 73-2018)], referred to as the Manual, and MORTH Specifications for Road and Bridge Works. Where the specification for a work is not given, Good Industry Practice shall be adopted to the satisfaction of the Authority's Engineer.

2. Deviations from the Specifications and Standards

(i) The terms "Concessionaire", "Independent Engineer" and "Concession Agreement" used in the Manual shall be deemed to be substituted by the terms "Contractor", "Authority's Engineer" and "Agreement" respectively.

(ii) [Not withstanding anything to the contrary contained in Paragraph 1 above, the following Specifications and Standards shall apply to the Project Highway, and for purposes of this Agreement, the aforesaid Specifications and Standards shall be deemed to be amended to the extent set forth below:]

<table>
<tr><th>Item</th><th>Manual Clause Reference</th><th colspan="5">Provision as per Manual</th><th colspan="5">Modified Provision</th></tr>
<tr><td rowspan="4">Shoulder</td><td rowspan="4">2.6</td><td colspan="5"><u>Mountainous Terrain</u></td><td colspan="5"><u>Mountainous Terrain</u></td></tr>
<tr><td rowspan="2">Type of Section</td><td rowspan="2">Side</td><td colspan="3">Width of Shoulder (m)</td><td rowspan="2">Type of Section</td><td rowspan="2">Side</td><td colspan="3">Width of Shoulder (m)</td></tr>
<tr><td>Paved</td><td>Earthen</td><td>Total</td><td>Paved</td><td>Earthen</td><td>Total</td></tr>
<tr><td>Open Country with Isolated Built-up Area</td><td>Hill Side</td><td>1.5</td><td>-</td><td>1.5</td><td>Open Country with Isolated Built-up Area</td><td>Hill Side</td><td>1.5</td><td>-</td><td>1.5</td></tr>
<tr><td></td><td>Valley Side</td><td>1.5</td><td>1</td><td>2.5</td><td></td><td>Valley Side</td><td>1.5</td><td>1.0 m</td><td>2.5</td></tr>
<tr><td></td><td>Built-up Area and Approaches to grade separated structures/ bridges</td><td>Hill Side</td><td>0.25 m + 1.5 m (Raised)</td><td>-</td><td>1.75</td><td>Built-up Area and Approaches to grade separated structures/ bridges</td><td>Hill Side</td><td>1.5 / 2.5</td><td>-</td><td>1.5 / 2.5</td></tr>
<tr><td></td><td>Valley Side</td><td>0.25 m + 1.5 m (Raised)</td><td>-</td><td>1.75</td><td></td><td>Valley Side</td><td>1.5 / 2.5</td><td>-</td><td>1.5 / 2.5</td></tr>
<tr><td>Design Speed</td><td>2.2</td><td colspan="5"><u>Mountainous Terrain:</u>
Ruling : 60 Kmph
Minimum : 40 Kmph</td><td colspan="5"><u>Mountainous Terrain:</u>
Design Speed followed 40-60 kmph in general. However design speed has been reduced to 20 kmph due to site constraints and to accommodate the proposal within EROW.
(Refer Horizontal Alignment Drawing and Table 1.1 below)</td></tr>
<tr><td>Extra Widening</td><td>2.7</td><td colspan="5">Extra Widening has been proposed as per IRC: SP: 73-2018
Radius | Extra Widening
75-100 m | 0.9 m
101-300 m | 0.6 m</td><td colspan="5">Extra Widening has been proposed as per IRC: SP: 48-1998 (Table 6.9) of Hill Road Manual.
Radius | Extra Widening
21-40 m | 1.5 m
41-60 m | 1.2 m
61-100 m | 0.9 m
75-100 m | 0.9 m</td></tr>
</table>

Item	Manual Clause Reference	Provision as per Manual	Modified Provision		
			101-300 m	0.6 m	
			Above 300 m	NIL	
Radii Of Horizontal Curve	2.9.4	**Mountainous Terrain:** Desirable Minimum Radius: 150 m Absolute Minimum Radius: 75 m	Radius below 75 m has been provided in the location listed in table 1.		

Table 1.1: Locations where Design Speed is less than40 kmph

Sl. No.	Stretch	Type of Deficiency	Remarks
1	169.625 to 169.671	Sharp Bend	Design Speed 30 kmph
2	169.837 to 169.927	Sharp Bend	Design Speed 30 kmph
3	169.975 to 170.030	Sharp Bend	Design Speed 30 kmph
4	170.250 to 170.261	Sharp Bend	Design Speed 30 kmph
5	170.319 to 170.336	Sharp Bend	Design Speed 30 kmph
6	170.408 to 170.428	Sharp Bend	Design Speed 30 kmph
7	170.501 to 170.563	Sharp Bend	Design Speed 30 kmph
8	170.708 to 170.745	Sharp Bend	Design Speed 20 kmph
9	170.776 to 170.800	Sharp Bend	Design Speed 20 kmph
10	170.830 to 170.866	Sharp Bend	Design Speed 20 kmph
11	170.958 to 170.984	Sharp Bend	Design Speed 30 kmph
12	171.053 to 171.085	Sharp Bend	Design Speed 30 kmph
13	171.117 to 171.150	Sharp Bend	Design Speed 30 kmph
14	171.180 to 171.197	Sharp Bend	Design Speed 30 kmph
15	171.257 to 171.284	Sharp Bend	Design Speed 30 kmph
16	171.473 to 171.527	Sharp Bend	Design Speed 30 kmph
17	171.563 to 171.576	Sharp Bend	Design Speed 30 kmph
18	171.694 to 171.749	Sharp Bend	Design Speed 20 kmph
19	171.931 to 171.945	Sharp Bend	Design Speed 30 kmph
20	171.996 to 172.005	Sharp Bend	Design Speed 30 kmph
21	172.072 to 172.114	Sharp Bend	Design Speed 30 kmph
22	172.175 to 172.182	Sharp Bend	Design Speed 30 kmph
23	172.243 to 172.277	Sharp Bend	Design Speed 30 kmph
24	172.362 to 172.368	Sharp Bend	Design Speed 30 kmph
25	172.554 to 172.645	Sharp Bend	Design Speed 30 kmph
26	172.727 to 172.806	Sharp Bend	Design Speed 30 kmph
27	173.011 to 173.043	Sharp Bend	Design Speed 30 kmph
28	173.104 to 173.136	Sharp Bend	Design Speed 30 kmph
29	173.177 to 173.209	Sharp Bend	Design Speed 30 kmph
30	173.279 to 173.321	Sharp Bend	Design Speed 30 kmph
31	173.432 to 173.470	Sharp Bend	Design Speed 30 kmph
32	173.525 to 173.531	Sharp Bend	Design Speed 30 kmph
33	173.562 to 173.583	Sharp Bend	Design Speed 30 kmph
34	173.608 to 173.681	Sharp Bend	Design Speed 30 kmph
35	173.813 to 173.888	Sharp Bend	Design Speed 30 kmph
36	173.997 to 174.077	Sharp Bend	Design Speed 30 kmph
37	174.228 to 174.249	Sharp Bend	Design Speed 30 kmph
38	175.020 to 175.043	Sharp Bend	Design Speed 30 kmph

Sl. No.	Stretch	Type of Deficiency	Remarks
39	175.074 to 175.119	Sharp Bend	Design Speed 30 kmph
40	175.148 to 175.162	Sharp Bend	Design Speed 30 kmph
41	175.188 to 175.224	Sharp Bend	Design Speed 30 kmph
42	175.254 to 175.262	Sharp Bend	Design Speed 30 kmph
43	175.314 to 175.320	Sharp Bend	Design Speed 30 kmph
44	175.417 to 175.454	Sharp Bend	Design Speed 20 kmph
45	175.499 to 175.537	Sharp Bend	Design Speed 30 kmph
46	176.039 to 176.070	Sharp Bend	Design Speed 30 kmph
47	176.337 to 176.385	Sharp Bend	Design Speed 20 kmph
48	176.444 to 176.457	Sharp Bend	Design Speed 20 kmph
49	176.765 to 176.935	Sharp Bend	Design Speed 30 kmph
50	177.059 to 177.123	Sharp Bend	Design Speed 30 kmph
51	178.446 to 178.477	Sharp Bend	Design Speed 30 kmph
52	178.550 to 178.581	Sharp Bend	Design Speed 20 kmph
53	178.672 to 178.704	Sharp Bend	Design Speed 20 kmph
54	179.100 to 179.130	Sharp Bend	Design Speed 20 kmph
55	179.295 to 179.366	Sharp Bend	Design Speed 30 kmph
56	179.417 to 179.444	Sharp Bend	Design Speed 30 kmph
57	179.521 to 179.554	Sharp Bend	Design Speed 30 kmph
58	179.630 to 179.655	Sharp Bend	Design Speed 30 kmph
59	179.692 to 179.731	Sharp Bend	Design Speed 30 kmph
60	179.770 to 179.787	Sharp Bend	Design Speed 30 kmph
61	179.840 to 179.855	Sharp Bend	Design Speed 20 kmph
62	179.950 to 179.965	Sharp Bend	Design Speed 20 kmph
63	180.014 to 180.022	Sharp Bend	Design Speed 30 kmph
64	180.060 to 180.091	Sharp Bend	Design Speed 30 kmph
65	180.137 to 180.167	Sharp Bend	Design Speed 30 kmph
66	180.978 to 181.082	Sharp Bend	Design Speed 30 kmph
67	181.230 to 181.301	Sharp Bend	Design Speed 30 kmph
68	181.367 to 181.403	Sharp Bend	Design Speed 30 kmph
69	181.481 to 181.525	Sharp Bend	Design Speed 30 kmph
70	181.570 to 181.577	Sharp Bend	Design Speed 30 kmph
71	181.616 to 181.626	Sharp Bend	Design Speed 30 kmph
72	181.685 to 181.717	Sharp Bend	Design Speed 30 kmph
73	181.747 to 181.769	Sharp Bend	Design Speed 30 kmph
74	181.799 to 181.820	Sharp Bend	Design Speed 30 kmph
75	181.910 to 181.923	Sharp Bend	Design Speed 30 kmph
76	181.973 to 181.979	Sharp Bend	Design Speed 30 kmph
77	182.019 to 182.027	Sharp Bend	Design Speed 30 kmph
78	182.068 to 182.074	Sharp Bend	Design Speed 30 kmph
79	182.116 to 182.121	Sharp Bend	Design Speed 30 kmph
80	182.172 to 182.183	Sharp Bend	Design Speed 30 kmph
81	182.238 to 182.293	Sharp Bend	Design Speed 30 kmph
82	182.349 to 182.364	Sharp Bend	Design Speed 30 kmph
83	183.011 to 183.037	Sharp Bend	Design Speed 30 kmph
84	183.092 to 183.188	Sharp Bend	Design Speed 30 kmph
85	183.331 to 183.348	Sharp Bend	Design Speed 30 kmph

Sl. No.	Stretch	Type of Deficiency	Remarks
86	183.809 to 183.828	Sharp Bend	Design Speed 30 kmph
87	183.935 to 184.020	Sharp Bend	Design Speed 30 kmph
88	184.098 to 184.115	Sharp Bend	Design Speed 30 kmph
89	184.697 to 184.735	Sharp Bend	Design Speed 30 kmph
90	184.976 to 185.015	Sharp Bend	Design Speed 30 kmph
91	185.555 to 185.562	Sharp Bend	Design Speed 30 kmph
92	185.613 to 185.642	Sharp Bend	Design Speed 20 kmph
93	185.729 to 185.809	Sharp Bend	Design Speed 30 kmph
94	185.889 to 185.922	Sharp Bend	Design Speed 20 kmph
95	186.038 to 186.074	Sharp Bend	Design Speed 30 kmph
96	186.105 to 186.125	Sharp Bend	Design Speed 30 kmph
97	186.152 to 186.160	Sharp Bend	Design Speed 30 kmph
98	186.216 to 186.237	Sharp Bend	Design Speed 30 kmph
99	186.452 to 186.485	Sharp Bend	Design Speed 30 kmph
100	186.524 to 186.555	Sharp Bend	Design Speed 30 kmph
101	186.616 to 186.649	Sharp Bend	Design Speed 30 kmph
102	187.285 to 187.328	Sharp Bend	Design Speed 30 kmph
103	187.902 to 187.962	Sharp Bend	Design Speed 30 kmph
104	188.054 to 188.069	Sharp Bend	Design Speed 30 kmph
105	188.183 to 188.228	Sharp Bend	Design Speed 20 kmph
106	188.270 to 188.304	Sharp Bend	Design Speed 20 kmph
107	188.360 to 188.381	Sharp Bend	Design Speed 30 kmph
108	188.434 to 188.469	Sharp Bend	Design Speed 30 kmph
109	188.518 to 188.529	Sharp Bend	Design Speed 30 kmph
110	188.586 to 188.644	Sharp Bend	Design Speed 30 kmph
111	188.677 to 188.718	Sharp Bend	Design Speed 30 kmph
112	188.757 to 188.764	Sharp Bend	Design Speed 30 kmph
113	188.835 to 188.844	Sharp Bend	Design Speed 30 kmph
114	189.343 to 189.379	Sharp Bend	Design Speed 30 kmph
115	189.819 to 189.859	Sharp Bend	Design Speed 30 kmph
116	190.005 to 190.043	Sharp Bend	Design Speed 30 kmph
117	190.658 to 190.663	Sharp Bend	Design Speed 30 kmph
118	190.719 to 190.737	Sharp Bend	Design Speed 30 kmph
119	190.871 to 190.897	Sharp Bend	Design Speed 30 kmph
120	190.957 to 190.964	Sharp Bend	Design Speed 30 kmph
121	191.025 to 191.061	Sharp Bend	Design Speed 30 kmph
122	191.122 to 191.161	Sharp Bend	Design Speed 30 kmph
123	191.244 to 191.288	Sharp Bend	Design Speed 30 kmph
124	191.350 to 191.388	Sharp Bend	Design Speed 30 kmph
125	191.525 to 191.571	Sharp Bend	Design Speed 30 kmph
126	191.639 to 191.679	Sharp Bend	Design Speed 30 kmph
127	193.275 to 193.290	Sharp Bend	Design Speed 30 kmph
128	193.527 to 193.606	Sharp Bend	Design Speed 30 kmph
129	194.184 to 194.221	Sharp Bend	Design Speed 30 kmph
130	194.317 to 194.343	Sharp Bend	Design Speed 30 kmph
131	194.411 to 194.424	Sharp Bend	Design Speed 30 kmph
132	194.487 to 194.500	Sharp Bend	Design Speed 30 kmph

Sl. No.	Stretch	Type of Deficiency	Remarks
133	194.636 to 194.739	Sharp Bend	Design Speed 30 kmph
134	194.790 to 194.826	Sharp Bend	Design Speed 30 kmph
135	194.865 to 194.897	Sharp Bend	Design Speed 30 kmph
136	194.933 to 194.967	Sharp Bend	Design Speed 30 kmph
137	195.445 to 195.480	Sharp Bend	Design Speed 30 kmph
138	195.733 to 195.746	Sharp Bend	Design Speed 30 kmph
139	195.856 to 195.883	Sharp Bend	Design Speed 30 kmph
140	195.952 to 196.076	Sharp Bend	Design Speed 30 kmph
141	196.153 to 196.222	Sharp Bend	Design Speed 30 kmph
142	196.283 to 196.333	Sharp Bend	Design Speed 30 kmph
143	196.477 to 196.482	Sharp Bend	Design Speed 30 kmph
144	196.618 to 196.649	Sharp Bend	Design Speed 30 kmph
145	196.726 to 196.750	Sharp Bend	Design Speed 30 kmph
146	196.794 to 196.806	Sharp Bend	Design Speed 30 kmph
147	196.824 to 196.858	Sharp Bend	Design Speed 30 kmph
148	196.895 to 196.920	Sharp Bend	Design Speed 30 kmph
149	196.985 to 196.994	Sharp Bend	Design Speed 30 kmph
150	197.429 to 197.448	Sharp Bend	Design Speed 30 kmph
151	197.489 to 197.497	Sharp Bend	Design Speed 30 kmph
152	197.559 to 197.586	Sharp Bend	Design Speed 20 kmph
153	197.630 to 197.663	Sharp Bend	Design Speed 20 kmph
154	200.019 to 200.047	Sharp Bend	Design Speed 30 kmph
155	200.171 to 200.202	Sharp Bend	Design Speed 30 kmph
156	200.270 to 200.282	Sharp Bend	Design Speed 30 kmph
157	200.317 to 200.462	Sharp Bend	Design Speed 30 kmph
158	200.606 to 200.623	Sharp Bend	Design Speed 20 kmph
159	205.331 to 205.405	Sharp Bend	Design Speed 30 kmph

Table 1.2: Locations where Radii of Horizontal Curve is less than 75 m

Sl No	Chainage		Radius (m)
	From (km)	To(km)	
1	169.625	169.671	30
2	169.975	170.030	30
3	170.250	170.261	30
4	170.319	170.336	40
5	170.408	170.428	30
6	170.501	170.563	40
7	170.708	170.745	30
8	170.776	170.800	30
9	170.830	170.866	30
10	170.958	170.984	30
11	171.053	171.085	30
12	171.180	171.197	30
13	171.257	171.284	35
14	171.473	171.527	50
15	171.694	171.749	25
16	171.931	171.945	30

Sl No	Chainage		Radius (m)
	From (km)	To(km)	
17	171.996	172.005	50
18	172.072	172.114	30
19	172.175	172.182	30
20	172.243	172.277	30
21	172.362	172.368	35
22	172.554	172.645	60
23	172.727	172.806	45
24	173.011	173.043	50
25	173.177	173.209	30
26	173.279	173.321	30
27	173.432	173.470	30
28	173.525	173.531	40
29	173.608	173.681	40
30	173.813	173.888	70
31	173.997	174.077	50
32	174.228	174.249	35
33	174.444	174.515	60
34	174.701	174.719	50
35	174.884	174.900	50
36	175.020	175.043	30
37	175.148	175.162	40
38	175.254	175.262	35
39	175.314	175.320	45
40	175.417	175.454	20
41	176.039	176.070	30
42	176.337	176.385	30
43	176.444	176.457	10
44	177.059	177.123	30
45	178.446	178.477	30
46	178.550	178.581	30
47	178.672	178.704	25
48	179.100	179.130	20
49	179.295	179.366	50
50	179.417	179.444	30
51	179.521	179.554	30
52	179.630	179.655	40
53	179.770	179.787	30
54	179.840	179.855	20
55	179.950	179.965	20
56	180.014	180.022	50
57	180.060	180.091	60
58	180.137	180.167	30
59	180.421	180.561	60
60	180.637	180.741	60
61	180.818	180.883	60
62	180.978	181.082	45
63	181.367	181.403	30

Sl No	Chainage		Radius (m)
	From (km)	To(km)	
64	181.481	181.525	30
65	181.570	181.577	60
66	181.616	181.626	45
67	181.685	181.717	30
68	181.799	181.820	30
69	181.910	181.923	30
70	181.973	181.979	50
71	182.019	182.027	45
72	182.068	182.074	50
73	182.116	182.121	50
74	182.172	182.183	30
75	182.349	182.364	30
76	183.011	183.037	30
77	183.092	183.188	60
78	183.331	183.348	30
79	183.490	183.535	50
80	183.676	183.690	60
81	183.809	183.828	30
82	183.935	184.020	40
83	184.098	184.115	30
84	184.272	184.280	60
85	184.356	184.424	50
86	184.506	184.541	50
87	184.697	184.735	30
88	184.875	184.909	70
89	184.976	185.015	30
90	185.126	185.264	70
91	185.334	185.349	50
92	185.419	185.427	70
93	185.555	185.562	32
94	185.613	185.642	20
95	185.729	185.809	40
96	185.889	185.922	20
97	186.038	186.074	30
98	186.152	186.160	40
99	186.216	186.237	30
100	186.376	186.409	50
101	186.524	186.555	30
102	186.616	186.649	30
103	186.780	186.811	50
104	186.903	186.932	50
105	187.077	187.174	60
106	187.285	187.328	30
107	187.411	187.425	70
108	187.561	187.588	50
109	187.733	187.803	50
110	187.902	187.962	30

Sl No	Chainage		Radius (m)
	From (km)	To(km)	
111	188.054	188.069	50
112	188.183	188.228	25
113	188.270	188.304	25
114	188.360	188.381	40
115	188.434	188.469	60
116	188.518	188.529	45
117	188.586	188.644	30
118	188.757	188.764	30
119	188.835	188.844	30
120	189.022	189.051	50
121	189.142	189.182	50
122	189.343	189.379	30
123	189.523	189.553	50
124	189.819	189.859	50
125	190.005	190.043	30
126	190.441	190.452	70
127	190.520	190.546	70
128	190.658	190.663	40
129	190.719	190.737	30
130	190.871	190.897	30
131	190.957	190.964	30
132	191.025	191.061	30
133	191.122	191.161	30
134	191.244	191.288	30
135	191.350	191.388	30
136	191.525	191.571	30
137	191.639	191.679	30
138	191.778	191.840	70
139	192.282	192.405	60
140	193.275	193.290	40
141	193.527	193.606	40
142	194.184	194.221	50
143	194.317	194.343	70
144	194.411	194.424	40
145	194.487	194.500	40
146	194.636	194.739	50
147	194.790	194.826	30
148	194.933	194.967	30
149	195.028	195.040	70
150	195.227	195.330	50
151	195.445	195.480	50
152	195.597	195.618	70
153	195.733	195.746	40
154	195.856	195.883	40
155	196.153	196.222	60
156	196.283	196.333	30
157	196.477	196.482	30

Sl No	Chainage		Radius (m)
	From (km)	To(km)	
158	196.618	196.649	30
159	196.726	196.750	50
160	196.794	196.806	60
161	196.895	196.920	40
162	196.985	196.994	40
163	197.150	197.167	70
164	197.343	197.366	60
165	197.429	197.448	50
166	197.489	197.497	60
167	197.559	197.586	20
168	197.630	197.663	30
169	197.865	197.894	50
170	199.677	199.706	50
171	199.824	199.861	70
172	200.019	200.047	30
173	200.171	200.202	30
174	200.270	200.282	30
175	200.606	200.623	40
176	205.331	205.405	60

(iii) [Note1: Deviations fromtheaforesaidSpecificationsand Standards shallbe listedout here. Suchdeviations shall bespecified only ifthey are considered essential in view of project-specific requirements.]

Schedule - H

(See Clauses 10.1 (iv) and 19.3)

Contract Price Weightages

1.1 The Contract Price for this Agreement is Rs. ****

1.2 Proportions of the Contract Price for different stages of Construction of the Project Highway shall be as specified below:

Item	Weightage in % of CP	Stage for Payment	Percentage
1	2	3	4
Road Works including Culverts, widening and repair of culverts	72.34 %	**A- Widening and strengthening of existing road**	
		(1) Earthwork up to top of the sub- grade	[Nil]
		(2) Sub-base Course	[Nil]
		(3) Non bituminous Base course	[Nil]
		(4) Bituminous Basecourse	[Nil]
		(5) Wearing Coat	[Nil]
		(6) Widening and repair of culverts	[Nil]
		B.1-Reconstruction/New 2-Lane Realignment /Bypass (Flexible Pavement)	
		(1) Earthwork up to top of the sub- grade	31.88%
		(2) Sub-base Course	13.18%
		(3) Non bituminous Base course	15.18%
		(4) Bituminous Basecourse	13.22%
		(5) Wearing Coat	7.96%
		B.2-Reconstruction/New 8-Lane Realignment/ Bypass (Rigid Pavement)	
		(1) Earthwork up to top of the sub- grade	[Nil]
		(2) Sub-base Course	[Nil]
		(3) Dry Lean Concrete (DLC) Course	[Nil]
		(4) Pavement Quality Control (PQC) Course	[Nil]
		C.1-Reconstruction/ New Service Road (Flexible Pavement)	
		(1) Earthwork up to top of the sub- grade	[Nil]
		(2) Sub-base Course	[Nil]
		(3) Non bituminous Base course	[Nil]
		(4) Bituminous Basecourse	[Nil]
		(5) Wearing Coat	[Nil]
		C.2- Reconstruction/New Service road (Rigid Pavement)	
		(1) Earthwork up to top of the sub- grade	[Nil]
		(2) Sub-base Course	[Nil]
		(3) Dry Lean Concrete (DLC) Course	[Nil]
		(4) Pavement Quality Control (PQC) Course	[Nil]
		D- Reconstruction & New Culverts on existing road, realignments, bypasses Culverts (length <6m)	18.58%
Minor bridge/ Underpasses/ Overpasses	6.26%	**A.1-widening and repairing of Minor Bridges (length >6 m&<60m)**	
		Minor Bridges	23.54%

Item	Weightage in % of CP	Stage for Payment	Percentage
		A.2- New Minor bridges (length >6 mand<60m)	
		(1) Foundation + Sub-Structure: On completion of the foundation work including foundations for wing and return walls, abutments, piers up to the abutment/pier cap.	42.29%
		(2) Super-structure: On completion of the super-structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road, signs & markings, tests on completion etc. complete in all respect.	28.61%
		(3) Approaches: On completion of approaches including Retaining walls, stone pitching, protection works complete in all and fit for use	5.56%
		(4) Guide Bunds and River Training Works: On completion of Guide Bunds and river training works complete in all respects	[Nil]
		B.1- Widening and repairs of underpasses/overpasses	
		Underpasses/ Overpasses	[Nil]
		B.2-NewUnderpasses/Overpasses	
		(1)Foundation + Sub-Structure: On completion of the foundation work including foundations for wing and return walls, abutments, piers upto the abutment/pier cap.	[Nil]
		(2)Super-structure: On completion of the super-structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road signs & markings, tests on completion etc. complete in all respect. Wearing Coat (a) in case of Overpass-wearing coat including expansion joints complete in all respects as specified and (b) in case of underpass- rigid pavement including drainage facility complete in all respects as specified.	[Nil]
		(3) Approaches: On completion of approaches including Retaining walls/ Reinforced Earth walls, stone pitching, protection works complete in all respect and fit for use.	[Nil]
Major bridge(length>60 m) works and ROB/RUB/elevated sections/flyovers including viaducts, if any	0.00 %	**A.1- Widening and repairs of Major Bridges**	
		(1)Foundation	[Nil]
		(2)Sub-structure	[Nil]
		(3)Super-structure(including bearings)	[Nil]
		(4)Wearing Coat including expansion joints	[Nil]
		(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]
		(6) Wing walls/return walls	[Nil]
		(7)Guide Bunds,River Training works etc.	[Nil]
		(8)Approaches(including Retaining walls, stone	[Nil]

Item	Weightage in % of CP	Stage for Payment	Percentage
		pitching and protection works)	
		A.2-NewMajorBridges	
		(1)Foundation	[Nil]
		(2)Sub-structure	[Nil]
		(3)Super-structure(including bearings)	[Nil]
		(4)Wearing Coat including expansion joints	[Nil]
		(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]
		(6) Wing walls/return walls	[Nil]
		(7)Guide Bunds, River Training works etc.	[Nil]
		(8)Approaches(including Retaining walls, stone pitching and protection works)	[Nil]
		B.1-Wideningandrepairsof (a) ROB (b) RUB	
		(1) Foundations	[Nil]
		(2) Sub-Structure	[Nil]
		(3) Super-Structure (Including bearings)	[Nil]
		(4)Wearing Coat(a)in case of ROB- wearing coat including expansion joints complete in all respects as specified and (b) In case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified	[Nil]
		(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]
		(6) Wing walls/Return walls	[Nil]
		(7) Approaches (Including Retaining walls, Stone Pitching and protection works)	[Nil]
		B.2-NewROB/RUB	
		(1) Foundations	[Nil]
		(2) Sub-Structure	[Nil]
		(3) Super-Structure (Including bearings)	[Nil]
		(4) Wearing Coat (a) in case of ROB- wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified	[Nil]
		(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]
		(6) Wing walls/Return walls	[Nil]
		(7)Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[Nil]
		C.1- Widening and repair of Elevated Section/Flyovers/Grade Separators	
		(1) Foundations	[Nil]
		(2) Sub-Structure	[Nil]
		(3)Super-Structure(Including bearings)	[Nil]
		(4)Wearing Coat including expansion joints	[Nil]
		(5) Miscellaneous Items like handrails, crash barrier,	[Nil]

Item	Weightage in % of CP	Stage for Payment	Percentage
		road markings etc.	
		(6) Wing walls/Return walls	[Nil]
		(7)Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[Nil]
		C.2- New Elevated Section/Flyovers/Grade Separators	
		(1) Foundations	[Nil]
		(2) Sub-Structure	[Nil]
		(3)Super-Structure(Including bearings)	[Nil]
		(4)Wearing Coat including expansion joints	[Nil]
		(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]
		(6) Wing walls/Return walls	[Nil]
		(7)Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[Nil]
Other Works	21.40 %	(i) Toll Plaza	[Nil]
		(ii) Road side drains	37.21%
		(iii) Road signs, markings, km stones, safety devices etc	12.62%
		(iv) Project facilities	
		a) Bus Bays	2.68%
		b) Truck Lay-byes	[Nil]
		c) Passenger Shelter	0.39%
		d) Rest Area	[Nil]
		e) Diversion Works	0.52%
		(v) Road side Plantation	[Nil]
		(vi) Repair of Protection Works other than approaches to the bridges, elevated sections/flyover/grade separators and ROBs/ RUBs	[Nil]
		(vii) Safety &Traffic Management during const.	[Nil]
		(viii) Breast Wall	20.77%
		(ix) Toe Wall	[Nil]
		(x) Retaining Wall	7.31%
		(xi) Crash Barrier	4.72%
		(xi) Boundary wall	[Nil]
		(xii) Site Clearance & Dismantling	3.32%
		(xiii) Protection Works	7.35%
		(xiv) Utility Shifting	3.11%

1.3 Procedure of estimating the value of work done

1.3.1 Road works

Procedure for estimating the value of road work done shall be as follows:

Table 1.3.1

Stage of Payment	Percentage weightage	Payment Procedure
A- Widening & Strengthening of road		Unit of measurement is linear length. Payment of each stage shall be made on pro-rata basis on completion of a stage in a length of not less than 10 (Ten) percent of the total length.
(1)Earthwork up to top of the sub-grade	[Nil]	
(2) Sub-base Course	[Nil]	
(3) Non bituminous Base course	[Nil]	
(4) Bituminous Base course	[Nil]	
(5) Wearing Coat	[Nil]	
(6) Widening and repair of culverts	[Nil]	Cost of ten completed culverts shall be determined on pro-rata basis with respect to the total number of culverts.
B.1- Reconstruction/New2-Lane Realignment/Bypass(Flexible Pavement)		Unit of measurement is linear length. Payment of each stage shall be made on pro-rata basis on completion of a stage in full length or 5(Five) km length, whichever is less.
(1)Earthwork up to top of the sub-grade	31.88%	
(2) Sub-base Course	13.18%	
(3) Non bituminous Base course	15.18%	
(4) Bituminous Base course	13.22%	
(5) Wearing Coat	7.96%	
B.2- Reconstruction/New 8-Lane Realignment/Bypass (Rigid Pavement)		Unit of measurement is linear length. Payment of each stage shall be made on pro-rata basis on completion of a stage in full length or 5(five) km length, whichever is less.
(1)Earthwork up to top of the sub-grade	[Nil]	
(2) Sub-base Course	[Nil]	
(3) Dry Lean Concrete (DLC) Course	[Nil]	
(4) Pavement Quality Control (PQC) Course	[Nil]	
C.1- Reconstruction/New Service Road/ Slip Road (Flexible Pavement)		Unit of measurement is linear length. Payment of each stage shall be made on pro-rata basis on completion of a stage in full length or 5(five) km length, whichever is less.
(1)Earthwork up to top of the sub-grade	[Nil]	
(2) Sub-base Course	[Nil]	
(3) Non bituminous Base course	[Nil]	
(4) Bituminous Basecourse	[Nil]	
(5) Wearing Coat	[Nil]	
C.2- Reconstruction/New Service road (Rigid Pavement)		Unit of measurement is linear length. Payment of each stage shall be made on pro-rata basis on completion of a stage in full length or 5(five) km length, whichever is less.
(1)Earthwork up to top of the sub-grade	[Nil]	
(2) Sub-base Course	[Nil]	
(3) Dry Lean Concrete (DLC)Course	[Nil]	
(4) Pavement Quality Control (PQC) Course	[Nil]	
D-Reconstruction & New Culverts on existing road, realignments, bypasses		Cost of each culverts shall be determined on pro-rata basis with respect to the total number of culverts. Payment shall be made on the completion of at least 5 (Five) culverts
Culverts (length <6m)	18.58%	

@ For example, if the total length of bituminous work to be done is 100 km, the cost per km of bituminous work shall be determined as follows:

Cost per km = P x weightage for road work x weightage for bituminous work x (1/L)

Where,

P = Contract Price

L = Total length in km

Similarly, the rates per km for other stages shall be worked out accordingly.

Note: The length affected due to law and order problems or litigation during execution due to which the Contractor is unable to execute the work, may be deducted from the total project length for payment purposes. The total length calculated here is only for payment purposes and will not affect and referred in other clauses of the Contract Agreement.

1.3.2 Minor Bridges and Underpasses/Overpasses.

Procedure for estimating the value of Minor bridge and Underpasses/Overpasses shall be as stated in table 1.3.2:

Table 1.3.2

Stage of Payment	Weightage	Payment Procedure
1	2	3
A.1-Widening and repairs of Minor Bridges(length>6m&<60m)	23.54%	Cost of each minor bridge shall be determined on pro-rata basis with respect to the total linear length of the minor bridges. Payment shall be made on the completion of widening & repair works of a minor bridge
A.2- New Minor Bridges (length > 6m & < 60m)		
(1)Foundation + Sub-Structure: On completion of the foundation work including foundations for wing and return walls, abutments, piers up to the abutment/pier cap.	42.29%	Foundation: Cost of each minor bridge shall be determined on pro-rata basis with respect to the total linear length (m) of the minor bridges. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. Not less than 25% of the scope of foundation of each bridge. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2)Super-structure: On completion of the super-structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road,signs & markings, tests on completion etc. complete in all respect.	28.61%	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super structure of at least one span in all respects as specified in the column of "Stage of Payment" in this sub-clause. In case of structures where pre-cast girders have been proposed by the Contractor, 50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above
(3)Approaches :On completion of approaches including Retaining walls, stone pitching, protection works complete in all and fit for use	5.56%	Approaches: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of approaches in all respect as specified in the column of "Stage of Payment" in this sub-clause.

Stage of Payment	Weightage	Payment Procedure
(4) Guide Bunds and River Training Works: On completion of Guide Bunds and river training works complete in all respects	[Nil]	Guide Bunds and River Training Works: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of Guide Bund sand River training Works in all respects as specified
B.1- Widening and repairs of underpasses/overpasses	[Nil]	Cost of each underpass/overpass shall be determined on pro-rata basis with respect to the total linear length of the underpasses/ overpasses. Payment shall be made on the completion of widening & repair works of a underpass/overpass.
B.2- New Underpasses/Overpasses		
(1)Foundation + Sub-Structure: On completion of the foundation work including foundations for wing and return walls, abutments, piers up to the abutment/pier cap.	[Nil]	Foundation: Cost of each Underpass/ Overpass shall be determined on pro- rata basis with respect to the total linear length (m) of the Underpasses/Overpasses. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. Not less than 25% of the scope of foundation of each Underpasses/ Overpasses. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2)Super-structure: On completion of the super-structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road signs & markings, tests on completion etc. complete in all respect. Wearing Coat (a) in case of Overpass-wearing coat including expansion joints complete in all respects as specified and (b) in case of underpass- rigid pavement including drainage facility complete in all respects as specified.	[Nil]	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure of at least one span in all respects as specified in the column of "Stage of Payment" in this sub-clause. In case of structures where pre-cast girders have been proposed by the Contractor,50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above
(3) Approaches: On completion of approaches including Retaining walls/ Reinforced Earth walls, stone pitching, protection works complete in all respect and fit for use.	[Nil]	Payment shall be made on pro-rata basis on completion of a stage in all respects as specified

1.3.3 Major Bridge works, ROB/RUB and Structures.

Procedure for estimating the value of Major Bridge works, ROB/RUB and Structures shall be as stated in table 1.3.3:

Table 1.3.3

Stage of Payment	Weightage	Payment Procedure
A.1- Widening and repairs of Major Bridges		
(1) Foundation	[Nil]	Foundation: Cost of each Major Bridge shall be determined on pro-rata basis with respect to the total linear length (m) of the Major Bridge. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the major Bridge. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2) Sub-structure	[Nil]	Sub-structure: Payment against sub- structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub- structure of major bridge.
(3)Super-structure(including bearings)	[Nil]	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure including bearings of at least one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor,50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above
(4)Wearing Coat including expansion joints	[Nil]	Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]	Miscellaneous: Payments shall be made on completion of all miscellaneous works like handrails, crash barriers, road markings etc. complete in all respects as specified.
(6) Wing walls/return walls	[Nil]	Wingwalls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(7)Guide Bunds, River Training works etc.	[Nil]	Guide Bunds, River Training works: Payments shall be made on completion of all guide bunds/river training works etc. complete in all respects as specified.
(8)Approaches(including Retaining walls, stone pitching and protection works)	[Nil]	Approaches: Payments shall be made on pro-rata basis on completion of 10% of the scope of each stage.
A.2-NewMajorBridges		
(1)Foundation	[Nil]	Foundation: Cost of each Major Bridge shall be determined on pro-rata basis with respect to the total linear length (m) of the Major Bridge. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the major Bridge. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.

Stage of Payment	Weightage	Payment Procedure
(2)Sub-structure	[Nil]	Sub-structure: Payment against sub- structure shall be made on pro-rata basis on completion of a stage i.e. not lessthan25% of the scope of sub- structure of major bridge.
(3)Super-structure(including bearings)	[Nil]	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure including bearings of at least one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor, 50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above
(4)Wearing Coat including expansion joints	[Nil]	Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]	Miscellaneous: Payments shall be made on completion of all miscellaneous works like handrails, crash barriers, road markings. complete in all respects as specified.
(6) Wing walls/return walls	[Nil]	Wingwalls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(7)Guide bunds, River Training works etc.	[Nil]	Guide Bunds, River Training works: Payments shall be made on completion of all guide bunds/river training works etc. complete in all respects as specified.
(8)Approaches(including Retaining walls, stone pitching and protection works)	[Nil]	Approaches: Payments shall be made on pro-rata basis on completion of 10% of the scope of each stage.
B.1- Widening and repairs of (a)ROB (b)RUB	[Nil]	
(1) Foundations	[Nil]	Foundation: Cost of each ROB/RUB shall be determined on pro-rata basis with respect to the total linear length (m)of the ROB/RUB. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the ROB/RUB. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2) Sub-Structure	[Nil]	Sub-structure: Payment against sub- structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub- structure of ROB/RUB.
(3) Super-Structure (Including bearings)	[Nil]	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure including bearings of at least one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor,50%ofthe stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above
(4) Wearing Coat(a)in case of ROB-wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB-rigid pavement under RUB	[Nil]	Wearing Coat: Payment shall be made on completion (a) in case of ROB-wearing coat including expansion joints complete in all respects as specified

Stage of Payment	Weightage	Payment Procedure
including drainage facility complete in all respects as specified		and (b) in case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified.
(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]	Miscellaneous: Payments shall be made on completion of all miscellaneous works like handrails, crash barriers, road markings etc. complete in all respects as specified.
(6) Wing walls/Return walls	[Nil]	Wingwalls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(7) Approaches (Including Retaining walls, Stone Pitching and protection works)	[Nil]	Payments shall be made on pro-rata basis on completion of 20% of the total area.
B.2-NewROB/RUB		
(1) Foundation	[Nil]	Foundation: Cost of each ROB/RUB shall be determined on pro-rata basis with respect to the total linear length (m)of the ROB/RUB. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the ROB/RUB.
(2) Sub-structure	[Nil]	Sub-structure: Payment against sub- structure shall be made on pro-rata basis on completion of a stage i.e. Not less than 25% of the scope of sub- structure of ROB/RUB.
(3) Super-structure (including bearing)	[Nil]	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure including bearings of at least one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor,50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above
(4)Wearing Coat (a) in case of ROB- wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified	[Nil]	Wearing Coat: Payment shall be made on completion (a) in case of ROB-wearing coat including expansion joints complete in all respects as specified and (b) In case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified.
(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]	Miscellaneous: Payments shall be made on completion of all miscellaneous works like handrails, crash barriers, road markings etc. Complete in all respects as specified.
(6) Wing walls/Return walls	[Nil]	Wingwalls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(7)Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[Nil]	Payment shall be made on pro-rata basis on completion of a stage in all respects as specified
C.1-Wideningandrepairs of Elevated Section/ Flyovers/Grade Separators		
(1) Foundations	[Nil]	Foundation: Cost of each structure shall be determined on pro-rata basis with respect to the total linear length (m)of

Stage of Payment	Weightage	Payment Procedure
		the structure. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the structure. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2) Sub-Structure	[Nil]	Sub-structure: Payment against sub- structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub- structure of structure.
(3) Super-Structure(Including bearings)	[Nil]	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure including bearings of at least one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor,50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above
(4) Wearing Coat including expansion joints	[Nil]	Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]	Miscellaneous: Payments shall be made on completion of all miscellaneous works like handrails, crash barriers, road markings etc. Complete in all respects as specified.
(6) Wing walls/Return walls	[Nil]	Wingwalls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[Nil]	Payment shall be made on pro-rata basis on completion of a stage in all respects as specified
C.2- New Elevated Section/ Flyovers/Grade Separators		
(1) Foundations	[Nil]	Foundation: Cost of each structure shall be determined on pro-rata basis with respect to the total linear length (m)of the structure. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the structure. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2) Sub-Structure	[Nil]	Sub-structure: Payment against sub- structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub- structure of structure.
(3)Super-Structure(Including bearings)	[Nil]	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure including bearings of at least one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor,50% of the stage payment shall be due and payable on casting of girders foreach span and balance 50% of the stage payment shall be made on completion of stage specified as above

Stage of Payment	Weightage	Payment Procedure
(4)Wearing Coat including expansion joints	[Nil]	Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]	Miscellaneous: Payments shall be made on completion of all miscellaneous works like handrails, crash barriers, road markings etc. complete in all respects as specified.
(6) Wing walls/Return walls	[Nil]	Wingwalls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(7)Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[Nil]	Payments shall be made on pro-rata basis on completion of 20% of the total area.

Note: (1) In case of innovate Major Bridge projects like cable suspension/cable stayed/ Extra Dozed and exceptionally long span bridges, the schedule may be modified as per site requirements before bidding with due approval of Competent Authority.

(2) The Schedule for exclusive tunnel projects may be prepared as per site requirements before bidding with due approval of Competent Authority.

1.3.4 Other works.

Procedure for estimating the value of other works done shall be as stated in table 1.3.4.

Table 1.3.4

Stage of Payment	Weightage	Payment Procedure
1	2	3
(1) Toll Plaza	[Nil]	Unit of measurement is each completed toll plaza. Payment of each toll plaza shall be made on pro-rata basis with respect to the total of all toll plaza.
(2) Roadside drains	37.21%	Unit of measurement is linear length. Payment shall be made on pro-rata basis on completion of a stage in a length of not less than 10% (Ten percent)of the total length.
(3) Road signs, markings, km stones, safety devices etc.	12.62%	
(4) Project Facilities		Payment shall be made on pro-rata basis for completed facilities.
a) Bus Bays	2.68%	
b) Truck Lay-byes	[Nil]	
c) Passenger Shelter	0.39%	
d) Rest Area	[Nil]	
e) Diversion Works	0.52%	
(5) Road side Plantation including Horticulture in Wayside Amenities	[Nil]	Unit of measurement is linear length
(6) Repair of Protection Works other than approaches to the	[Nil]	Unit of measurement is linear length. Payment shall be made

Stage of Payment	Weightage	Payment Procedure
bridges, elevated sections/flyover/grade separators and ROBs/ RUBs		on pro-rata basis on completion of a stage in a length of not less than 10% (Ten percent)of the total length.
(7) Safety and traffic management during construction	[Nil]	Payment shall be made on prorate basis every six months.
(8) Protection Works		Unit of measurement is linear length. Payment shall be made on pro-rata basis on completion of a stage in a length of not less than 10% (Ten percent) of the total length.
(a) Breast Wall	20.77%	
(b) Toe Wall	[Nil]	
(c)Retaining Wall	7.31%	
(c) Crash Barrier	4.72%	
(9) Site Clearance & Dismantling	3.32%	Unit of measurement is linear length. Payment shall be made on pro-rata basis on completion of a stage in a length of not less than 10% (Ten percent) of the total length.
(10) Protection Works	7.35%	Unit of measurement is linear length. Payment shall be made on pro-rata basis on completion of a stage in a length of not less than 10% (Ten percent) of the total length.
(11) Utility Shifting	3.11%	Unit of measurement is linear length. Payment shall be made on pro-rata basis on completion of a stage in a length of not less than 10% (Ten percent) of the total length.

2. Procedure for payment for Maintenance

2.1 The cost for maintenance shall be as stated in Clause 14.1.1.

2.2 Payment for Maintenance shall be made in quarterly instalments in accordance with the provisions of Clause 19.7.