Schedules

Schedule-A

(See Clauses 2.1 and 8.1)

Site of the Project

1. The Site

(i) Site of the [Two-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] Project Highway comprises the section of [National Highway-208] commencing from km 81.130 to km 111.288 i.e. the Srirampur - Ganki section in the state of Tripura. The land, carriageway and structures comprising the Site are described below.

2. Land

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

S. No.	Chainage (km)		Existing Right of Way (m)	Remarks
	From	To		
1	81.130	81.600	21	Mostly Existing Alignment Followed
2	81.600	82.100	13	Mostly Existing Alignment Followed
3	82.100	82.600	11	Mostly Existing Alignment Followed
4	82.600	83.100	11	Existing Alignment Followed
5	83.100	83.600	11	Existing Alignment Followed
6	83.600	84.100	12	Mostly Existing Alignment Followed
7	84.100	84.600	11	Mostly Existing Alignment Followed
8	84.600	85.100	11	Realignment Proposed
9	85.100	85.600	10	Existing Alignment Followed
10	85.600	86.100	10	Existing Alignment Followed
11	86.100	86.600	9	Existing Alignment Followed
12	86.600	87.100	9	Mostly Existing Alignment Followed
13	87.100	87.600	10	Mostly Existing Alignment Followed
14	87.600	88.100	9	Existing Alignment Followed
15	88.100	88.600	12	Realignment Proposed
16	88.600	89.100	11	Realignment Proposed
17	89.100	89.600	12	Existing Alignment Followed
18	89.600	90.100	14	Existing Alignment Followed
19	90.100	90.600	12	Realignment Proposed
20	90.600	91.100	12	Realignment Proposed

S. No.	Chainage (km)		Existing Right of Way (m)	Remarks
	From	To		
21	91.100	91.600	12	Mostly Existing Alignment Followed
22	91.600	92.100	11	Mostly Existing Alignment Followed
23	92.100	92.600	12	Realignment Proposed
24	92.600	93.100	12	Realignment Proposed
25	93.100	93.600	11	Realignment Proposed
26	93.600	94.100	9	Realignment Proposed
27	94.100	94.600	11	Mostly Existing Alignment Followed
28	94.600	95.100	10	Existing Alignment Followed
29	95.100	95.600	10	Mostly Existing Alignment Followed
30	95.600	96.100	10	Realignment Proposed
31	96.100	96.600	11	Mostly Existing Alignment Followed
32	96.600	97.100	11	Realignment Proposed
33	97.100	97.600	11	Realignment Proposed
34	97.600	98.100	11	Mostly Existing Alignment Followed
35	98.100	98.600	13	Existing Alignment Followed
36	98.600	99.100	16	Existing Alignment Followed
37	99.100	99.600	16	Existing Alignment Followed
38	99.600	100.100	16	Realignment Proposed
39	100.100	100.600	12	Existing Alignment Followed
40	100.600	101.100	12	Existing Alignment Followed
41	101.100	101.600	13	Existing Alignment Followed
42	101.600	102.100	12	Mostly Existing Alignment Followed
43	102.100	102.600	12	Realignment Proposed
44	102.600	103.100	16	Existing Alignment Followed
45	103.100	103.600	18	Bypass Proposed (Khowai Bypass)
46	103.600	104.100	18	Bypass Proposed (Khowai Bypass)
47	104.100	104.600	17	Bypass Proposed (Khowai Bypass)
48	104.600	105.100	16	Bypass Proposed (Khowai Bypass)
49	105.100	105.300	17	Bypass Proposed (Khowai Bypass)
50	105.300	105.600	17	Bypass Proposed (Khowai Bypass)
51	105.600	106.100	15	Bypass Proposed (Khowai Bypass)
52	106.100	106.600	12	Bypass Proposed (Khowai Bypass)
53	106.600	107.100	12	Bypass Proposed (Khowai Bypass)
54	107.100	107.600	9	Bypass Proposed (Khowai Bypass)
55	107.600	108.100	9	Bypass Proposed (Khowai Bypass)
56	108.100	108.600	11	Bypass Proposed (Khowai Bypass)
57	108.600	109.100	12	Bypass Proposed (Khowai Bypass)
58	109.100	109.600	17	Bypass Proposed (Khowai Bypass)

S. No.	Chainage (km)		Existing Right of Way (m)	Remarks
	From	To		
59	109.600	110.100	18	Bypass Proposed (Khowai Bypass)
60	110.100	110.600	17	Bypass Proposed (Khowai Bypass)
61	110.600	111.100	16	Bypass Proposed (Khowai Bypass)
62	111.100	111.288	15	Existing Alignment Followed

3. Carriageway

The present carriageway of the Project Highway is [Single/Intermediate Lane]. 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:

S. No.	Chainage (km)	Type of Structure			No. of Spans with span length (m)	Width (m)
		Foundation	Sub- structure	Super-structure		
1	92.497	Open	PCC	Bailey Bridge	1 X 15.2	4.1
2	92.634	Open	PCC	Bailey Bridge	1 X 15.2	4.1
3	94.288	Open	Brick	Slab Bridge	1 X 9.4	6.0
4	95.605	Open	Brick	Slab Bridge	1 X 9.2	9.5
5	99.876	Open	RCC	RCC Box Bridge	3 X 8.0	7.5
6	104.180	Open	Brick	Slab Bridge	1 X 9.7	6.0
7	105.020	Open	Brick	Slab Bridge	1 X 9.7	6.0
8	108.130	Well	RCC	RCC T-Girder	2 x 24.0	12.0
9	108.310	Open	PCC	RCC Slab	1 x 8.4	8.4
10	109.270	Open	PCC	RCC Slab	1 x 8.4	8.4

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:

S. No.	Chainage (km)	Type of Culvert	Span /Opening with span length (m)	Width (m)
1	83.987	Slab	1 X 1.500	8.0
2	84.469	Slab	1 X 1.000	8.0

S. No.	Chainage (km)	Type of Culvert	Span /Opening with span length (m)	Width (m)
3	84.807	Slab	1 X 1.000	8.0
4	84.996	Slab	1 X 1.000	8.0
5	89.031	HP	1 X 1.500	12.5
6	89.125	Slab	1 X 2.000	7.0
7	89.279	Slab	1 X 2.000	7.0
8	89.393	HP	1 X 0.900	10.0
9	91.671	Slab	1 X 1.000	7.0
10	92.016	HP	1 X 1.200	10.0
11	92.163	HP	1 X 0.900	-
12	92.325	HP	1 X 1.200	10.0
13	92.762	HP	1 X 0.900	7.5
14	92.977	HP	1 X 1.200	7.5
15	94.500	Box	1 X 1.000	7.5
16	94.646	HP	1 X 0.300	5.0
17	95.225	Slab	1 X 2.500	8.5
18	95.813	Slab	1 X 2.500	7.5
19	96.328	Box	1 X 1.000	7.5
20	96.429	Box	1 X 1.000	7.5
21	96.512	HP	1 X 0.600	7.5
22	96.673	Box	1 X 1.000	7.5
23	96.815	Box	1 X 1.000	7.5
24	96.920	Box	1 X 1.500	8.5
25	97.037	Box	1 X 2.500	7.5
26	97.363	HP	1 X.600	10.0
27	97.735	HP	1 X.600	7.5
28	98.054	HP	1 X.600	7.0
29	98.183	Box	1 X 0.900	7.5
30	98.261	Slab	1 X 1.500	7.4
31	98.453	Box	1 X 1.500	7.5
32	98.612	HP	1 X 1.200	7.5
33	98.750	Box	1 X 1.500	7.5
34	98.802	HP	1 X 1.000	-
35	99.095	HP	3 X 1.500	10.0
36	99.297	Box	1 X 2.000	8.5
37	99.505	Box	1 X 1.500	8.4
38	99.620	HP	1 X 1.200	7.5
39	99.735	Box	1 X 3.000	12.0

S. No.	Chainage (km)	Type of Culvert	Span /Opening with span length (m)	Width (m)
40	99.772	Slab	1 X 0.400	8.0
41	100.220	HP	1 X 0.600	7.5
42	100.281	HP	1 X 0.600	7.5
43	100.471	HP	1 X 0.600	7.5
44	100.512	HP	1 X 0.600	7.5
45	100.795	HP	1 X 0.600	12.5
46	101.018	HP	1 X 0.900	7.5
47	101.223	HP	1 X 0.600	10.0
48	101.569	HP	1 X 1.200	7.5
49	101.679	HP	1 X 0.600	7.5
50	101.807	HP	1 X 1.200	7.5
51	102.022	HP	1 X 1.000	-
52	102.195	HP	1 X 1.200	12.5
53	102.820	Slab	1 X 1.500	7.5
54	-	Slab	1 X 2.500	3.5
55	103.703	HP	1 X 1.500	7.5
56	104.212	HP	1 X 1.500	10.0
57	104.458	HP	1 X 0.900	7.5
58	104.800	Slab	1 X 1.500	10.0
59	104.800	HP	1 X 1.500	10.0
60	105.128	HP	1 X 1.500	10.0
61	105.446	Slab	1 X 1.2	12.0
62	105.731	Slab	1 X 1.0	10.0
63	106.046	Slab	1 X 1.0	10.5
64	106.580	Slab	1 X 1.0	10.4
65	106.817	Slab	1 X 0.6	7.0
66	106.906	Slab	1 X 0.6	5.0
67	107.309	HP	1 X 1.5	7.5
68	107.547	HP	1 X 0.9	5.0
69	107.730	Slab	1 X 1.8	8.5
70	108.582	Slab	1 X 1.5	11.0
71	108.815	Slab	1 X 2.0	13.5
72	110.069	Slab	1 X 2.0	12.0
73	111.076	Slab	1 X 1.5	7.1

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. Road side drains

The details of the roadside drains are as follows:

S. No.	Location		Type	
	From km	to km	Masonry/cc (Pucca)	Earthen (Kutcha)
1	81.500	82.300		Unlined
2	82.300	82.500		Unlined
3	82.500	82.700		Unlined
4	82.700	82.750		Unlined
5	82.750	82.800		Unlined
6	82.860	83.000		Unlined
7	83.100	83.200		Unlined
8	83.200	83.580		Unlined
9	83.700	83.820		Unlined
10	83.850	84.000	Lined	
11	83.900	83.980		Unlined
12	84.000	84.100	Lined	
13	84.040	84.080		Unlined
14	84.100	84.220	Lined	
15	84.222	84.350		Unlined
16	84.365	84.400		Unlined
17	84.400	84.550		Unlined
18	84.550	84.600		Unlined
19	84.600	84.740	Lined	
20	84.900	85.420		Unlined
21	85.750	85.800		Unlined
22	86.200	86.400		Unlined

S. No.	Location		Type	
	From km	to km	Masonry/cc (Pucca)	Earthen (Kutcha)
23	86.700	86.950		Unlined
24	86.950	87.200		Unlined
25	87.450	87.600		Unlined
26	87.600	87.800		Unlined
27	87.700	87.750		Unlined
28	87.800	88.000		Unlined
29	88.120	88.400		Unlined
30	88.500	88.600		Unlined
31	88.950	89.100	Lined	
32	89.130	89.300		Unlined
33	89.300	89.600		Unlined
34	89.900	90.000		Unlined
35	90.400	90.600		Unlined
36	91.730	91.850	Lined	
37	92.000	92.100		Unlined
38	92.300	92.600		Unlined
39	92.625	92.670	Lined	
40	93.070	93.250	Lined	
41	94.615	94.700		Unlined
42	95.700	95.800		Unlined
43	95.750	95.800	Lined	
44	95.800	95.900		Unlined
45	96.100	96.200		Unlined
46	96.150	96.200		Unlined
47	96.200	96.350	Lined	
48	96.350	96.400		Unlined
49	96.500	96.600		Unlined
50	97.000	97.500		Unlined
51	97.950	98.050	Lined	
52	98.100	98.200		Unlined
53	98.300	98.500		Unlined
54	98.400	98.450		Unlined
55	98.500	99.200		Unlined
56	99.100	99.200	Lined	
57	99.300	99.400		Unlined

S. No.	Location		Type	
	From km	to km	Masonry/cc (Pucca)	Earthen (Kutcha)
58	99.600	99.900	Lined	
59	101.230	101.400		Unlined
60	102.140	102.300	Lined	
61	102.360	102.900	Lined	
62	102.830	102.900	Lined	
63	102.900	103.200		Unlined
64	103.150	103.200		Unlined
65	103.760	104.000		Unlined
66	103.980	104.000		Unlined
67	104.000	104.100		Unlined
68	104.100	104.400	Lined	
69	104.620	104.800	Lined	
70	105.360	105.500	Lined	
71	105.440	105.500		Unlined
72	105.500	105.590	Lined	
73	105.650	107.200	Lined	
74	107.200	107.400	Lined	
75	107.350	107.400	Lined	
76	107.400	107.550	Lined	
77	107.550	107.700		Unlined
78	107.700	107.800	Lined	
79	107.800	107.900		Unlined
80	107.900	108.000	Lined	
81	108.000	108.050	Lined	
82	108.075	108.100	Lined	
83	108.100	108.350	Lined	
84	108.350	108.400	Lined	
85	108.660	108.850	Lined	
86	108.930	109.100	Lined	
87	109.100	109.600	Lined	
88	109.625	110.500	Lined	
89	110.600	110.800	Lined	
90	110.700	110.800		Unlined
91	110.800	110.900	Lined	
92	110.800	110.900		Unlined

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
Nil								

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

15. Minor junctions

The details of the minor junctions are as follows:

S. No.	Location		Type	
	From km	To km	T -junction	Cross road
1	81.250		√	
2	89.550		√	
3	89.725		√	
4	93.450		√	
5	93.700		√	
6	99.000		√	
7	99.575			√
8	99.625		√	
9	99.800		√	
10	101.170		√	
11	101.980		√	
12	102.540		√	

16. Bypasses

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

S. No.	Name of bypass (town)	Chainage (km) From km to km	Length (in Km)
1	Khowai Bypass	103.250 to 111.100	7.850

[17. Other structures]

[Provide details of other structures, if any.]

18. Proposed Right of Way (ROW)

The Proposed Right of Way and co-relation between existing and design chainage is given below:

Existing Chainage (km)	Design Chainage (km)	From Existing Road Center Line		Total Proposed ROW (m)	From Proposed Road Center Line		Remarks
		Proposed ROW_Left (m)	Proposed ROW_Right (m)		PROW_ Left (m)	PROW_ Right (m)	
81.130	75.700	27.2	2.8	**30.0**	15.0	15.0	
81.225	75.800	10.7	19.3	**30.0**	15.0	15.0	
81.327	75.900	11.9	18.1	**30.0**	15.0	15.0	
81.425	76.000	9.7	20.3	**30.0**	15.0	15.0	
-	76.100	58.9	-28.9	**30.0**	15.0	15.0	Major Realignment
81.642	76.200	23.5	17.5	**41.0**	18.0	23.0	
81.744	76.300	3.8	37.2	**41.0**	18.0	23.0	
81.894	76.400	14.8	15.2	**30.0**	15.0	15.0	
82.002	76.500	20.6	9.4	**30.0**	15.0	15.0	
82.104	76.600	12.4	17.6	**30.0**	15.0	15.0	
82.205	76.700	-3.5	43.5	**40.0**	19.0	21.0	
82.306	76.800	17.1	22.9	**40.0**	19.0	21.0	
82.408	76.900	29.1	0.9	**30.0**	15.0	15.0	
82.510	77.000	33.6	-3.6	**30.0**	15.0	15.0	
82.613	77.100	16.1	13.9	**30.0**	15.0	15.0	
82.715	77.200	11.2	18.8	**30.0**	15.0	15.0	
82.816	77.300	15.1	14.9	**30.0**	15.0	15.0	
82.916	77.400	16.1	13.9	**30.0**	15.0	15.0	
83.026	77.500	3.4	29.6	**33.0**	18.0	15.0	
83.128	77.600	24.7	5.3	**30.0**	18.0	12.0	
83.218	77.700	22.8	7.2	**30.0**	18.0	12.0	
83.325	77.800	19.7	10.3	**30.0**	18.0	12.0	
83.426	77.900	18.5	11.5	**30.0**	18.0	12.0	
83.530	78.000	16.9	13.1	**30.0**	18.0	12.0	
83.631	78.100	20.5	9.5	**30.0**	18.0	12.0	
83.727	78.200	28.2	1.9	**30.0**	18.0	12.0	
83.830	78.300	19.2	10.8	**30.0**	18.0	12.0	
83.930	78.400	25.1	14.9	**40.0**	20.0	20.0	
-	78.500	75.1	-35.1	**40.0**	20.0	20.0	Major Realignment
84.150	78.600	19.7	20.3	**40.0**	20.0	20.0	
84.246	78.700	8.8	21.2	**30.0**	12.0	18.0	
84.352	78.800	20.5	9.5	**30.0**	17.0	13.0	
84.460	78.900	17.2	12.9	**30.0**	17.0	13.0	
84.562	79.000	20.6	9.4	**30.0**	17.0	13.0	
84.663	79.100	12.8	17.2	**30.0**	17.0	13.0	

Existing Chainage (km)	Design Chainage (km)	From Existing Road Center Line		Total Proposed ROW (m)	From Proposed Road Center Line		Remarks
		Proposed ROW_Left (m)	Proposed ROW_Right (m)		PROW_ Left (m)	PROW_ Right (m)	
84.763	79.200	11.9	20.1	**32.0**	16.0	16.0	
-	79.300	-50.1	82.1	**32.0**	16.0	16.0	Major Realignment
85.002	79.400	2.2	37.9	**40.0**	18.0	22.0	
85.115	79.500	8.8	31.2	**40.0**	18.0	22.0	
85.223	79.600	1.1	38.9	**40.0**	18.0	22.0	
85.325	79.700	14.8	15.2	**30.0**	15.0	15.0	
85.426	79.800	16.7	13.3	**30.0**	15.0	15.0	
85.513	79.900	35.1	4.9	**40.0**	25.0	15.0	
85.611	80.000	30.2	9.8	**40.0**	25.0	15.0	
85.726	80.100	21.6	18.4	**40.0**	25.0	15.0	
85.828	80.200	17.5	22.5	**40.0**	20.0	20.0	
85.940	80.300	6.2	33.8	**40.0**	20.0	20.0	
86.055	80.400	25.7	14.3	**40.0**	20.0	20.0	
86.156	80.500	17.1	13.0	**30.0**	15.0	15.0	
86.257	80.600	10.3	19.7	**30.0**	15.0	15.0	
86.359	80.700	13.5	16.5	**30.0**	15.0	15.0	
86.460	80.800	14.4	15.6	**30.0**	15.0	15.0	
86.550	80.900	66.5	-16.5	**50.0**	25.0	25.0	
86.664	81.000	32.8	17.2	**50.0**	25.0	25.0	
86.767	81.100	-14.3	44.3	**30.0**	15.0	15.0	
86.842	81.200	-4.4	34.4	**30.0**	15.0	15.0	
86.986	81.300	-15.0	45.0	**30.0**	15.0	15.0	
87.102	81.400	0.2	31.8	**32.0**	15.0	17.0	
87.225	81.500	-12.2	42.2	**30.0**	13.0	17.0	
87.337	81.600	17.2	12.8	**30.0**	17.0	13.0	
87.450	81.700	28.7	1.3	**30.0**	17.0	13.0	
87.547	81.800	26.6	3.4	**30.0**	17.0	13.0	
87.642	81.900	27.6	2.4	**30.0**	17.0	13.0	
87.748	82.000	7.0	23.0	**30.0**	15.0	15.0	
87.854	82.100	8.2	21.8	**30.0**	15.0	15.0	
87.959	82.200	5.7	24.3	**30.0**	15.0	15.0	
88.065	82.300	7.9	22.1	**30.0**	15.0	15.0	
-	82.400	-54.2	84.2	**30.0**	15.0	15.0	Major Realignment
88.310	82.500	3.3	26.7	**30.0**	15.0	15.0	
88.432	82.600	-27.6	57.6	**30.0**	15.0	15.0	
88.557	82.700	24.2	35.8	**60.0**	25.0	35.0	
88.700	82.800	-44.0	104.0	**60.0**	25.0	35.0	
88.825	82.900	-22.3	52.3	**30.0**	15.0	15.0	
88.994	83.000	13.9	16.1	**30.0**	15.0	15.0	
89.107	83.100	13.1	16.9	**30.0**	15.0	15.0	
89.210	83.200	28.1	1.9	**30.0**	15.0	15.0	
89.312	83.300	20.5	9.5	**30.0**	18.0	12.0	

Existing Chainage (km)	Design Chainage (km)	From Existing Road Center Line		Total Proposed ROW (m)	From Proposed Road Center Line		Remarks
		Proposed ROW_Left (m)	Proposed ROW_Right (m)		PROW_ Left (m)	PROW_ Right (m)	
89.413	83.400	19.4	10.6	**30.0**	15.0	15.0	
89.514	83.500	23.1	6.9	**30.0**	15.0	15.0	
89.625	83.600	60.6	-30.6	**30.0**	15.0	15.0	
89.763	83.700	17.2	12.8	**30.0**	15.0	15.0	
89.863	83.800	10.7	19.3	**30.0**	15.0	15.0	
89.964	83.900	13.4	16.6	**30.0**	15.0	15.0	
90.064	84.000	13.7	16.3	**30.0**	15.0	15.0	
90.170	84.100	22.1	7.9	**30.0**	15.0	15.0	
-	84.200	108.7	-68.7	**40.0**	20.0	20.0	Major Realignment
-	84.300	242.7	-202.7	**40.0**	20.0	20.0	Major Realignment
-	84.400	246.1	-216.1	**30.0**	15.0	15.0	Major Realignment
-	84.500	233.8	-203.8	**30.0**	15.0	15.0	Major Realignment
-	84.600	170.7	-140.7	**30.0**	15.0	15.0	Major Realignment
91.005	84.700	26.4	3.6	**30.0**	15.0	15.0	
91.107	84.800	23.1	7.0	**30.0**	15.0	15.0	
91.202	84.900	30.3	-0.3	**30.0**	15.0	15.0	
91.297	85.000	30.4	-0.4	**30.0**	15.0	15.0	
91.410	85.100	-22.6	52.6	**30.0**	15.0	15.0	
91.522	85.200	16.8	13.2	**30.0**	15.0	15.0	
91.622	85.300	13.6	16.4	**30.0**	15.0	15.0	
91.725	85.400	4.3	25.7	**30.0**	15.0	15.0	
91.842	85.500	8.2	21.8	**30.0**	15.0	15.0	
91.945	85.600	13.5	16.5	**30.0**	15.0	15.0	
92.046	85.700	-0.4	30.4	**30.0**	15.0	15.0	
92.150	85.800	-3.6	33.6	**30.0**	15.0	15.0	
-	85.900	-31.5	61.5	**30.0**	15.0	15.0	Minor Realignment
-	86.000	-29.9	59.9	**30.0**	15.0	15.0	Minor Realignment
-	86.100	111.0	-81.0	**30.0**	15.0	15.0	Minor Realignment
-	86.200	90.6	-60.6	**30.0**	15.0	15.0	Minor Realignment
-	86.300	36.7	-6.7	**30.0**	15.0	15.0	Minor Realignment
-	86.400	66.5	-36.5	**30.0**	15.0	15.0	Minor Realignment
-	86.500	76.5	-46.5	**30.0**	15.0	15.0	Minor Realignment
-	86.600	99.2	-69.2	**30.0**	15.0	15.0	Minor Realignment
-	86.700	121.3	-91.3	**30.0**	15.0	15.0	Minor Realignment
93.290	86.800	14.5	15.5	**30.0**	15.0	15.0	
93.392	86.900	18.9	11.1	**30.0**	15.0	15.0	
-	87.000	-14.6	44.6	**30.0**	15.0	15.0	Minor Realignment
-	87.100	-30.9	60.9	**30.0**	15.0	15.0	Minor Realignment
93.680	87.200	-2.5	32.5	**30.0**	15.0	15.0	
93.810	87.300	29.2	0.8	**30.0**	15.0	15.0	
93.914	87.400	-2.3	32.3	**30.0**	15.0	15.0	
-	87.500	57.4	-24.8	**32.6**	17.6	15.0	Minor Realignment

Existing Chainage (km)	Design Chainage (km)	From Existing Road Center Line		Total Proposed ROW (m)	From Proposed Road Center Line		Remarks
		Proposed ROW_Left (m)	Proposed ROW_Right (m)		PROW_ Left (m)	PROW_ Right (m)	
-	87.600	85.2	-50.2	**35.0**	15.0	20.0	Minor Realignment
-	87.700	34.9	-4.9	**30.0**	15.0	15.0	Minor Realignment
94.355	87.800	34.9	-4.9	**30.0**	15.0	15.0	
94.450	87.900	19.2	10.9	**30.0**	15.0	15.0	
94.550	88.000	14.4	15.6	**30.0**	15.0	15.0	
94.650	88.100	17.5	12.5	**30.0**	15.0	15.0	
94.750	88.200	14.2	15.8	**30.0**	15.0	15.0	
94.852	88.300	1.6	28.4	**30.0**	15.0	15.0	
94.955	88.400	26.7	3.3	**30.0**	15.0	15.0	
95.060	88.500	0.9	29.1	**30.0**	15.0	15.0	
95.155	88.600	-1.4	31.4	**30.0**	15.0	15.0	
95.255	88.700	-16.4	46.4	**30.0**	15.0	15.0	
95.365	88.800	5.9	24.1	**30.0**	15.0	15.0	
95.466	88.900	-16.7	46.7	**30.0**	15.0	15.0	
95.570	89.000	10.0	20.0	**30.0**	15.0	15.0	
-	89.100	-34.6	64.6	**30.0**	15.0	15.0	Minor Realignment
-	89.200	-56.5	86.5	**30.0**	15.0	15.0	Minor Realignment
-	89.300	-82.2	112.2	**30.0**	15.0	15.0	Minor Realignment
-	89.400	-51.1	81.1	**30.0**	15.0	15.0	Minor Realignment
-	89.500	-29.1	59.1	**30.0**	15.0	15.0	Minor Realignment
-	89.600	-27.8	57.8	**30.0**	15.0	15.0	Minor Realignment
96.316	89.700	8.8	21.2	**30.0**	15.0	15.0	
96.418	89.800	-6.0	36.0	**30.0**	15.0	15.0	
96.526	89.900	13.5	16.5	**30.0**	15.0	15.0	
96.628	90.000	1.5	28.5	**30.0**	15.0	15.0	
96.736	90.100	36.2	-6.2	**30.0**	15.0	15.0	
-	90.200	69.0	-39.0	**30.0**	15.0	15.0	Minor Realignment
-	90.300	115.7	-85.7	**30.0**	15.0	15.0	Minor Realignment
-	90.400	38.7	-8.7	**30.0**	15.0	15.0	Minor Realignment
-	90.500	-36.2	66.2	**30.0**	15.0	15.0	Minor Realignment
-	90.600	-48.5	78.5	**30.0**	15.0	15.0	Minor Realignment
97.452	90.700	32.6	-2.6	**30.0**	15.0	15.0	
97.558	90.800	23.1	6.9	**30.0**	15.0	15.0	
97.661	90.900	9.3	20.7	**30.0**	15.0	15.0	
97.778	91.000	55.4	-25.4	**30.0**	15.0	15.0	
97.898	91.100	5.4	24.6	**30.0**	15.0	15.0	
98.004	91.200	9.6	20.4	**30.0**	15.0	15.0	
98.105	91.300	14.4	15.6	**30.0**	15.0	15.0	
98.205	91.400	15.0	15.0	**30.0**	15.0	15.0	
98.305	91.500	13.2	16.8	**30.0**	15.0	15.0	
98.405	91.600	18.8	11.2	**30.0**	15.0	15.0	
98.513	91.700	29.7	0.3	**30.0**	15.0	15.0	

Existing Chainage (km)	Design Chainage (km)	From Existing Road Center Line		Total Proposed ROW (m)	From Proposed Road Center Line		Remarks
		Proposed ROW_Left (m)	Proposed ROW_Right (m)		PROW_ Left (m)	PROW_ Right (m)	
98.615	91.800	11.7	18.3	**30.0**	15.0	15.0	
98.716	91.900	14.1	15.9	**30.0**	15.0	15.0	
98.816	92.000	15.2	14.8	**30.0**	15.0	15.0	
98.917	92.100	15.0	15.0	**30.0**	15.0	15.0	
99.017	92.200	17.2	12.8	**30.0**	15.0	15.0	
99.117	92.300	10.5	19.6	**30.0**	15.0	15.0	
99.217	92.400	16.2	13.9	**30.0**	15.0	15.0	
99.319	92.500	25.8	4.2	**30.0**	15.0	15.0	
99.422	92.600	13.0	17.0	**30.0**	15.0	15.0	
99.522	92.700	12.2	17.8	**30.0**	15.0	15.0	
99.623	92.800	18.2	11.8	**30.0**	15.0	15.0	
99.723	92.900	25.4	4.6	**30.0**	15.0	15.0	
-	93.000	-14.6	44.6	**30.0**	15.0	15.0	Minor Realignment
-	93.100	-22.6	52.6	**30.0**	15.0	15.0	Minor Realignment
-	93.200	-21.6	51.6	**30.0**	15.0	15.0	Minor Realignment
100.160	93.300	23.7	6.4	**30.0**	15.0	15.0	
100.264	93.400	22.0	8.1	**30.0**	15.0	15.0	
100.368	93.500	-2.0	32.0	**30.0**	15.0	15.0	
100.470	93.600	1.6	28.4	**30.0**	15.0	15.0	
100.575	93.700	14.8	15.2	**30.0**	15.0	15.0	
100.675	93.800	9.0	21.0	**30.0**	15.0	15.0	
100.780	93.900	44.2	-14.2	**30.0**	15.0	15.0	
100.888	94.000	13.5	16.5	**30.0**	15.0	15.0	
100.995	94.100	6.0	24.0	**30.0**	15.0	15.0	
101.099	94.200	19.4	10.6	**30.0**	15.0	15.0	
101.198	94.300	20.7	9.3	**30.0**	15.0	15.0	
101.300	94.400	24.7	5.3	**30.0**	15.0	15.0	
101.405	94.500	20.2	9.8	**30.0**	15.0	15.0	
101.507	94.600	23.8	6.2	**30.0**	15.0	15.0	
101.613	94.700	33.1	-3.1	**30.0**	15.0	15.0	
101.716	94.800	15.8	14.2	**30.0**	15.0	15.0	
101.825	94.900	50.7	-20.7	**30.0**	15.0	15.0	
101.926	95.000	29.6	0.4	**30.0**	15.0	15.0	
-	95.100	52.8	-22.8	**30.0**	15.0	15.0	Minor Realignment
-	95.200	178.4	-148.4	**30.0**	15.0	15.0	Minor Realignment
-	95.300	98.7	-68.7	**30.0**	15.0	15.0	Minor Realignment
102.523	95.400	32.7	-2.7	**30.0**	15.0	15.0	Minor Realignment
102.627	95.500	11.0	19.0	**30.0**	15.0	15.0	
102.728	95.600	16.9	13.1	**30.0**	15.0	15.0	
102.828	95.700	15.6	14.4	**30.0**	15.0	15.0	
102.928	95.800	13.3	16.7	**30.0**	15.0	15.0	
103.028	95.900	12.2	17.8	**30.0**	15.0	15.0	

Existing Chainage (km)	Design Chainage (km)	From Existing Road Center Line		Total Proposed ROW (m)	From Proposed Road Center Line		Remarks
		Proposed ROW_Left (m)	Proposed ROW_Right (m)		PROW_ Left (m)	PROW_ Right (m)	
103.128	96.000	19.8	10.2	**30.0**	15.0	15.0	
-	96.100	50.9	-18.3	**32.6**	15.0	17.6	Khowai Bypass
-	96.200	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	96.300	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	96.400	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	96.500	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	96.600	-	-	**42.0**	21.0	21.0	Khowai Bypass
-	96.700	-	-	**38.0**	20.0	18.0	Khowai Bypass
-	96.800	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	96.900	-	-	**37.0**	17.0	20.0	Khowai Bypass
-	97.000	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	97.100	-	-	**37.0**	17.0	20.0	Khowai Bypass
-	97.200	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	97.300	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	97.400	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	97.500	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	97.600	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	97.700	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	97.800	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	97.900	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	98.000	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	98.100	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	98.200	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	98.300	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	98.400	-	-	**31.0**	15.0	16.0	Khowai Bypass
-	98.500	-	-	**34.0**	17.0	17.0	Khowai Bypass
-	98.600	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	98.700	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	98.800	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	98.900	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	99.000	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	99.100	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	99.200	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	99.300	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	99.400	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	99.500	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	99.600	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	99.700	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	99.800	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	99.900	-	-	**30.0**	15.0	15.0	Khowai Bypass
-	100.000	-	-	**29.8**	15.0	14.8	Khowai Bypass
-	100.100	-	-	**29.3**	15.0	14.3	Khowai Bypass

Existing Chainage (km)	Design Chainage (km)	From Existing Road Center Line		Total Proposed ROW (m)	From Proposed Road Center Line		Remarks
		Proposed ROW_Left (m)	Proposed ROW_Right (m)		PROW_ Left (m)	PROW_ Right (m)	
-	100.200	-	-	**28.8**	15.0	13.8	Khowai Bypass
-	100.300	-	-	**28.3**	15.0	13.3	Khowai Bypass
-	100.400	-	-	**27.8**	15.0	12.8	Khowai Bypass
-	100.500	-	-	**27.3**	15.0	12.3	Khowai Bypass
-	100.600	-	-	**26.9**	15.0	11.9	Khowai Bypass
-	100.700	-	-	**26.4**	15.0	11.4	Khowai Bypass
-	100.800	-	-	**25.9**	15.0	10.9	Khowai Bypass
-	100.900	-	-	**25.4**	15.0	10.4	Khowai Bypass
-	101.000	-	-	**26.2**	15.0	11.2	Khowai Bypass
111.150	101.100	-	-	**-**	-	-	Junction
111.200	101.200	17.5	10.5	**27.9**	15.0	12.9	
111.288	101.300	7.8	12.2	**20.0**	10.0	10.0	

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 are stated below:

Sl. No	From km	to km	Length (km)	Width (m)	Date of providing Right of Way*
(1)	(2)		(3)	(4)	(5)
(i) Full Right of Way (full width)					
1	75.700	76.150	0.450	30	On Appointed date
2	76.150	76.350	0.200	41	
3	76.350	76.630	0.280	30	
4	76.630	76.850	0.220	40	
5	76.850	77.500	0.650	30	
6	77.500	78.400	0.900	30	
7	78.400	78.620	0.220	40	
8	78.620	78.720	0.100	30	
9	78.720	79.140	0.420	30	
10	79.140	79.183	0.043	32	
11	79.183	79.400	0.217	32	
12	79.400	79.600	0.200	40	
13	79.600	79.870	0.270	30	
14	79.870	80.120	0.250	40	
15	80.120	80.400	0.280	40	
16	80.400	80.850	0.450	30	
17	80.850	81.050	0.200	50	
18	81.050	81.400	0.350	30	
19	81.400	81.510	0.110	30	
20	81.510	81.950	0.440	30	
21	81.950	82.640	0.690	30	
22	82.640	82.860	0.220	60	
23	82.860	83.280	0.420	30	
24	83.280	83.370	0.090	30	
25	83.370	84.150	0.780	30	
26	84.150	84.370	0.220	40	
27	84.370	87.410	3.040	30	
28	87.410	87.660	0.250	varying	
29	87.660	96.100	8.440	30	
30	96.100	96.150	0.050	varying	
31	96.150	96.410	0.260	30	
32	96.410	96.480	0.070	34	On Appointed

Sl. No	From km	to km	Length (km)	Width (m)	Date of providing Right of Way*
(1)	(2)		(3)	(4)	(5)
33	96.480	96.520	0.040	30	date
34	96.520	96.600	0.080	42	
35	96.600	96.730	0.130	38	
36	96.730	96.760	0.030	33	
37	96.760	96.850	0.090	30	
38	96.850	96.900	0.050	35	
39	96.900	96.950	0.050	37	
40	96.950	97.070	0.120	30	
41	97.070	97.080	0.010	32	
42	97.080	97.110	0.030	37	
43	97.110	97.150	0.040	35	
44	97.150	97.319	0.169	30	
45	97.319	98.340	1.021	30	
46	98.340	98.410	0.070	31	
47	98.410	98.460	0.050	32	
48	98.460	98.470	0.010	31	
49	98.470	98.500	0.030	30	
50	98.500	98.570	0.070	34	
51	98.570	98.590	0.020	32	
52	98.590	98.620	0.030	30	
53	98.620	98.670	0.050	32	
54	98.670	99.950	1.280	30	
55	99.950	100.970	1.020	25-30	
56	100.970	101.250	0.280	20-30	
57	101.250	101.300	0.050	20	
(ii) Part Right of Way (full width) (a) Stretch (b) Stretch (c) Stretch					
(iii) Balance Right of Way (full width) (a) Stretch (b) Stretch (c) Stretch					

*The dates specified herein shall in no case be beyond 150 (one hundred and fifty) days after the Appointed Date.

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 specification/IRC Codes/Manual.

Annex – IV

(Schedule-A)

Environment Clearances

No Environment Clearance is 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-Laning 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-Laning][$]

[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 Laning of Highways (IRC:SP:73-2015)], 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 in order 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 [plain/rolling & mountainous] terrain to the extent land is available.

(ii) Width of Carriageway

(a) Two-Laning [with] paved shoulders shall be undertaken. The paved carriageway shall be [7(seven) m] wide in accordance with the typical cross sections drawings in the Manual.

Provided that in the built-up areas [refer to paragraphs 2.1 (ii) (a) of the Manual and provide necessary details]: the width of the carriageway shall be as specified in the following table:

Sl. No.	Built-up stretch (Township)	Location (km to km)		Width (m)	Typical cross section (Ref. to Manual)
1	Laxmichara village	87.975	88.200	12 m	TCS-4
2	Bachaibari	92.760	93.000	12 m	TCS-4
3	Barabagai village	93.300	93.425	12 m	TCS-4
4	Barabagai village	94.080	94.930	12 m	TCS-4

(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.

[$] The contents of this Annex-I may be modified in accordance with the structure of the Project.

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

The design speed shall be the minimum design speed of [80 km per hr for plain/rolling terrain and for mountainous terrain (40km/hr)].

(iii) Improvement of the existing road geometrics

[Refer to paragraph 2.1 (v) of the Manual and provide details]

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 given right of way and proper road signs and safety measures shall be provided:

Sl. No.	Stretch (from km to km)		Type of Deficiency	Remarks
1	75+948.884	75+955.518	R=70 m	Mountainous Terrain
2	76+538.766	76+553.946	R=70 m	
3	76+865.904	76+904.405	R=50 m	
4	77+165.722	77+177.349	R=40 m	
5	77+534.597	77+652.321	R=70 m	
6	77+765.368	77+793.310	R=50 m	
7	77+855.673	77+886.482	R=70 m	
8	77+972.592	77+980.972	R=40 m	
9	78+049.761	78+059.548	R=60 m	
10	78+131.254	78+136.150	R=40 m	
11	78+642.636	78+711.728	R=50 m	
12	78+855.165	78+864.325	R=50 m	
13	78+926.264	78+937.242	R=60 m	
14	79+062.186	79+068.065	R=40 m	
15	79+123.082	79+132.194	R=50 m	
16	79+848.877	79+904.380	R=50 m	
17	80+039.031	80+089.663	R=50 m	
18	80+390.595	80+412.620	R=60 m	
19	80+703.098	80+744.951	R=60 m	
20	80+806.033	80+813.108	R=40 m	
21	81+045.418	81+101.669	R=60 m	
22	81+243.766	81+275.178	R=60 m	
23	81+329.899	81+359.098	R=50 m	
24	81+624.215	81+654.893	R=50 m	
25	81+725.633	81+770.880	R=60 m	
26	81+826.100	81+845.192	R=60 m	

27	81+986.089	81+998.258	R=40 m	
28	82+083.279	82+086.469	R=40 m	
29	82+192.473	82+206.293	R=50 m	
30	82+309.455	82+330.627	R=70 m	
31	82+499.072	82+517.214	R=70 m	
32	82+614.111	82+625.276	R=50 m	
33	82+704.507	82+717.978	R=70 m	
34	82+989.277	83+006.186	R=60 m	
35	83+115.179	83+126.963	R=100 m	Plain & Rolling Terrain
36	83+308.809	83+335.054	R=150 m	
37	83+641.074	83+662.610	R=80 m	
38	85+434.774	85+489.029	R=200 m	
39	85+635.304	85+641.903	R=200 m	
40	85+925.962	85+972.423	R=100 m	
41	86+391.469	86+478.137	R=150 m	
42	87+819.629	87+847.047	R=150 m	
43	93+970.478	94+219.182	R=160 m	
44	94+431.569	94+508.949	R=200 m	

(iv) Right of Way

[Refer to paragraph 2.3 of the Manual]. Details of the Right of Way are given in Annex II of Schedule-A.

(v) Type of shoulders

[Refer to paragraph 2.5.2 of the 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	87.975	88.200	Yes	TCS-4
2	92.760	93.000	Yes	TCS-4
3	93.300	93.425	Yes	TCS-4
4	94.080	94.930	Yes	TCS-4

(b) In open country, [paved shoulders of 1.5 m width shall be provided and balance 1.0m width shall be covered with 150 mm thick compacted layer of granular material].

(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 guardrails/ crash barriers shall be as per the provision of 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 overpasses shall be as the provision of 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 to the provision of relevant Manual and provide details]

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 relevant Manual. The requisite particulars are given below:

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

Sl. No.	Location of structure	Length (m)	Number and length of spans (m)	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 the

provision of relevant Manual and specify the type of vehicular under pass/ 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 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 TYPE	DESCRIPTION
TCS-1	Typical Cross Section Of 2-Lane Carriageway With Paved Shoulder In Rural Area (Reconstruction) Applicable For Plain/Rolling Terrain
TCS-2	Typical Cross Section Of 2-Lane Carriageway With Paved Shoulder In Bypass And Realignment Stretch (Newconstruction) Applicable For Plain/Rolling Terrain
TCS-3	Typical Cross Section Of 2-Lane Carriageway With Paved Shoulder In Bypass And Realignment Stretch Applicable For Plain/Rolling Terrain In Cutting Section (Newconstruction)
TCS-4	Typical Cross Section Of 2-Lane Carriageway With Paved Shoulder And Both Side Rcc Cover Drain In Builtup Area Applicable For Plain/Rolling Terrain (Reconstruction)
TCS-5	Typical Cross Section Of 2-Lane Carriageway With Paved Shoulder And Both Side Rectangular Brick Masonary Drain Applicable For Mountainous Terrain (Reconstruction)
TCS-6	Typical Cross Section Of 2-Lane Carriageway With Paved Shoulder And Left Side Rectangular Brick Masonary Drain Applicable For Mountainous Terrain (Reconstruction)

TCS TYPE	DESCRIPTION
TCS-7	Typical Cross Section Of 2-Lane Carriageway With Paved Shoulder And Right Side Rectangular Brick Masonary Drain Applicable For Mountainous Terrain (Reconstruction)
TCS-8	Typical Cross Section Of 2-Lane Carriageway With Paved Shoulder Left Side Breast Wall And Right Side Rectangular Brick Masonary Drain Applicable For Mountainous Terrain (Reconstruction)
TCS-10	Typical Cross Section Of 2-Lane Carriageway With Paved Shoulder Right Side Retaining Wall And Left Side Rectangular Brick Masonary Drain Applicable For Mountainous Terrain (Reconstruction)
TCS-11	Typical Cross Section Of 2-Lane Carriageway With Paved Shoulder Left Side Retaining Wall And Right Side Rectangular Brick Masonary Drain Applicable For Mountainous Terrain (Reconstruction)
TCS-14	Typical Cross Section Of 2-Lane Carriageway With Paved Shoulder And Both Side Retaining Wall Applicable For Mountainous Terrain (Reconstruction)
TCS-15	Typical Cross Section Of 2-Lane Carriageway With Paved Shoulder And Both Side Breast Wall Applicable For Mountainous Terrain (Newconstruction)
TCS-16	Typical Cross Section Of 2-Lane Carriageway With Paved Shoulder And Both Side Rectangular Brick Masonary Drain Applicable For Mountainous Terrain (Newconstruction)

Design Chainage (m)		Length (m)	TCS Type
From	To		
75700	75890	190	TCS-2
75890	76060	170	TCS-5
76060	76190	130	TCS-16
76190	76350	160	TCS-15
76350	76460	110	TCS-14
76460	76625	165	TCS-5
76625	76775	150	TCS-15
76775	77075	300	TCS-16
77075	77125	50	TCS-14
77125	77260	135	TCS-5
77260	77370	110	TCS-14
77370	77410	40	TCS-11
77410	77480	70	TCS-5
77480	77515	35	TCS-10
77515	77585	70	TCS-11
77585	77690	105	TCS-15

Design Chainage (m)		Length (m)	TCS Type
From	To		
77690	77732	42	TCS-11
77732	77760	28	TCS-5
77760	77815	55	TCS-10
77815	77910	95	TCS-14
77910	77960	50	TCS-10
77960	78010	50	TCS-5
78010	78110	100	TCS-10
78110	78210	100	TCS-5
78210	78260	50	TCS-10
78260	78410	150	TCS-5
78410	78575	165	TCS-15
78575	78710	135	TCS-5
78710	78860	150	TCS-8
78860	78910	50	TCS-10
78910	78960	50	TCS-11
78960	79010	50	TCS-7
79010	79060	50	TCS-11
79060	79210	150	TCS-5
79210	79260	50	TCS-16
79260	79310	50	TCS-15
79310	79410	100	TCS-16
79410	79560	150	TCS-15
79560	79610	50	TCS-1
79610	79790	180	TCS-5
79790	79860	70	TCS-11
79860	80110	250	TCS-8
80110	80410	300	TCS-5
80410	80460	50	TCS-1
80460	80560	100	TCS-14
80560	80610	50	TCS-10
80610	80860	250	TCS-14
80860	81010	150	TCS-15
81010	81210	200	TCS-16
81210	81260	50	TCS-7
81260	81510	250	TCS-16
81510	81560	50	TCS-11
81560	81610	50	TCS-10
81610	81690	80	TCS-16
81690	81740	50	TCS-6
81740	81960	220	TCS-5

Design Chainage (m)		Length (m)	TCS Type
From	To		
81960	82010	50	TCS-14
82010	82110	100	TCS-7
82110	82440	330	TCS-16
82440	82460	20	TCS-14
82460	82580	120	TCS-16
82580	82610	30	TCS-14
82610	82880	270	TCS-15
82880	82910	30	TCS-2
82910	82960	50	TCS-16
82960	83110	150	TCS-1
83110	83160	50	TCS-5
83160	83210	50	TCS-7
83210	83260	50	TCS-6
83260	83360	100	TCS-8
83360	83570	210	TCS-6
83570	83610	40	TCS-2
83610	83660	50	TCS-6
83660	83710	50	TCS-5
83710	84050	340	TCS-1
84050	84160	110	TCS-16
84160	84360	200	TCS-15
84360	84510	150	TCS-2
84510	84585	75	TCS-3
84585	84635	50	TCS-2
84635	84730	95	TCS-16
84730	84910	180	TCS-1
84910	85060	150	TCS-16
85060	85140	80	TCS-3
85140	85235	95	TCS-16
85235	85285	50	TCS-6
85285	85390	105	TCS-1
85390	85495	105	TCS-16
85495	85660	165	TCS-7
85660	85710	50	TCS-2
85710	86035	325	TCS-16
86035	86360	325	TCS-2
86360	86655	295	TCS-16
86655	86760	105	TCS-2
86760	86885	125	TCS-5
86885	86975	90	TCS-1

Design Chainage (m)		Length (m)	TCS Type
From	To		
86975	87260	285	TCS-2
87260	87565	305	TCS-16
87565	87610	45	TCS-2
87610	87710	100	TCS-16
87710	87890	180	TCS-2
87890	87975	85	TCS-1
87975	88200	225	TCS-4
88200	88335	135	TCS-1
88335	88410	75	TCS-7
88410	88460	50	TCS-5
88460	88715	255	TCS-2
88715	88915	200	TCS-16
88915	89275	360	TCS-2
89275	89660	385	TCS-16
89660	89760	100	TCS-2
89760	89815	55	TCS-16
89815	90010	195	TCS-7
90010	90335	325	TCS-2
90335	90435	100	TCS-6
90435	90610	175	TCS-2
90610	90685	75	TCS-16
90685	90760	75	TCS-7
90760	90830	70	TCS-16
90830	90935	105	TCS-7
90935	91060	125	TCS-2
91060	91170	110	TCS-16
91170	91935	765	TCS-1
91935	92060	125	TCS-7
92060	92760	700	TCS-1
92760	93000	240	TCS-4
93000	93175	175	TCS-2
93175	93300	125	TCS-16
93300	93425	125	TCS-4
93425	93580	155	TCS-5
93580	93680	100	TCS-6
93680	93860	180	TCS-5
93860	93980	120	TCS-2
93980	94080	100	TCS-7
94080	94930	850	TCS-4
94930	94980	50	TCS-5

Design Chainage (m)		Length (m)	TCS Type
From	To		
94980	95500	520	TCS-2
95500	96000	500	TCS-1
96000	96400	400	TCS –2
96400	96775	375	TCS –3
96775	96850	75	TCS –2
96850	97025	175	TCS –3
97025	97050	25	TCS –2
97050	97225	175	TCS –3
97225	97319	94	TCS –2
97319	98200	881	TCS-2
98200	98675	475	TCS-3
98675	101300	2625	TCS-2
Total length =		**25,600 m**	

3. Intersections and Grade Separators

All intersections and grade separators shall be as per the provision of relevant Manual. Existing intersections which are deficient shall be improved to the prescribed standards.

[Refer to the provision of 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.	Intersection at km	Type of intersection	Other features
1	96.120	3-legged	
2	101.100	3-legged	

Minor Intersections

Sl. No.	Intersection at km	Type of intersection	Other features
1	75.830	3 legged	
2	83.550	3 legged	
3	83.660	3 legged	

Sl. No.	Intersection at km	Type of intersection	Other features
4	86.970	3 legged	
5	87.230	3 legged	
6	92.180	3 legged	
7	92.750	4 legged	
8	92.810	3 legged	
9	92.960	3 legged	
10	93.290	3 legged	
11	95.050	3 legged	
12	95.410	3 legged	

(ii) Grade separated intersection with/without ramps

Sl. No.	Location (km)	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 the provision of 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	Extent of raising [Top of finished road level]
Nil			

5. Pavement Design

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

(ii) Type of pavement

[Refer to the provision of relevant Manual and state specific requirement, if any,

of providing cement concrete pavement.]

(iii) Design requirements

[Refer to the provision of 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 15 years. Stage construction shall not be permitted.

b) Design Traffic

Notwithstanding anything to the contrary contained in this Agreement or the Manual, the Contractor shall design the pavement for design traffic of 20 million standard axles.

(iv) Reconstruction of stretches

[Refer to the provision of 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**
1	75.890	76.060	TCS-5
2	76.350	76.460	TCS-14
3	76.460	76.625	TCS-5
4	77.075	77.125	TCS-14
5	77.125	77.260	TCS-5
6	77.260	77.370	TCS-14
7	77.370	77.410	TCS-11
8	77.410	77.480	TCS-5
9	77.480	77.515	TCS-10
10	77.515	77.585	TCS-11
11	77.690	77.732	TCS-11
12	77.732	77.760	TCS-5
13	77.760	77.815	TCS-10
14	77.815	77.910	TCS-14

Sl. No.	Stretch From km to km		Remarks
15	77.910	77.960	TCS-10
16	77.960	78.010	TCS-5
17	78.010	78.110	TCS-10
18	78.110	78.210	TCS-5
19	78.210	78.260	TCS-10
20	78.260	78.410	TCS-5
21	78.575	78.710	TCS-5
22	78.710	78.860	TCS-8
23	78.860	78.910	TCS-10
24	78.910	78.960	TCS-11
25	78.960	79.010	TCS-7
26	79.010	79.060	TCS-11
27	79.060	79.210	TCS-5
28	79.560	79.610	TCS-1
29	79.610	79.790	TCS-5
30	79.790	79.860	TCS-11
31	79.860	80.110	TCS-8
32	80.110	80.410	TCS-5
33	80.410	80.460	TCS-1
34	80.460	80.560	TCS-14
35	80.560	80.610	TCS-10
36	80.610	80.860	TCS-14
37	81.210	81.260	TCS-7
38	81.510	81.560	TCS-11
39	81.560	81.610	TCS-10
40	81.690	81.740	TCS-6
41	81.740	81.960	TCS-5
42	81.960	82.010	TCS-14
43	82.010	82.110	TCS-7
44	82.440	82.460	TCS-14
45	82.580	82.610	TCS-14

Sl. No.	Stretch From km to km		Remarks
46	82.960	83.110	TCS-1
47	83.110	83.160	TCS-5
48	83.160	83.210	TCS-7
49	83.210	83.260	TCS-6
50	83.260	83.360	TCS-8
51	83.360	83.570	TCS-6
52	83.610	83.660	TCS-6
53	83.660	83.710	TCS-5
54	83.710	84.050	TCS-1
55	84.730	84.910	TCS-1
56	85.235	85.285	TCS-6
57	85.285	85.390	TCS-1
58	85.495	85.660	TCS-7
59	86.760	86.885	TCS-5
60	86.885	86.975	TCS-1
61	87.890	87.975	TCS-1
62	87.975	88.200	TCS-4
63	88.200	88.335	TCS-1
64	88.335	88.410	TCS-7
65	88.410	88.460	TCS-5
66	89.815	90.010	TCS-7
67	90.335	90.435	TCS-6
68	90.685	90.760	TCS-7
69	90.830	90.935	TCS-7
70	91.170	91.935	TCS-1
71	91.935	92.060	TCS-7
72	92.060	92.760	TCS-1
73	92.760	93.000	TCS-4
74	93.300	93.425	TCS-4
75	93.425	93.580	TCS-5
76	93.580	93.680	TCS-6

Sl. No.	Stretch From km to km		Remarks
77	93.680	93.860	TCS-5
78	93.980	94.080	TCS-7
79	94.080	94.930	TCS-4
80	94.930	94.980	TCS-5
81	95.500	96.000	TCS-1

6. Roadside Drainage

Drainage system including surface and subsurface drains for the Project Highway shall be provided as per the provision of relevant Manual.

List of RCC Cover Drain

Chainage (m)		Side	Net Length (m)
From	To		
87975	88200	Both	444.80
92760	93000	Both	469.40
93300	93425	Both	244.80
94080	94930	Both	1671.36
Total=			**2,830 m**

List of Brick Masonry Drain

Chainage (m)		Side	Net Length (m)
Form	To		
75890	76060	Both	340.00
76060	76190	Both	260.00
76460	76625	Both	330.00
76775	77075	Both	600.00
77125	77260	Both	270.00
77370	77410	Right	40.00
77410	77480	Both	140.00
77480	77515	Left	35.00
77515	77585	Right	70.00
77690	77732	Right	42.00
77732	77760	Both	56.00
77760	77815	Left	55.00
77910	77960	Left	50.00
77960	78010	Both	100.00
78010	78110	Left	100.00

Chainage (m)		Side	Net Length (m)
Form	To		
78110	78210	Both	200.00
78210	78260	Left	50.00
78260	78410	Both	300.00
78575	78710	Both	270.00
78710	78860	Right	150.00
78860	78910	Left	47.40
78910	78960	Right	50.00
78960	79010	Right	50.00
79010	79060	Right	50.00
79060	79210	Both	300.00
79210	79260	Both	94.80
79310	79410	Both	194.80
79610	79790	Both	360.00
79790	79860	Right	70.00
79860	80110	Right	250.00
80110	80410	Both	600.00
80560	80610	Left	50.00
81010	81210	Both	400.00
81210	81260	Right	50.00
81260	81510	Both	500.00
81510	81560	Right	50.00
81560	81610	Left	50.00
81610	81690	Both	160.00
81690	81740	Left	50.00
81740	81960	Both	440.00
82010	82110	Right	100.00
82110	82440	Both	654.80
82460	82580	Both	240.00
82910	82960	Both	100.00
83110	83160	Both	94.60
83160	83210	Right	50.00
83210	83260	Left	47.40
83260	83360	Right	100.00
83360	83570	Left	207.30
83610	83660	Left	50.00
83660	83710	Both	100.00
84050	84160	Both	220.00
84635	84730	Both	190.00
84910	85060	Both	300.00
85140	85235	Both	190.00
85235	85285	Left	50.00
85390	85495	Both	210.00
85495	85660	Right	162.40

Chainage (m)		Side	Net Length (m)
Form	To		
85710	86035	Both	644.60
86360	86655	Both	590.00
86760	86885	Both	250.00
87260	87565	Both	610.00
87610	87710	Both	200.00
88335	88410	Right	75.00
88410	88460	Both	100.00
88715	88915	Both	400.00
89275	89660	Both	770.00
89760	89815	Both	110.00
89815	90010	Right	192.40
90335	90435	Left	100.00
90610	90685	Both	150.00
90685	90760	Right	75.00
90760	90830	Both	140.00
90830	90935	Right	105.00
91060	91170	Both	220.00
91935	92060	Right	122.30
93175	93300	Both	250.00
93425	93580	Both	310.00
93580	93680	Left	94.80
93680	93860	Both	354.60
93980	94080	Right	100.00
94930	94980	Both	100.00
Total=			**16,405 m**

List of Catch Water Drain

Chainage(m)		No. of Steps	Side	Net Length (m)
Form	To			
76190	76350	2	Both	640.00
76625	76775	1	Both	300.00
78410	78575	1	Both	330.00
78710	78860	1	Right	150.00
79260	79310	1	Both	100.00
79410	79560	1	Both	300.00
79860	80110	1	Right	250.00
80860	81010	2	Both	600.00
82610	82880	2	Both	1080.00
84160	84360	1	Both	400.00
Total=				**4,150 m**

7. Design of Structures

(i) General

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

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

[Refer to the provision of relevant Manual and specify the width of carriageway of new bridges and structures of more than 60 (sixty) metre length, if the carriageway width is different from 7.5 (seven point five) metres in the table below.]

Sl. No.	Bridge at km	Width of carriageway and cross-sectional features*
1	86.046	**Carriageway Width = 11.0 m** Footpath width= 3.0m (2x1.5m) Width of Crash Barrier = 1.0m (2x0.5m) Width of Railings = 1.0m (2x0.50m) **Overall width = 16 m**
2	86.307	
3	87.729	
4	89.038	
5	93.056	
6	96.347	
7	97.685	
8	99.064	

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

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

Sl. No.	Location at km	Remarks
1	86.046	1.5 m wide Footpath on Both Side
2	86.307	
3	87.729	
4	89.038	
5	93.056	
6	96.347	
7	97.685	
8	99.064	

(d) All bridges shall be high-level bridges.
[Refer to the provision of relevant Manual and state if there is any exception]

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

[Refer to the provision of relevant Manual and 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 the provision of 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:

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

Sl. No.	Culvert location (km)	Span/Opening (m)	Remarks, if any*
1	78.910	2.0 X 2.0 X (Single Cell)	
2	79.242	2.0 X 2.0 X (Single Cell)	
3	79.396	2.0 X 2.0 X (Single Cell)	
4	83.025	2.0 X 2.0 X (Single Cell)	
5	83.117	2.0 X 3.0 X (Single Cell)	
6	83.270	2.0 X 2.0 X (Single Cell)	
7	83.379	2.0 X 3.0 X (Single Cell)	
8	85.344	2.0 X 2.0 X (Single Cell)	
9	85.620	2.0 X 3.0 X (Single Cell)	
10	85.812	2.0 X 3.0 X (Single Cell)	
11	87.950	2.0 X 3.0 X (Single Cell)	
12	88.096	2.0 X 2.0 X (Single Cell)	
13	88.678	4.0 X 4.0 X (Single Cell)	
14	89.712	3.0 X 4.0 X (Single Cell)	
15	89.887	2.0 X 3.0 X (Single Cell)	
16	90.040	2.0 X 2.0 X (Single Cell)	
17	90.180	2.0 X 2.0 X (Single Cell)	

Sl. No.	Culvert location (km)	Span/Opening (m)	Remarks, if any*
18	90.628	2.0 X 2.0 X (Single Cell)	
19	90.968	2.0 X 3.0 X (Single Cell)	
20	91.250	2.0 X 2.0 X (Single Cell)	
21	91.380	2.0 X 2.0 X (Single Cell)	
22	91.457	2.0 X 2.0 X (Single Cell)	
23	91.669	2.0 X 2.0 X (Single Cell)	
24	91.797	2.0 X 3.0 X (Single Cell)	
25	91.934	2.0 X 3.0 X (Single Cell)	
26	91.990	3.0 X 4.0 X (Single Cell)	
27	92.277	3.0 X 4.0 X (Single Cell)	
28	92.485	2.0 X 2.0 X (Single Cell)	
29	92.683	2.0 X 3.0 X (Single Cell)	
30	92.800	2.0 X 3.0 X (Single Cell)	
31	92.913	3.0 X 3.0 X (Single Cell)	
32	93.358	2.0 X 3.0 X (Single Cell)	
33	93.418	2.0 X 2.0 X (Single Cell)	
34	93.596	2.0 X 2.0 X (Single Cell)	
35	93.657	2.0 X 2.0 X (Single Cell)	
36	93.910	2.0 X 3.0 X (Single Cell)	
37	94.120	2.0 X 3.0 X (Single Cell)	
38	94.325	2.0 X 2.0 X (Single Cell)	
39	94.660	2.0 X 2.0 X (Single Cell)	
40	94.762	2.0 X 3.0 X (Single Cell)	
41	94.890	2.0 X 2.0 X (Single Cell)	
42	95.690	2.0 X 2.0 X (Single Cell)	
43	96.788	2.0 X 2.0 X (Single Cell)	

*[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 the provision of 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)
1	79.850	2.0 X 3.0 X (Single Cell)
2	82.207	2.0 X 2.0 X (Single Cell)
3	84.500	2.0 X 2.0 X (Single Cell)
4	90.330	2.0 X 2.0 X (Single Cell)
5	94.201	3.0 X 4.0 X (Single Cell)
6	94.558	2.0 X 2.0 X (Single Cell)
7	94.995	2.0 X 2.0 X (Single Cell)
8	95.294	2.0 X 2.0 X (Single Cell)
9	95.492	2.0 X 2.0 X (Single Cell)
10	95.924	2.0 X 2.0 X (Single Cell)
11	96.500	2.0 X 2.0 X (Single Cell)
12	97.050	2.0 X 3.0 X (Single Cell)
13	97.315	2.0 X 3.0 X (Single Cell)
14	98.168	2.0 X 3.0 X (Single Cell)
15	98.725	2.0 X 2.0 X (Single Cell)
16	99.400	2.0 X 3.0 X (Single Cell)
17	99.890	2.0 X 3.0 X (Single Cell)
18	100.668	3.0 X 4.0 X (Single Cell)
19	100.950	2.0 x 2.0 X (Single Cell)

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

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

Sl. No.	Location at km	Type of repair required

Nil

(f) 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]

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

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	86.046	Bailey Bridge	1 X 15.2	Insufficient width and not conform to IRC Loadings.	
2	86.307	Bailey Bridge	1 X 15.2	Insufficient width and not conform to IRC Loadings.	
3	87.729	Slab Bridge	1 X 9.4	Insufficient width and not conform to IRC Loadings.	
4	89.038	Slab Bridge	1 X 9.2	Insufficient width and not conform to IRC Loadings.	
5	93.056	RCC Box Bridge	3 X 8.0	Insufficient width and not conform to IRC Loadings.	

*Attach GAD

(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				

@ Attach cross-section

(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
1	96.347	7.4	
2	97.685	12.0	
3	99.064	40.0	

(c) The railings of existing bridges shall be replaced by crash barriers at the following locations:

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

Sl. No.	Location at km	Remarks
Nil		

(d) Repairs/replacements of railing/parapets of the existing bridges shall be undertaken as follows:

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

Sl. No.	Location at km	Remarks
Nil		

(e) Drainage system for bridge decks

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

(f) Structures in marine environment

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

(iv) Rail-road bridges

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

The grade separated structures shall be provided at the locations and of the type and length specified in paragraphs 2 (ix) and 3 of this Annex-I.

(vi) Repairs and strengthening of bridges and structures

[Refer to the provision of 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 the provision of relevant Manual.

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

9. Roadside Furniture

(i) Roadside furniture shall be provided in accordance with the provisions of the relevant Manual.

(ii) Overhead traffic signs: location and size

Sl No.	Location (km)	Size	Remarks
Nil			

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

10. Compulsory Afforestation

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

11. Hazardous Locations

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

a) Retaining Wall

Sl. No.	Location stretch from (km) to (km)		LHS/RHS
	From	To	
1	76.350	76.460	Both Side
2	77.075	77.125	Both Side
3	77.260	77.370	Both Side
4	77.370	77.410	LHS
5	77.480	77.515	RHS
6	77.515	77.585	LHS
7	77.690	77.732	LHS
8	77.760	77.815	RHS
9	77.815	77.910	Both Side
10	77.910	77.960	RHS

Sl. No.	Location stretch from (km) to (km)		LHS/RHS
	From	To	
11	78.010	78.110	RHS
12	78.210	78.260	RHS
13	78.860	78.910	RHS
14	78.910	78.960	LHS
15	79.010	79.060	LHS
16	79.790	79.860	LHS
17	80.460	80.560	Both Side
18	80.560	80.610	RHS
19	80.610	80.860	Both Side
20	81.510	81.560	LHS
21	81.560	81.610	RHS
22	81.960	82.010	Both Side
23	82.440	82.460	Both Side
24	82.580	82.610	Both Side

b) Breast Wall

Sl. No.	Location stretch from (km) to (km)		LHS/RHS
	From	To	
1	76.190	76.350	Both Side
2	76.625	76.775	Both Side
3	77.585	77.690	Both Side
4	78.410	78.575	Both Side
5	78.710	78.860	LHS
6	79.260	79.310	Both Side
7	79.410	79.560	Both Side
8	79.860	80.110	LHS
9	80.860	81.010	Both Side
10	82.610	82.880	Both Side
11	83.260	83.360	LHS
12	84.160	84.360	Both Side

c) Built-up Area

Sl. No.	Location stretch from (km) to (km)		LHS/RHS
	From	To	
1	87.975	88.200	Both Side
2	92.760	93.000	Both Side
3	93.300	93.425	Both Side
4	94.080	94.930	Both Side

12. Special Requirement for Hill Roads

[Refer to provision of relevant Manual and provide details where relevant and required.]

13. Change of Scope

The length of Structures and bridges specified hereinabove shall be treated as an approximate assessment. The actual lengths 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 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 – B-1)

1. The shifting of utilities and felling of trees shall be carried out by the **Concerned Department**. The cost of the same shall be borne by the Authority.

Schedule - C

(See Clause 2.1)

Project Facilities

1. Project Facilities

The Contractor shall construct the Project Facilities in accordance with the provisions of this Agreement. Such Project Facilities shall include:

(a) toll plaza[s];

(b) roadside furniture;

(c) pedestrian facilities;

(d) tree plantation;

(e) truck lay-byes;

(f) bus-bays and bus shelters;

(g) rest areas; and

(h) others to be specified

2. Description of Project Facilities

Each of the Project Facilities is described below:

(a) Toll Plaza: Nil

(b) Roadside Furniture:

Sl. No.	Project Facility	Location	Design Requirements	Other essential details
1	Traffic Sign & Pavement marking	Entire Length	As per Schedule D	
2	Km stone, Hectometer Stone, 5th kilometre stone	Entire Length	As per Schedule D	
3	Boundary Stone	Entire Length	As per Schedule D	
4	Roadside Delineator, marker & Road Stud	As per manual	As per Schedule D	
5	Metal beam crash barrier	Both approaches of bridge location	As per Schedule D	

Note: Provide adequate details of each Project Facility to ensure their design and completion in accordance with the project-specific requirements and the provisions of the Manual.

(c) Pedestrian Facilities:

Pedestrian facilities in the form of footpath cum drain 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 Authority.

(d) Tree Plantation: To be carried out by Dhalai & Khowai District Forest Department.

(e) Truck Lay Byes:

Sl. No.	Project Facility	Location (km)	Design Requirements	Other Essential Details
1	Truck Lay Bye	100.695	(Both side) Separation from main carriageway	Start Taper-70 m, Straight-100 m, End Taper-70 m

(f) Busbays and Bus shelters:

Sl. No.	Project Facility	Location (km)	Design Requirements	Other Essential Details
1	Bus Bay	87.485	(Both side) Separation from main carriageway	Start Taper-100 m, Straight-30 m, End Taper-100 m
2	Bus Bay	95.710	(Both side) Separation from main carriageway	Start Taper-100 m, Straight-30 m, End Taper-100 m

(g) Rest areas: Nil

(h) Others:

Street Lighting

Street lighting shall be provides in the built up area, bus bay and junction location.

Environment

The Project Highway during design, construction and maintenance during implementation period shall conform to the environmental rules and regulations in force. The Construction Contractor shall be responsible for the same.

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 Laning of Highways (IRC: SP: 73-2015), referred to herein as the Manual]

[Hill Road Manual (IRC: SP: 48-1998)]

[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 the Manual of Specifications and Standards for [Two-Laning of Highways (IRC:SP:73-2015)], 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) [Notwithstanding 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:]

(iii) [Note 1: Deviations from the aforesaid Specifications and Standards shall be listed out here. Such deviations shall be specified only if they are considered essential in view of project-specific requirements.]

Locations where Radii of Horizontal Curve is less then Absolute minimum radius of 250m for plain and rolling terrain and 75m for mountainous terrain.

HIP/CURVE NO.	HIP		RADIUS (m)
	EASTING	NORTHING	
153	375668.946	2668866.684	70
156	375367.335	2668391.294	70
158	375060.081	2668311.010	50
160	374805.777	2668436.017	40
164	374401.320	2668272.208	70
165	374378.364	2668475.542	50
166	374306.816	2668533.562	70
167	374269.408	2668632.309	40
168	374200.230	2668667.102	60
169	374121.691	2668673.150	40
172	373782.174	2669084.603	50
173	373607.504	2669013.289	50
174	373535.869	2669019.293	60
175	373407.444	2668984.605	40
176	373349.643	2669007.684	50

179	372680.932	2668699.810	50
180	372571.539	2668858.308	50
182	372344.679	2669003.143	60
183	372041.014	2669111.405	60
184	372007.653	2669190.807	40
186	371841.886	2669386.373	60
187	371661.862	2669334.283	60
188	371580.953	2669362.166	50
190	371317.959	2669229.286	50
191	371287.988	2669123.416	60
192	371206.104	2669090.322	60
193	371053.860	2669124.530	40
194	371008.091	2669204.565	40
195	370906.791	2669257.208	50
196	370846.450	2669361.390	70
197	370672.020	2669430.188	70
198	370563.641	2669407.139	50
199	370488.005	2669457.548	70
201	370228.254	2669560.360	60
202	370107.429	2669537.862	100
203	369906.983	2669549.561	150
204	369595.154	2669445.539	80
208	368100.309	2669180.987	200
209	367989.364	2669318.353	200
210	367730.551	2669486.833	100
211	367299.785	2669265.888	150
213	366069.025	2669281.894	150
224	361818.738	2665526.666	160
225	361444.710	2665686.270	200

SCHEDULE - E
(See Clauses 2.1 and 14.2)

MAINTENANCE REQUIREMENTS

1 Maintenance Requirements

(i) The Contractor shall, at all times maintain the Project Highway in accordance with the provisions of this Agreement, Applicable Laws and Applicable Permits.

(ii) The Contractor shall repair or rectify any Defect or deficiency set forth in Paragraph 2 of this Schedule-E within the time limit specified therein and any failure in this behalf shall constitute non-fulfillment of the Maintenance obligations by the Contractor. Upon occurrence of any breach hereunder, the Authority shall be entitled to effect reduction in monthly lump sum payment as set forth in Clause 14.6 of this Agreement, without prejudice to the rights of the Authority under this Agreement, including Termination thereof.

(iii) All Materials, works and construction operations shall conform to the MORTH Specifications for Road and Bridge Works, and the relevant IRC publications. Where the specifications for a work are not given, Good Industry Practice shall be adopted.

[Specify all the relevant documents]

2. Repair/rectification of Defects and deficiencies

The obligations of the Contractor in respect of Maintenance Requirements shall include repair and rectification of the Defects and deficiencies specified in Annex - I of this Schedule-E within the time limit set forth therein.

3. Other Defects and deficiencies

In respect of any Defect or deficiency not specified in Annex - I of this Schedule-E, the Authority's Engineer may, in conformity with Good Industry Practice, specify the permissible limit of deviation or deterioration with reference to the Specifications and Standards, and any deviation or deterioration beyond the permissible limit shall be repaired or rectified by the Contractor within the time limit specified by the Authority's Engineer.

4. Extension of time limit

Notwithstanding anything to the contrary specified in this Schedule-E, if the nature and extent of any Defect or deficiency justifies more time for its repair or rectification than the time specified herein, the Contractor shall be entitled to additional time in conformity with Good Industry Practice. Such additional time shall be determined by the Authority's Engineer and conveyed to the Contractor and the Authority with reasons thereof.

5. Emergency repairs/restoration

Notwithstanding anything to the contrary contained in this Schedule-E, if any Defect, deficiency or deterioration in the Project Highway poses a hazard to safety or risk of damage to property, the Contractor shall promptly take all reasonable measures for eliminating or minimizing such danger.

6. Daily inspection by the Contractor

The Contractor shall, through its engineer, undertake a daily visual inspection of the Project Highway and maintain a record thereof in a register to be kept in such form and manner as the Authority's Engineer may specify. Such record shall be kept in safe custody of the Contractor and shall be open to inspection by the Authority and the Authority's Engineer at any time during office hours.

7. Pre-monsoon inspection / Post-monsoon inspection

The Contractor shall carry out a detailed pre-monsoon inspection of all bridges, culverts and drainage system before [1st June] every year in accordance with the guidelines contained in IRC: SP35. Report of this inspection together with details of proposed maintenance works as required on the basis of this inspection shall be sent to the Authority's Engineer before the [10th June] every year. The Contractor shall complete the required repairs before the onset of the monsoon and send to the Authority's Engineer a compliance report. Post monsoon inspection shall be done by the [30th September] and the inspection report together with details of any damages observed and proposed action to remedy the same shall be sent to the Authority's Engineer.

8. Repairs on account of natural calamities

All damages occurring to the Project Highway on account of a Force Majeure Event or default or neglect of the Authority shall be undertaken by the Authority at its own cost. The Authority may instruct the Contractor to undertake the repairs at the rates agreed between the Parties.

Annex - I
(Schedule-E)

Repair/rectification of Defects and deficiencies

The Contractor shall repair and rectify the Defects and deficiencies specified in this Annex-I of Schedule-E within the time limit set forth in the table below.

Table – 1 Maintenance Criteria for Pavements:

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	Acceptable					
Flexible Pavement (Pavement of MCW, Service Road, approaches of Grade structure, approaches of connecting roads, slip roads, lay byes etc. as applicable)	Potholes	Nil	< 0.1 % of area and subject to limit of 10 mm indepth	Daily	Length Measurement Unit like Scale, Tape, odometer etc.	IRC 82: 2015 and Distress Identification Manual for Long Term Pavement Performance Program, FHWA 2003 (http://www.tfhrc.com/pavement/lttp/reports/03031/)	24-48 hours	MORT&H Specification 3004.2
	Cracking	Nil	< 5 % subject to limit of 0.5 sqm for any 50 m length	Daily			7-15 days	MORT&H Specification 3004.3
	Rutting	Nil	< 5 mm	Daily	Straight Edge		15 -30 days	MORT&H Specification 3004.2
	Corrugations and Shoving	Nil	< 0.1 % of area	Daily	Length Measurement Unit like		2-7 days	IRC:82- 2015
	Bleeding	Nil	< 0.1 % of area	Daily	Scale, Tape, odometer etc.		3-7 days	MORT&H Specification 3004.4
	Raveling / Stripping	Nil	< 0.1 % of area	Daily			7-15 days	IRC:82- 2015 read with IRC SP 81
	Edge Deformation/ Breaking	Nil	< 1 m for any 100 m section and width < 0.1 m at any location, restricted to 30 cm from the edge	Daily	Scale, Tape, odometer etc.			IRC:82- 2015
	Roughness BI	2000 mm/km	2400 mm/km	Bi-Annually	Class I Profilometer SCRIM	Class I Profilometer : ASTM E950 (98) :2004 –Standard Test Method for measuring Longitudinal Profile of	180 days	IRC:82-2015
	Skid Number	60SN	50SN	Bi-			180 days	BS: 7941-1: 2006

				Annually	(Sideway-force Coefficient Routine Investigation Machine or equivalent)	Travelled Surfaces with Accelerometer Established Inertial Profiling Reference ASTM E1656 -94: 2000- Standard Guide for Classification of Automatic Pavement Condition Survey Equipment		
	Pavement Condition Index	3	2.1	Bi-Annually			180 days	IRC:82- 2015
	Other Pavement Distresses			Bi-Annually			2-7 days	IRC:82- 2015
	Deflection/ Remaining Life			Annually	Falling Weight Deflect meter	IRC 115: 2014	180 days	IRC:115-2014
Rigid Pavement (Pavement of MCW, Service Road, Grade Structure, approaches of connecting roads, slip roads, lay byes etc. as applicable)	Roughness BI	2200m m/km	2400mm /km	Bi-Annually	Class I Profilometer	ASTM E950 (98) :2004 and ASTM E1656 - 94: 2000	180 days	IRC:SP:83-2008
	Skid	Skid Resistance no. at different speed of vehicles		Bi-Annually	SCRIM (Sideway-force Coefficient Routine Investigation Machine or equivalent)	RC:SP:83-2008	180 days	IRC:SP:83-2008
		Minimum SN	**Traffic Speed (Km/h)**					
		36	50					
		33	65					
		32	80					
		31	95					
		31	110					

Embankment/ Slope	Edge drop at shoulders	Nil	40 mm	Daily	Length Measurement Unit like Scale, Tape, odometer etc.	IRC	7-15 days	MORT&H Specification 408.4
	Slope of camber/cross fall	Nil	<2% variation in prescribed slope of camber /cross fall	Daily			7-15 days	MORT&H Specification 408.4
	Embankment Slopes	Nil	<15 % variation in prescribe side slope	Daily			7-15 days	MORT&H Specification 408.4
	Embankment Protection	Nil	Nil	Daily	NA		7-15 days	MORT&H Specification
	Rain Cuts/ Gullies in slope	Nil	Nil	Daily Specially During Rainy Season	NA		7-15 days	MORT&H Specification

In addition to the above performance criterion, the contractor shall strictly maintain the rigid pavements as per requirements in the following table

Table -2: Maintenance Criteria for Rigid Pavements:

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2 Short Term	For the case d > D/2 Long Term
CRACKING						
1.	Single Discrete Cracks Not intersecting with any joint	w = width of crack L = length of crack d = depth of crack D = depth of slab	0	Nil, not discernible	No Action	Not applicable
			1	w < 0.2 mm. hair cracks		
			2	w = 0.2 - 0.5 mm, discernible from slow-moving car		Seal, and stitch if L > lm.
			3	w = 0.5 - 1.5 mm, discernible from fast-moving car	Seal without delay	Within 7days
			4	w = 1.5 - 3.0 mm	Seal, and stitch if L > l m.	Staple or Dowel Bar Retrofit, FDR for affected portion.
			5	w > 3 mm.	Within 7 days	Within 15days
2.	**Single Transverse (or Diagonal) Crack intersecting with one or more joints**	w = width of crack L = length of crack d = depth of crack D = depth of slab	0	Nil, not discernible	No Action	
			1	w < 0.2 mm, hair cracks	Route and seal with epoxy.	Staple or Dowel Bar Retrofit.
			2	w = 0.2 - 0.5 mm, discernible from slow vehicle	Within 7 days	Within 15 days
			3	w = 0.5 - 3.0 mm, discernible from fast vehicle	Route, seal and stitch, if L > 1 m. Within 7 days	
			4	w = 3.0 - 6.0 mm	Dowel Bar Retrofit.	Full Depth Repair

			5	w > 6 mm, usually associated with spelling, and/or slab rocking under traffic	Within 15 days Not Applicable, as it may be full depth	Dismantle and reconstruct affected. Portion with norms and specifications - See Para 5.5 & 9.2 Within 15days
3	Single Longitudinal Crack intersecting with one or more joints	w = width of crack L = length of crack d = depth of crack D = depth of slab	0	Nil, not discernible	No Action	
			1	w < 0.5 mm, discernable from slow moving vehicle	Seal with epoxy, if L > 1 m. Within 7 days	Staple or dowel bar retrofit. Within 15days
			2	w = 0.5 - 3.0 mm, discernible from fast vehicle	Route seal and stitch, if L > l m. Within 15 days	
			3	w = 3.0 – 6.0 mm	Staple, if L > 1 m. Within 15 days	Partial Depth Repair with stapling. Within 15days
			4	w = 6.0 - 12.0 mm, usually associated with spalling		
			5	w > 12 mm, usually associated with spalling, and/or slab rocking under traffic	Not Applicable, as it may be full depth	Full Depth Repair Dismantle and reconstruct affected portion as per norms and specifications - See Para 5.6.4

						Within 15days
4	Multiple Cracks intersecting with one or more joints	w = width of crack	0	Nil, not discernible	No Action	
			1	w < 0.2 mm, hair cracks	Seal, and stitch if L > l m.	
			2	w = 0.2 - 0.5 mm. discernible from slow vehicle	Within 15 days	
			3	w = 0.5 - 3.0 mm, discernible from fast vehicle	Full depth repair within 15 days	Dismantle, Reinstate Sub-base, Reconstruct whole slab as per specifications within 30 days
			4	w = 3.0 - 6.0 mm panel broken into 2 or 3 pieces		
			5	w > 6 mm and/or panel broken into more than 4 pieces		
5	**Corner Break**	w = width of crack L = length of crack	0	Nil, not discernible	No Action	
			1	w < 0.5 mm; only 1 corner broken	Seal with low viscosity epoxy to	Seal with epoxy seal with epoxy
			2	w < 1.5 mm; L < 0.6 m, only one corner broken	secure broken parts Within 7 days	Within 7 days
			3	w < 1.5 mm; L < 0.6 m, two corners broken	Partial Depth (Refer Figure 8.3 of	Full depth repair
			4	w > 1.5 mm; L > 0.6 m or three corners broken	IRC:SP: 83-2008)	
					Within 15 days	Reinstate sub-base,

			5	three or four corners broken		and reconstruct the slab as per norms and specifications within 30days
6	Punchout (Applicable to Continuous Reinforced Concrete Pavement (CRCP) only)	w = width of crack L = length (m/m2)	0	Nil, not discernible	**Not Applicable, as it may be full depth**	No Action
			1	w < 0.5 mm; L < 3 m/m2		Seal with low viscosity epoxy to secure broken parts. Within 15 days
			2	either w > 0.5 mm or L < 3 m/m2		
			3	w > 1.5 mm and L < 3 m/m2		
			4	w > 3 mm, L < 3 m/m2 and deformation		Full depth repair - Cut out and replace damaged area taking care not to damage Reinforcement. Within 30days
			5	w > 3 mm, L > 3 m/m2 and deformation		
7	Raveling or Honeycomb type surface	r = area damaged surface/total surface of slab (%) h = maximum depth of damage	0	Nil, not discernible	No Action	
			1	r < 2 %	Local repair of areas Damaged	
			2	r = 2 - 10 %	and liable to be damaged. Within 15 days	
			3	r = 10-25%	Bonded Inlay, 2 or 3	

					slabs if	
			4	r = 25 - 50 %	Affecting Within 30 days	
			5	r > 50% and h > 25 mm	Reconstruct slabs, 4 or more slabs if affecting. Within 30 days	
8	Scaling	r = damaged surface/total surface of slab (%) h = maximum depth of damage	0	Nil, not discernible	Short Term No Action	Long Term
			1	r < 2 %	Local repair of areas Damaged and liable to be damaged. Within 7days Bonded Inlay within 15 Days	
			2	r = 2 - 10 %		
			3	r = 10 - 20%		
			4	r = 10 - 30%	Reconstruct slab within 30 days	
			5	r>30 % and h> 25mm		
9	Polished Surface/Glazing	t = texture depth, sand patch test	0		No action	

			1	t > 1 mm		Not Applicable
			2	t = 1 – 0.6 mm		
			3	t = 0.6 – 0.3 mm	Monitor rate of deterioration	
			4	t = 0.3 – 0.1 mm	Diamond Grinding if Affecting 50% or more slabs in a	
			5	t < 0.1 mm	Continuous stretch of minimum 5 km. Within 30 days	
10	Popout (Small Hole), Pothole Refer Para 8.4	n = number/m^2 d = diameter h = maximum depth	0	d < 50 mm; h < 25 mm; n < 1 per 5 m^2	No action.	Not Applicable
			1	d = 50 - 100 mm; h < 50 mm; n < 1 per 5 m^2	Partial depth repair 65 mm deep. Within 15 days	
			2	d = 50 - 100 mm; h > 50 mm; n < 1 per 5 m^2	Partial depth repair 110mm	
			3	d = 100 - 300 mm; h < 100 mm n < 1 per 5 m^2	i.e.10 mm more than	

			4 5	d = 100 - 300 mm; h > 100 mm; n < 1 per 5 m^2 d > 300 mm; h > 100 mm: n > 1 per 5 m^2	the depth of the hole. Within 30 days Full depth repair. Within 30 days	
11	Joint Seal Defects	loss or damage L = Length as % total joint length	0	Difficult to discern.	No action.	Not Applicable
			1 2	Discernible, L< 25% but of little immediate consequence with regard to ingress of water or trapping incompressible material. Notable. L > 25% insufficient protection against ingress of water and trapping incompressible material.	Clean joint, inspect later. Clean and reapply sealant in Selected locations. Within 7 days	
			4	Severe; w > 3 mm negligible protection against ingress of water and trapping incompressible material.	Clean, widen and reseal the joint. Within 7 days	
12	Spalling of Joints	w = width on either side of the joint L = length of spalled	0	Nil, not discernible	No action. Apply low viscosity	

		portion (as % joint length)	1 2 3 4 5	w < 10 mm w = 10 - 20 mm, L < 25% w = 20 - 40 mm, L > 25% w = 40 - 80 mm, L > 25% w > 80 mm, and L > 25%	epoxy resin/ mortar in cracked portion. Within 7 days Partial Depth Repair. Within 15 days 30 - 50 mm deep, h = w + 20% of w, within 30 days 50 - 100 mm deep repair. H = w + 20% of w. Within 30 days	Not Applicable
13	Faulting (or Stepping) in Cracks or Joints	f = difference of level	0 1	not discernible, < 1 mm f < 3 mm	No action.	No action.
			2 3	f = 3 - 6 mm f = 6 - 12 mm	Determine cause and observe, take action for diamond grinding Diamond Grinding	Replace the slab as appropriate. Within 30days

			4 5	f= 12 - 18 mm f> 18 mm	Raise sunken slab. Strengthen sub-grade and sub-base by grouting and raising sunken slab	Replace the slab as appropriate. Within 30days
14	Blowup or Buckling	h = vertical displacement from normal profile	0	Nil, not discernible	No Action	
			1	h < 6 mm		
			2	h = 6 - 12 mm	Install Signs to Warn Traffic	
			3	h = 12 - 25 mm	within 7 days	
			4	h > 25 mm	Full Depth Repair. Within 30 days	
			5	shattered slabs, ie 4 or more pieces	Replace broken slabs. Within 30 days	
15	Depression	h = negative vertical displacement from normal profile L =length	0	Not discernible, h < 5 mm	No action.	

			1 2	h = 5 - 15 mm h = 15-30 mm, Nos <20% joints	Install Signs to Warn Traffic within 7 days	Not Applicable
			3 4 5	h = 30 - 50 mm h > 50 mm or > 20% joints h > 100 mm	Strengthen subgrade. Reinstate pavement at normal level if L < 20 m. Within 30 days	
16	Heave	h = positive vertical displacement from normal profile. L = length	0	Not discernible. h < 5 mm	No action.	scrabble
			1 2 3	h = 5 - 15 mm h = 15 - 30 mm, Nos <20% joints h = 30 - 50 mm	Follow up. Install Signs to Warn Traffic within 7 days	
			4	h > 50 mm or > 20% joints	Stabilise subgrade. Reinstate pavement at normal level if	

			5	h > 100 mm	length < 20 m. Within 30 days	
17	Bump	h = vertical displacement from normal profile	0	h < 4 mm	No action	
			1	h = 4 - 7 mm	Grind, in case of new construction within 7 days	Construction Limit for New Construction.
			3	h = 7 - 15 mm	Grind, in case of ongoing Maintenance within 15 days	Replace in case of new construction. Within 30days
			4	h > 15 mm	Full Depth Repair. Within 30 days	Full Depth Repair. Within 30days
18	**Lane to Shoulder Dropoff**	f = difference of level			**Short Term**	**Long Term**
			0	Nil, not discernible < 3mm	No Action	
			1	f = 3 - 10 mm	Spot repair of shoulder within 7 days	
			2	f = 10 - 25 mm		

			3 4	f = 25 - 50 mm f = 50 - 75 mm	Fill up shoulder within 7 dayss	For any 100 m Stretch Reconstruct shoulder, if affecting 25% or more of stretch. Within 30days
			5	f > 75 mm		
Drainage						
19	Pumping	quantity of fines and water expelled through open joints and cracks Nos	0	not discernible	No Action	
			1 to 2 3 to 4	slight/ occasional Nos < 10% appreciable/ Frequent 10 - 25%	Repair cracks and joints Without delay. Lift or jack slab within 30 days.	Inspect and repair sub-drainage at distressed sections and upstream.
			5	abundant, crack development > 25%	Repair distressed pavement sections. Strengthen subgrade and subbase. Replace slab. Within 30 days	
20	Ponding	Ponding on slabs due to	0-2	No discernible problem	No action.	

		blockage of drains				
			3 to 4	Blockages observed in drains, but water flowing	Clean drains etc within 7 days, Follow up	Action required to stop water damaging foundation within 30 days.
			5	Ponding, accumulation of water observed	-do	

Table -3: Maintenance Criteria for Safety Related Items and Other Furniture Items:

Asset Type	Performance Parameter	Level of Service (LOS)			Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Highway	Availability of Safe Sight Distance	As per IRC SP :84-2014, a minimum of safe stopping sight distance shall be available throughout.			Monthly	Manual Measurements with O dometer along with video/ image backup	Removal of obstruction within 24 hours, in case of sight line affected by temporary objects such as trees, temporary encroachments. In case of permanent structure or design deficiency: Removal of obstruction/improvement of deficiency at the earliest Speed Restriction boards and suitable traffic calming measures such as transverse bar marking, blinkers, etc. shall be applied during the period of rectification.		IRC:SP 84-2014
		Design Speed, kmph	**Desirable Minimum Sight Distance (m)**	**Safe Stopping Sight Distance (m)**					
		100	360	180					
		80	260	130					
Pavement Marking	Wear	<70% of marking remaining			Bi-Annually	**Visual Assessment as per Annexure-F**	Re - painting	Cat-1 Defect – within 24 hours Cat-2 Defect -	IRC:35-2015

<table>
<tr><td></td><td></td><td></td><td></td><td>of IRC:35-2015</td><td></td><td>within 2 months</td><td></td></tr>
<tr><td></td><td>Day time Visibility</td><td>During expected life Service Time
Cement Road - 130mcd/m2/lux
Bituminous Road - 100mcd/m2/lux</td><td>Monthly</td><td>As per Annexure-D of IRC:35-2015</td><td>Re - painting</td><td>Cat-1 Defect – within 24 hours
Cat-2 Defect – within 2 months</td><td>IRC:35-2015</td></tr>
<tr><td></td><td rowspan="6">Night Time Visibility</td><td><u>Initial and Minimum Performance for Dry Retro reflectivity during night time:</u></td><td rowspan="6">Bi-Annually</td><td rowspan="6">As per Annexure-E of IRC:35-2015</td><td rowspan="6">Re - painting</td><td rowspan="6">Cat-1 Defect – within 24 hours Cat-2 Defect – within 2 months</td><td rowspan="6">IRC:35-2015</td></tr>
<tr><td></td><td>Design Speed</td><td>(RL) Retro Reflectivity (mcd/m2/lux)</td></tr>
<tr><td></td><td>Up to 65</td><td>200</td><td>80</td></tr>
<tr><td></td><td>65-100</td><td>250</td><td>120</td></tr>
<tr><td></td><td>Above 100</td><td>350</td><td>150</td></tr>
<tr><td></td><td>Initial and Minimum Performance for Night Visibility under wet condition (Retro reflectivity):</td></tr>
<tr><td>Road Signs</td><td>Shape and Position</td><td>Shape and Position as per IRC:67-2012.
Signboard should be clearly visible for
the design speed of the section.</td><td>Daily</td><td>Visual with video/image backup</td><td>Improvement of shape, in case if shape is damaged.

Relocation as Per requirement</td><td>48 hours in case of Mandatory Signs, Cautionary and Informatory Signs (Single and Dual post signs) 15 Days in case of</td><td>IRC:67-2012</td></tr>
</table>

						Gantry/Cantilever Sign boards	
	Retro reflectivity	As per specifications in IRC:67-2012	Bi-Annually	Testing of Each signboard using Retro Reflectivity Measuring Device. In accordance with ASTM D 4956-09.	Change of signboard	48 hours in case of Mandatory Signs, Cautionary and Informatory Signs (Single and Dual post signs) 1 Month in case of Gantry/ Cantilever Sign boards	IRC:67-2012
Kerb	Kerb Height	As per IRC 86:1983 depending upon type of Kerb	Bi-Annually	Use of distance measuring tape	Raising Kerb Height	Within 1 Month	IRC 86:1983
	Kerb Painting	Functionality: Functioning of Kerb painting as intended	Daily	Visual with video/image backup	Kerb Repainting	Within 7-days	IRC 35:2015
Other Road Furniture	Reflective Pavement Markers (Road Studs)	Numbers and Functionality as per specifications in IRC:SP:84-2014 and IRC:35-2015, unless specified in Schedule-B.	Daily	Counting	New Installation	Within 2 months	IRC:SP:84-2014, IRC:35-2015
	Pedestrian Guardrail	Functionality: Functioning of guardrail as intended	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC:SP:84-2014
	Traffic Safety Barriers	Functionality: Functioning of Safety Barriers as intended	Daily	Visual with video/image	Rectification	Within 7 days	IRC:SP:84-2014,

				backup			IRC:119- 2015
	End Treatment of Traffic Safety Barriers	Functionality: Functioning of End Treatment as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP:84-2014, IRC:119- 2015
	Attenuators	Functionality: Functioning of Attenuators as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP-2014, IRC:119- 2015
	Guard Posts and Delineators	Functionality: Functioning of Guard Posts and Delineators as intended	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC: 79 - 1981
	Overhead Sign Structure	Overhead sign structure shall be structurally adequate	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC:67-2012
	Traffic Blinkers	Functionality: Functioning of Traffic Blinkers as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP:84-2014
Highway Lighting System	Highway Lights	Illumination: Minimum 40 Lux illumination on the road surface	Daily	The illumination level shall be measured with luxmeter	Improvement in Lighting System	24 hours	IRC:SP:84-2014
		No major failure in the lighting system	Daily	-	Rectification of failure	24 hours	IRC:SP:84-2014
		No minor failure in the lighting system	Monthly	-	Rectification of failure	8 hours	IRC:SP:84-2014
	Toll Plaza Canopy Lights	Minimum 40 Lux illumination on the road surface	Daily	The illumination level shall be measured with luxmeter	Improvement in Lighting System	24 hours	IRC:SP:84-2014
		No major/minor failure in the lighting system	Daily	-	Rectification of failure	8 hours	IRC:SP:84-2014

Trees and Plantation including median plantation	Obstruction in a minimum head-room of 5.5 m above carriageway or obstruction in visibility of road signs	No obstruction due to trees	Monthly	Visual with video/image backup	Removal of trees	Immediate	IRC:SP:84-2014
	Deterioration in health of trees and bushes	Health of plantation shall be as per requirement of specifications & instructions issued by Authority from time to time	Daily	Visual with video/image backup	Timely watering and treatment. Or Replacement of Trees and Bushes.	Within 90 days	IRC:SP:84-2014
	Vegetation affecting sight line and road structures	Sight line shall be free from obstruction by vegetation	Daily	Visual with video/image backup	Removal of trees	Immediate	IRC:SP 84-2014
Rest Areas	Cleaning of toilets	-	Daily	-	-	Every 4 hours	
	Defects in electrical, water and sanitary installations	-	Daily	-	Rectification	24 hours	
Other Project Facilities and Approach roads	Damage or deterioration in Approach Roads, pedestrian facilities, truck lay-bys, bus-bays, busshelters, cattle crossings, Traffic Aid Posts, Medical Aid Posts and other works		Daily	-	Rectification	15 days	IRC:SP 84-2014

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Pipe/box/ slab culverts	Free waterway / unobstructed flow section	85% of culvert normal flow area to available.	2 times in a year (before and after rainy season)	Inspection by Bridge Engineer as per IRC SP: 35-1990 and recording of depth of silting and area of vegetation.	Cleaning silt up soils and debris in culvert barrel after rainy season, removal of bushes and vegetation, U/s of barrel, under barrel and D/s of barrel before rainy season.	15 days before onset of monsoon and within 30 days after end of rainy season.	IRC 5-2015, IRC SP:40-1993 and IRC SP:13-2004
	Leak-proof expansion joints if any	No leakage through expansion joints	Bi-Annually	Physical inspection of expansion joints as per IRC SP: 35-1990 if any, for leakage strains on walls at joints.	Fixing with sealant suitably	30 days or before onset of rains whichever comes earlier	IRC SP:40-1993 and IRC SP:69-2011
	Structurall	Spalling of	Bi-	Detailed	Repairs to	15 days	IRC SP 40-

	y sound	concrete not more than 0.25 sqm Delamination of concrete not more than 0.25 sq.m. Cracks wider than 0.3 mm not more than 1m aggregatelength	Annually	inspection of all components of culvert as per IRC SP:35-1990 and recording the defects	spalling, cracking, delamination, rusting shall be followed as per IRC:SP:40-1993.		1993 and MORTH Specifications clause 2800
	Protection works in good condition	Damaged of rough stone apron or bank revetment not more than 3 sqm, damage to solid apron (concreteapron) not more than 1 sqm	2 times in a year (before and after rainy season)	Condition survey as per IRC SP:35-1990	Repairs to damaged aprons and pitching	30 days after defect observation or 2 weeks before onset of rainy season whichever is earlier.	IRC: SP 40-1993 and IRC:SP:13-2004.
Bridges including	Riding quality or	No pothole in	Daily	Visual inspectio	Repairs to BC or wearing	15 days	MORT&H Specificati

ROBs Flyover etc. as applicable	user comfort	wearing coat on bridge deck		n as per IRC SP:35-1990	coat		on 2811
Bridge - Super Structure	Bumps	No bump at expansion joint	Daily	Visual inspection as per IRC SP:35-1990	Repairs to BC on either side of expansion joints, profile correction course on approach slab in case of settlement to approach embankment	15 days	MORT&H Specification 3004.2 & 2811.
	User safety (condition of crash barrier and guard rail)	No damaged or missing stretch of crash barrier or pedestrian hand railing	Daily	Visual inspection and detailed condition survey as per IRC SP: 35-1990.	Repairs and replacement of safety barriers as the case may be	**3** days	IRC: 5-1998, IRC SP: 84-2014 and IRC SP: 40-1993.
	Rusted reinforcement	Not more than 0.25 sq.m	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990	All the corroded reinforcement shall need to be thoroughly	15 days	IRC SP: 40-1993 and MORTH Specification 1600.
	Spalling of concrete	Not more than 0.50 sq.m					

	Delamination	Not more than 0.50 sq.m		using Mobile Bridge Inspection Unit	cleaned from rusting and applied with anti-corrosive coating before carrying out the repairs to affected concrete portion with epoxy mortar / concrete.		
	Cracks wider than 0.30 mm	Not more than 1m total length	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	Grouting with epoxy mortar, investigating causes for cracks development and carry out necessary rehabilitation	48 Hours	IRC SP: 40-1993 and MORTH Specification 2800.
	Rainwater seepage through deck slab	Leakage - nil	Quarterly	Detailed condition survey as per IRC SP: 35-1990 using Mobile	Grouting of deck slab at leakage areas, waterproofing, repairs to drainage spouts	1 months	MORTH specifications 2600 & 2700

				Bridge Inspection Unit			
	Deflection due to permanent loads and live loads	Within design limits.	Once in every 10 years for spans more than 40 m	Load test method	Carry out major rehabilitation works on bridge to retain original design loads capacity	6 months	IRC SP: 51-1999.
	Vibrations in bridge deck due to moving trucks	Frequency of vibrations shall not be more than 5 Hz	Once in every 5 years for spans more than 30m and every 10 years for spans between 15 to 30 m	Laser displacement sensors or laser vibro-meters	Strengthening of super structure	4 months	AASHTO LRFD specifications
	Leakage in Expansion joints	No damage to elastomeric sealant compound in strip seal expansion joint, no leakage of rain water	Bi-Annually	Detailed condition survey as per IRC SP:35-1990 using Mobile Bridge Inspection Unit	Replace of seal in expansion joint	15 days	MORTH specifications 2600 and IRC SP: 40-1993.

		through expansion joint in case of buried and asphalt plug and copper strip joint					
	Debris and dust in strip seal expansion joint	No dust or debris in expansion joint gap.	Monthly	Detailed condition survey as per IRC SP:35-1990 using Mobile Bridge Inspection Unit	Cleaning of expansion joint gaps thoroughly	3 days	MORTH specification s 2600 and IRC SP: 40-1993.
	Drainage spouts	No down take pipe missing/broken below soffit of the deck slab. No silt, debris, clogging of drainage spout collection chamber.	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	Cleaning of drainage spouts thoroughly. Replacement of missing/broken down take pipes with a minimum pipe extension of 500mm below soffit of slab.	3 days	MORTH specification 2700.

					Providing sealant around the drainage spout if any leakages observed		
Bridge-substructure	Cracks/ spalling of concrete/ Rusted steel	No cracks, spalling of concrete and rusted steel	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	All the corroded reinforcement shall need to be thoroughly cleaned from rusting and applied with anti-corrosive coating before carrying out repairs to substructure by grouting/guniting and micro concreting depending on type of defect noticed	30 days	IRC SP: 40-1993 and MORTH specification 2800.
	Bearings	Delaminatin	Bi-	Detailed	In case of	3 months	MORTH

		g of bearing reinforcement not more than 5%, cracking or tearing of rubber not more than 2 locations per side, no rupture of reinforcement or rubber	Annually	condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	failure of even one bearing on any pier/abutment, all the bearings on that pier/ abutment shall be replaced, in order to get uniform load transfer on to bearings.		specification 2810 and IRC SP: 40-199.
Bridge Foundations	Scouring around foundations	Scouring shall not be lower than maximum scour level for the bridge	Bi-Annually	Condition survey and visual Inspection as per IRC SP:35-1990 using Mobile Bridge Inspection Unit. In case of oubt, use	suitable protection works around pier/abutment	1 months	IRC SP: 40-1993, IRC 83-2014, MORTH specification 2500

				Underwater camera for inspection of deep wells in major Rivers.			
	Protection works in good condition	Damaged of rough stone apron or bank revetment not more than 3 sq.m, damage to solid apron (concrete apron) not more than 1 sq.m	2 times in a year (before and after rainy season)	Condition survey as per IRC SP:35-1990	Repairs to damaged aprons and pitching.	30 days After defect observation or 2 weeks before onset of rainy season whichever is earlier.	IRC: SP 40-1993 and IRC:SP:13-2004.
Note: Any Structure during the entire contract period which is found that does not complies with all requirements of this Table will be prepared, rehabilitated or even reconstructed under the scope of the contractor.							

Table 4: Maintenance Criteria for Structures and Culverts:

Table 5: Maintenance Criteria for Hill Roads

In addition to above, for hill roads the following provisions for maintenance is also to done.

Hill Roads		
(i)	Damage to Retaining wall/ Breast wall	7 (Seven) days
(ii)	Landslides requiring clearance	12 (Twelve) hours
(iii)	Snow requiring clearance	24 (Twenty Four) hours

Note: For all tables 1 to 5 above, latest BIS & IRC standards (even those not indicated herewith) along with MoRTH specifications shall be binding for all maintenance activities.

A. Flexible Pavement

Nature of Defect or deficiency		**Time limit for repair/ rectification**
(b) Granular earth shoulders, side slopes, drains and culverts		
(i)	Variation by more than 1 % in the prescribed slope of camber/cross fall (shall not be less than the camber on the main carriageway)	7 (seven) days
(ii)	Edge drop at shoulders exceeding 40 mm	7 (seven) days
(iii)	Variation by more than 15% in the prescribed side (embankment) slopes	30 (thirty) days
(iv)	Rain cuts/gullies in slope	7 (seven) days
(v)	Damage to or silting of culverts and side drains	7 (seven) days
(vi)	Desilting of drains in urban/semi- urban areas	24 (twenty four) hours
(vii)	Railing, parapets, crash barriers	7 (seven) days (Restore immediately if causing safety hazard)
(c) Road side furniture including road sign and pavement marking		
(i)	Damage to shape or position, poor visibility or loss of retro- reflectivity	48 (forty eight) hours
(ii)	Painting of km stone, railing, parapets, crash barriers	As and when required/ Once every year
(iii)	Damaged/missing signs road requiring replacement	7 (seven) days

(vi)	Damage to road mark ups	7 (seven) days
(d) Road lighting		
(i)	Any major failure of the system	24 (twenty four) hours
(ii)	Faults and minor failures	8 (eight) hours
(e) Trees and plantation		
(i)	Obstruction in a minimum head- room of 5 m above carriageway or obstruction in visibility of road signs	24 (twenty four)hours
(ii)	Removal of fallen trees from carriageway	4 (four) hours
(iii)	Deterioration in health of trees and bushes	Timely watering and treatment
(vi)	Trees and bushes requiring replacement	30 (thirty) days
(v)	Removal of vegetation affecting sight line and road structures	15 (fifteen) days
(f) Rest area		
(i)	Cleaning of toilets	Every 4 (four) hours
(ii)	Defects in electrical, water and sanitary installations	24 (twenty four) hours
(g) [Toll Plaza]		
(h)	**Other Project Facilities and Approach roads**	
(i)	Damage in approach roads, pedestrian facilities, truck lay- byes, bus-bays, bus-shelters, cattle crossings, [Traffic Aid Posts, Medical Aid Posts] and service roads	15 (fifteen) days
(ii)	Damaged vehicles or debris on the road	4 (four) hours
(iii)	Malfunctioning of the mobile crane	4 (four) hours
Bridges		
(a) Superstructure		
(i)	Any damage, cracks, spalling/ scaling Temporary measures Permanent measures	within 48 (forty eight) hours within 15 (fifteen) days or as specified by the Authority's Engineer
(b) Foundations		
(i)	Scouring and/or cavitation	15 (fifteen) days
(c) Piers, abutments, return walls and wing walls		
(i)	Cracks and damages including settlement and tilting, spalling, scaling	30 (thirty) days
(d) Bearings (metallic) of bridges		

(i)	Deformation, damages, tilting or shifting of bearings	15 (fifteen) days Greasing of metallic bearings once in a year
(e) Joints		
(i)	Malfunctioning of joints	15 (fifteen) days
(f) Other items		
(i)	Deforming of pads in elastomeric bearings	7 (seven) days
(ii)	Gathering of dirt in bearings and joints; or clogging of spouts, weep holes and vent-holes	3 (three) days
(iii)	Damage or deterioration in kerbs, parapets, handrails and crash barriers	3 (three) days (immediately within 24 hours if posing danger to safety)
(vi)	Rain-cuts or erosion of banks of the side slopes of approaches	7 (seven) days
(v)	Damage to wearing coat	15 (fifteen) days
(vi)	Damage or deterioration in approach slabs, pitching, apron, toes, floor or guide bunds	30 (thirty) days
(vii)	Growth of vegetation affecting the structure or obstructing the waterway	15 (fifteen) days
(g) Hill Roads		
(i)	Damage to retaining wall/breast wall	7 (seven) days
(ii)	Landslides requiring clearance	12 (twelve) hours
(iii)	Snow requiring clearance	24 (twenty four) hours
[Note: Where necessary, the Authority may modify the time limit for repair/rectification, or add to the nature of Defect or deficiency before issuing the bidding document, with the approval of the competent authority.]		

SCHEDULE - F
(See Clause 3.1.7(a))

APPLICABLE PERMITS

1 Applicable Permits

(i) The Contractor shall obtain, as required under the Applicable Laws, the following Applicable Permits:

(a) Permission of the State Government for extraction of boulders from quarry;

(b) Permission of Village Panchayats and Pollution Control Board for installation of crushers;

(c) License for use of explosives;

(d) Permission of the State Government for drawing water from river/reservoir;

(e) License from inspector of factories or other competent Authority for setting up batching plant;

(f) Clearance of Pollution Control Board for setting up batching plant;

(g) Clearance of Village Panchayats and Pollution Control Board for setting up asphalt plant;

(h) Permission of Village Panchayats and State Government for borrow earth; and

(i) Any other permits or clearances required under Applicable Laws.

(ii) Applicable Permits, as required, relating to environmental protection and conservation shall have been procured by the Authority in accordance with the provisions of this Agreement.

SCHEDULE – G

(See Clauses 7.1 and 19.2)

FORM OF BANK GUARANTEE

Annex-I

(See Clause 7.1)

[Performance Security/Additional Performance Security]

[DG(RD)&SS,

Ministry of Road Transport & Highways Transport Bhawan, New Delhi]

WHEREAS:

(A) _____ [name and address of contractor] (hereinafter called the "**Contractor**") and [name and address of the authority], (hereinafter called the **"Authority"**) have entered into an agreement (hereinafter called the "**Agreement**") for the construction of the **"Improvement and widening to two lane with paved shoulder of road from Km 75.700 to Km 101.300 (Total length: 25.600 km) i.e. Srirampur - Khowai section of NH-208 (Package-V) in the state of Tripura on EPC basis"**, subject to and in accordance with the provisions of the Agreement

(B) The Agreement requires the Contractor to furnish a Performance Security for due and faithful performance of its obligations, under and in accordance with the Agreement, during the {Construction Period/ Defects Liability Period and Maintenance Period} (as defined in the Agreement) in a sum of Rs….. cr. (Rupees ……..….. crore) (the "**Guarantee Amount**").

(C) We, …….. through our branch at ……. (the "**Bank**") have agreed to furnish this bank guarantee (*hereinafter called the* **"Guarantee**") by way of Performance Security.

NOW, THEREFORE, the Bank hereby, unconditionally and irrevocably, guarantees and affirms as follows:

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful performance of the Contractor's obligations during the {Construction Period/ Defects Liability Period and Maintenance Period} under and in accordance with the Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.
2. A letter from the Authority, under the hand of an officer not below the rank of [General Manager in the National Highways Authority of India], that the Contractor has committed default in the due and faithful performance of all or any of its obligations under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision

that the Contractor is in default shall be final and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.

3. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.

4. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.

5. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Agreement or to extend the time or period for the compliance with, fulfillment and/ or performance of all or any of the obligations of the Contractor contained in the Agreement or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.

6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Agreement or for the fulfillment, compliance and/or performance of all or any of the obligations of the Contractor under the Agreement.

7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.

8. The Guarantee shall cease to be in force and effect on ****$. Unless a demand or claim under this Guarantee is made in writing before expiry of the Guarantee, the Bank shall be discharged from its liabilities hereunder.

9. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.

10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorized to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was posted shall be conclusive.

11. This Guarantee shall come into force with immediate effect and shall remain in force and effect for up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.

12. This guarantee shall also be opera table at our …….. Branch at New Delhi, from whom, confirmation regarding the issue of this guarantee or extension/ renewal thereof shall be made available on demand. In the contingency of this guarantee being invoked and payment thereunder claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation

13. Intimation regarding issuance of this Bank Guarantee shall be sent to Authority's Bank through SFMS gateway as per the details below:

S.No.	Particulars	Details
1	Name of Beneficiary	National Highways & Infrastructure Development Corporation Limited
2	Beneficiary Bank Account No.	90621010002659
3	Beneficiary Bank Branch	IFSC SYNB0009062
4	Beneficiary Bank Branch Name	Transport Bhawan, New Delhi
5	Beneficiary Bank Address	Syndicate Bank transport Bhawan, 1st Parliament Street, New Delhi-110001

Signed and sealed this ……. day of ……., 20…… at ……..

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by:
(Signature)
(Name)
(Designation)
(Code Number)
(Address)

NOTES:

(i) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.

(ii) (ii) The address, telephone number and other details of the head office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing branch.

Annex – II
(Schedule - G)
(See Clause 19.2)

Form for Guarantee for Withdrawal of Retention Money

[DG(RD)&SS,

Ministry of Road Transport & Highways Transport Bhawan, New Delhi]

WHEREAS:

(A) [name and address of contractor] (hereinafter called the "**Contractor**") has executed an agreement (hereinafter called the "Agreement") with the NHIDCL, (hereinafter called the "**Authority**") for the construction of the **"Improvement and widening to two lane with paved shoulder of road from Km 75.700 to Km 101.300 (Total length: 25.600 km) i.e. Srirampur - Khowai section of NH-208 (Package-V) in the state of Tripura on EPC basis"**, subject to and in accordance with the provisions of the Agreement.

(B) In accordance with Clause 19.2 of the Agreement, the Authority shall make to the Contractor an interest bearing *@Bank Rate + 3%* advance payment (herein after called "Advance Payment") equal to 10% (ten per cent) of the Contract Price; and that the Advance Payment shall be made in two installments subject to the Contractor furnishing an irrevocable and unconditional guarantee by a scheduled bank for an amount equivalent to 110% (one hundred and ten percent) of such installment to remain effective till the complete and full repayment of the installment of the Advance Payment as security for compliance with its obligations in accordance with the Agreement. The amount of {first/second} installment of the Advance Payment is Rs. ------ cr. (Rupees ------ crore) and the amount of this Guarantee is Rs. ------- cr. (Rupees ------ crore) (the "Guarantee Amount")$.

(C) We, …….. through our branch at ……. (the "**Bank**") have agreed to furnish this bank guarantee (hereinafter called the "**Guarantee**") for the **Guarantee Amount.**

NOW, THEREFORE, the Bank hereby unconditionally and irrevocably guarantees and affirms as follows:

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful repayment on time of the aforesaid instalment of the Advance Payment under and in accordance with the Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.

   A letter from the Authority, under the hand of an officer not below the rank of [General Manager in the National Highways Authority of India], that the Contractor has committed default in the due and faithful performance of all or any of its obligations for under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due

and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final, and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.

2. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.

3. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.

4. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Advance Payment or to extend the time or period of its repayment or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.

5. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Retention Money.

6. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.

7 The Guarantee shall cease to be in force and effect on ****.$ Unless a demand or claim under this Guarantee is made in writing on or before the aforesaid date, the Bank shall be discharged from its liabilities hereunder.

8. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.

9. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorised to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at

the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.

10. This Guarantee shall come into force with immediate effect and shall remain in force and effect up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.

11. This guarantee shall also be operatable at our ……..….. Branch at New Delhi, from whom, confirmation regarding the issue of this guarantee or extension/ renewal thereof shall be made available on demand. In the contingency of this guarantee being invoked and payment thereunder claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation

12. Intimation regarding issuance of this Bank Guarantee shall be sent to Authority's Bank through SFMS gateway as per the details below:

S.No.	Particulars	Details
1	Name of Beneficiary	National Highways & Infrastructure Development Corporation Limited
2	Beneficiary Bank Account No.	90621010002659
3	Beneficiary Bank Branch	IFSC SYNB0009062
4	Beneficiary Bank Branch Name	Transport Bhawan, New Delhi
5	Beneficiary Bank Address	Syndicate Bank transport Bhawan, 1st Parliament Street, New Delhi-110001

Signed and sealed this ……. day of ……., 20…… at …….

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by:

(Signature)

(Name)

(Designation)

(Code Number)

(Address)

NOTES:

(i) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.

(ii) The address, telephone number and other details of the head office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing branch.

Schedule - H

(See Clauses10.1 (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 percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4
Road Works including Culverts, widening and repair of culverts.	63.62	**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 Base course	[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	17.29
		(2) Sub Base Course	18.00
		(3) Non Bituminous Base course	[Nil]
		(4) Bituminous Base course	30.04
		(5) Wearing Coat	13.68
		B.2-Reconstruction/New 2-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]

Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4
		(2) Sub Base Course	[Nil]
		(3) Non Bituminous Base course	[Nil]
		(4) Bituminous Base course	[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 and New culverts on existing road, realignments, bypasses: Culverts (length <6m)	20.99
Minor Bridges/ Underpasses/ Overpasses	10.59	**A.1-Widening and Repair of Minor bridges (length >6 m and<60m).**	
		Minor Bridges	[Nil]
		A.2- New Minor bridges (length >6 m and<60m)	
		(1) Foundation + Sub Structure: On completion of the foundation work including foundations for wing and return walls, abutments, piers upto the abutment/pier cap.	62.14
		(2) Super-structure: On completion of the super-structure in all respects including wearing coat, bearing, expansion joint, hand rails, crash barrier, road signs & markings, tests on completion etc. complete in all respect.	24.36
		(3) Approaches: On completion of approaches including Retaining walls, stone pitching, protection works complete in all respect and fit for use	13.50
		(4) Guide Bunds & River Training Works: On completion of Guide Bunds and river Training Works complete in all respects	[Nil]

Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4
		B.1- Widening and Repair of underpasses/overpasses	
		Underpasses/ Overpasses	[Nil]
		B.2-New underpasses/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 hand rails, crash barriers, 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]

Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4
		A.2-New 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 hand rails, crash barriers, 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-Widening and repair of **(a) ROB** **(b) RUB**	
		(1) Foundation	[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 hand rails, crash barriers, road markings etc.	[Nil]
		(6) Wing walls/return walls	[Nil]
		(7) Approaches (including Retaining walls, stone pitching and protection works)	[Nil]
		B.2-New ROB/RUB (a) ROB (b) RUB	
		(1) Foundation	[Nil]
		(2) Sub-Structure	[Nil]
		(3) Super-structure (including bearings)	[Nil]
		(4) Wearing Coat	[Nil]

Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4
		(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 hand rails, crash barriers, 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) 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 barriers, 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.2- New Elevated Section/Flyovers/Grade Separators	
		(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 barriers, road markings etc.	[Nil]
		(6) Wing walls/return walls	[Nil]
		(7) Approaches (including Retaining walls/ Reinforced Earth wall, stone pitching and protection works)	[Nil]
		(i) Toll Plaza	[Nil]

Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4
Other Works	25.80	(ii) Road side drains	30.90
		(iii) Road signs, marking, km stones, safety devices, ...	4.88
		(iv) Project facilities	
		(a) Bus Bays	2.66
		(b) Truck lay-byes	1.87
		(c) Rest areas	[Nil]
		(d) Others	0.56
		(v) Road side plantation	[Nil]
		(vi) Repair of protection works other than approaches to the bridges, elevated sections/ flyovers/ grade separators and ROBs/ RUBs	[Nil]
		(vii) Safety and traffic management during construction	[Nil]
		(viii) Protection Works	
		(a) Retaining wall	27.27
		(b) Breast wall	25.89
		(c) Turfing, hydro seeding, grassing	3.80
		(ix)Site clearance & Dismantling	2.18

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 existing 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 5 (five) 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 completed culverts shall be determined pro rata basis with respect to the total no. of culverts. The payment shall be made on the completion of atleast one culverts.
B.1- Reconstruction/New 2-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 0.5 (Zero point five) km. length, whichever is less.
(1) Earthwork up to top of the sub-grade	17.29	
(2) Sub Base Course	18.00	
(3) Non-Bituminous Base Course	[Nil]	
(4) Bituminous Base Course	30.04	
(5) Wearing Coat	13.68	
B.2- Reconstruction/New 2-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 0.5 (Zero point 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 (Flexible pavement)		Unit of measurement is linear length. Payment of

Stage of Payment	Percentage weightage	Payment Procedure
(1) Earthwork up to top of the sub-grade	[Nil]	each stage shall be made on pro rata basis on completion of a stage in full length or 0.5 (Zero point five) km. length, whichever is less.
(2) Sub Base Course	[Nil]	
(3) Non-Bituminous Base Course	[Nil]	
(4) Bituminous Base Course	[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 0.5 (Zero point 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- Re-Construction and New culverts on existing road, realignments, bypasses		Cost of each culvert 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 one culverts.
(1) Culverts (length <6m)	20.99	

@ 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 repair of minor bridges **(length > 6m and < 60m)**	[Nil]	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 **(i) Foundation +Sub-Structure:** On completion of the foundation work including foundations for wing and return walls, abutments, piers upto the abutment/pier cap.	62.14	(i) Foundation +Sub-Structure: 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 + sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation +sub- structure of each bridge subject to completion of atleast two foundations along with sub-structure upto abutment/pier cap level of each bridge. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified

1	2	3
(ii) 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.	24.36	**(ii) Super-structure:** Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super-structure of atleast one span in all respects as specified in the column of "Stage of Payment" in this sub-clause.
(iii) Approaches: On completion of approaches including Retaining walls, stone pitching, protection works complete in all respect and fit for use.	13.50	**(iii) 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.
(iv) Guide Bunds and River Training Works: On completion of Guide Bunds and river Training Works complete in all respects	[Nil]	**(iv) Guide Bunds and River Training Works:** Payment shall be made on pro-rata basis on completion of a stage i.e. completion of Guide Bunds and River training Works in all respects as specified.
B.1-Widening and repair 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.

1	2	3
B.2- New Underpasses/ Overpasses: **(i) Foundation +Sub-Structure:** On completion of the foundation work including foundations for wing and return walls, abutments, piers upto the abutment/pier cap.	[Nil]	**(i) Foundation +Sub-Structure:** Cost of each Underpass/Overpass shall be determined on pro rata basis with respect to the total linear length (m) of the Underpasses/Overpasse s. Payment against foundation + sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation +sub-structure of each Underpasses/Overpasse s subject to completion of atleast two foundations along with sub-structure upto abutment/pier cap level each underpass/overpass. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(ii) 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.	[Nil]	**(ii) Super-structure:** Payment shall be made on pro-rata basis on

1	2	3
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 as specified.		completion of a stage i.e. completion of super-structure of atleast one span in all respects as specified in the column of "Stage of Payment" in this sub-clause.
(iii) Approaches: On completion of approaches including Retaining walls/ Reinforced Earth walls, stone pitching, protection works complete in all respect and fit for use	[Nil]	**(iii) Approaches:** Payment shall be made on pro-rata basis on completion of a stage i.e. completion of approaches in all respect 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
1	**2**	**3**
A.1- Widening and repairs of Major Bridges		
(i) Foundation	[Nil]	**(i) 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 subject to completion of atleast two foundations 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.
(ii) Sub-structure	[Nil]	**(ii) 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 the major bridge subject to completion of atleast two sub-structures of abutments/piers upto abutment/pier cap level of the major bridge.
(iii)Super-structure (including bearings)	[Nil]	**(iii)Super-structure:** Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super-structure including bearings of atleast one span in all respects as specified.
(iv) Wearing Coat including expansion joints	[Nil]	**(iv) Wearing Coat:** Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(v) Miscellaneous Items like hand rails, crash barriers, road markings etc	[Nil]	**(v) Miscellaneous**: Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.

Stage of Payment	Weightage	Payment Procedure
1	**2**	**3**
(vi) Wing walls/return walls	[Nil]	**(vi) Wing walls/return walls:** Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(vii) Guide Bunds, River Training works etc.	[Nil]	**(vii) 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.
(viii) Approaches (including Retaining walls, stone pitching and protection works)	[Nil]	**(viii) Approaches:** Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified.
A.2- New Major Bridges		
(i) Foundation	[Nil]	**(i) 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 subject to completion of atleast two foundations 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.
(ii) Sub-structure	[Nil]	**(ii) 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 the major bridge subject to completion of atleast two sub-structures of abutments/piers upto abutment/pier cap level of the major bridge.
(iii)Super-structure (including bearings)	[Nil]	**(iii)Super-structure:** Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super-structure including bearings of atleast one span in all respects as specified.
(iv) Wearing Coat including expansion joints	[Nil]	**(iv) Wearing Coat:** Payment shall be made on completion of wearing coat including expansion joints complete in all respects as

Stage of Payment	Weightage	Payment Procedure
1	2	3
		specified.
(v) Miscellaneous Items like hand rails, crash barriers, road markings etc	[Nil]	**(v) Miscellaneous:** Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.
(vi) Wing walls/return walls	[Nil]	**(vi)Wing walls/return walls:** Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(vii) Guide Bunds, River Training works etc.	[Nil]	**(vii) 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.
(viii) Approaches (including Retaining walls, stone pitching and protection works)	[Nil]	**(viii) Approaches:** Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified.
B.1 -Widening and repairs of **(a)ROB** **(b) RUB**		
(i) Foundation	[Nil]	**i) Foundation:** Cost of each ROB/RUB shall be determined on pro rata basis with respect to the total linear length (m) of the ROBs/RUBs. 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 subject to completion of atleast two foundations 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.
(ii) Sub-structure	[Nil]	**(ii) 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 the ROB/RUB subject to completion of atleast

Stage of Payment	Weightage	Payment Procedure
1	**2**	**3**
		two sub-structures of abutments/piers upto abutment/pier cap level of the ROB/RUB.
(iii)Super-structure (including bearings)	[Nil]	**(iii)Super-structure:** Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super-structure including bearings of atleast one span in all respects as specified.
(iv) Wearing Coat including expansion joints in case of ROB. In case of RUB, rigid pavement under RUB including drainage facility as specified.	[Nil]	**(iv) Wearing Coat:** Payment shall be made on completion of (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 as specified.
(v) Miscellaneous Items like hand rails, crash barriers, road markings etc.	[Nil]	**(v) Miscellaneous:** Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.
(vi) Wing walls/return walls	[Nil]	**(vi) Wing walls/return walls:** Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(vii) Approaches (including Retaining walls, stone pitching and protection works)	[Nil]	**(vii) Approaches:** Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified.
B.2 -New **(a) ROB** **(b) RUB**		
(i) Foundation	[Nil]	**i) Foundation**: Cost of each ROB/RUB shall be determined on pro rata basis with respect to the total linear length (m) of the ROBs/RUBs. 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 subject to completion of atleast two foundations of the ROB/RUB.

Stage of Payment	Weightage	Payment Procedure
1	2	3
		In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(ii) Sub-structure	[Nil]	**(ii) 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 the ROB/RUB subject to completion of atleast two sub-structures of abutments/piers upto abutment/pier cap level of the ROB/RUB.
(iii)Super-structure (including bearings)	[Nil]	**(iii)Super-structure:** Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super-structure including bearings of atleast one span in all respects as specified.
(iv) Wearing Coat including expansion joints in case of ROB. In case of RUB, rigid pavement under RUB including drainage facility as specified.	[Nil]	**(iv) Wearing Coat:** Payment shall be made on completion of (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 as specified.
(v) Miscellaneous Items like hand rails, crash barriers, road markings etc.	[Nil]	**(v) Miscellaneous:** Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.
(vi) Wing walls/return walls	[Nil]	**(vi) Wing walls/return walls:** Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(vii) Approaches (including Retaining walls, stone pitching and protection works)	[Nil]	**(vii) Approaches:** Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified.

Stage of Payment	Weightage	Payment Procedure
1	2	3
C.1- Widening and repairs of Elevated Section/Flyovers/ Grade Separators		
(i) Foundation	[Nil]	**(i) Foundation:** Cost of each structure shall be determined on pro rata basis with respect to the total linear length (m) of the structures. 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 subject to completion of atleast two foundations of the structure . In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(ii) Sub-structure	[Nil]	**(ii) 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 the structure subject to completion of atleast two sub-structures of abutments/piers upto abutment/pier cap level of the structure.
(iii)Super-structure (including bearings)	[Nil]	**(iii)Super-structure:** Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super-structure including bearings of atleast one span in all respects as specified.
(iv) Wearing Coat including expansion joints	[Nil]	**(iv) Wearing Coat:** Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(v) Miscellaneous Items like hand rails, crash barriers, road markings etc.	[Nil]	**(v) Miscellaneous:** Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.
(vi) Wing walls/return walls	[Nil]	**(vi) Wing walls/return walls:** Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.

Stage of Payment	Weightage	Payment Procedure
1	**2**	**3**
(vii) Approaches (including Retaining walls, stone pitching and protection works)	[Nil]	**(vii) Approaches**: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified.
C.2- New Elevated Section/Flyovers/ Grade Separators		
(i) Foundation	[Nil]	**(i) Foundation:** Cost of each structure shall be determined on pro rata basis with respect to the total linear length (m) of the structures. 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 subject to completion of atleast two foundations of the structure . In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(ii) Sub-structure	[Nil]	**(ii) 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 the structure subject to completion of atleast two sub-structures of abutments/piers upto abutment/pier cap level of the structure.
(iii)Super-structure (including bearings)	[Nil]	**(iii)Super-structure:** Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super-structure including bearings of atleast one span in all respects as specified.
(iv) Wearing Coat including expansion joints	[Nil]	**(iv) Wearing Coat:** Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(v) Miscellaneous Items like hand rails, crash barriers, road markings etc.	[Nil]	**(v) Miscellaneous:** Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.

Stage of Payment	Weightage	Payment Procedure
1	**2**	**3**
(vi) Wing walls/return walls	[Nil]	**(vi) Wing walls/return walls:** Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(vii) Approaches (including Retaining walls, stone pitching and protection works)	[Nil]	**(vii) Approaches:** Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified.

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
(i) 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 plazas.

Stage of Payment	Weightage	Payment Procedure
(ii) Road side drains	30.90	Unit of measurement is linear length in km. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 5 % (five per cent) of the total length.
(iii) Road signs, markings, km stones, safety devices, …	4.88	
(iv) Project Facilities a) Bus bays b) Truck lay-byes c) Rest areas d) others	 2.66 1.87 [Nil] 0.56	Payment shall be made on pro rata basis for completed facilities.
(v) Roadside plantation	[Nil]	Unit of measurement is linear length.
(vi) Repair of protection works other than approaches to the bridges, elevated sections/ flyovers/grade separators and ROBs/RUBs.	[Nil]	Payment shall be made on pro rata basis on completion of a stage in a length of not less than 5% (five per cent) of the total length.
(vii) Safety and traffic management during construction	[Nil]	Payment shall be made on pro rata basis every six months.
(viii) Protection Works a) Retaining wall b) Breast wall c) Turfing, hydro seeding, grassing	 27.27 25.89 3.80	Payment shall be made on pro rata basis on completion of a stage in a length of not less than 5% (five per cent) of the total length.

Stage of Payment	Weightage	Payment Procedure
(ix)Site clearance & Dismantling	2.18	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 5 (five) 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.

SCHEDULE - I
(See Clause 10.2 (iv))

DRAWINGS

1 Drawings

In compliance of the obligations set forth in Clause 10.2 of this Agreement, the Contractor shall furnish to the Authority's Engineer, free of cost, all Drawings listed in Annex-I of this Schedule-I.

2 Additional Drawings

If the Authority's Engineer determines that for discharging its duties and functions under this Agreement, it requires any drawings other than those listed in Annex-I, it may by notice require the Contractor to prepare and furnish such drawings forthwith. Upon receiving a requisition to this effect, the Contractor shall promptly prepare and furnish such drawings to the Authority's Engineer, as if such drawings formed part of Annex-I of this Schedule-I.

Annex – I

(Schedule - I)

List of Drawings

1.	A minimum list of the drawings of the various components/elements of the project highway and project facility required to be submitted by the Contractor is given below:
(a)	Drawing of horizontal alignment, vertical profile and detailed cross sections
(b)	Drawings of cross drainage works i.e. Bridges/Culverts/Flyovers and Other Structures.
(c)	Drawings for River Training works
(d)	Drawings of interchanges, major intersections and underpasses
(e)	Drawing of control centre
(f)	Drawings of road furniture items including traffic signage, marking, safety barriers, etc.
(g)	Drawings of traffic diversions plans and traffic control measures
(h)	Drawings of road drainage measures
(i)	Drawings of typical details slope protection measures
(j)	Drawings of landscaping and horticulture
(k)	Drawings of pedestrian crossing
(k)	Drawings of street lighting
(l)	Any other drawings as per instruction of Authority Engineer
(m)	General Arrangement showing Base Camp and Administrative Block

Schedule - J

(See Clause 10.3 (ii))

Project Completion Schedule

1. Project Completion Schedule

During Construction period, the Contractor shall comply with the requirements set forth in this Schedule-J for each of the Project Milestones and the Scheduled Completion Date. Within 15 (fifteen) days of the date of each Project Milestone, the Contractor shall notify the Authority of such compliance along with necessary particulars thereof.

2. Project Milestone-I

(i) Project Milestone-I shall occur on the date falling on the 55th day from then Appointed Date (the "Project Milestone- I").

(ii) Prior to the occurrence of Project Milestone-I, the Contractor shall have commenced construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 10% (ten per cent) of the Contract Price.

3. Project Milestone-II

(i) Project Milestone-II shall occur on the date falling on the 192nd day from the Appointed Date (the "Project Milestone- II").

(ii) Prior to the occurrence of Project Milestone-II, the Contractor shall have continued with construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 35% (thirty five per cent) of the Contract Price and should have started construction of all Bridges

4. Project Milestone-III

(i) Project Milestone-III shall occur on the date falling on the 384th day from the Appointed Date (the "Project Milestone- III").

(ii) Prior to the occurrence of Project Milestone-III, the Contractor shall have continued with construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 70% (seventy per cent) of the Contract Price and should have started construction of all project facilities.

5. Scheduled Completion Date

(i) The Scheduled Completion Date shall occur on the 548th day from the Appointed Date.

(ii) On or before the Scheduled Completion Date, the Contractor shall have completed construction in accordance with this Agreement.

6. Extension of time

Upon extension of any or all of the aforesaid Project Milestones or the Scheduled Completion Date, as the case may be, under and in accordance with the provisions of this Agreement, the Project Completion Schedule shall be deemed to have been amended accordingly.

SCHEDULE - K
(See Clause 12.1 (ii))

Tests on Completion

1 Schedule for Tests

(i) The Contractor shall, no later than 30 (thirty) days prior to the likely completion of construction, notify the Authority's Engineer and the Authority of its intent to subject the Project Highway to Tests, and no later than 10 (ten) days prior to the actual date of Tests, furnish to the Authority's Engineer and the Authority detailed inventory and particulars of all works and equipment forming part of Works.

(ii) The Contractor shall notify the Authority's Engineer of its readiness to subject the Project Highway to Tests at any time after 10 (ten) days from the date of such notice, and upon receipt of such notice, the Authority's Engineer shall, in consultation with the Contractor, determine the date and time for each Test and notify the same to the Authority who may designate its representative to witness the Tests. The Authority's Engineer shall thereupon conduct the Tests itself or cause any of the Tests to be conducted in accordance with Article 12 and this Schedule-K.

2 Tests

(i) Visual and physical test: The Authority's Engineer shall conduct a visual and physical check of construction to determine that all works and equipment forming part thereof conform to the provisions of this Agreement. The physical tests shall include [***].

(ii) Riding quality test: Riding quality of each lane of the carriageway shall be checked with the help of a Network Survey Vehicle (NSV) fitted with latest equipments and

the maximum permissible roughness for purposes of this Test shall be [2,000 (two thousand)] mm for each kilometer.

(iii) Tests for bridges: All major and minor bridges shall be subjected to the rebound hammer and ultrasonic pulse velocity tests, to be conducted in accordance with the procedure described in Special Report No. 17: 1996 of the IRC Highway Research Board on Nondestructive Testing Techniques, at two spots in every span, to be chosen at random by the Authority's Engineer. Bridges with a span of 15 (fifteen) metres or more shall also be subjected to load testing.

(iv) Other tests: The Authority's Engineer may require the Contractor to carry out or cause to be carried additional tests, in accordance with Good Industry Practice, for determining the compliance of the Project Highway with Specifications and standards, except tests as specified in clause 5, but shall include measuring the reflectivity of road markings and road signs; and measuring the illumination level (lux) of lighting using requisite testing equipment.

(v) Environmental audit: The Authority's Engineer shall carry out a check to determine conformity of the Project Highway with the environmental requirements set forth in Applicable Laws and Applicable Permits.

(vi) Safety Audit: The Authority's Engineer shall carry out, or cause to be carried out, a safety audit to determine conformity of the Project Highway with the safety requirements and Good Industry Practice.

3 Agency for conducting Tests

All Tests set forth in this Schedule-K shall be conducted by the Authority's Engineer or such other agency or person as it may specify in consultation with the Authority.

3.1 Completion Certificate

Upon successful completion of Tests, the Authority's Engineer shall issue the Completion Certificate in accordance with the provisions of Article 12.

5. The Authority Engineer will carry out tests with following equipment at his own cost in the presence of contractor's representative.

S.No.	Key metrics of Asset	Equipment to be used	Frequency of condition survey
1	Surface defects of pavement	Network Survey Vehicle (NSV)	At least twice a year (As per survey months defined for the state basis rainy season)
2	Roughness of pavement	Network Survey Vehicle (NSV)	At least twice a year (As per survey months defined for the state basis rainy season)
3	Strength of pavement	Falling Weight Deflectometer (FWD)	At least once a year
4	Bridges	Mobile Bridge Inspection Unit (MBU)	At least twice a year (As per survey months defined for the state basis rainy season)
5	Road signs	Retro-reflectometer	At least twice a year (As per survey months defined for the state basis rainy season)

The first testing with the help of NSV shall be conducted at the time of issue of Completion Certificate.

Schedule – L

(See Clause 12.2)

Completion Certificate

1 I, ……. (Name of the Authority's Engineer), acting as the Authority's Engineer, under and in accordance with the Agreement dated …… (the "**Agreement**"), for **"Improvement and widening to two lane with paved shoulder of road from Km 75.700 to Km 101.300 (Total length: 25.600 km) i.e. Srirampur - Khowai section of NH-208 (Package-V) in the state of Tripura on EPC basis"** (the "**Project Highway**") on Engineering, Procurement and Construction (EPC) basis through ……. (Name of Contractor), hereby certify that the Tests in accordance with Article 12 of the Agreement have been successfully undertaken to determine compliance of the Project Highway with the provisions of the Agreement, and I am satisfied that the Project Highway can be safely and reliably placed in service of the Users thereof.

2 It is certified that, in terms of the aforesaid Agreement, all works forming part of Project Highway have been completed, and the Project Highway is hereby declared fit for entry into operation on this the …… day of …… 20…..

SIGNED, SEALED AND DELIVERED

For and on behalf of

the Authority's Engineer by:

(Signature)

(Name)

(Designation)

(Address)

SCHEDULE - M

(See Clauses 14.6, 15.2 and 19.7)

PAYMENT REDUCTION FOR NON-COMPLIANCE

1. Payment reduction for non-compliance with the Maintenance Requirements

(i) Monthly lump sum payments for maintenance shall be reduced in the case of non-compliance with the Maintenance Requirements set forth in Schedule-E.

(ii) Any deduction made on account of non-compliance with the Maintenance Requirements shall not be paid even after compliance subsequently. The deductions shall continue to be made every month until compliance is done.

(iii) The Authority's Engineer shall calculate the amount of payment reduction on the basis of weightage in percentage assigned to non-conforming items as given in Paragraph 2.

2. Percentage reductions in lump sum payments

- The following percentages shall govern the payment reduction:

S. No.	Item/Defect/Deficiency	Percentage
(a)	**Carriageway/Pavement**	
(i)	Potholes, cracks, other surface defects	15%
(ii)	Repairs of Edges, Rutting	5%
(b)	**Road, Embankment, Cuttings, Shoulders**	
(i)	Edge drop, inadequate crossfall, undulations, settlement, potholes, ponding, obstructions	10%
(ii)	Deficient slopes, raincuts, disturbed pitching, vegetation growth, pruning of trees	5%
(c)	**Bridges and Culverts**	
(i)	Desilting, cleaning. vegetation growth, damaged pitching, flooring, parapets, wearing course, footpaths, any damage to	20%

	foundations	
(ii)	Any Defects in superstructures, bearings and sub-structures	10%
S. No.	**Item/Defect/Deficiency**	**Percentage**
(iii)	Painting, repairs/replacement kerbs, railings, parapets, guideposts/crash barriers	5%
(d)	**Roadside Drains**	
(i)	Cleaning and repair of drains	5%
(e)	**Road Furniture**	
(i)	Cleaning, painting, replacement of road signs, delineators, road markings, 200 m/km/5th km stones	5%
(f)	**Miscellaneous Items**	
(i)	Removal of dead animals, broken down/accidented vehicles, fallen trees, road blockades or malfunctioning of mobile crane	10%
(ii)	Any other Defects in accordance with paragraph 1.	5%
(g)	**Defects in Other Project Facilities**	5%

(ii) The amount to be deducted from monthly lump-sum payment for non compliance of particular item shall be calculated as under:

$$R=P/100 \times (M_1 \text{ or } M_2) \times L1/L$$

Where P = Percentage of particular item/Defect/deficiency for deduction

M = Monthly lump-sum payment in accordance with the Bid

L1 = Non-complying length

L = Total length of the road,

R = Reduction (the amount to be deducted for non compliance for a particular item/Defect/deficiency

The total amount of reduction shall be arrived at by summation of reductions for such items/Defects/deficiency or non compliance.

For any Defect in a part of one kilometer, the non-conforming length shall be taken as one kilometer.

SCHEDULE - N
(See Clause 18.1.1)

SELECTION OF AUTHORITY'S ENGINEER

1 Selection of Authority's Engineer

1.1 The provisions of the Model Request for Proposal for Selection of Technical Consultants, issued by the Ministry of Finance in May 2009, or any substitute thereof shall apply for selection of an experienced firm to discharge the functions and duties of an Authority's Engineer.

1.2 In the event of termination of the Technical Consultants appointed in accordance with the provisions of Paragraph 1.1, the Authority shall appoint another firm of Technical Consultants forthwith and may engage a government-owned entity in accordance with the provisions of Paragraph 3 of this Schedule-N.

2 Terms of Reference

The Terms of Reference for the Authority's Engineer (the "**TOR**") shall substantially conform with Annex 1 to this Schedule N.

3 Appointment of Government entity as Authority's Engineer

Notwithstanding anything to the contrary contained in this Schedule, the Authority may in its discretion appoint a government-owned entity as the Authority's Engineer; provided that such entity shall be a body corporate having as one of its primary functions the provision of consulting, advisory and supervisory services for engineering projects; provided further that a government-owned entity which is owned or controlled by the Authority shall not be eligible for appointment as Authority's Engineer.

Annex – I
(Schedule - N)

TERMS OF REFERENCE FOR AUTHORITY'S ENGINEER

1 Scope

(i) These Terms of Reference (the "TOR") for the Authority's Engineer are being specified pursuant to the EPC Agreement dated ..... (the "Agreement), which has been entered into between the NHIDCL(the "Authority") and ..... (the "Contractor")# **"Improvement and widening to two lane with paved shoulder of road from Km 75.700 to Km 101.300 (Total length: 25.600 km) i.e. Srirampur - Khowai section of NH-208 (Package-V) in the state of Tripura on EPC basis"** and a copy of which is annexed hereto and marked as Annex-A to form Part of this TOR.

- In case the bid of Authority's Engineer is invited simultaneously with the bid of EPC project, then the status of bidding of EPC project only to be indicated

(ii) The TOR shall apply to construction and maintenance of the Project Highway.

2 Definitions and interpretation

(i) The words and expressions beginning with or in capital letters and not defined herein but defined in the Agreement shall have, unless repugnant to the context, the meaning respectively assigned to them in the Agreement.

(ii) References to Articles, Clauses and Schedules in this TOR shall, except where the context otherwise requires, be deemed to be references to the Articles, Clauses and Schedules of the Agreement, and references to Paragraphs shall be deemed to be references to Paragraphs of this TOR.

(iii) The rules of interpretation stated in Article 1 of the Agreement shall apply, mutatis mutandis, to this TOR.

3. General

(i) The Authority's Engineer shall discharge its duties in a fair, impartial and efficient manner, consistent with the highest standards of professional integrity and Good Industry Practice.

(ii) The Authority's Engineer shall perform the duties and exercise the authority in accordance with the provisions of this Agreement, but subject to obtaining prior written approval of the Authority before determining:

(a) any Time Extension;

(b) any additional cost to be paid by the Authority to the Contractor;

(c) the Termination Payment; or

(d) any other matter which is not specified in (a), (b) or (c) above and which creates an obligation or liability on either Party for a sum exceeding Rs. 5,000,000 (Rs. fifty lakh).

(iii) The Authority's Engineer shall submit regular periodic reports, at least once every month, to the Authority in respect of its duties and functions under this Agreement. Such reports shall be submitted by the Authority's Engineer within 10 (ten) days of the beginning of every month.

(iv) The Authority's Engineer shall inform the Contractor of any delegation of its duties and responsibilities to its suitably qualified and experienced personnel; provided, however, that it shall not delegate the authority to refer any matter for the Authority's prior approval in accordance with the provisions of Clause 18.2.

(v) The Authority's Engineer shall aid and advise the Authority on any proposal for Change of Scope under Article 13.

(vi) In the event of any disagreement between the Parties regarding the meaning, scope and nature of Good Industry Practice, as set forth in any provision of the Agreement, the Authority's Engineer shall specify such meaning, scope and nature by issuing a reasoned written statement relying on good industry practice and authentic literature.

4 **Construction Period**

(i) During the Construction Period, the Authority's Engineer shall review and approve the Drawings furnished by the Contractor along with supporting data, including the geo-technical and hydrological investigations, characteristics of materials from borrow areas and quarry sites, topographical surveys, and the recommendations of the Safety Consultant in accordance with the provisions of Clause 10.1 (vi). The Authority's Engineer shall complete such review and approval and send its observations to the Authority and the Contractor within 15 (fifteen) days of receipt of such Drawings; provided, however that in case of a Major Bridge or Structure, the aforesaid period of 15 (fifteen) days may be extended upto 30 (thirty) days. In particular, such comments shall specify the conformity or otherwise of such Drawings with the Scope of the Project and Specifications and Standards.

(ii) The Authority's Engineer shall review any revised Drawings sent to it by the Contractor and furnish its comments within 10 (ten) days of receiving such Drawings.

(iii) The Authority's Engineer shall review the Quality Assurance Plan submitted by the Contractor and shall convey its comments to the Contractor within a period of 21 (twenty-one) days stating the modifications, if any, required thereto.

(iv) The Authority's Engineer shall complete the review and approve of the methodology proposed to be adopted by the Contractor for executing the Works, and convey its comments to the Contractor within a period of 10 (ten) days from the date of receipt of the proposed methodology from the Contractor.

(v) The Authority's Engineer shall grant written approval to the Contractor, where necessary, for interruption and diversion of the flow of traffic in the existing lane(s) of the Project Highway for purposes of maintenance during the Construction Period in accordance with the provisions of Clause 10.4.

(vi) The Authority's Engineer shall review the monthly progress report furnished by the Contractor and send its comments thereon to the Authority and the Contractor within 7 (seven) days of receipt of such report.

(vii) The Authority's Engineer shall inspect the Construction Works and the Project Highway and shall submit a monthly Inspection Report bringing out the results of inspections and the remedial action taken by the Contractor in respect of Defects or deficiencies. In particular, the Authority's Engineer shall include in its Inspection Report, the compliance of the recommendations made by the Safety Consultant.

(viii) The Authority's Engineer shall conduct the pre-construction review of manufacturer's test reports and standard samples of manufactured Materials, and such other Materials as the Authority's Engineer may require.

(ix) For determining that the Works conform to Specifications and Standards, the Authority's Engineer shall require the Contractor to carry out, or cause to be carried out, tests at such time and frequency and in such manner as specified in the Agreement and in accordance with Good Industry Practice for quality assurance. For purposes of this Paragraph 4.9, the tests specified in the IRC Special Publication-11 (Handbook of Quality Control for Construction of Roads and Runways) and the Specifications for Road and Bridge Works issued by MORTH (the "Quality Control Manuals") or any modification/substitution thereof shall be deemed to be tests conforming to Good Industry Practice for quality assurance.

(x) The Authority's Engineer shall test check at least 20 (twenty) percent of the quantity or number of tests prescribed for each category or type of test for quality control by the Contractor.

(xi) The timing of tests referred to in Paragraph 4.9, and the criteria for acceptance/ rejection of their results shall be determined by the Authority's Engineer in accordance with the Quality Control Manuals. The tests shall be undertaken on a random sample basis and shall be in addition to, and independent of, the tests that may be carried out by the Contractor for its own quality assurance in accordance with Good Industry Practice.

(xii) In the event that results of any tests conducted under Clause 11.10 establish any Defects or deficiencies in the Works, the Authority's Engineer shall require the Contractor to carry out remedial measures.

(xiii) The Authority's Engineer may instruct the Contractor to execute any work which is urgently required for the safety of the Project Highway, whether because of an accident, unforeseeable event or otherwise; provided that in case of any work required on account of a Force Majeure Event, the provisions of Clause 21.6 shall apply.

(xiv) In the event that the Contractor fails to achieve any of the Project Milestones, the Authority's Engineer shall undertake a review of the progress of construction and identify potential delays, if any. If the Authority's Engineer shall determine that completion of the Project Highway is not feasible within the time specified in the Agreement, it shall require the Contractor to indicate within 15 (fifteen) days the steps proposed to be taken to expedite progress, and the period within which the Project Completion Date shall be achieved. Upon receipt of a report from the Contractor, the Authority's Engineer shall review the same and send its comments to the Authority and the Contractor forthwith.

(xv) The Authority's Engineer shall obtain from the Contractor a copy of all the Contractor'squality control records and documents before the Completion Certificate is issued pursuant to Clause 12.4.

(xvi) Authority's Engineer may recommend to the Authority suspension of the whole or part of the Works if the work threatens the safety of the Users and pedestrians. After the Contractor has carried out remedial measure, the Authority's Engineer shall inspect such remedial measures forthwith and make a report to the Authority recommending whether or not the suspension hereunder may be revoked.

(xvii) In the event that the Contractor carries out any remedial measures to secure the safety of suspended works and Users, and requires the Authority's Engineer to inspect such works, the Authority's Engineer shall inspect the suspended works within 3 (three) days of receiving such notice, and make a report to the Authority forthwith, recommending whether or not such suspension may be revoked by the Authority.

(xviii) The Authority's Engineer shall carry out, or cause to be carried out, all the Tests specified in Schedule-K and issue a Completion Certificate or Provisional Certificate, as the case may be. For carrying out its functions under this Paragraph 4.18 and all matters incidental thereto, the Authority's Engineer shall act under and in accordance with the provisions of Article 12 and Schedule-K.

5. Maintenance Period

(i) The Authority's Engineer shall aid and advise the Contractor in the preparation of its monthly Maintenance Programme and for this purpose carry out a joint monthly inspection with the Contractor.

(ii) The Authority's Engineer shall undertake regular inspections, at least once every month, to evaluate compliance with the Maintenance Requirements and submit a Maintenance Inspection Report to the Authority and the Contractor.

(iii) The Authority's Engineer shall specify the tests, if any, that the Contractor shall carry out, or cause to be carried out, for the purpose of determining that the Project Highway is in conformity with the Maintenance Requirements. It shall monitor and review the results of such tests and the remedial measures, if any, taken by the Contractor in this behalf.

(iv) In respect of any defect or deficiency referred to in Paragraph 3 of Schedule-E, the Authority's Engineer shall, in conformity with Good Industry Practice, specify the permissible limit of deviation or deterioration with reference to the Specifications and Standards and shall also specify the time limit for repair or rectification of any deviation or deterioration beyond the permissible limit.

(v) The Authority's Engineer shall examine the request of the Contractor for closure of any lane(s) of the Project Highway for undertaking maintenance/repair thereof, and shall grant permission with such modifications, as it may deem necessary, within 5 (five) days of receiving a request from the Contractor. Upon expiry of the permitted period of closure, the Authority's Engineer shall monitor the reopening of such

lane(s), and in case of delay, determine the Damages payable by the Contractor to the Authority under Clause 14.5.

6 Determination of costs and time

(i) The Authority's Engineer shall determine the costs, and/or their reasonableness, that are required to be determined by it under the Agreement.

(ii) The Authority's Engineer shall determine the period of Time Extension that is required to be determined by it under the Agreement.

(iii) The Authority's Engineer shall consult each Party in every case of determination in accordance with the provisions of Clause 18.5.

7. Payments

(i) The Authority's Engineer shall withhold payments for the affected works for which the Contractor fails to revise and resubmit the Drawings to the Authority's Engineer in accordance with the provisions of Clause 10.2.4 (d).

(ii) Authority's Engineer shall –

(a) within 10 (ten) days of receipt of the Stage Payment Statement from the Contractor pursuant to Clause 19.4, determine the amount due to the Contractor and recommend the release of 90 (ninety) percent of the amount so determined as part payment, pending issue of the Interim Payment Certificate; and

(b) within 15 (fifteen) days of the receipt of the Stage Payment Statement referred to in Clause 19.4, deliver to the Authority and the Contractor an Interim Payment Certificate certifying the amount due and payable to the Contractor, after adjustments in accordance with the provisions of Clause 19.10.

(iii) The Authority's Engineer shall, within 15 (fifteen) days of receipt of the Monthly Maintenance Statement from the Contractor pursuant to Clause 19.6, verify the Contractor's monthly statement and certify the amount to be paid to the Contractor in accordance with the provisions of the Agreement.

(iv) The Authority's Engineer shall certify final payment within 30 (thirty) days of the receipt of the final payment statement of Maintenance in accordance with the provisions of Clause 19.16.

8. Other duties and functions

The Authority's Engineer shall perform all other duties and functions as specified in the Agreement.

9 Miscellaneous

(i) A copy of all communications, comments, instructions, Drawings or Documents sent by the Authority's Engineer to the Contractor pursuant to this TOR, and a copy of all

the test results with comments of the Authority's Engineer thereon, shall be furnished by the Authority's Engineer to the Authority forthwith.

(ii) The Authority's Engineer shall retain at least one copy each of all Drawings and Documents received by it, including „as-built" Drawings, and keep them in its safe custody.

(iii) Within 90 (ninety) days of the Project Completion Date, the Authority's Engineer shall obtain a complete set of as-built Drawings, in 2 (two) hard copies and in micro film form or in such other medium as may be acceptable to the Authority, reflecting the Project Highway as actually designed, engineered and constructed, including an as-built survey illustrating the layout of the Project Highway and setback lines, if any, of the buildings and structures forming part of Project Facilities; and shall hand them over to the Authority against receipt thereof.

(iv) The Authority's Engineer, if called upon by the Authority or the Contractor or both, shall mediate and assist the Parties in arriving at an amicable settlement of any Dispute between the Parties.

(v) The Authority's Engineer shall inform the Authority and the Contractor of any event of Contractor's Default within one week of its occurrence.

SCHEDULE – O

(See Clauses 19.4.1, 19.6.1, and 19.8.1)

Forms of Payment Statements

1. Stage Payment Statement for Works

The Stage Payment Statement for Works shall state:

(a) the estimated amount for the Works executed in accordance with Clause 19.3(i) subsequent to the last claim;
(b) amounts reflecting adjustments in price for the aforesaid claim;
(c) the estimated amount of each Change of Scope Order executed subsequent to the last claim;
(d) amounts reflecting adjustment in price, if any, for (c) above in accordance with the provisions of Clause 13.2(iii) (a);
(e) total of (a), (b), (c) and (d) above;
(f) Deductions:
  (i) Any amount to be deducted in accordance with the provisions of the Agreement except taxes;
  (ii) Any amount towards deduction of taxes; and
  (iii) Total of (i) and (ii) above.
(g) Net claim: (e) – (f) (iii);
(h) The amounts received by the Contractor upto the last claim:
(i) For the Works executed (excluding Change of Scope orders);

(ii) For Change of Scope Orders, and

(iii) Taxes deducted

2. Monthly Maintenance Payment Statement

The monthly Statement for Maintenance Payment shall state:

(a) the monthly payment admissible in accordance with the provisions of the Agreement;

(b) the deductions for maintenance work not done;

(c) net payment for maintenance due, (a) minus (b);

(d) amounts reflecting adjustments in price under Clause 19.12; and

(e) amount towards deduction of taxes.

3. Contractor's claim for Damages

Note: The Contractor shall submit its claims in a form acceptable to the Authority.

SCHEDULE - P
(See Clause 20.1)

INSURANCE

1. Insurance during Construction Period

(i) The Contractor shall effect and maintain at its own cost, from the Appointed Date till the date of issue of the Completion Certificate, the following insurances for any loss or damage occurring on account of Non Political Event of Force Majeure, malicious act, accidental damage, explosion, fire and terrorism:

(a) insurance of Works, Plant and Materials and an additional sum of [15 (fifteen)] per cent of such replacement cost to cover any additional costs of and incidental to the rectification of loss or damage including professional fees and the cost of demolishing and removing any part of the Works and of removing debris of whatsoever nature; and

(b) insurance for the Contractor's equipment and Documents brought onto the Site by the Contractor, for a sum sufficient to provide for their replacement at the Site.

(ii) The insurance under sub para (a) and (b) of paragraph 1(i) above shall cover the Authority and the Contractor against all loss or damage from any cause arising under paragraph 1.1 other than risks which are not insurable at commercial terms.

2. Insurance for Contractor's Defects Liability

The Contractor shall effect and maintain insurance cover of not less than 15% of the Contract Price for the Works from the date of issue of the Completion Certificate until the end of the Defects Liability Period for any loss or damage for which the Contractor is liable and which arises from a cause occurring prior to the issue of the Completion Certificate. The Contractor shall also maintain other insurances for maximum sums as may be required under the Applicable Laws and in accordance with Good Industry Practice.

3. Insurance against injury to persons and damage to property

(i) The Contractor shall insure against its liability for any loss, damage, death or bodily injury, or damage to any property (except things insured under Paragraphs 1 and 2 of this Schedule or to any person (except persons insured under Clause 20.9), which may arise out of the Contractor's performance of this Agreement. This insurance shall be for a limit per occurrence of not less than the amount stated below with no limit on the number of occurrences.
The insurance cover shall be not less than: Rs. [*****]

(ii) The insurance shall be extended to cover liability for all loss and damage to the Authority's property arising out of the Contractor's performance of this Agreement excluding:

(a) the Authority's right to have the construction works executed on, over, under, in or through any land, and to occupy this land for the Works; and

(b) damage which is an unavoidable result of the Contractor's obligations to execute the Works.

4. **Insurance to be in joint names**

The insurance under paragraphs 1 to 3 above shall be in the joint names of the Contractor and the Authority.

Schedule-Q

(See Clause 14.10)

Tests on Completion of Maintenance Period

1. Riding Quality test:

Riding quality test: Riding quality of each lane of the carriageway shall be checked with the help of a calibrated bump integrator and the maximum permissible roughness for purposes of this Test shall be [2,200 (two thousand and two hundred only)] mm for each kilometre.

2. Visual and physical test:

The Authority's Engineer shall conduct a visual and physical check of construction to determine that all works and equipment forming part thereof conform to the provisions of this Agreement. The physical tests shall include measurement of cracking, rutting, stripping and potholes and shall be as per the requirement of maintenance mentioned in Schedule-E.

Schedule-R

(See Clause 14.10)

Taking Over Certificate

I, …….. (Name and designation of the Authority's Representative) under and in accordance with the Agreement dated …….. (the "Agreement"), for **"Improvement and widening to two lane with paved shoulder of road from Km 75.700 to Km 101.300 (Total length: 25.600 km) i.e. Srirampur - Khowai section of NH-208 (Package-V) in the state of Tripura on EPC basis"** (the "Project Highway") on Engineering, Procurement and Construction (EPC) basis through …….. (Name of Contractor), hereby certify that the Tests on completion of Maintenance Period in accordance with Article 14 of the Agreement have been successfully undertaken to determine compliance of the Project Highway with the provisions of the Agreement and I hereby certify that the Authority has taken over the Project highway from the Contractor on this day.....

SIGNED, SEALED AND DELIVERED

(Signature)

(Name and designation of Authority's Representative)

(Address)

***** End of the Document *****