SCHEDULE-A

(See Clauses 2.1 and 8.1)

SITE OF THE PROJECT

1. The Site

1.1 Site is a section of NH-702D commencing from km 0.00 to km 63.00, and shall include the land, buildings, structures and road works as described in Annexure I of this Schedule – A

1.2 The dates of handing over the Right of Way to the Contractor are specified in Annexure-II of this Schedule-A

1.3 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.

1.4 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 in site/ design requirement.

1.5 The Status of the environmental clearances obtained or awaited is given in Annexure IV.

Annexure – I

(Schedule – A)

SITE

1. Site

The Site of the Project Highway comprises the section of National Highway NH-702D commencing from km 0+000 to km 63+000, in the State of Nagaland. The land, carriageway and stretches comprising the site are described below.

2. Land

The Site of the project comprises the total land already in possession as described below.

Sl. No	Existing Chainage (Km)		Ex. RoW (m)	Remarks
	From	To		
1	0+000	63+000	6 m to 10m (varying width)	Land already available.

3. Carriage Way

The existing carriageway of the Project Highway is single Lane with earthen shoulder. The type of the existing pavement is of flexible throughout. The details are given below.

Sl. No	Existing Chainage from (Km)	Existing Chainage to (Km)	Carriageway width (m)
1	0+000	63+000	3.75

4. Major Bridges

The Site includes the following Major Bridges:

Sl. No	Existing Chainage (km)	Type of Super Structures			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 Under–bridges (RUB):

Sl. No	Existing Chainage (km)	Type of Structure		No. of Spans with span length (m)	Width (m)	ROB/RUB
		Foundation	Super-structure			
NIL						

6. Grade separators

The site includes the following grade separators:

Sl. No	Chainage (Km)	Type of Structure		No. of Spans with span length (m)	Width (m)
		Foundation	Superstructure		
NIL					

7. Minor Bridges

The site includes the following Minor bridges:

Sl. No	Existing Chainage (km)	Type of Super Structures			No. of Spans with span length (m)	Width (m)
		Foundation	Sub-structure	Super-structure		
1	49+790	Open foundation	CRSM	RCC Slab	1x8.00	6 m
2	52+400	Open foundation	CRSM	RCC Slab	1x19.00	6 m
3	53+620	Open foundation	CRSM	RCC Slab	1x10.00	6 m
4	55+600	Open foundation	RCC	RCC Slab	1x37.00	6 m
5	62+300	Open foundation	CRSM	RCC Slab	1x9.3	6 m
6	62+840	Open foundation	CRSM	RCC Slab	1x9.5	6 m

8. Railway level crossings

The site includes the following railway level crossings:

Sl. No	Location (Km)	Remarks
NIL		

9. Underpasses (Vehicular, non vehicular)

The site includes the following underpasses:

Sl. No	Chainage (Km)	Type of Structure	No. of Spans with Span length (m)	Width (m)
NIL				

10. Culverts

The Site has the 273 nos. existing culverts of which 18 nos. of HP Culverts & 255 nos. of RCC Slab culverts. The site includes the following culverts:

Sl. No	Existing Chainage (km)	Type of Culverts	Spans/Opening with span length (m)	Width of Culverts (m)
1	0/200	RCC Slab Culvert	1x1	7
2	0/250	RCC Slab Culvert	1x1	7
3	0/700	RCC Slab Culvert	1x1	7
4	1/000	RCC Slab Culvert	1.5x1.2	7
5	1/200	RCC Slab Culvert	1x1	7
6	1/700	RCC Slab Culvert	1x1	7
7	2/050	RCC Slab Culvert	1x1	7
8	2/500	RCC Slab Culvert	1x2	7
9	2/700	RCC Slab Culvert	1x1	7
10	3/000	HP Culvert	1000mm	7.5
11	3/100	RCC Slab Culvert	1x1	7
12	3/200	RCC Slab Culvert	1x1	7
13	3/500	RCC Slab Culvert	1x1	7
14	3/700	RCC Slab Culvert	1x1	7
15	3/750	RCC Slab Culvert	1x1	7
16	4/100	RCC Slab Culvert	1x1	7
17	4/200	RCC Slab Culvert	1x1	7
18	4/700	RCC Slab Culvert	1x1	7
19	5/150	HP Culvert	1200mm	7.5
20	5/700	RCC Slab Culvert	1x1	7
21	6/000	RCC Slab Culvert	1x1	7
22	6/100	RCC Slab Culvert	1x1	7

Sl. No	Existing Chainage (km)	Type of Culverts	Spans/Opening with span length (m)	Width of Culverts (m)
23	6/400	RCC Slab Culvert	1x1	7
24	6/800	HP Culvert	1000mm	7.5
25	7/100	HP Culvert	1000mm	7.5
26	7/600	HP Culvert	1000mm	7.5
27	8/400	RCC Slab Culvert	1x1	7
28	9/200	RCC Slab Culvert	1x1	7
29	9/300	RCC Slab Culvert	1x1	7
30	9/400	RCC Slab Culvert	1x1	7
31	9/600	HP Culvert	1000mm	7.5
32	9/700	HP Culvert	1000mm	7.5
33	10/050	RCC Slab Culvert	1x1	7
34	10/200	RCC Slab Culvert	1x1	7
35	10/300	RCC Slab Culvert	1x1.2	7
36	10/400	RCC Slab Culvert	1x1	7
37	11/300	RCC Slab Culvert	1x1	7
38	11/500	RCC Slab Culvert	1x1	7
39	12/100	RCC Slab Culvert	1x1	7
40	13/800	RCC Slab Culvert	1x1	7
41	13/850	RCC Slab Culvert	1x1	7
42	14/500	RCC Slab Culvert	1x1	7
43	14/600	RCC Slab Culvert	1x1	7
44	14/650	RCC Slab Culvert	1x1.5	7
45	14/850	RCC Slab Culvert	1x1.5	7
46	15/050	RCC Slab Culvert	1x1.2	7
47	15/450	RCC Slab Culvert	1x1	7

Sl. No	Existing Chainage (km)	Type of Culverts	Spans/Opening with span length (m)	Width of Culverts (m)
48	15/500	RCC Slab Culvert	1x1	7
49	16/100	RCC Slab Culvert	1x1	7
50	16/150	RCC Slab Culvert	1x1.5	7
51	16/300	RCC Slab Culvert	1.5x2	7
52	16/400	RCC Slab Culvert	1x1.2	7
53	16/500	RCC Slab Culvert	1.5x2	7
54	16/550	RCC Slab Culvert	1x1	7
55	16/700	HP Culvert	1x1	7
56	16/800	RCC Slab Culvert	1x1	7
57	17/050	RCC Slab Culvert	1x1	7
58	17/250	HP Culvert	1200mm	7.5
59	17/350	RCC Slab Culvert	1x1	7
60	17/450	RCC Slab Culvert	1x1	7
61	17/600	RCC Slab Culvert	1x1	7
62	18/050	RCC Slab Culvert	1x1	7
63	18/200	RCC Slab Culvert	1x1	7
64	18/250	RCC Slab Culvert	1x1	7
65	18/500	RCC Slab Culvert	1x1	7
66	18/600	RCC Slab Culvert	1x1	7
67	18/800	RCC Slab Culvert	1x1	7
68	19/350	RCC Slab Culvert	1x1	7
69	19/450	RCC Slab Culvert	1x1	7
70	19/550	RCC Slab Culvert	1x1	7
71	19/700	RCC Slab Culvert	1x1	7
72	20/000	RCC Slab Culvert	1x1	7

Sl. No	Existing Chainage (km)	Type of Culverts	Spans/Opening with span length (m)	Width of Culverts (m)
73	20/200	RCC Slab Culvert	1x1	7
74	20/350	RCC Slab Culvert	1x1	7
75	20/500	RCC Slab Culvert	1x1	7
76	20/600	RCC Slab Culvert	1x1	7
77	21/900	RCC Slab Culvert	1x1	7
78	22/100	RCC Slab Culvert	1x1	7
79	22/150	RCC Slab Culvert	1x1	7
80	22/250	RCC Slab Culvert	1x1	7
81	22/600	RCC Slab Culvert	1x1	7
82	22/750	RCC Slab Culvert	1x1	7
83	22/900	RCC Slab Culvert	1x1	7
84	22/050	RCC Slab Culvert	1x1	7
85	22/400	RCC Slab Culvert	1x1	7
86	22/550	RCC Slab Culvert	1x1	7
87	22/900	RCC Slab Culvert	1x1	7
88	23/200	RCC Slab Culvert	1x1.5	7
89	23/800	RCC Slab Culvert	1.5x2	7
90	23/900	RCC Slab Culvert	1x1	7
91	23/950	RCC Slab Culvert	1x1	7
92	24/000	RCC Slab Culvert	1x1	7
93	24/250	RCC Slab Culvert	1x1	7
94	24/300	RCC Slab Culvert	1x1	7
95	25/050	RCC Slab Culvert	1x1	7
96	25/700	HP Culvert	1000mm	7.5
97	25/800	RCC Slab Culvert	1x1	7

Sl. No	Existing Chainage (km)	Type of Culverts	Spans/Opening with span length (m)	Width of Culverts (m)
98	26/400	RCC Slab Culvert	1x1	7
99	26/550	RCC Slab Culvert	1x1	7
100	26/600	RCC Slab Culvert	1x1	7
101	26/650	RCC Slab Culvert	1x1	7
102	26/700	RCC Slab Culvert	1x1.2	7
103	26/800	RCC Slab Culvert	1x1	7
104	27/500	RCC Slab Culvert	1x1	7
105	27/550	RCC Slab Culvert	1x1	7
106	28/000	RCC Slab Culvert	1x1	7
107	28/100	RCC Slab Culvert	1x1	7
108	28/150	RCC Slab Culvert	1x1	7
109	29/000	RCC Slab Culvert	1x1	7
110	29/100	RCC Slab Culvert	1x1	7
111	29/400	RCC Slab Culvert	1x1	7
112	29/450	RCC Slab Culvert	1x1	7
113	29/700	RCC Slab Culvert	1x1	7
114	30/100	RCC Slab Culvert	1x1	7
115	30/600	RCC Slab Culvert	1x1	7
116	31/150	RCC Slab Culvert	1x1	7
117	31/250	RCC Slab Culvert	1x1	7
118	31/310	RCC Slab Culvert	1x1	7
119	31/600	RCC Slab Culvert	1x1	7
120	32/000	RCC Slab Culvert	1x1	7
121	32/800	HP Culvert	1000mm	7.5
122	32/900	RCC Slab Culvert	1x1	7

Sl. No	Existing Chainage (km)	Type of Culverts	Spans/Opening with span length (m)	Width of Culverts (m)
123	33/100	RCC Slab Culvert	1x1	7
124	33/400	RCC Slab Culvert	1x1	7
125	33/500	RCC Slab Culvert	1x1.5	7
126	33/800	RCC Slab Culvert	1x1	7
127	33/950	RCC Slab Culvert	1x1	7
128	34/050	RCC Slab Culvert	1x1	7
129	34/100	RCC Slab Culvert	1x1	7
130	34/200	RCC Slab Culvert	1x1	7
131	34/250	RCC Slab Culvert	1x1	7
132	34/500	RCC Slab Culvert	1x1	7
133	35/150	RCC Slab Culvert	1x1	7
134	35/200	RCC Slab Culvert	1x1	7
135	35/300	RCC Slab Culvert	1x1	7
136	35/350	RCC Slab Culvert	1x1	7
137	35/400	RCC Slab Culvert	1x1	7
138	35/450	RCC Slab Culvert	1x1	7
139	35/650	RCC Slab Culvert	1x1	7
140	35/700	RCC Slab Culvert	1x1	7
141	35/900	RCC Slab Culvert	1x1	7
142	35/950	RCC Slab Culvert	1x1	7
143	35/990	RCC Slab Culvert	1x1	7
144	36/000	RCC Slab Culvert	1x1	7
145	36/250	RCC Slab Culvert	1x1	7
146	36/500	RCC Slab Culvert	1x1	7
147	36/700	RCC Slab Culvert	1x1	7

Sl. No	Existing Chainage (km)	Type of Culverts	Spans/Opening with span length (m)	Width of Culverts (m)
148	36/800	RCC Slab Culvert	1x1	7
149	36/900	RCC Slab Culvert	1x1	7
150	37/100	RCC Slab Culvert	1x1	7
151	37/300	RCC Slab Culvert	1x1	7
152	37/500	RCC Slab Culvert	1x1	7
153	37/800	RCC Slab Culvert	1x1	7
154	37/850	RCC Slab Culvert	1x1	7
155	38/200	RCC Slab Culvert	1x1	7
156	38/600	RCC Slab Culvert	1x1	7
157	38/700	RCC Slab Culvert	1x1	7
158	38/900	RCC Slab Culvert	1x1	7
159	39/020	RCC Slab Culvert	1x1	7
160	39/150	RCC Slab Culvert	1x1	7
161	39/400	RCC Slab Culvert	1x1	7
162	39/800	RCC Slab Culvert	1x1	7
163	39/960	RCC Slab Culvert	1x1	7
164	39/980	RCC Slab Culvert	1x1	7
165	40/000	RCC Slab Culvert	1x1	7
166	40/100	RCC Slab Culvert	1x1	7
167	40/200	RCC Slab Culvert	1x1	7
168	40/400	RCC Slab Culvert	1x1.5	7
169	40/600	HP Culvert	1000mm	7.5
170	40/700	RCC Slab Culvert	1x1	7
171	40/950	RCC Slab Culvert	1x1	7
172	41/200	RCC Slab Culvert	1x1	7

Sl. No	Existing Chainage (km)	Type of Culverts	Spans/Opening with span length (m)	Width of Culverts (m)
173	41/600	RCC Slab Culvert	1x1	7
174	41/700	RCC Slab Culvert	1x1	7
175	41/900	RCC Slab Culvert	1x1	7
176	42/500	RCC Slab Culvert	1x1	7
177	42/800	RCC Slab Culvert	1x1	7
178	42/900	RCC Slab Culvert	1x1	7
179	42/950	RCC Slab Culvert	1x1	7
180	43/100	RCC Slab Culvert	1x1	7
181	43/200	RCC Slab Culvert	1x1	7
182	43/400	RCC Slab Culvert	1x1	7
183	43/550	RCC Slab Culvert	1x1	7
184	43/700	RCC Slab Culvert	1x1	7
185	43/750	RCC Slab Culvert	1x1	7
186	43/900	RCC Slab Culvert	1x1	7
187	44/600	RCC Slab Culvert	1x1	7
188	44/800	RCC Slab Culvert	1x1	7
189	44/960	RCC Slab Culvert	1x1	7
190	45/050	RCC Slab Culvert	1x1	7
191	45/100	RCC Slab Culvert	1x1	7
192	45/200	RCC Slab Culvert	1x1	7
193	45/300	RCC Slab Culvert	1x1	7
194	45/500	RCC Slab Culvert	1x1	7
195	45/700	RCC Slab Culvert	1x1	7
196	45/850	RCC Slab Culvert	1x1	7
197	46/100	RCC Slab Culvert	1x1	7

Sl. No	Existing Chainage (km)	Type of Culverts	Spans/Opening with span length (m)	Width of Culverts (m)
198	46/400	RCC Slab Culvert	1x1.5	7
199	46/500	RCC Slab Culvert	1x1.5	7
200	46/600	RCC Slab Culvert	1x1.5	7
201	46/800	RCC Slab Culvert	1x1	7
202	46/900	RCC Slab Culvert	1x1	7
203	47/050	RCC Slab Culvert	1x1	7
204	47/400	RCC Slab Culvert	1x1	7
205	47/500	RCC Slab Culvert	1x1	7
206	47/600	RCC Slab Culvert	1x1	7
207	47/800	RCC Slab Culvert	1x1	7
208	47/900	RCC Slab Culvert	1x1	7
209	48/000	RCC Slab Culvert	1x1	7
210	48/100	RCC Slab Culvert	1x1	7
211	48/400	RCC Slab Culvert	1200mm	7
212	48/860	RCC Slab Culvert	1x1	7
213	48/900	RCC Slab Culvert	1x1	7
214	49/100	RCC Slab Culvert	1x1	7
215	49/200	RCC Slab Culvert	1x1	7
216	49/250	RCC Slab Culvert	1x1	7
217	49/380	RCC Slab Culvert	1x1	7
218	49/500	RCC Slab Culvert	1x1	7
219	50/150	RCC Slab Culvert	1x1	7
220	50/300	RCC Slab Culvert	1x1	7
221	50/500	RCC Slab Culvert	1x1	7
222	50/700	RCC Slab Culvert	1x1	7

Sl. No	Existing Chainage (km)	Type of Culverts	Spans/Opening with span length (m)	Width of Culverts (m)
223	50/750	RCC Slab Culvert	1x1	7
224	51/100	RCC Slab Culvert	1x1	7
225	51/500	RCC Slab Culvert	1x1	7
226	51/650	RCC Slab Culvert	1x1	7
227	51/760	RCC Slab Culvert	1x1	7
228	52/700	RCC Slab Culvert	1x1	7
229	52/800	RCC Slab Culvert	1x1	7
230	53/300	RCC Slab Culvert	1x1	7
231	53/800	HP Culvert	1000mm	7.5
232	54/150	HP Culvert	1000mm	7.5
233	54/700	RCC Slab Culvert	1x1	7
234	55/030	RCC Slab Culvert	1x1	7
235	55/100	HP Culvert	1000mm	7.5
236	55/400	RCC Slab Culvert	1x1	7
237	55/800	RCC Slab Culvert	1x1	7
238	55/900	HP Culvert	1000mm	7.5
239	56/100	RCC Slab Culvert	1x1	7
240	56/300	RCC Slab Culvert	1x1	7
241	56/500	RCC Slab Culvert	1x1	7
242	56/900	RCC Slab Culvert	1x1	7
243	57/100	RCC Slab Culvert	1x1	7
244	57/300	RCC Slab Culvert	1x1	7
245	57/400	RCC Slab Culvert	1x1	7
246	57/500	RCC Slab Culvert	1x1	7
247	57/600	RCC Slab Culvert	1x1	7

Sl. No	Existing Chainage (km)	Type of Culverts	Spans/Opening with span length (m)	Width of Culverts (m)
248	57/800	RCC Slab Culvert	1x1	7
249	58/100	RCC Slab Culvert	1x1	7
250	58/200	RCC Slab Culvert	1x1	7
251	58/300	RCC Slab Culvert	1x1	7
252	58/500	RCC Slab Culvert	1x1	7
253	58/650	RCC Slab Culvert	1x1	7
254	58/700	RCC Slab Culvert	1x1	7
255	58/800	RCC Slab Culvert	1x1	7
256	58/850	RCC Slab Culvert	1x1	7
257	59/200	RCC Slab Culvert	1x1	7
258	59/400	RCC Slab Culvert	1x1	7
259	59/500	RCC Slab Culvert	1x1	7
260	59/600	RCC Slab Culvert	1x1	7
261	59/800	RCC Slab Culvert	1x1	7
262	60/200	RCC Slab Culvert	1x1	7
263	60/350	RCC Slab Culvert	1x1	7
264	61/100	RCC Slab Culvert	1x1	7
265	61/200	RCC Slab Culvert	1x1	7
266	61/400	RCC Slab Culvert	1x1	7
267	61/500	RCC Slab Culvert	1x1	7
268	61/530	RCC Slab Culvert	1x1	7
269	61/700	RCC Slab Culvert	1x1	7
270	61/870	HP Culvert	1200mm	7.5
271	61/950	RCC Slab Culvert	1x1	7
272	62/000	HP Culvert	1200mm	7.5

Sl. No	Existing Chainage (km)	Type of Culverts	Spans/Opening with span length (m)	Width of Culverts (m)
273	62/200	RCC Slab Culvert	1x1	7

11. Bus bays

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

Sl. 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:

Sl. No	Chainage (Km)	Length (m)	Left Hand Side	Right Hand side
NIL				

13. Road side drains

The details of road side drains are as follows:

Sl. No	Ex. Ch. From	Ex. Ch. To	Length(m)	Sides	Type
1	0.00	63.00	63000	Hill	Earthen
2					

14. Major Junctions

The details of major junctions are as follows:

Sl. No	Location (km)		Type of Junction	Category Of Road
	Existing Chainage	Location		
1.	0/000	Sewak Gate	T-Junction	NH
2.	3/000	IOC	Cross Junction	ODR
3.	55/400	Longnak	T-Junction	ODR

15. Minor Junction

The details of minor junctions are as follows:

Sl. No	Chainage (km)	Side	Junction Type	Towards
1	1/700		Y-Junction	Kumlong Church
2	4/200		T-Skewed	Yimyu Church

3	4/950		T-Skewed	Khensa Village
4	5/150		Skewed	ISBT
5	8/250		T-Skewed	NH 702D from Khensa Village
6	8/300		T-Skewed	Mekuli Village
7	15/900		Y-Junction	Chungtia Village & Primary Health Center
8	17/800		T-Skewed	NH 702D from Chungtia Village
9	38/700		Skewed-Cross	Changki Village
10	44/500		T-Skewed	NH 702D from Changki Village
11	58/700		T-Skewed	Satsuk
12	62/600		T-Junction	NH 702D from Foothill Road
13	63/000		T-Junction	Foothill Road

16. Bypasses

The details of bypasses as follows:

Sl. No	Name of bypasses	Chainage (Km) From – To	Length (in Km)
NIL			

17. Other Structures

Annex– II

(AsperClause8.3)(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 Stretch	0+000	63+000	63.00	Varies from 6 m - 10 m	On Appointed Date
(ii) Part Right of Way (part width) (a) Stretch (b) Stretch (c) Stretch					
(iii) Balance Right of Way(width) (a) Stretch (b) Stretch (c) Stretch					

Annex-III

(Schedule-A)

Alignment Plans

The Project stretch shall follow the existing alignment.

Annex– IV

(Schedule-A)

Environment Clearances

No Environment Clearance is required for the project stretch.

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 Improvement of Road from 0+000 km to 63+000 km (63+000 km) on NH-702D 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)

1. IMPROVEMENT OF THE EXISTING HIGHWAY

1.1 The Project Highway shall follow the existing alignment unless otherwise specified by the Authority.

1.2 Width of Carriageway

a) Improvement of the existing highway shall be undertaken. The paved carriageway is of 3.75 m width.
b) Except as otherwise provided in this Agreement, the width of the paved carriageway and cross-sectional features shall conform to paragraph 1.1.

2. GEOMETRIC DESIGN AND GENERAL FEATURES

2.1 General

Geometric design and general features of the Project highway shall be in accordance with Section 2 of the Manual, except that this does not require acquisition of additional land beyond the available ROW.

2.2 Design speed

Not Applicable.

2.3 Improvement of the existing road geometrics

Not Applicable.

2.4 Right of Way

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

2.5 Type of Shoulder

Construction/Maintenance of Earthen shoulder 0.9 m on both sides of the carriageway from km 0+000 to km 63+000 shall be provided as per section 2.6 of the manual.

2.6 Lateral and vertical clearances at underpasses: **Nil**

2.7 Lateral and vertical clearances at overpasses: **Nil**

2.8 Service roads: **Nil**

2.9 Grade separated structures: **Nil**

2.10 Cattle and pedestrian underpass/ overpass: **Nil**

2.11 Typical cross-section of the project highway: Enclosed.

3. INTERSECTION AND GRADE SEPARATORS:

All intersection and grade separators shall be as per Section 3 of the Manual. Existing intersections which are deficient shall be improved to the prescribed standards.

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

3.1 At grade intersections: NIL

3.2 Grade separated intersection with/ without ramps: **Nil**

4. ROAD EMBANKMENT& CUT SECTION: Nil

5. PAVEMENT DESIGN

5.1 The design of pavement shall be carried out in accordance with section 5 of the Manual.

5.2 Type of pavement

The type of pavement is **flexible pavement in the entire length/project stretch.**

5.3 Design Requirements:

As per Section 5 of the Manual

a. Design Period and strategy:

Improvement will be carried out in the entire stretch with a minimum crust as under. Stage construction shall not be permitted.

Scarifying	Scarifying of existing scattered BT surface in patches from km 0+000 to km 63+000
GSB	200 mm on badly damaged locations from km 0+000 to km 63+000 (km 0+650 to 0+900,km 18+100 to 18+540 & km 37+900 to km 43+400) (minimum quantity of 8146.00 cum)
WMM	150 mm on badly damaged locations from 0+000 to km 63+000 (km 0+000 to km 37+650, km 37+900 to km 43+400 & km 43+400 to km 62+000 (minimum quantity of 8904.80 cum)
BC	30mm on the entire stretch from km 0+000 to km 63+000

b. Design Traffic:

Not Applicable

5.4. Reconstruction of stretches

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

Sl. No.	Stretch from Km to Km		Remarks
	From	To	
1	0+650	0+900	Damaged area
2	18+100	18+540	Damaged area
3	37+900	43+400	Damaged area

6 ROADSIDE DRAINAGE - Nil

7 DESIGN OF STRUCTURES

7.1 General

a. All bridges, culverts and structures shall be designed and constructed in accordance with Section 7 of the Manual and shall conform to the cross-sectional features and other details specified therein.

7.2 Culverts

a. Overall width of new culverts shall be equal the approaches.

b. Reconstruction of Existing Culverts:

The existing culverts shall be re-constructed as new culverts:

Sl. No.	Culvert Location (Km)	Span / Opening (m)	Remarks
NIL			

c. Repairs of existing structures where required shall be carried out.

Sl. No.	Culvert location (Chainage km)	Type, span, height and width of existing culvert (m)	Repairs to be carried out
1	2+700	Slab Culvert	Repair of wing wall and abutment
2	6+800	HP Culvert	Repair of Parapet wall, erosion repair, repairs to cracks, cleaning, providing and laying pitching on slopes etc.
3	7+600	HP Culvert	
4	16+500	Slab Culvert	Repair of wing wall and abutment
5	16+700	HP Culvert	Repair of Parapet wall, erosion repair, repairs to cracks, cleaning, providing and laying pitching on slopes etc.
6	32+800	HP Culvert	
7	40+600	HP Culvert	
8	54+150	HP Culvert	

d. Additional culverts shall be constructed as per particulars given in the table below:

Sl. No.	Culvert location (Km)	Type of Culvert	Span arrangement
Nil			

e. Floor protection works shall be as specified in the relevant IRC Codes and specifications

7.3 Bridges:

(a) Existing bridges to be re-constructed at the following locations shall be re-constructed as new structures as per Section 7 of the manual.

Sl. No.	Bridge location (Km)	Salient details of existing bridge	Adequacy or otherwise of the existing waterway, vertical clearance, etc*	Remarks
NIL				

7.4 Rail-road Bridges: **Nil**

7.5 Grade Separated structures: **Nil**

7.6 Repairs and Strengthening of bridges and structures: **Nil**

7.7 List of Major bridges and Structures: **Nil**

8. Traffic Control Devices and Road Safety Works: Nil

9. Roadside Furniture: Nil

10. Compulsory Afforestation: Nil

11. Hazardous Locations: Nil

12. Special requirements for Hill roads:

Following Special requirements for Hill roads shall be provided as per section 13 of the Manual.

i. Retaining walls should be provided for the following height (above GL) and length specified below as per section 13.10 of the Manual.

Sl No.	Chainage (in Km)	Height(m)	Length (m)	Remarks
1	3+060 to 3+100	6.50	40.00	CRSM R. wall
2	48+705 to 48+750	6.50	45.00	CRSM R. wall
		Total=	**85.00**	

The above slope protection works such as retaining walls, breast walls, etc are included for estimate only. However, the contractor shall design and adopt innovative slope protection such as soil nailing, crib work, gabion wall, RCC structures etc as per site requirement

13. CHANGE OF SCOPE

The length of structures 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-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: NIL

(c) Pedestrian Facilities: NIL

(d) Tree Plantation: NIL

(e) Truck Lay Byes: NIL

(f) Bus bays and Bus shelters: NIL

(g) Rest areas: NIL

(h) Other Services:

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:

1 Manual of Specifications and Standards for Two Laning of Highways (IRC:SP:73-2018), referred to herein as the **Manual**

2 MORTH Specification for road and bridge works (5th Revision)

3 IRC : 37-2018 (Design of Flexible Pavements)

Annex-I
(Schedule-D)

Specifications and Standards for Construction

1. Specifications and Standards

All Materials, work and construction operations shall conform to the Manual of Specifications and Single-Lane of Highways (IRC: SP: 73-2018), referred to as the Manual, MORTH Specifications for Road and Bridge works (5th Revision) and IRC: SP: 48-1998 (Hill Road Manual). Where the specification for a work is not given, Good Industry practices 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 contained herein on any referred document, manual or specification, brick bats are not allowed in sub-base or base course.

SCHEDULE-E

(See Clause 2.1and 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.

2 Repair/rectification of Defects and Deficiencies

The obligations of the Contractor in respect of Maintenance Requirements shall include repair and rectifications 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 determine 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 of 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 culverts and drainage system before 1st June every year in accordance with the guidelines contained in IRC: SP 36. 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 Contractor to undertake the repairs at the rates agreed between the Parties.

Annex-I
(Schedule-E)
Repair/ Rectification of Defects and Deficiencies

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 10mm in depth	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 50m 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 Scale, Tape, Odometer etc.		2-7 days	IRC: 82-2015

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)	Bleeding	Nil	< 0.1% of area	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/)	3-7 days	MoRT&H Specification 3004.4
	Ravelling/ Stripping	Nil	< 0.1% of area	Daily			7-15 days	IRC: 82-2015 read with IRC SP 81
	Edge Deformation/ Breaking	Nil	< 1m for any 100m section and width 0.1m at any location, restricted to 30cm from the edge	Daily			7-15 days	IRC: 82-2015

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)	Roughness	2000mm / km	2400mm/ Km	Bi-Annually	Class I Profilometer SCRIM (Sideway-force Coefficient Routine Investigation Machine or equivalent)	Class-I Profilometer: ASTM E950 (98): 2004- Standard Test Method for measuring Longitudinal Profile of Travelled Surfaces with Accelerometer Established Inertial Profiling Reference ASTM E1656-94: 2000- Standard Guide for classification of Automatic Pavement Condition Survey Equipment	180 days	IRC:82-2015
	Skid Number	60SN	50SN	Bi-Annually			180 days	BS: 7941-1:2006
	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 Deflectometer	IRC 115: 2014	180 days	IRC:115-2014

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					
Rigid Pavement (Pavement of MCW, Service Road, Grade Structure, approaches of connecting roads, slip roads, lay byes etc as applicable)	Roughness BI	2200mm/ km	2400mm/ Km	Bi-Annually	Class I Profilometer	ASTM E950 (98): 2004 and ASTM E1656-94:2000	180 days	IRC:83-2008
	Skid	Skid Resistance No. at different speed of vehicles		Bi-Annually	Scrim (Sideway-force Coefficient Investigation Machine or equivalent)	IRC: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					

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	
Embankment/ Slope	Edge drop at shoulders	Nil	40mm	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				7-15 days	
	Embankment Slopes	Nil	<15% variation in prescribe side slope				7-15 days	
	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	

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:

Sl. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	For the case d > D/2
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 without delay	Seal and stitch if L > 1m Within 7 days
			3	w = 0.5 – 1.5 mm, discernible from fast moving car		
			4	w = 1.5 – 3.0 mm	Seal and stitch if L > 1m within 7 days	Staple or Dowel Bar Retrofit, FDR for affected portion within 15 days.
			5	w > 3 mm		

Sl. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	For the case d > D/2
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 within 7 days	Staple or Dowel Bar Retrofit within 15 days
			2	w = 0.2 – 0.5 mm, discernible from slow moving car		
			3	w = 0.5 – 1.5 mm, discernible from fast moving car	Route, seal and stitch, if L > 1m within 7 days	
			4	w = 3.0 – 6.0 mm	Dowel Bar Retrofit within 15 days	Full Depth Repair Dismantle and reconstruct affected portion with norms and specification. See para 5.5 & 9.2. Within 15 days
			5	w > 6 mm, usually associated with spalling, and/ or slab rocking under traffic	Not Applicable as it may be full depth	

Sl. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	For the case d > D/2
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 > 1m. Within 7 days	Staple or Dowel Bar Retrofit. Within 15 days
			2	w = 0.5 – 3.0 mm, discernible from fast moving car	Route, seal and stitch, if L > 1m. Within 15 days	-
			3	w = 3.0 – 6.0 mm, discernible from fast moving car	Staple, if L > 1m. Within 15 days	Partial Depth Repair with stapling. Within 15 days
			4	w = 6.0 – 12.0 mm, usually associated with spalling	Not Applicable as it may be full depth	Full Depth Repair, Dismantle and reconstruct affected portion as per norms and specification. See para 5.6.4 Within 15 days
			5	w > 12 mm, usually associated with spalling, and/ or slab rocking under traffic		

Sl. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	For the case d > D/2
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 > 1m. Within 15 days	
			2	w = 0.2 – 0.5 mm, discernible from slow vehicle		
			3	w = 0.5 – 3.0 mm, discernible from fast vehicle	Full depth repair within 15 days	Dismatle, Reinstate subbase, 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		

Sl. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	For the case d > D/2
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 secure broken parts. Within 7 days	Seal with epoxy. Within 7 days
			2	w < 1.5 mm; L < 0.6 m, only one corner broken		
			3	w < 1.5 mm; L < 0.6 m, two corners broken	Partial Depth (Refer Figure 8.3 of IRC: SP: 83-2008) Within 15 days	Full depth repair
			4	w > 1.5 mm; L > 0.6 m or three corners broken		
			5	Three or four corners broken		Reinstate sub-base, and reconstruct the slab as per norms and specifications. Within 30 days

Sl. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	For the case d > D/2
6	Punchout (Applicable to Continuous Reinforced Concrete Pavement (CRCP) only)	w = width of crack L = length (m/m_2)	0	Nil, not discernible		No Action
			1	w < 0.5 mm; L < 3 m/m_2	Not Applicable, as it may be full depth	Seal with low viscosity epoxy to secure broken parts. Within 15 days
			2	Either w > 0.5 mm or L < 3 m/m_2		
			3	w > 1.5 mm and L < 3 m/m_2		
			4	w > 3 mm; L < 3m/m_2 and deformation		Full depth repair- Cut out and replace damaged area taking care not to damage reinforcement. Within 30 days
			5	w > 3 mm, L > 3m/m_2 and deformation		

Sl. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	For the case d > D/2
7	Ravelling or Honeycomb type surface	r = area damaged surface/ total surface of slab (%) h = maximum depth of damage	0	Nil, not discernible	No Action	No Action
			1	r < 2%	Local repair of areas damaged and liable to be damaged. Within 15 days	Not Applicable
			2	r = 2 – 10%		
			3	r = 10-25%	Bonded Inlay, 2 or 3 slabs if affecting	
			4	r = 25-50%		
			5	r > 50% and h > 25mm		
8	Scaling	r = damaged surface/ total surface of slab (%) h = maximum depth of damage	0	Nil, not discernible	Short Term No Action	Long Term Not Applicable
			1	r < 2%	Local repair of areas damaged and liable to be damaged. Within 7 days	
			2	r = 2 – 10%		
			3	r = 10 - 20%	Bonded Inlay within 15 days	
			4	r = 20 – 30%		
			5	r > 30% and h > 25mm	Reconstruct slab within 30 days	

Sl. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	For the case d > D/2
9	Polished Surface/ Glazing	t = texture depth, sand patch test	0		No Action	No Action
			1	t > 1mm	No Action	Not Applicable
			2	t = 1 – 0.6mm		
			3	t = 0.6 – 0.3mm	Monitor rate of deterioration	
			4	t = 0.3 – 0.1mm		
			5	t < 0.1mm	Diamond Grinding of affecting 50% or more slabs in a continuous stretch of minimum 5 km. Within 30 days	
10	Pot-out (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		

			3	d = 100 – 300 mm; h < 100 mm; n < 1 per 5 m_2	Partial depth repair, 110 mm i.e., 10 mm more than the depth of the hole. Within 30 days.	
			4	d = 100 - 300 mm; h > 100 mm; n < 1 per 5 m_2		
			5	d > 300 mm; h > 100 mm; n > 1 per 5 m_2	Full depth repair. Within 30 days.	

Joint Defects						
11	Joint Seal Defects	Loss or damage L = Length as % total joint length	0	Difficult to discern	Short Term No Action	Long Term Not Applicable
			1	Discernible, L < 25% but of little immediate consequence with regard to ingress of water or trapping incompressible material	Clean Joint, Inspect later	
			3	Notable, L > 25% Insufficient protection against ingress of water and trapping incompressible material. Within 7 days.	Clean and reapply sealant in selected locations. Within 7 days	
			5	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 the joint L = length of spalled portion 9as % joint length)	0	Nil, not discernible	No Action	Not Applicable
			1	w < 10 mm	Apply low viscosity epoxy resin/ mortar in cracked portion. Within 7 days	
			2	w = 10 – 20 mm, L< 25%		
			3	w = 20 – 40 mm, L > 25%	Partial Depth Repair. Within 15 days	
			4	w = 40 – 80 mm, L > 25%	30 – 50mm deep, h = w+20% of w, within 30 days	
			5	w > 80mm, and L > 25%	50 – 100 mm deep repair. H = w + 20% of w. Within 30 days	

13	Faulting (or Stepping)	f = difference of level	0	Not discernible < 1 mm	No Action	No Action
			1	f < 3 mm	No Action	No Action
			2	f = 3 - 6 mm	Determine cause and observe, take action for diamond grinding.	Replace the slab as appropriate. Within 30 days
			3	f = 6 - 12 mm	Diamond Grinding	
			4	f = 12 - 18 mm	Raise sunken slab	Replace the slab as appropriate. Within 30 days
			5	f > 18 mm	Strengthen sub-grade and sub-base by grouting and raising sunken slab.	
14	Blow up or Buckling	H = vertical displacement from normal profile	0	Nil, not discernible	Short Term No Action	Long Term
			1	h < 6 mm	No Action	
			2	h = 6 - 12 mm	Install signs to warn traffic. Within 7 days	
			3	h = 12 - 25 mm		
			4	h > 25 mm	Full depth repair. Within 30 days.	
			5	Shattered slabs i.e., 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 < mm	No action	Not Applicable
			1	h = 5 - 15 mm		
			2	h = 5 - 30 mm, Nos < 20% joints	Install signs to warn traffic within 7 days	
			3	h = 30 - 50 mm		
			4	h > 50 mm or > 20% joints	Strengthen sub-grade. Reinstate pavement at normal level if L < 20 m. Within 30 days	
			5	h > 100 mm		
16	Heave	h = positive vertical displacement from normal profile L = length	0	Not discernible, h < 5 mm	Short Term No action	Long Term Scrabble
			1	h = 5 -15 mm	Follow up	
			2	h = 15 – 30 mm, Nos < 20% joints	Install signs to warn traffic. Within 7 days	
			3	h = 30 - 50 mm		
			4	h > 50 mm or 20% joints	Stabilise sub-grade. Reinstate pavement at normal level if length < 20 m. Within 30 days	
			5	h > 100 mm		

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 30 days.
			5	h > 15 mm	Full depth repair. Within 30 days	Full depth repair. Within 30 days.
18	Lane to Shoulder Drop off	f = difference of level	0	Nil, not discernible < 3 mm	Short Term	Long Term
					No action	
			1	f = 3 -10 mm	Spot repair of shoulder within 7 days	
			2	f = 10 - 25 mm		
			3	f = 25 - 50 mm	Fill up shoulder within 7 days	For any 100 m stretch reconstruct shoulder, if affecting 25% or more of stretch. Within 30 days
			4	f = 50 - 75 mm		
			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	Slight/ occasional Nos < 10%	Repair cracks and joints without delay.	Inspect and repair sub-drainage at distressed sections and upstream.
			3 to 4	Appreciable/ Frequent 10 – 25%	Lift or jack slab within 30 days.	
		Nos/ 100 m stretch	5	Abundant, crack development > 25 %	Repair distressed pavement sections, strengthen sub-grade and sub-base. Replace slab. Within 30 days.	
20	Ponding	Ponding on slabs due to blockage of drains	0 – 2	No discernible problem	No action	Action required to stop water damaging foundation within 30 days.
			3 – 4	Blockages observed in drains, but water flowing	Clean drains etc within 7 days. Follow up.	
			5	Ponding, accumulation of water observed	-do-	

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

<table>
<tr><th>Asset Type</th><th>Performance Parameter</th><th colspan="3">Level of Service</th><th>Frequency of Measurement</th><th>Testing Method</th><th colspan="2">Recommended Remedial measures</th><th>Time limit for Rectification</th><th>Specifications and Standards</th></tr>
<tr><td rowspan="4">Highway</td><td rowspan="4">Availability of Safe Sight Distance</td><td colspan="3">As per IRC SP: 84-2014, a minimum of safe stopping sight distance shall be available throughout</td><td rowspan="4">Monthly</td><td rowspan="4">Manual Measurements with Odometer along with video/ image backup</td><td colspan="2" rowspan="4">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.</td><td rowspan="4">IRC: SP 84-2014</td></tr>
<tr><td>Design Speed, kmph</td><td>Desirable Minimum Sight Distance (m)</td><td>Safe Stopping Sight Distance (m)</td></tr>
<tr><td>100</td><td>360</td><td>180</td></tr>
<tr><td>80</td><td>260</td><td>130</td></tr>
<tr><td>Pavement Marking</td><td>Wear</td><td colspan="3">< 70% of marking remaining</td><td>Bi-Annually</td><td>Visual Assessment as per Annexure-F 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>
</table>

<table>
<tr><th>Asset Type</th><th>Performance Parameter</th><th colspan="3">Level of Service</th><th>Frequency of Measurement</th><th>Testing Method</th><th>Recommended Remedial measures</th><th>Time limit for Rectification</th><th>Specifications and Standards</th></tr>
<tr><td rowspan="11">Pavement Marking</td><td>Day time visibility</td><td colspan="3">During expected life Service Time
Cement Road- 130 mcd/m_2/lux
Bituminous Road- 100 mcd/m_2/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: SP 35-2015</td></tr>
<tr><td rowspan="10">Night time visibility</td><td colspan="3">Initial and Minimum Performance for Dry Retro reflectivity during night time.</td><td rowspan="10">Bi-Annually</td><td rowspan="10">As per Annexure-E of IRC: 35-2015</td><td rowspan="10">Re-painting</td><td rowspan="10">Cat-1 Defect – within 24 hours
Cat-2 Defect – within 2 months</td><td rowspan="10">IRC: 35-2015</td></tr>
<tr><td>Design</td><td colspan="2">(RL) Retro Reflectivity (mcd/m_2/lux)</td></tr>
<tr><td></td><td>Initial (7 days)</td><td>Minimum Threshold level (TL) & warranty period required up to 2 years</td></tr>
<tr><td>Up to 65</td><td>200</td><td>80</td></tr>
<tr><td>65 – 100</td><td>250</td><td>120</td></tr>
<tr><td>Above 100</td><td>350</td><td>150</td></tr>
<tr><td colspan="3">Initial and Minimum Performance for Night Visibility under wet condition (Retro reflectivity)
Initial 7 days Retro reflectivity: 100 mcd/m_2/luxMinimum Threshold Level: 50 mcd/m_2/lux</td></tr>
</table>

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	Skid Resistance	Initial and Minimum performance for Skid Resistance: Initial (7 days): 55 BPN Min Threshold: 44 BPN * Note: shall be considered under urban/ city traffic condition encompassing the locations like pedestrian crossings, bus bays, bus stop, cycle track intersection delineation, transverse bar markings etc.	Bi-Annually	As per Annexure-G of IRC: 35-2015		Within 24 Hours	IRC: 35-2015
Road Signs	Shape and Position	Shape and Position as per IRC: 67-2012. Signboard should be clearly visible for the design of the section.	Daily	Visual with video/ image back-up	Improvement of shape, in case if shape is damaged. Relocation as per requirement	48 hours in case of Mandatory Signs, Cautionary and Informatory Signs (Single & Dual post signs) 15 days in case of Gantry/ Cantilever sign boards	IRC: 67: 2012

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Road Signs	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	Hanging 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 back up	Kerb re-painting	Within 7 days	IRC: 35-2015

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
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 guard rail 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			Within 7 days	IRC: SP: 84-2014, IRC: 119-2015
	End Treatment of Traffic Safety Barriers	Functionality: Functioning of End Treatment as intended	Daily				IRC: SP: 84-2014, IRC: 119-2015
	Attenuators	Functionality: Functioning of Attenuators as intended	Daily				IRC: SP-2014, IRC: 119-2015
	Guard Posts and Delineators	Functionality: Functioning of Guard Posts and Delineators as intended	Daily			Within 15 days	IRC: 79-1981
	Overhead Sign Structure	Overhead Sign Structure shall be structurally adequate.	Daily			Within 15 days	IRC: 67-2012
	Traffic Blinkers	Functionality: Functioning of Traffic Blinkers as intended	Daily			Within 7 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
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

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
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	Sightline shall be free from obstruction by vegetation.	Daily	Visual with video/ image backup	Removal of trees.	Immediate	IRC: SP: 84-2014
	Cleaning of toilets	-	Daily	-	-	Every 4 hours	-
	Defects in electrical, water and sanitary installations	-	Daily	-	Rectification	24 hours	-

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
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, bus-shelters, cattle crossings, Traffic Aid Posts, Medical Aid Posts and other works.		Daily	-	Rectification	15 days	IRC:SP:84-2014
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

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	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
	Structurally sound	Spalling of concrete not more than 0.25 sqm Delamination of concrete not more than 0.25 sqm Cracks wider than 0.3mm not more than 1m aggregate length	Bi-Annually	Detailed inspection of all components of culvert as per IRC: SP: 35-1990 and recording the defects	Repairs to spalling, cracking, delamination, rusting shall be followed as per IRC: SP: 40-1993	15 days	IRC: SP: 40-1993 and MoRTH specification clause 2800
	Protection works in good condition	Damaged of rough stone apron or bank revetment not more than 3 sqm, damage to solid apron (concrete apron) 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 damages of 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

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Bridges including ROBs, Flyover etc., as applicable	Riding quality or user comfort	No pothole in wearing coat on bridge deck	Daily	Visual inspection as per SP:35-1990	Repairs to BC or earing coat	15 days	MoRTH specification 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	MoRTH 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 sqm	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge	All the corroded reinforcement shall need to be thoroughly cleaned from rusting and applied with anti-corrosive coating	15 days	IRC SP: 40-1993 and MoRTH specification
	Spalling of concrete	Not more than 0.50 sqm					
	Delamination	Not more than 0.50 sqm					

				Inspection Unit	before carrying out the repairs to affected concrete portion with epoxy mortar/ concrete		1600.
	Cracks wider than 0.30 mm	Not more than 1 m total length	Bi-Annually		Grouting with epoxy mortar, investigating causes for cracks development and carry out necessary rehabilitation.	48 days	IRC SP: 40-1993 and MoRTH specification 2800.

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Bridge-Super Structure	Rainwater seepage through deck slab	Leakage- Nil	Quarterly	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	Grouting of deck slab at leakage areas, water proofing, repairs to drainage spouts	1 Month	MoRTH specifications 2600 & 2700
	Deflection due to permanent loads and live loads	Within design limits	Once in every 10 years for spans more than 40m	Load test method	Carry out major rehabilitation works on bridge 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 15-30m	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 through expansion joint in case of buried and asphalt plug and copper strip joint	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 & IRC SP: 40-1993
	Debris and dust in strip seal expansion joint	No dust or debris in expansion joint gap.	Monthly		Cleaning of expansion joint gaps thoroughly	3 days	

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Bridge-Super Structure	Drainage spouts	No down take pipe missing/ broken below soffit of the deck slab. No silt, debris, clogging of drainage spout collection chamber.	Monthly	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. Providing sealant around the drainage spout if any leakages observed.	3 days	MoRTH specifications 2700
Bridge-Sub Structure	Cracks/ spalling of concrete/ rusted steel	No cracks, spalling of concrete and rusted steel	Bi-Monthly		All the corroded reinforcement shall need to be thoroughly cleaned from rusting and applied with anti-corrosive coating before carrying out repairs to sub-structure by grouting/ guniting and micro concreting depending on type of defect noticed.	30 days	IRC SP: 40-1993 And MoRTH specification 2800.
	Bearings	Delamination of bearing reinforcement not more than 5% cracking or tearing of rubber not more than 2 locations per side, no rupture of reinforcement of rubber	Bi-Annually		In case of failure of even one bearing on any pier/ abutment, all the bearings on that pier/ abutment shall be replaces, in order to get uniform load transfer on to bearings	3 Months	MoRTH specification 2810 and IRC SP: 40-199.

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Bridge-Foundations	Scouring around foundations	Scouring shall not be lower than maximum scour level for the bridge	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
	Protection works in good condition	Damage 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.					
Note: Any structure during the entire contract period which is found that does not comply 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
(iv)	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	

	Nature of Defect or deficiency	Time limit for repair/ rectification
(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
(iv)	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	

Nature of Defect or deficiency		Time limit for repair/ Rectification
(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)
(iv)	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,	30 (thirty) days

	pitching, apron, toes, floor or guide bunds	
(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
	Nature of Defect or deficiency	Time limit for repair/ Rectification
(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

1.1 The Contractor shall obtain, as required under the Applicable Laws, the following Applicable Permits:

(a) Permission of the State Government for extraction of boulders for 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;
(i) Inner Line Permit from the State government; and
(j) Any other permits or clearance required under Applicable Laws.

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

SCHEDULE – G

(See Clauses 7.1.1, 7.5.3 and 19.2)

FORM OF BANK GUARANTEE

Annex-1

(See clause 7.1.1)

Performance Security

The Chief Engineer
PWD (National Highways)
Nagaland: Kohima

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 *Improvement of the existing damaged pavement of NH 702D from Km 0.000 to Km 63.000 (Length: 63Km) under PWD NH Div-II Mokokchung in the state of Nagaland* on Engineering, Procurement and Construction (the "**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 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 [Superintending Engineer PWD(NH) Nagaland], 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 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 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 fulfilment, 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 the 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 hereof 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.

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.

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

SIGNED, SEALED AND DELIVERED
For and on behalf of the Bank by:

(Signature)
(Name)
(Designation)

[$]Insert date being 2 (two) years from the date of issuance of this Guarantee (in accordance with clause 7.2 of the Agreement).
(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.

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

Form for Guarantee for Advance Payment

The Chief Engineer
PWD (National Highways)
Nagaland: Kohima

WHEREAS:

(A) [Name and address of contractor] (hereinafter called the "**Contractor")** has Executed an agreement (hereinafter called the "agreement") with the [name and address of the authority], (hereinafter called the "**Authority**") for the *Improvement of the existing damaged pavement of NH 702D from Km 0.000 to Km 63.000 (Length: 63Km) under PWD NH Div-II Mokokchung in the state of Nagaland* on Engineering, Procurement and Construction (the "**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 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 three 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/third} 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 guarantees irrevocably guarantees and affirms as follows:

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful repayment on time of the aforesaid installment of the Advance Payment under and in accordance with the agreement, and agrees and undertakes to pay to the Authority, upon its mere 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 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 [Superintending Engineer PWD(NH) Nagaland], 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 difference between 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 or 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 in 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 very at any time, the terms and conditions of the advance payment and 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 and 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, indulgence, act or omission on the part to the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this profession 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 Advance Payment.

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 on or before the aforesaid date, the Bank shall be discharged from its liabilities hereunder.

9. The Bank undertakes not 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 send 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 send 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.
11. 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.

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

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by:

(Signature)
(Name)
(Designation)

_____

[$] Insert a date being 90 (ninety) days after the end of one year from the date of payment of the Advance Payment to the Contractor (in accordance with Clause 19.2 of the Agreement).

(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 – G
(See Clauses 7.1 and 19.2)
Annex-III

(See Clause 7.1)

Form of Surety Bond
[Performance Security/Additional Performance Security]

The Chief Engineer
PWD (National Highways)
Nagaland: Kohima

WHEREAS:

(A) [name and address of contractor] (hereinafter called the "**Contractor**") has executed an agreement (hereinafter called the "**Agreement**") with the [name and address of the authority], (hereinafter called the "**Authority**") for the the *Improvement of the existing damaged pavement of NH 702D from Km 0.000 to Km 63.000 (Length: 63Km) under PWD NH Div-II Mokokchung in the state of Nagaland* on Engineering, Procurement and Construction (the "**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 "**Surety Amount**").

(C) We, …….. through our branch at .....(the "**Surety Insurer**") have agreed to furnish this **Surety Bond** (*hereinafter called the* **"Surety Bond**") by way of Performance Security.

NOW, THEREFORE, the **Surety Insurer** 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 **Surety Bond** 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 specifiedtherein.

2. A letter from the Authority, under the hand of an officer not below the rank of [of [Superintending Engineer PWD(NH) Nagaland], 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 **Surety Insurer**. The **Surety Insurer** 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 **Surety Insurer**, not withstanding 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 **Surety Bond**, the Authority shall be entitled to act as if the **Surety Insurer** were the principal debtor and any change in the constitution of the Contractor and/or the **Surety Insurer**, 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 **Surety Insurer** under this **Surety Bond**.

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

5. The Authority shall have the liberty, without affecting in any manner the liability of the **Surety Insurer** under this **Surety Bond**, 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 **Surety Insurer** 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 **Surety Insurer** from its liability and obligation under this **Surety Bond** and the **Surety Insurer** hereby waives all of its rights under any such law.

6. This **Surety Bond** is in addition to and not in substitution of any other **Surety Bond** 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. Not withstanding anything contained hereinbefore, the liability of the **Surety**

Insurer under this **Surety Bond** is restricted to the **Surety Bond** Amount and this **Surety Bond** 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 **Surety Insurer** under this **Surety Bond** all rights of the Authority under this **Surety Bond** shall be forfeited and the **Surety Insurer** shall be relieved from its liabilities hereunder.

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

9. The **Surety Insurer** undertakes not to revoke this **Surety Bond** 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 **Surety Bond** and the undersigned has full powers to do so on behalf of the **Surety Insurer**.

10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the **Surety Insurer** 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 beconclusive.

11. This **Surety Bond** 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 **Surety Bond** is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

13. This **Surety Bond** shall also be operatable at our…….. Branch at New Delhi, from whom, confirmation regarding the issue of this **Surety Bond** 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.

14. The **Insurance Surety Bond** shall be verified from the branch concerned/ specific portal created for this purpose.

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 Surety Bond 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 Bankas well as of issuing branch should be mentioned on the covering letter of issuing branch.

SCHEDULE-H

(See Clauses 10.1.iv and 19.3)

Contract Price Weightage

1.1 The Contract Price for this Agreement is ******** /-

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

Item	Weightage in percentage of the Contract Price	Stage for Payment	Percentage weightage to Particular Item (Col-2)
1	2	3	4
Road works including culverts, widening and repair of culverts.	**94.37%**	**A. Road Construction**	
		(1) Scarifying of bituminous surface	0.36%
		(2) Sub-Base Course (GSB)	18.17%
		(3) Base Course (WMM)	21.64%
		(4) Wearing Coat (BC)	55.89%
		(5) Maintenance of Earthen Shoulders	3.54%
		(6) Repair and Rehabilitation of Culverts	0.40%
Other works	**5.63%**	Construction of Protection Works	
		(a) New Retaining wall	100.00%

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
	94.37%	
A. Road Construction		Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 10 (ten) percent of the total length or 500m whichever is less.
(1) Scarifying of bituminous surface	0.36%	
(2) Sub-Base Course (GSB)	18.17%	
(3) Base Course (WMM)	21.64%	
(4) Wearing Coat (BC)	55.89%	
(5) Maintenance of Earthen Shoulders	3.54%	
(6) Repair and Rehabilitation of Culverts	0.40%	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 culvert.

@. 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 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
Other Works	**5.63%**	
(v) Protection works		Unit of measurement is linear length. Payment shall be made on pro-rata basis on completion of a stage in a length of not less than 10% (ten percent) of total length and 100 m whichever is less.
(a) Retaining wall	100.00%	

2. Procedures for payments for maintenance

2.1 The cost of maintenance shall be as stated in clause 14.1.1.

2.2 Payment for miscellaneous shall be made in quarterly installment in accordance with the provision of Clause 19.7.

SCHEDULE-I

(See Clause 10.2.4)

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

All the constructions drawings with reinforcement details along with the bending Schedules and quantity are to be submitted by the Contractor.

SCHEDULE-J

[See Clause 10.3.2]

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

2.1 Project Milestone-I shall occur on the date falling on the **116th day** from the Appointed Date (the "**Project Milestone-I**").

2.2 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 validity prepared stage Payment Statements for an amount not less than 10% (Ten per cent) of the Contract Price.

3. Project Milestone-II

3.1 Project Milestone-II shall occur on the date falling on the **198th day** from the Appointed Date (the "**Project Milestone-II**").

3.2 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 validity 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

4.1 Project Milestone-III shall occur on the date falling on the **281st day** from the Appointed Date (the "**Project Milestone-III**").

4.2 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 validity 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

5.1 The scheduled completion date shall occur on the **330th** day from the appointed date.

5.2 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 provision 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 kilometre. Ministry vide letter dated 13.11.2019 issued detail guidelines to use of Network Survey vehicle (NSV) for all the projects involving of 2/4/6/8 lane expressway, Strengthening. Para-5(a) of said Guideline stipulates that survey shall be conducted using NSV in the following sequences.

(1) Before the Start of the work.
(2) Before issue of provisional/Final completion certificate
(3) Every 6 months after completion of work.

(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.

4. 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.

Sr. No.	Key metrics of Asset	Equipment to be used	Frequency of condition survey
1	Surface defects of pavement	Network Survey Vehicle (NSV)	a. Before the Start of the work. b. Before issue of provisional/Final completion certificate c. Every 6 months after completion of work.
2	Roughness of pavement	Network Survey Vehicle (NSV)	
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)

Schedule-L

(SeeClause12.2)

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 of the existing damaged pavement of NH 702D from Km 0.000 to Km 63.000 (Length: 63Km) under PWD NH Div-II Mokokchung in the state of Nagaland* (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…..,Scheduled Completed Date for which was the ……. day of…….20…..

SIGNED,SEALED AND DELIVERED

For and on behalf of the Authority's Engineer by:

(Signature)

(Name)

(Designation)
(Address)

Schedule-M

(SeeClauses14.6,15.2 and 19.7)

Payment Reduction for Non-Compliance

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

(i) Monthly lumpsum 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 Paragraph2.

2. Percentage reductions in lumpsum payments on monthly basis

(i) 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 cross fall, undulations, settlement, potholes, ponding, obstructions	10%
(ii)	Deficient slopes, raincuts, disturbed pitching, vegetation growth, runing of trees	5%
(c)	Bridges and Culverts	
(i)	Desilting, cleaning. vegetation growth, damaged pitching, flooring, parapets, wearing course, footpaths, any damage to foundations	20%
(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 roadsigns, delineators, road markings, 200 m/km/5thkm 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:

$$R = {}^{P}/_{100} \times (M1 \text{ or } M2) \times {}^{L1}/_{L}$$

Where,

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

M1= Monthly lump-sum payment in accordance para1.2above of this Schedule

M2= Monthly lump-sum payment in accordance para 1.2 above of this Schedule

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 Defecting apart of one kilometer, the non-conforming length shall be taken as one kilometer.

Schedule-N

(See Clause 18.1(i))

Selection of Authority's Engineer

1. Selection of Authority's Engineer

(i) 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.

(ii) In the event of termination of the Technical Consultants appointed in accordance with the provisions of Paragraph1.1, the Authority shall appoint another firm of Technical Consultants forth with 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 Annex1 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 [name and address of the Authority](the "Authority")and .....(the "Contractor")# for ***Improvement of the existing damaged pavement of NH 702D from Km 0.000 to Km 63.000 (Length: 63Km) under PWD NH Div-II Mokokchung in the state of Nagaland*** On Engineering, Procurement, Construction (EPC) basis, and a copy of which is annexed here to 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 Article1 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) issuance of Completion Certificate or

(e) any other matter which is not specified in(a),(b),(c)or(d)above and which creates a financial liability on either Party.

(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 it's 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, asset for thin 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 there commendations 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 upto30 (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 and approve 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 and approve 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 ofClause10.4.

(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(ix), 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 witness **all the quality control tests** carried out by the Contractor at its site laboratory/ main laboratory/ field/ plants. These include tests for all materials, mixes, products, etc. Authority s Engineer shall witness all tests of finished products like bearing in the manufacturer's laboratory as mandated in respective standards. Authority s Engineer will also conduct review of quality control documents in respect of factory manufactured materials/finished products, etc. as per IRC:SP:112.

(xi) The timing of tests referred to in Paragraph 4 (ix), and the criteria for acceptance/ rejection of their results shall be determined by the Authority's Engineer in accordance with the MoRTH specifications for Road & Bridge works and respective Indian Roads Congress Standards/Guidelines/Manuals together with any other Indian/International Standards referred thereto. 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 Clause11.10 establish any Defects or deficiencies in the Works, the Authority's Engineer shall require the Contractor to carryout 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 Contract or 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 are port 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's quality control records and documents before the Completion Certificate is issued pursuant to Clause12.2.

(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 forth with and make are port to the Authority recommending whether or not the suspension hereunder maybe 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 are port to the Authority forthwith, recommending whether or not such suspension maybe 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, as the case may be. For carrying out its functions under this Paragraph 4(xviii)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 Clause14.5.

6. Determination of costs and time

(i) The Authority's Engineer shall determine the costs, and/or the irreasonableness, 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 Clause18.5.

7. Payments

(i) The Authority's Engineer shall with hold 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 (iv)(d).

(ii) Authority's Engineer shall-

(a) within 10 (ten) days of receipt of the Stage Payment Statement from the Contractor pursuant to Clause19.4, 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

(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 set backlines, 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(i), 19.6(i),and19.8(i))

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 Clause19.3 (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

i. 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**

1.1 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.

1.2 The insurance under paragraph 1.1 (a) and (b) 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 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

3.1 The Contractor shall insure against its liability for any loss, damage, death or bodily injury, or damage to any property (except things insured under Paragraph 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 on the number of occurrences.

The insurance cover shall be not less than the Contract Price.

3.2 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 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 paragraph 1 to 3 above shall be in the joint names of the Contractor and the Authority.

Schedule-Q

(See Clause 14.10)

Test 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 2200 (two thousand and two hundred only) mm for each Kilometer.

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 measurements 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 of the existing damaged pavement of NH 702D from Km 0.000 to Km 63.000 (Length: 63Km) under PWD NH Div-II Mokokchung in the state of Nagaland* of the "**Project Highway**" on Engineering, Procurement and Construction (EPC) basis through…….. (Name of Contractor), herby 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)