Schedules

Schedule-A

(See Clauses 2.1 and 8.1)

Site of the Project

1 TheSite

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

(ii) Thedatesof handing over the Right ofWay to theContractorare specified in Annex-II of thisSchedule-A.

(iv) AninventoryoftheSiteincludingtheland,buildings,structures,roadworks, trees andanyotherimmovablepropertyon, orattachedto, theSiteshallbeprepared jointlybytheAuthorityRepresentativeandtheContractor,andsuchinventoryshall form partof the memorandum referredto in Clause8.2 (i) of this Agreement.

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

(v) The status of the environment clearances obtained orawaited isgiven in Annex-IV.

Schedule-A

(See Clauses 2.1 and 8.1)

Site of the Project

1 The Site

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

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

(iii) An inventory of the Site including the land, buildings, structures, road works, trees and any other immovable property on, or attached to, the Site shall be prepared jointly by the Authority Representative and the Contractor,and such inventory shall form part of the memorandum referred to in Clause8.2 (i) of this Agreement.

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

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

Annex –I

(Schedule-A)

Site

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

1. Site

The project road starts at Beltoli (junction with SH-5) near Bilasipura and ends at Jalukbari interchange in Guwahati. The total length of the existing road stretch is 215.578 km (As per topographic survey). The PKG-9 of the project road section starts afterDhupdhara Saharand ends after Milmila R.F(before Chayagaon Market) (Ex.Ch. 143.680km to Ex.Ch.177.372km).The Design length of the PKG-9 comes out as 33.684 km (Design Ch. 139.750km to Ch. 173.434km).The entire length of the package comes under Kamrup Rural district of Assam.

The land, carriageway and structures comprising the Site are described below.

2. Land

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

Sl. No.	Survey Chainage(Km) Starting Chainage of Bilasipura KM 0.000		Design Ch. (Km)		Existing Right of Way (m)		Total EROW Width (m)
	From	To	From	To	Right	Left	
1	143.680	143.750	139.750	139.822	16	19	35
2	143.750	143.800	139.822	139.872	17	18	35
3	143.800	143.850	139.872	139.922	18	18	36
4	143.850	143.900	139.922	139.972	20	19	39
5	143.900	143.950	139.972	140.022	21	18	39
6	143.950	144.000	140.022	140.072	22	18	40
7	144.000	144.050	140.072	140.122	20	18	38
8	144.050	144.100	140.122	140.172	19	18	37
9	144.100	144.150	140.172	140.222	20	18	37
10	144.150	144.200	140.222	140.272	21	16	37
11	144.200	144.250	140.272	140.322	21	18	38
12	144.250	144.300	140.322	140.372	21	17	38
13	144.300	144.350	140.372	140.422	22	15	37
14	144.350	144.400	140.422	140.472	21	12	33
15	144.400	144.450	140.472	140.522	22	12	34
16	144.450	144.500	140.522	140.572	23	13	36
17	144.500	144.550	140.572	140.622	22	14	36
18	144.550	144.600	140.622	140.672	21	14	35

Sl. No.	Survey Chainage(Km) Starting Chainage of Bilasipura KM 0.000		Design Ch. (Km)		Existing Right of Way (m)		Total EROW Width (m)
	From	To	From	To	Right	Left	
19	144.600	144.650	140.672	140.722	21	15	36
20	144.650	144.700	140.722	140.772	21	15	35
21	144.700	144.750	140.772	140.822	20	14	34
22	144.750	144.800	140.822	140.872	21	14	35
23	144.800	144.850	140.872	140.922	22	14	36
24	144.850	144.900	140.922	140.972	21	14	35
25	144.900	144.950	140.972	141.022	20	16	36
26	144.950	145.000	141.022	141.072	19	12	31
27	145.000	145.050	141.072	141.122	18	12	29
28	145.050	145.100	141.122	141.172	15	11	27
29	145.100	145.150	141.172	141.222	13	13	26
30	145.150	145.200	141.222	141.272	12	13	25
31	145.200	145.250	141.272	141.322	12	13	25
32	145.250	145.300	141.322	141.372	11	14	24
33	145.300	145.350	141.372	141.422	12	14	26
34	145.350	145.400	141.422	141.472	12	14	26
35	145.400	145.450	141.472	141.522	12	14	26
36	145.450	145.500	141.522	141.572	13	14	27
37	145.500	145.550	141.572	141.622	13	14	27
38	145.550	145.600	141.622	141.672	13	15	28
39	145.600	145.650	141.672	141.722	12	17	29
40	145.650	145.700	141.722	141.772	12	17	29
41	145.700	145.750	141.772	141.822	11	17	28
42	145.750	145.800	141.822	141.872	10	17	27
43	145.800	145.850	141.872	141.922	10	16	26
44	145.850	145.900	141.922	141.972	10	16	26
45	145.900	145.950	141.972	142.022	10	16	26
46	145.950	146.000	142.022	142.072	8	19	27
47	146.000	146.050	142.072	142.122	9	19	28
48	146.050	146.100	142.122	142.172	10	19	29
49	146.100	146.150	142.172	142.222	11	20	30
50	146.150	146.200	142.222	142.272	11	20	31
51	146.200	146.250	142.272	142.322	11	21	32
52	146.250	146.300	142.322	142.372	11	21	33
53	146.300	146.350	142.372	142.422	12	20	32
54	146.350	146.400	142.422	142.472	12	20	32
55	146.400	146.450	142.472	142.522	12	19	31
56	146.450	146.500	142.522	142.572	11	18	29
57	146.500	146.550	142.572	142.622	11	17	28
58	146.550	146.600	142.622	142.672	11	17	28
59	146.600	146.650	142.672	142.722	11	16	27

Sl. No.	Survey Chainage(Km) Starting Chainage of Bilasipura KM 0.000		Design Ch. (Km)		Existing Right of Way (m)		Total EROW Width (m)
	From	To	From	To	Right	Left	
60	146.650	146.700	142.722	142.772	11	15	26
61	146.700	146.750	142.772	142.822	11	15	26
62	146.750	146.800	142.822	142.872	11	15	26
63	146.800	146.850	142.872	142.922	12	14	26
64	146.850	146.900	142.922	142.972	13	13	26
65	146.900	146.950	142.972	143.022	13	13	26
66	146.950	147.000	143.022	143.072	13	14	27
67	147.000	147.050	143.072	143.122	14	14	28
68	147.050	147.100	143.122	143.172	14	13	27
69	147.100	147.150	143.172	143.222	14	12	26
70	147.150	147.200	143.222	143.272	14	13	27
71	147.200	147.250	143.272	143.322	14	12	26
72	147.250	147.300	143.322	143.372	14	12	26
73	147.300	147.350	143.372	143.422	14	12	26
74	147.350	147.400	143.422	143.472	14	13	26
75	147.400	147.450	143.472	143.522	13	13	26
76	147.450	147.500	143.522	143.572	14	14	28
77	147.500	147.550	143.572	143.622	15	16	30
78	147.550	147.600	143.622	143.672	15	16	31
79	147.600	147.650	143.672	143.722	15	16	31
80	147.650	147.700	143.722	143.772	14	16	31
81	147.700	147.750	143.772	143.822	14	16	30
82	147.750	147.800	143.822	143.872	15	15	30
83	147.800	147.850	143.872	143.922	3	23	26
84	147.850	147.900	143.922	143.972	14	23	37
85	147.900	147.950	143.972	144.022	14	23	37
86	147.950	148.000	144.022	144.072	14	23	37
87	148.000	148.050	144.072	144.122	15	22	37
88	148.050	148.100	144.122	144.172	16	21	36
89	148.100	148.150	144.172	144.222	16	21	37
90	148.150	148.200	144.222	144.272	17	20	37
91	148.200	148.250	144.272	144.322	18	19	37
92	148.250	148.300	144.322	144.372	17	18	35
93	148.300	148.350	144.372	144.422	17	17	35
94	148.350	148.400	144.422	144.472	18	17	35
95	148.400	148.450	144.472	144.522	18	17	35
96	148.450	148.500	144.522	144.572	19	16	35
97	148.500	148.550	144.572	144.622	19	15	35
98	148.550	148.600	144.622	144.672	21	15	36
99	148.600	148.650	144.672	144.722	21	15	37
100	148.650	148.700	144.722	144.772	21	15	37
101	148.700	148.750	144.772	144.822	21	16	36

Sl. No.	Survey Chainage(Km) Starting Chainage of Bilasipura KM 0.000		Design Ch. (Km)		Existing Right of Way (m)		Total EROW Width (m)
	From	To	From	To	Right	Left	
102	148.750	148.800	144.822	144.872	20	16	36
103	148.800	148.850	144.872	144.922	19	17	36
104	148.850	148.900	144.922	144.972	18	19	37
105	148.900	148.950	144.972	145.022	18	20	37
106	148.950	149.000	145.022	145.072	18	20	38
107	149.000	149.050	145.072	145.122	18	6	24
108	149.050	149.100	145.122	145.172	20	6	26
109	149.100	149.150	145.172	145.222	19	6	25
110	149.150	149.200	145.222	145.272	17	6	23
111	149.200	149.250	145.272	145.322	16	6	22
112	149.250	149.300	145.322	145.372	15	6	21
113	149.300	149.350	145.372	145.422	14	6	20
114	149.350	149.400	145.422	145.472	14	6	20
115	149.400	149.450	145.472	145.522	13	6	19
116	149.450	149.500	145.522	145.572	12	6	18
117	149.500	149.550	145.572	145.622	15	6	21
118	149.550	149.600	145.622	145.672	14	6	20
119	149.600	149.650	145.672	145.722	5	5	10
120	149.650	149.700	145.722	145.772	5	5	10
121	149.700	149.750	145.772	145.822	5	5	10
122	149.750	149.800	145.822	145.872	5	5	10
123	149.800	149.850	145.872	145.922	5	5	10
124	149.850	149.900	145.922	145.972	5	5	10
125	149.900	149.950	145.972	146.022	5	5	10
126	149.950	150.000	146.022	146.072	5	5	10
127	150.000	150.050	146.072	146.122	5	5	10
128	150.050	150.100	146.122	146.172	5	5	10
129	150.100	150.150	146.172	146.222	5	5	10
130	150.150	150.200	146.222	146.272	5	5	10
131	150.200	150.250	146.272	146.322	5	5	10
132	150.250	150.300	146.322	146.372	5	5	10
133	150.300	150.350	146.372	146.422	5	5	10
134	150.350	150.400	146.422	146.472	5	5	10
135	150.400	150.450	146.472	146.522	5	5	10
136	150.450	150.500	146.522	146.572	5	5	10
137	150.500	150.550	146.572	146.622	5	5	10
138	150.550	150.600	146.622	146.672	5	5	10
139	150.600	150.650	146.672	146.722	5	5	10
140	150.650	150.700	146.722	146.772	5	5	10
141	150.700	150.750	146.772	146.822	5	5	10
142	150.750	150.800	146.822	146.872	5	5	10

Sl. No.	Survey Chainage(Km) Starting Chainage of Bilasipura KM 0.000		Design Ch. (Km)		Existing Right of Way (m)		Total EROW Width (m)
	From	To	From	To	Right	Left	
143	150.800	150.850	146.872	146.922	5	5	10
144	150.850	150.900	146.922	146.972	5	5	10
145	150.900	150.950	146.972	147.022	5	5	10
146	150.950	151.000	147.022	147.072	5	5	10
147	151.000	151.050	147.072	147.122	5	5	10
148	151.050	151.100	147.122	147.172	5	5	10
149	151.100	151.150	147.172	147.222	5	5	10
150	151.150	151.200	147.222	147.272	5	5	10
151	151.200	151.250	147.272	147.322	5	5	10
152	151.250	151.300	147.322	147.372	5	5	10
153	151.300	151.350	147.372	147.422	12	20	32
154	151.350	151.400	147.422	147.472	13	21	33
155	151.400	151.450	147.472	147.522	12	18	30
156	151.450	151.500	147.522	147.572	11	20	30
157	151.500	151.550	147.572	147.622	10	20	30
158	151.550	151.600	147.622	147.672	10	20	30
159	151.600	151.650	147.672	147.722	10	20	30
160	151.650	151.700	147.722	147.772	11	19	30
161	151.700	151.750	147.772	147.822	13	18	31
162	151.750	151.800	147.822	147.872	16	15	31
163	151.800	151.850	147.872	147.922	17	14	31
164	151.850	151.900	147.922	147.972	16	17	33
165	151.900	151.950	147.972	148.022	17	18	34
166	151.950	152.000	148.022	148.072	17	18	34
167	152.000	152.050	148.072	148.122	16	18	34
168	152.050	152.100	148.122	148.172	16	17	34
169	152.100	152.150	148.172	148.222	17	16	33
170	152.150	152.200	148.222	148.272	16	17	33
171	152.200	152.250	148.272	148.322	16	17	33
172	152.250	152.300	148.322	148.372	17	15	32
173	152.300	152.350	148.372	148.422	15	16	31
174	152.350	152.400	148.422	148.472	18	17	34
175	152.400	152.450	148.472	148.522	22	9	31
176	152.450	152.500	148.522	148.572	27	6	34
177	152.500	152.550	148.572	148.622	27	5	32
178	152.550	152.600	148.622	148.672	27	6	33
179	152.600	152.650	148.672	148.722	29	1	30
180	152.650	152.700	148.722	148.772	27	2	28
181	152.700	152.750	148.772	148.822	23	5	28
182	152.750	152.800	148.822	148.872	18	11	29
183	152.800	152.850	148.872	148.922	15	15	29
184	152.850	152.900	148.922	148.972	13	16	29

Sl. No.	Survey Chainage(Km) Starting Chainage of Bilasipura KM 0.000		Design Ch. (Km)		Existing Right of Way (m)		Total EROW Width (m)
	From	To	From	To	Right	Left	
185	152.900	152.950	148.972	149.022	13	14	27
186	152.950	153.000	149.022	149.072	14	12	26
187	153.000	153.050	149.072	149.122	12	13	25
188	153.050	153.100	149.122	149.172	12	13	25
189	153.100	153.150	149.172	149.222	13	14	27
190	153.150	153.200	149.222	149.272	17	11	29
191	153.200	153.250	149.272	149.322	19	14	33
192	153.250	153.300	149.322	149.372	13	11	24
193	153.300	153.350	149.372	149.422	8	11	19
194	153.350	153.400	149.422	149.472	11	13	25
195	153.400	153.450	149.472	149.522	9	13	22
196	153.450	153.500	149.522	149.572	19	11	30
197	153.500	153.550	149.572	149.622	6	11	17
198	153.550	153.600	149.622	149.672	6	13	19
199	153.600	153.650	149.672	149.722	6	12	18
200	153.650	153.700	149.722	149.772	6	14	20
201	153.700	153.750	149.772	149.822	6	14	20
202	153.750	153.800	149.822	149.872	6	16	22
203	153.800	153.850	149.872	149.922	6	16	22
204	153.850	153.900	149.922	149.972	6	14	20
205	153.900	153.950	149.972	150.022	6	8	14
206	153.950	154.000	150.022	150.072	6	10	16
207	154.000	154.050	150.072	150.122	6	17	23
208	154.050	154.100	150.122	150.172	6	16	22
209	154.100	154.150	150.172	150.222	6	15	21
210	154.150	154.200	150.222	150.272	6	15	21
211	154.200	154.250	150.272	150.322	6	13	19
212	154.250	154.300	150.322	150.372	6	12	18
213	154.300	154.350	150.372	150.422	6	14	20
214	154.350	154.400	150.422	150.472	6	16	22
215	154.400	154.450	150.472	150.522	6	17	23
216	154.450	154.500	150.522	150.572	6	6	12
217	154.500	154.550	150.572	150.622	6	6	12
218	154.550	154.600	150.622	150.672	6	6	12
219	154.600	154.650	150.672	150.722	6	6	12
220	154.650	154.700	150.722	150.772	6	6	12
221	154.700	154.750	150.772	150.822	6	6	12
222	154.750	154.800	150.822	150.872	6	6	12
223	154.800	154.850	150.872	150.922	6	6	12
224	154.850	154.900	150.922	150.972	6	6	12
225	154.900	154.950	150.972	151.022	6	6	12

Sl. No.	Survey Chainage(Km) Starting Chainage of Bilasipura KM 0.000		Design Ch. (Km)		Existing Right of Way (m)		Total EROW Width (m)
	From	To	From	To	Right	Left	
226	154.950	155.000	151.022	151.072	6	6	12
227	155.000	155.050	151.072	151.122	6	6	12
228	155.050	155.100	151.122	151.172	6	6	12
229	155.100	155.150	151.172	151.222	6	6	12
230	155.150	155.200	151.222	151.272	6	6	12
231	155.200	155.250	151.272	151.322	6	6	12
232	155.250	155.300	151.322	151.372	6	6	12
233	155.300	155.350	151.372	151.422	6	6	12
234	155.350	155.400	151.422	151.472	6	6	12
235	155.400	155.450	151.472	151.522	6	6	12
236	155.450	155.500	151.522	151.572	6	6	12
237	155.500	155.550	151.572	151.622	6	6	12
238	155.550	155.600	151.622	151.672	6	6	12
239	155.600	155.650	151.672	151.722	6	6	12
240	155.650	155.700	151.722	151.772	6	6	12
241	155.700	155.750	151.772	151.822	6	6	12
242	155.750	155.800	151.822	151.872	6	6	12
243	155.800	155.850	151.872	151.922	6	6	12
244	155.850	155.900	151.922	151.972	6	6	12
245	155.900	155.950	151.972	152.022	6	6	12
246	155.950	156.000	152.022	152.072	6	6	12
247	156.000	156.050	152.072	152.122	6	6	12
248	156.050	156.100	152.122	152.172	6	6	12
249	156.100	156.150	152.172	152.222	6	6	12
250	156.150	156.200	152.222	152.272	6	6	12
251	156.200	156.250	152.272	152.322	6	6	12
252	156.250	156.300	152.322	152.372	6	6	12
253	156.300	156.350	152.372	152.422	6	6	12
254	156.350	156.400	152.422	152.472	6	6	12
255	156.400	156.450	152.472	152.522	6	6	12
256	156.450	156.500	152.522	152.572	6	6	12
257	156.500	156.550	152.572	152.622	6	6	12
258	156.550	156.600	152.622	152.672	6	6	12
259	156.600	156.650	152.672	152.722	6	6	12
260	156.650	156.700	152.722	152.772	6	6	12
261	156.700	156.750	152.772	152.822	6	6	12
262	156.750	156.800	152.822	152.872	6	6	12
263	156.800	156.850	152.872	152.922	6	6	12
264	156.850	156.900	152.922	152.972	6	6	12
265	156.900	156.950	152.972	153.022	6	6	12
266	156.950	157.000	153.022	153.072	6	6	12
267	157.000	157.050	153.072	153.122	6	6	12

Sl. No.	Survey Chainage(Km) Starting Chainage of Bilasipura KM 0.000		Design Ch. (Km)		Existing Right of Way (m)		Total EROW Width (m)
	From	To	From	To	Right	Left	
268	157.050	157.100	153.122	153.172	6	6	12
269	157.100	157.150	153.172	153.222	6	6	12
270	157.150	157.200	153.222	153.272	6	6	12
271	157.200	157.250	153.272	153.322	6	6	12
272	157.250	157.300	153.322	153.372	6	6	12
273	157.300	157.350	153.372	153.422	6	6	12
274	157.350	157.400	153.422	153.472	6	6	12
275	157.400	157.450	153.472	153.522	6	6	12
276	157.450	157.500	153.522	153.572	6	6	12
277	157.500	157.550	153.572	153.622	6	6	12
278	157.550	157.600	153.622	153.672	6	6	12
279	157.600	157.650	153.672	153.722	6	6	12
280	157.650	157.700	153.722	153.772	6	6	12
281	157.700	157.750	153.772	153.822	6	6	12
282	157.750	157.800	153.822	153.872	6	6	12
283	157.800	157.850	153.872	153.922	6	6	12
284	157.850	157.900	153.922	153.972	6	6	12
285	157.900	157.950	153.972	154.022	6	6	12
286	157.950	158.000	154.022	154.072	6	6	12
287	158.000	158.050	154.072	154.122	6	6	12
288	158.050	158.100	154.122	154.172	6	6	12
289	158.100	158.150	154.172	154.222	6	6	12
290	158.150	158.200	154.222	154.272	6	7	13
291	158.200	158.250	154.272	154.322	6	7	13
292	158.250	158.300	154.322	154.372	6	6	12
293	158.300	158.350	154.372	154.422	6	8	14
294	158.350	158.400	154.422	154.472	6	10	16
295	158.400	158.450	154.472	154.522	6	10	16
296	158.450	158.500	154.522	154.572	15	12	26
297	158.500	158.550	154.572	154.622	13	12	26
298	158.550	158.600	154.622	154.672	13	13	25
299	158.600	158.650	154.672	154.722	13	13	26
300	158.650	158.700	154.722	154.772	13	13	26
301	158.700	158.750	154.772	154.822	13	13	26
302	158.750	158.800	154.822	154.872	13	14	27
303	158.800	158.850	154.872	154.922	13	15	28
304	158.850	158.900	154.922	154.972	13	15	28
305	158.900	158.950	154.972	155.022	11	10	21
306	158.950	159.000	155.022	155.072	9	8	17
307	159.000	159.050	155.072	155.122	9	9	17
308	159.050	159.100	155.122	155.172	9	6	15

Sl. No.	Survey Chainage(Km) Starting Chainage of Bilasipura KM 0.000		Design Ch. (Km)		Existing Right of Way (m)		Total EROW Width (m)
	From	To	From	To	Right	Left	
309	159.100	159.150	155.172	155.222	10	6	16
310	159.150	159.200	155.222	155.272	11	6	17
311	159.200	159.250	155.272	155.322	11	6	17
312	159.250	159.300	155.322	155.372	11	6	17
313	159.300	159.350	155.372	155.422	12	6	18
314	159.350	159.400	155.422	155.472	12	6	18
315	159.400	159.450	155.472	155.522	14	6	20
316	159.450	159.500	155.522	155.572	14	6	20
317	159.500	159.550	155.572	155.622	17	6	23
318	159.550	159.600	155.622	155.672	17	6	23
319	159.600	159.650	155.672	155.722	15	6	21
320	159.650	159.700	155.722	155.772	11	15	26
321	159.700	159.750	155.772	155.822	10	16	26
322	159.750	159.800	155.822	155.872	11	17	29
323	159.800	159.850	155.872	155.922	11	18	29
324	159.850	159.900	155.922	155.972	12	18	30
325	159.900	159.950	155.972	156.022	12	17	29
326	159.950	160.000	156.022	156.072	13	16	28
327	160.000	160.050	156.072	156.122	13	14	26
328	160.050	160.100	156.122	156.172	12	14	26
329	160.100	160.150	156.172	156.222	14	13	27
330	160.150	160.200	156.222	156.272	14	11	25
331	160.200	160.250	156.272	156.322	13	15	28
332	160.250	160.300	156.322	156.372	10	17	27
333	160.300	160.350	156.372	156.422	10	18	28
334	160.350	160.400	156.422	156.472	11	18	29
335	160.400	160.450	156.472	156.522	12	16	27
336	160.450	160.500	156.522	156.572	11	16	27
337	160.500	160.550	156.572	156.622	11	16	26
338	160.550	160.600	156.622	156.672	10	16	26
339	160.600	160.650	156.672	156.722	10	17	27
340	160.650	160.700	156.722	156.772	10	17	26
341	160.700	160.750	156.772	156.822	10	16	26
342	160.750	160.800	156.822	156.872	10	11	21
343	160.800	160.850	156.872	156.922	11	13	24
344	160.850	160.900	156.922	156.972	11	9	21
345	160.900	160.950	156.972	157.022	14	10	23
346	160.950	161.000	157.022	157.072	15	10	25
347	161.000	161.050	157.072	157.122	10	10	20
348	161.050	161.100	157.122	157.172	13	10	23
349	161.100	161.150	157.172	157.222	12	8	20
350	161.150	161.200	157.222	157.272	13	5	18

Sl. No.	Survey Chainage(Km) Starting Chainage of Bilasipura KM 0.000		Design Ch. (Km)		Existing Right of Way (m)		Total EROW Width (m)
	From	To	From	To	Right	Left	
351	161.200	161.250	157.272	157.322	14	7	21
352	161.250	161.300	157.322	157.372	12	8	20
353	161.300	161.350	157.372	157.422	10	8	19
354	161.350	161.400	157.422	157.472	12	8	21
355	161.400	161.450	157.472	157.522	12	9	21
356	161.450	161.500	157.522	157.572	12	12	24
357	161.500	161.550	157.572	157.622	9	14	24
358	161.550	161.600	157.622	157.672	8	15	23
359	161.600	161.650	157.672	157.722	7	15	22
360	161.650	161.700	157.722	157.772	8	12	20
361	161.700	161.750	157.772	157.822	8	15	23
362	161.750	161.800	157.822	157.872	8	15	23
363	161.800	161.850	157.872	157.922	9	15	24
364	161.850	161.900	157.922	157.972	13	15	28
365	161.900	161.950	157.972	158.022	13	13	26
366	161.950	162.000	158.022	158.072	11	14	25
367	162.000	162.050	158.072	158.122	10	12	22
368	162.050	162.100	158.122	158.172	10	16	26
369	162.100	162.150	158.172	158.222	7	13	20
370	162.150	162.200	158.222	158.272	8	13	21
371	162.200	162.250	158.272	158.322	5	10	15
372	162.250	162.300	158.322	158.372	6	9	16
373	162.300	162.350	158.372	158.422	12	5	17
374	162.350	162.400	158.422	158.472	11	5	16
375	162.400	162.450	158.472	158.522	13	4	17
376	162.450	162.500	158.522	158.572	14	14	28
377	162.500	162.550	158.572	158.622	16	13	28
378	162.550	162.600	158.622	158.672	15	14	29
379	162.600	162.650	158.672	158.722	15	13	28
380	162.650	162.700	158.722	158.772	17	12	29
381	162.700	162.750	158.772	158.822	18	12	29
382	162.750	162.800	158.822	158.872	19	12	30
383	162.800	162.850	158.872	158.922	20	12	31
384	162.850	162.900	158.922	158.972	20	12	32
385	162.900	162.950	158.972	159.022	19	13	32
386	162.950	163.000	159.022	159.072	17	15	32
387	163.000	163.050	159.072	159.122	15	13	28
388	163.050	163.100	159.122	159.172	14	12	26
389	163.100	163.150	159.172	159.222	17	12	29
390	163.150	163.200	159.222	159.272	16	12	29
391	163.200	163.250	159.272	159.322	16	14	30

Sl. No.	Survey Chainage(Km) Starting Chainage of Bilasipura KM 0.000		Design Ch. (Km)		Existing Right of Way (m)		Total EROW Width (m)
	From	To	From	To	Right	Left	
392	163.250	163.300	159.322	159.372	15	17	31
393	163.300	163.350	159.372	159.422	17	14	31
394	163.350	163.400	159.422	159.472	16	15	31
395	163.400	163.450	159.472	159.522	16	14	30
396	163.450	163.500	159.522	159.572	15	14	29
397	163.500	163.550	159.572	159.622	15	14	29
398	163.550	163.600	159.622	159.672	15	14	29
399	163.600	163.650	159.672	159.722	14	14	28
400	163.650	163.700	159.722	159.772	2	15	18
401	163.700	163.750	159.772	159.822	1	17	18
402	163.750	163.800	159.822	159.872	0	19	19
403	163.800	163.850	159.872	159.922	2	20	22
404	163.850	163.900	159.922	159.972	1	19	20
405	163.900	163.950	159.972	160.022	2	19	20
406	163.950	164.000	160.022	160.072	3	17	20
407	164.000	164.050	160.072	160.122	4	16	20
408	164.050	164.100	160.122	160.172	16	14	30
409	164.100	164.150	160.172	160.222	16	14	30
410	164.150	164.200	160.222	160.272	16	15	30
411	164.200	164.250	160.272	160.322	15	16	31
412	164.250	164.300	160.322	160.372	14	17	31
413	164.300	164.350	160.372	160.422	13	17	31
414	164.350	164.400	160.422	160.472	11	19	31
415	164.400	164.450	160.472	160.522	10	21	31
416	164.450	164.500	160.522	160.572	11	21	31
417	164.500	164.550	160.572	160.622	14	18	32
418	164.550	164.600	160.622	160.672	15	17	32
419	164.600	164.650	160.672	160.722	15	17	32
420	164.650	164.700	160.722	160.772	17	15	32
421	164.700	164.750	160.772	160.822	17	14	31
422	164.750	164.800	160.822	160.872	18	13	31
423	164.800	164.850	160.872	160.922	19	12	30
424	164.850	164.900	160.922	160.972	18	11	30
425	164.900	164.950	160.972	161.022	17	11	28
426	164.950	165.000	161.022	161.072	17	11	28
427	165.000	165.050	161.072	161.122	17	12	29
428	165.050	165.100	161.122	161.172	17	13	29
429	165.100	165.150	161.172	161.222	17	13	30
430	165.150	165.200	161.222	161.272	17	12	29
431	165.200	165.250	161.272	161.322	17	13	30
432	165.250	165.300	161.322	161.372	16	14	30
433	165.300	165.350	161.372	161.422	16	15	30

Sl. No.	Survey Chainage(Km) Starting Chainage of Bilasipura KM 0.000		Design Ch. (Km)		Existing Right of Way (m)		Total EROW Width (m)
	From	To	From	To	Right	Left	
434	165.350	165.400	161.422	161.472	15	15	30
435	165.400	165.450	161.472	161.522	15	16	30
436	165.450	165.500	161.522	161.572	14	15	30
437	165.500	165.550	161.572	161.622	15	15	30
438	165.550	165.600	161.622	161.672	15	15	29
439	165.600	165.650	161.672	161.722	15	15	30
440	165.650	165.700	161.722	161.772	15	16	30
441	165.700	165.750	161.772	161.822	14	16	30
442	165.750	165.800	161.822	161.872	14	16	30
443	165.800	165.850	161.872	161.922	6	16	22
444	165.850	165.900	161.922	161.972	6	16	22
445	165.900	165.950	161.972	162.022	6	15	21
446	165.950	166.000	162.022	162.072	6	15	21
447	166.000	166.050	162.072	162.122	6	15	21
448	166.050	166.100	162.122	162.172	6	15	21
449	166.100	166.150	162.172	162.222	6	15	21
450	166.150	166.200	162.222	162.272	6	15	21
451	166.200	166.250	162.272	162.322	6	15	21
452	166.250	166.300	162.322	162.372	6	15	21
453	166.300	166.350	162.372	162.422	6	16	22
454	166.350	166.400	162.422	162.472	6	13	19
455	166.400	166.450	162.472	162.522	5	5	10
456	166.450	166.500	162.522	162.572	5	5	10
457	166.500	166.550	162.572	162.622	5	5	10
458	166.550	166.600	162.622	162.672	5	5	10
459	166.600	166.650	162.672	162.722	5	5	10
460	166.650	166.700	162.722	162.772	5	5	10
461	166.700	166.750	162.772	162.822	5	5	10
462	166.750	166.800	162.822	162.872	5	5	10
463	166.800	166.850	162.872	162.922	5	5	10
464	166.850	166.900	162.922	162.972	5	5	10
465	166.900	166.950	162.972	163.022	5	5	10
466	166.950	167.000	163.022	163.072	5	5	10
467	167.000	167.050	163.072	163.122	5	5	10
468	167.050	167.100	163.122	163.172	5	5	10
469	167.100	167.150	163.172	163.222	5	5	10
470	167.150	167.200	163.222	163.272	5	5	10
471	167.200	167.250	163.272	163.322	5	5	10
472	167.250	167.300	163.322	163.372	5	5	10
473	167.300	167.350	163.372	163.422	5	5	10
474	167.350	167.400	163.422	163.472	5	5	10

Sl. No.	Survey Chainage(Km) Starting Chainage of Bilasipura KM 0.000		Design Ch. (Km)		Existing Right of Way (m)		Total EROW Width (m)
	From	To	From	To	Right	Left	
475	167.400	167.450	163.472	163.522	6	6	12
476	167.450	167.500	163.522	163.572	6	6	12
477	167.500	167.550	163.572	163.622	6	6	12
478	167.550	167.600	163.622	163.672	6	6	12
479	167.600	167.650	163.672	163.722	6	6	12
480	167.650	167.700	163.722	163.772	6	6	12
481	167.700	167.750	163.772	163.822	6	6	12
482	167.750	167.800	163.822	163.872	6	7	13
483	167.800	167.850	163.872	163.922	6	7	13
484	167.850	167.900	163.922	163.972	6	6	12
485	167.900	167.950	163.972	164.022	6	6	12
486	167.950	168.000	164.022	164.072	6	6	12
487	168.000	168.050	164.072	164.122	6	7	13
488	168.050	168.100	164.122	164.172	6	7	13
489	168.100	168.150	164.172	164.222	6	6	12
490	168.150	168.200	164.222	164.272	6	6	12
491	168.200	168.250	164.272	164.322	6	6	13
492	168.250	168.300	164.322	164.372	6	6	12
493	168.300	168.350	164.372	164.422	6	6	13
494	168.350	168.400	164.422	164.472	6	6	13
495	168.400	168.450	164.472	164.522	6	6	13
496	168.450	168.500	164.522	164.572	6	6	13
497	168.500	168.550	164.572	164.622	7	6	12
498	168.550	168.600	164.622	164.672	7	6	13
499	168.600	168.650	164.672	164.722	7	6	13
500	168.650	168.700	164.722	164.772	6	6	13
501	168.700	168.750	164.772	164.822	6	7	13
502	168.750	168.800	164.822	164.872	6	7	12
503	168.800	168.850	164.872	164.922	6	7	12
504	168.850	168.900	164.922	164.972	6	7	13
505	168.900	168.950	164.972	165.022	6	7	12
506	168.950	169.000	165.022	165.072	6	7	13
507	169.000	169.050	165.072	165.122	6	7	13
508	169.050	169.100	165.122	165.172	6	7	13
509	169.100	169.150	165.172	165.222	6	7	13
510	169.150	169.200	165.222	165.272	6	7	13
511	169.200	169.250	165.272	165.322	7	7	13
512	169.250	169.300	165.322	165.372	7	7	13
513	169.300	169.350	165.372	165.422	6	6	13
514	169.350	169.400	165.422	165.472	6	6	13
515	169.400	169.450	165.472	165.522	6	6	12
516	169.450	169.500	165.522	165.572	6	6	12

Sl. No.	Survey Chainage(Km) Starting Chainage of Bilasipura KM 0.000		Design Ch. (Km)		Existing Right of Way (m)		Total EROW Width (m)
	From	To	From	To	Right	Left	
517	169.500	169.550	165.572	165.622	6	6	12
518	169.550	169.600	165.622	165.672	6	6	12
519	169.600	169.650	165.672	165.722	6	6	13
520	169.650	169.700	165.722	165.772	6	6	12
521	169.700	169.750	165.772	165.822	6	6	12
522	169.750	169.800	165.822	165.872	6	6	12
523	169.800	169.850	165.872	165.922	6	7	13
524	169.850	169.900	165.922	165.972	6	6	13
525	169.900	169.950	165.972	166.022	6	6	12
526	169.950	170.000	166.022	166.072	6	7	12
527	170.000	170.050	166.072	166.122	6	7	13
528	170.050	170.100	166.122	166.172	6	7	13
529	170.100	170.150	166.172	166.222	6	7	13
530	170.150	170.200	166.222	166.272	6	7	13
531	170.200	170.250	166.272	166.322	6	6	13
532	170.250	170.300	166.322	166.372	6	7	13
533	170.300	170.350	166.372	166.422	6	6	12
534	170.350	170.400	166.422	166.472	6	6	13
535	170.400	170.450	166.472	166.522	6	6	12
536	170.450	170.500	166.522	166.572	6	7	13
537	170.500	170.550	166.572	166.622	6	6	11
538	170.550	170.600	166.622	166.672	6	6	12
539	170.600	170.650	166.672	166.722	7	7	13
540	170.650	170.700	166.722	166.772	7	6	13
541	170.700	170.750	166.772	166.822	7	6	13
542	170.750	170.800	166.822	166.872	7	6	13
543	170.800	170.850	166.872	166.922	6	7	13
544	170.850	170.900	166.922	166.972	6	7	13
545	170.900	170.950	166.972	167.022	6	7	13
546	170.950	171.000	167.022	167.072	6	6	13
547	171.000	171.050	167.072	167.122	7	6	13
548	171.050	171.100	167.122	167.172	7	6	13
549	171.100	171.150	167.172	167.222	7	7	14
550	171.150	171.200	167.222	167.272	7	7	14
551	171.200	171.250	167.272	167.322	7	7	13
552	171.250	171.300	167.322	167.372	7	6	13
553	171.300	171.350	167.372	167.422	7	7	14
554	171.350	171.400	167.422	167.472	7	8	16
555	171.400	171.450	167.472	167.522	8	8	15
556	171.450	171.500	167.522	167.572	7	8	15
557	171.500	171.550	167.572	167.622	7	8	15

Sl. No.	Survey Chainage(Km) Starting Chainage of Bilasipura KM 0.000		Design Ch. (Km)		Existing Right of Way (m)		Total EROW Width (m)
	From	To	From	To	Right	Left	
558	171.550	171.600	167.622	167.672	7	7	14
559	171.600	171.650	167.672	167.722	5	6	12
560	171.650	171.700	167.722	167.772	6	6	12
561	171.700	171.750	167.772	167.822	6	7	13
562	171.750	171.800	167.822	167.872	6	6	12
563	171.800	171.850	167.872	167.922	6	6	12
564	171.850	171.900	167.922	167.972	6	6	12
565	171.900	171.950	167.972	168.022	6	6	12
566	171.950	172.000	168.022	168.072	6	6	12
567	172.000	172.050	168.072	168.122	6	6	12
568	172.050	172.100	168.122	168.172	6	6	12
569	172.100	172.150	168.172	168.222	6	6	12
570	172.150	172.200	168.222	168.272	6	6	12
571	172.200	172.250	168.272	168.322	6	6	12
572	172.250	172.300	168.322	168.372	6	7	13
573	172.300	172.350	168.372	168.422	6	7	13
574	172.350	172.400	168.422	168.472	6	7	13
575	172.400	172.450	168.472	168.522	6	7	13
576	172.450	172.500	168.522	168.572	6	7	13
577	172.500	172.550	168.572	168.622	6	6	12
578	172.550	172.600	168.622	168.672	6	7	13
579	172.600	172.650	168.672	168.722	6	7	13
580	172.650	172.700	168.722	168.772	6	6	12
581	172.700	172.750	168.772	168.822	6	8	14
582	172.750	172.800	168.822	168.872	6	7	13
583	172.800	172.850	168.872	168.922	6	7	13
584	172.850	172.900	168.922	168.972	6	7	13
585	172.900	172.950	168.972	169.022	6	8	14
586	172.950	173.000	169.022	169.072	6	7	13
587	173.000	173.050	169.072	169.122	6	7	13
588	173.050	173.100	169.122	169.172	6	7	13
589	173.100	173.150	169.172	169.222	6	7	13
590	173.150	173.200	169.222	169.272	6	7	13
591	173.200	173.250	169.272	169.322	6	7	13
592	173.250	173.300	169.322	169.372	6	7	13
593	173.300	173.350	169.372	169.422	6	7	13
594	173.350	173.400	169.422	169.472	6	6	12
595	173.400	173.450	169.472	169.522	6	6	12
596	173.450	173.500	169.522	169.572	6	7	13
597	173.500	173.550	169.572	169.622	6	6	12
598	173.550	173.600	169.622	169.672	6	6	12
599	173.600	173.650	169.672	169.722	6	6	12

Sl. No.	Survey Chainage(Km) Starting Chainage of Bilasipura KM 0.000		Design Ch. (Km)		Existing Right of Way (m)		Total EROW Width (m)
	From	To	From	To	Right	Left	
600	173.650	173.700	169.722	169.772	6	7	13
601	173.700	173.750	169.772	169.822	6	6	12
602	173.750	173.800	169.822	169.872	6	6	12
603	173.800	173.850	169.872	169.922	6	6	12
604	173.850	173.900	169.922	169.972	6	7	13
605	173.900	173.950	169.972	170.022	6	6	12
606	173.950	174.000	170.022	170.072	6	6	12
607	174.000	174.050	170.072	170.122	6	6	12
608	174.050	174.100	170.122	170.172	6	6	12
609	174.100	174.150	170.172	170.222	6	5	11
610	174.150	174.200	170.222	170.272	6	6	12
611	174.200	174.250	170.272	170.322	6	6	12
612	174.250	174.300	170.322	170.372	6	6	12
613	174.300	174.350	170.372	170.422	6	6	12
614	174.350	174.400	170.422	170.472	6	7	13
615	174.400	174.450	170.472	170.522	6	7	13
616	174.450	174.500	170.522	170.572	6	8	14
617	174.500	174.550	170.572	170.622	5	5	10
618	174.550	174.600	170.622	170.672	5	5	10
619	174.600	174.650	170.672	170.722	5	5	10
620	174.650	174.700	170.722	170.772	5	5	10
621	174.700	174.750	170.772	170.822	5	5	10
622	174.750	174.800	170.822	170.872	5	5	10
623	174.800	174.850	170.872	170.922	5	5	10
624	174.850	174.900	170.922	170.972	5	5	10
625	174.900	174.950	170.972	171.022	5	5	10
626	174.950	175.000	171.022	171.072	5	5	10
627	175.000	175.050	171.072	171.122	5	5	10
628	175.050	175.100	171.122	171.172	5	5	10
629	175.100	175.150	171.172	171.222	5	5	10
630	175.150	175.200	171.222	171.272	5	5	10
631	175.200	175.250	171.272	171.322	5	5	10
632	175.250	175.300	171.322	171.372	5	5	10
633	175.300	175.350	171.372	171.422	5	5	10
634	175.350	175.400	171.422	171.472	6	6	12
635	175.400	175.450	171.472	171.522	6	6	12
636	175.450	175.500	171.522	171.572	6	6	12
637	175.500	175.550	171.572	171.622	6	6	12
638	175.550	175.600	171.622	171.672	6	6	12
639	175.600	175.650	171.672	171.722	6	6	12
640	175.650	175.700	171.722	171.772	6	6	12

Sl. No.	Survey Chainage(Km) Starting Chainage of Bilasipura KM 0.000		Design Ch. (Km)		Existing Right of Way (m)		Total EROW Width (m)
	From	To	From	To	Right	Left	
641	175.700	175.750	171.772	171.822	6	6	12
642	175.750	175.800	171.822	171.872	6	6	12
643	175.800	175.850	171.872	171.922	6	6	12
644	175.850	175.900	171.922	171.972	6	6	12
645	175.900	175.950	171.972	172.022	6	6	12
646	175.950	176.000	172.022	172.072	6	6	12
647	176.000	176.050	172.072	172.122	6	7	13
648	176.050	176.100	172.122	172.172	6	6	12
649	176.100	176.150	172.172	172.222	6	6	12
650	176.150	176.200	172.222	172.272	6	6	12
651	176.200	176.250	172.272	172.322	6	6	12
652	176.250	176.300	172.322	172.372	6	7	13
653	176.300	176.350	172.372	172.422	6	7	13
654	176.350	176.400	172.422	172.472	6	6	12
655	176.400	176.450	172.472	172.522	6	6	12
656	176.450	176.500	172.522	172.572	6	6	12
657	176.500	176.550	172.572	172.622	6	6	12
658	176.550	176.600	172.622	172.672	6	6	12
659	176.600	176.650	172.672	172.722	6	6	12
660	176.650	176.700	172.722	172.772	6	6	12
661	176.700	176.750	172.772	172.822	6	6	12
662	176.750	176.800	172.822	172.872	6	6	12
663	176.800	176.850	172.872	172.922	6	6	12
664	176.850	176.900	172.922	172.972	6	6	12
665	176.900	176.950	172.972	173.022	6	6	12
666	176.950	177.000	173.022	173.072	6	6	12
667	177.000	177.050	173.072	173.122	6	6	12
668	177.050	177.100	173.122	173.172	6	6	12
669	177.100	177.150	173.172	173.222	6	6	12
670	177.150	177.200	173.222	173.272	6	6	12
671	177.200	177.250	173.272	173.322	6	6	12
672	177.250	177.300	173.322	173.372	6	6	12
673	177.300	177.350	173.372	173.422	6	6	12
674	177.350	177.372	173.422	173.434	6	6	12

3. Carriageway

The present carriageway of the Project Highway consists two Lane/two lane with paved shoulder with bituminous/earthen shoulder configuration from Ex. Ch. 143.680km to Ex. Ch. 177.372km. The type of the existing pavement of the section is flexible.

4. Major Bridges

The Site includes the following Major Bridge: -

SL. No.	Survey Chainage (km)	Existing Chainage as per NH-37 (km)	Design Chainage (km)	Type of Structure			No. of Spans with span length (m)	Width (m)
				Foundation	Sub-structure	Super-structure		
1	152.559	83.244	148.626	Well	RCC Wall	PSC Girder	2 x 40	8.2

5. Road over-bridges (ROB)/Road under - bridges (RUB)

The Site includes the following ROB (road over railway line)/RUB (road under railway line):

S. No.	Survey Chainage (km)	Existing Chainage as per NH-37 (km)	Type of Structure		No.of Spans with span length(m)	Width (m)	ROB/ RUB
			Foundation	Superstructure			
Nil							

6. Grade separators

The Site includes the following grade separators:

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

7. Minor bridges

The Site includes the following minor bridges:

SL. No.	Survey Chainage (km)	Existing Chainage as per NH-37 (km)	Design Chainage (km)	Type of Structure			No. of Spans with span length (m)	Width (m)
				Foundation	Sub-structure	Super-structure		
1	144.830	75.449	140.905	Open	RCC Wall	RCC Slab	4 x 5.8	8.5
2	146.224	76.875	142.296	Open	RCC Wall	RCC Slab	1 x 5.8	12
3	147.424	78.076	143.495	Open	RCC Wall	RCC Slab	2 x 5.8	8.3
4	147.838	78.492	143.910	Open	RCC Wall	RCC Slab	3 x 5.8	8.5
5	148.180	78.836	144.252	Well	RCC Wall	RCC T Girder	3 x 12.5	8.5
6	150.550	81.224	146.620	Open	RCC Wall	RCC Slab	6 x 4	8.5
7	154.994	85.707	151.059	Open	RCC Wall	RCC Slab	1 x 6	11.9
8	155.739	86.450	151.804	Open	RCC Wall	RCC Slab	2 x 8	8.5
9	158.891	89.654	154.955	Open	RCC Wall	RCC Slab	3 x 6	8.5
10	160.403	91.105	156.468	Open	RCC Wall	RCC Slab	1 x 6	8.5
11	160.715	91.389	156.779	Open	RCC Wall	RCC Slab	3 x 6	8.5
12	161.688	92.379	157.751	Open	RCC Wall	RCC Slab	2 x 6.5	8.5
13	162.158	92.852	158.225	Open	RCC Wall	Balanced	3.5+29+3.5	11

SL. No.	Survey Chainage (km)	Existing Chainage as per NH-37 (km)	Design Chainage (km)	Type of Structure			No. of Spans with span length (m)	Width (m)
				Foundation	Sub-structure	Super-structure		
						Cantelever		
14	167.586	98.302	163.650	Open	RCC Wall	RCC Box	3 x 3 x 2	8.5
15	170.509	101.183	166.573	Open	RCC Wall	RCC Box	6 x 3 x 2	8.5
16	171.587	102.267	167.646	Open	RCC Wall	RCC Slab	2 x 6	8.5
17	172.000	102.684	168.067	-	-	HUME PIPE	9 X 0.9	8.5
18	173.594	104.213	169.658	Open	RCC Wall	RCC Slab	2 x 8	8.5
19	174.123	104.745	170.186	Open	RCC Wall	PSC Girder	1 x 40	9.5
20	175.651	106.282	171.713	Open	RCC Wall	RCC Slab	3 x 8	8.8
21	176.721	107.359	172.786	Open	RCC Wall	RCC Slab	3 x 8	8.4

8. Railway level crossings

The Site includes the following railway level crossings:

Sl. No.	Chainage (km)	Location	Remarks
Nil			

9. Under-passes (vehicular, on-vehicular)

The Site includes the following under-passes:

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

10. Culverts

The Site has the following culverts:

Sl No	Survey Chainage (km)	Existing Chainage as per NH-37 (km)	Design Chainage (km)	Type of Structures (Pipe/Slab/ Box/Arch)	Span Arrangement (no x length) (m)	Width of culvert (m)
1	144.523	75.140	140.596	BOX	1.0 X 1.0m	12
2	145.357	76.003	141.430	BOX	2.0 X 2.0m	9.5
3	145.805	76.453	141.878	BOX	2.0 X 2.2m	9.5
4	146.622	77.255	142.695	BOX	1.0 X 1.0m	12
5	147.104	77.740	143.177	BOX	1.0 X 1.0m	12
6	148.022	78.677	144.094	BOX	1 X 2.0m	13.5
7	148.437	79.093	144.510	BOX	1.5 X 1.5m	9.5
8	148.498	79.154	144.570	Slab	1X 1.5 M	11.4
9	149.916	80.552	145.985	BOX	1.5 X 1.5m	12
10	150.814	81.489	146.885	BOX	1.0 X 1.0m	9.5
11	151.225	81.903	147.295	BOX	1.5 X 1.5m	12
12	152.140	82.822	148.207	BOX	1.2 X 1.5m	9.5

Sl No	Survey Chainage (km)	Existing Chainage as per NH-37 (km)	Design Chainage (km)	Type of Structures (Pipe/Slab/ Box/Arch)	Span Arrangement (no x length) (m)	Width of culvert (m)
13	153.119	83.808	149.186	BOX	1.2 X 1.2m	9.5
14	153.548	84.243	149.613	BOX	1.0 X 1.0m	9.5
15	153.816	84.514	149.882	BOX	1.0 X 1.0m	9.5
16	154.690	85.402	150.754	HUME PIPE	4.0 X 1.0m dia	15.6
17	155.311	86.027	151.375	BOX	1.0 X 1.0m	12.4
18	156.100	86.813	152.165	BOX	1.5 X 1.5	9.5
19	156.451	87.254	152.516	BOX	1.5 X 2.0	9.5
20	156.700	87.503	152.762	BOX	3.5 X 3.0m	11.5
21	156.922	87.727	152.987	BOX	1.0 X 1.0m	12
22	157.305	88.112	153.370	BOX	1.0 X 1.0m	9.5
23	157.433	88.168	153.497	BOX	1.0 X 1.0m	12
24	158.140	88.879	154.203	BOX	1.0 X 1.0m	9.5
25	159.403	90.200	155.518	SLAB	1.0 X 1.8m	9.5
26	160.026	90.825	156.092	Pipe	2X1.0m dia	17.8
27	160.611	91.285	156.677	BOX	1.2 X 1.5m	9.5
28	160.892	91.567	156.944	BOX	1.5 X 1.7m	9.5
29	162.514	93.208	158.580	BOX	5.0 X 3.0m	12
30	162.753	93.447	158.819	Pipe	3X0.4m dia	20.3
31	163.180	93.877	159.245	BOX	5.0 X 3.0m	9.5
32	163.608	94.360	159.672	BOX	1.0 X 1.0m	12
33	163.875	94.628	159.939	BOX	1.0 X1.0m	9.5
34	164.220	94.974	160.285	HUME PIPE	3.0 X 1.0m dia	18
35	164.564	95.297	160.627	BOX	5.0 X 3.0m	12
36	164.937	95.673	161.002	BOX	1.0 X 1.0m	12
37	165.190	95.928	161.253	BOX	1.0 x 1.0m	12
38	165.493	96.231	161.556	HUME PIPE	4.0 X 1.0m dia	19
39	165.785	96.524	161.849	BOX	1.0 X 1.0m	9.5
40	166.120	96.862	162.184	BOX	1.0 X 1.0m	13
41	166.175	96.917	162.240	HUME PIPE	1.0 X0.9m	13
42	166.391	97.161	162.455	BOX	1.0 X 1.0m	9.5
43	166.713	97.485	162.776	BOX	1.2 X 1.2m	9.5
44	167.014	97.787	163.078	BOX	1.0 X 1.0m	9.5
45	168.124	98.843	164.187	BOX	1.5 X 1.5m	9.5
46	168.584	99.436	164.646	BOX	1.0 X 1.0m	13
47	168.832	99.686	164.895	BOX	1.0 X 1.0m	13
48	169.238	100.095	165.300	BOX	1.0 X 1.0m	13
49	169.662	100.482	165.725	BOX	1.0 X 1.0m	13
50	169.720	100.539	165.783	BOX	2.0 X 1.5m	13
51	169.769	100.589	165.832	BOX	1.5 X 1.5m	13
52	169.909	100.729	165.972	HUME PIPE	2.0 X 0.7m dia	17.2
53	170.780	101.455	166.844	BOX	2.5 X 2.0m	13
54	172.334	103.019	168.398	BOX	1.2 X 1.2m	13
55	172.351	103.036	168.416	SLAB	1.0 X 1.5m	13

Sl No	Survey Chainage (km)	Existing Chainage as per NH-37 (km)	Design Chainage (km)	Type of Structures (Pipe/Slab/ Box/Arch)	Span Arrangement (no x length) (m)	Width of culvert (m)
56	174.633	105.258	170.696	SLAB	2.0 X 2.0m	10.5
57	174.748	105.374	170.806	BOX	1.0 X 1.2m	13
58	174.940	105.567	171.000	SLAB	1.0 X 3.5m	13
59	175.276	105.905	171.339	BOX	1.2 X 1.2m	13
60	175.459	106.089	171.520	BOX	1.2 X 1.2m	13

11. Bus bays

The details of bus bays onthe Site are as follows:

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

12. Truck Lay byes

The details of truck lay byes are as follows:

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

13. Road-side drains

The details of the roadside drains are as follows:

Sl. No.	Location		Type	
	From km	To km	Masonry/cc (Pucca)	Earthen (Kutcha)
1	146.571	146.596	Pucca (RHS)	-
2	146.760	146.859	Pucca (LHS)	-
3	162.270	162.300	Pucca (LHS)	-
4	162.310	162.900	Pucca (Both)	-
5	162.900	162.990	Pucca (LHS)	-
6	162.990	163.070	Pucca (Both)	-
7	163.070	163.130	Pucca (LHS)	-
8	163.400	163.535	Pucca (RHS)	-
9	163.560	163.919	Pucca (RHS)	-
10	164.850	165.260	Pucca (RHS)	-
11	166.585	166.610	Pucca (RHS)	-
12	167.600	167.650	Pucca (LHS)	-
13	167.650	167.800	Pucca (Both)	-
14	167.800	167.825	Pucca (RHS)	-
15	168.135	168.293	Pucca (RHS)	-
16	168.510	168.832	Pucca (RHS)	-
17	168.832	169.330	Pucca (Both)	-
18	169.330	169.712	Pucca (RHS)	-
19	171.255	171.300	Pucca (RHS)	-
20	171.300	171.550	Pucca (Both)	-
21	172.582	173.150	Pucca (RHS)	-

14. Major junctions

The details of major junctions are as follows:

S. No.	Location					At grade	Separated	Category of Cross Road			
	Survey Ch.		Existing Chainage as per NH-37 (km)	Design Ch.							
	From km	to km		From km	To km			NH	SH	MDR	Others
1	160.200		91.029	156.283		✓			✓		
2	162.306		93.001	158.370		✓					✓

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

15. Minor junctions

The details of the minor junctions are as follows:

Sl. No.	Location					Type	
	Survey Ch.		Existing Chainage as per NH-37 (km)	Design Ch.			
	From km	To km		From km	To km	T-Junction	Cross Road
1	143.869		74.511	139.941		4- legged	Towards Shakhati(LHS & RHS)
2	144.695		75.313	140.767		3- legged	Towards Gopal Pura
3	144.948		75.565	141.019		3- legged	Towards Dakshin Chekhadari
4	145.069		75.686	141.139		3- legged	Towards Boko
5	145.584		76.228	141.654		3- legged	Towards Village
6	145.700		76.346	141.770		3- legged	Towards Khatajuli
7	145.987		76.634	142.058		3- legged	Towards Siliburi
8	146.043		76.689	142.112		3- legged	Towards Khatajuli
9	146.112		76.758	142.181		3- legged	Towards Village
10	146.867		77.497	142.936		3- legged	Towards Bondhapara
11	147.317		77.949	143.379		3- legged	Towards Bondhapara
12	147.706		78.355	143.776		3- legged	Towards Village
13	147.774		78.424	143.844		3- legged	Towards Village
14	148.285		78.938	144.354		3- legged	Towards Bekeli Village
15	148.422		79.074	144.491		3- legged	Towards Village
16	148.647		79.300	144.716		3- legged	Towards Village
17	148.852		79.507	144.920		3- legged	Towards Village
18	149.484		80.113	145.552		3- legged	Towards Village
19	151.621		82.297	147.687		3- legged	Towards Dekapara
20	151.643		82.321	147.714		3- legged	Towards Malang
21	152.718		83.404	148.784		3- legged	Towards Majhpara

Sl. No.	Location					Type	
	Survey Ch.		Existing Chainage as per NH-37 (km)	Design Ch.			
	From km	To km		From km	To km	T-Junction	Cross Road
22	153.237		83.926	149.304		3- legged	Towards 2no Sakhadari
23	153.344		84.038	149.408		4- legged	Towards 2no Sakhadari(LHS),Towards Nalapara(RHS)
24	153.464		84.160	149.529		3- legged	Towards Singra Para
25	153.865		84.563	149.931		3- legged	Towards Singra Para
26	155.812		86.523	151.875		3- legged	Towards Maa Chandika Temple
27	158.093		88.832	154.157		3- legged	Towards Budubari Village
28	159.995		90.795	156.060		3- legged	Towards 2no Boko College
29	160.277		91.078	156.340		3- legged	Towards 2no Temple
30	160.534		91.206	156.599		3- legged	Towards Donbosco Jarpara
31	161.491		92.181	157.554		3- legged	Towards Samoriya
32	161.534		92.224	157.597		3- legged	Towards Kampaduli Lampi
33	161.847		92.539	157.908		3- legged	Towards Kalatali
34	161.915		92.607	157.979		3- legged	Towards Darisatra
35	162.024		92.718	158.090		3- legged	Towards Village
36	162.062		92.755	158.127		3- legged	Towards Village
37	162.073		92.768	158.139		3- legged	Towards Village
38	162.125		92.819	158.191		3- legged	Towards Village
39	162.220		92.915	158.288		3- legged	Towards Village
40	162.582		93.275	158.646		3- legged	Towards Village
41	162.857		93.553	158.922		3- legged	Towards Nala Ghat
42	163.220		93.918	159.286		3- legged	Towards Forest
43	163.461		94.211	159.523		3- legged	Towards Village
44	163.540		94.291	159.606		3- legged	Towards Village
45	163.581		94.331	159.644		3- legged	Towards Village
46	164.264		95.019	160.328		3- legged	Towards Forest
47	165.076		95.812	161.139		3- legged	Towards Village
48	165.306		96.043	161.369		3- legged	Towards Village
49	165.576		96.314	161.639		3- legged	Towards Fair Office
50	167.449		98.161	163.509		3- legged	Towards Deusawer Village
51	167.754		98.468	163.816		4- legged	Towards Gori Mari Village(LHS), Towards Lampara Village(RHS)
52	168.572		99.422	164.633		3- legged	Towards Village
53	168.967		99.819	165.028		3- legged	Towards Village
54	169.156		100.009	165.217		3- legged	Towards Village
55	169.963		100.783	166.024		3- legged	Towards Village
56	170.099		100.919	166.160		3- legged	Towards Village
57	171.157		101.833	167.218		4- legged	Towards Jamdani(LHS),Towards Nijargai(RHS)
58	171.349		102.026	167.410		3- legged	Towards Bhurkibari Bazar

Sl. No.	Location					Type	
	Survey Ch.		Existing Chainage as per NH-37 (km)	Design Ch.			
	From km	To km		From km	To km	T-Junction	Cross Road
59	171.462		102.139	167.523		3- legged	Towards Santipur
60	171.716		102.395	167.777		3- legged	Towards Chudrapara
61	172.367		103.050	168.428		3- legged	Towards Patgaon
62	173.269		103.886	169.331		3- legged	Towards Khorkhori
63	173.662		104.279	169.722		3- legged	Towards Simsang Village
64	175.695		106.326	171.756		3- legged	Towards Chhaygaon Primary Health Center
65	176.278		106.912	172.338		3- legged	Towards Village
66	176.300		106.933	172.360		3- legged	Towards Village
67	176.845		107.481	172.907		3- legged	Towards Dhobargaon Village

16. Bypasses

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

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

17. Other structures

[Provide details of other structures, if any.]

Nil

18. Existing utilities

(i) Electrical utilities

The site includes the following electrical utilities:-

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

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

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

S.NO	Chainage		Length (in Km)			Crossings				Transformers	
	From (Km)	To (Km)	33KV	11KV	LT	132KV	33KV	11KV	LT	No	Capacity
1	145.250	146.450	1.200								
2	145.350	145.550			0.200						

Widening/Improvement to 4 (Four) Lane with Paved Shoulder from Ch. 143.680km to Ch.177.372 km (Design Ch.139.750km to Ch.173.434km) for Package-9 of Bilasipura-Guwahati road(NH 17) (Section: Dhupdhara Sahar toMilmila R.F(before Chayagaon Market)) in the state of Assam on EPC mode.

S.NO	Chainage		Length (in Km)			Crossings				Transformers	
	From (Km)	To (Km)	33KV	11KV	LT	132KV	33KV	11KV	LT	No	Capacity
3	145.350								0.02		
4	145.450								0.020		
5	145.850							0.020			
6	145.800	145.850		0.050							
7	145.850	147.680			1.830						
8	145.950							0.022			
9	146.350									1	
10	146.250	147.250		1							
11	146.550	149.150	2.6								
12	146.450								0.025		
13	148.450	149.750			1.3						
14	149.450	150.350		0.900				0.020			
15	146.680								0.020		
16	146.950								0.025		
17	147.300								0.020		
18	147.650								0.023	1	
19	148.150							0.021			
20	148.450									1	
21	148.750								0.020		
22	148.800								0.020		
23	148.850							0.020	0.020	1	
24	149.050						0.020	0.020			
25	149.950	150.350	0.4								
26	150.550	150.650	0.1								
27	150.600						0.025				
28	150.650	151.050		0.4				0.020			
29	150.850							0.022		1	
30	151.150	151.850			0.7						
31	151.900	152.150		0.250							

S.NO	Chainage		Length (in Km)			Crossings				Transformers	
	From (Km)	To (Km)	33KV	11KV	LT	132KV	33KV	11KV	LT	No	Capacity
32	151.350	151.950			0.6				0.020		
33	151.650								0.020		
34	151.800								0.025		
35	151.850							0.020			
36	152.150							0.020			
37	152.550								0.020		
38	152.600								0.020		
39	152.650	152.950			0.300						
40	152.950								0.020		
41	153.200								0.022		
42	153.250	153.950		0.7							
43	153.350							0.020	0.020		
44	153.450								0.020		
45	153.650								0.020		
46	153.950									1	
47	153.940	154.450		0.5							
48	154.040	154.440			0.400						
49	158.090	158.950		0.86							
50	158.090							0.020			
51	158.100									1	
52	158.050	158.500			0.45						
53	158.500								0.020		
54	158.650	158.750			0.100						
55	158.790							0.025			
56	159.050	159.500		0.450							
57	159.050							0.020			
58	159.050								0.020		
59	159.040	159.190			0.15						

S.NO	Chainage		Length (in Km)			Crossings				Transformers	
	From (Km)	To (Km)	33KV	11KV	LT	132KV	33KV	11KV	LT	No	Capacity
60	159.400	159.550			0.15						
61	159.600	160.150		0.55							
62	159.500									1	
63	159.500							0.024			
64	159.690								0.020		
65	159.650							0.020			
66	159.600	159.950			0.35						
67	160.140	160.550			0.41						
68	160.300								0.020		
69	160.500								0.023		
70	160.530							0.020			
71	160.525									1	
72	160.140	160.700		0.56							
73	160.700	161.200		0.5							
74	160.900							0.020			
75	160.840									1	
76	160.830	161.230			0.4						
77	161.090								0.020		
78	161.150								0.020		
79	161.230								0.020		
80	161.290	161.790		0.5							
81	161.500							0.020			
82	161.240	161.790			0.55						
83	161.250								0.020		
84	161.330								0.020		
85	161.400								0.020		
86	161.550								0.020		
87	161.600								0.020		
88	161.790								0.024		

S.NO	Chainage		Length (in Km)			Crossings				Transformers	
	From (Km)	To (Km)	33KV	11KV	LT	132KV	33KV	11KV	LT	No	Capacity
89	161.880	162.240		0.33							
90	161.240									1	
91	161.880							0.020			
92	161.950							0.020			
93	162.140							0.020			
94	161.900	162.490			0.59						
95	162.050								0.020		
96	162.090								0.020		
97	162.440								0.020		
98	162.530	163.040		0.51							
99	162.530							0.020			
100	162.550									1	
101	162.850									1	
102	163.040									1	
103	162.630	163.025	0.4								
104	162.550	163.040			0.49						
105	162.625								0.020		
106	161.740								0.020		
107	161.840								0.020		
108	163.050	163.550			0.5						
109	163.050	163.550	0.5								
110	163.130								0.020		
111	163.130						0.022				
112	163.240								0.020		
113	163.540	163.990	0.45								
114	163.840							0.025			
115	163.840	164.040		0.2							
116	164.000							0.021			

Widening/Improvement to 4 (Four) Lane with Paved Shoulder from Ch. 143.680km to Ch.177.372 km (Design Ch.139.750km to Ch.173.434km) for Package-9 of Bilasipura-Guwahati road(NH 17) (Section: Dhupdhara Sahar toMilmila R.F(before Chayagaon Market)) in the state of Assam on EPC mode.

S.NO	Chainage		Length (in Km)			Crossings				Transformers	
	From (Km)	To (Km)	33KV	11KV	LT	132KV	33KV	11KV	LT	No	Capacity
117	163.550	163.960			0.41						
118	163.860								0.020		
119	163.980								0.020		
120	164.040	164.540	0.5								
121	164.140	164.540			0.4						
122	164.140								0.020		
123	164.590	165.040	0.45								
124	164.590	165.030			0.44						
125	164.930								0.024		
126	164.650							0.020			
127	164.650								0.020		
128	164.650									1	
129	165.090	165.590	0.5								
130	165.090	165.590			0.5						
131	165.470	165.590		0.12							
132	165.470									1	
133	165.240								0.020		
134	165.600	165.990	0.39								
135	165.600	165.990		0.39							
136	165.740							0.020			
137	165.640	166.090			0.45						
138	165.830								0.020		
139	166.090	166.940	0.85								
140	166.090	166.250		0.16							
141	166.250									1	
142	166.190	166.340			0.15						
143	166.990	167.450	0.46								
144	167.390						0.022				
145	167.290	167.500			0.21						

S.NO	Chainage		Length (in Km)			Crossings				Transformers	
	From (Km)	To (Km)	33KV	11KV	LT	132KV	33KV	11KV	LT	No	Capacity
146	167.450							0.020			
147	167.390	168.040		0.65							
148	167.780							0.020			
149	167.700	168.040			0.34						
150	167.925								0.020		
151	167.630	167.950	0.32								
152	168.075	168.550	0.48								
153	168.075						0.024				
154	168.090	168.590		0.5							
155	168.590							0.020			
156	168.450	168.600			0.15						
157											
158	168.690	169.340			0.65						
159	169.340								0.020		
160	168.640	169.415		0.78							
161	169.415							0.020			
162	168.640	169.590	0.95								
163	169.590						0.025				
164	169.340	169560			0.22						
165	169.560								0.020		
166	169.415	169.780		0.37							
167	169.780							0.020			
168	169.590	172.800	3.21								
169	172.800						0.025				
170	169.340	169.580			0.24						
171	169.580								0.020		
172	169.580	170.740			1.16						
173	170.740								0.022		

S.NO	Chainage		Length (in Km)			Crossings				Transformers	
	From (Km)	To (Km)	33KV	11KV	LT	132KV	33KV	11KV	LT	No	Capacity
174	170.740	171.590			0.85						
175	171.590								0.020		
176	169.780	170.110		0.33							
177	170.110							0.020			
178	170.110	171.110		1							
179	170.110							0.020			
180	170.110	171.800		1.69							
181	171.800							0.020			
182	171.800	172.170		0.37							
183	172.170							0.022			
184	172.800	176.970	4.17								
158	176.970						0.025				
159	171.590	176.960			5.37						
160	176.960								0.020		
161	172.170	172.890		0.72							
162	172.890							0.020			
163	172.890	174.920		2.03							
164	174.920							0.023			
165	174.920	176.220		1.3							
167	176.960	177.120			0.16						
168	177.120								0.020		
169	176.970	177.374	0.4								

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

The site includes the following Public Health utilities:-

SLNo	Chainage		Length(in Km)	Crossings(in km)
	From (Km)	To (Km)	Water Supply line	Water Supply line
1	172.170	173.620	1.450	
2	173.620			0.010
3	173.620	174.090	0.470	

SLNo	Chainage		Length(in Km)	Crossings(in km)
	From (Km)	To (Km)	Water Supply line	Water Supply line
4	173.620	173.810	0.190	
5	161.010	161.720	0.710	
6	161.590	161.720	0.130	
7	161.720			0.010
8	161.720	161.930	0.210	
9	169.980	170.520	0.540	
10	151.242	151.512	0.270	
11	151.242	151.512	0.270	
12	151.512			0.010
13	151.512	151.592	0.080	
14	151.512	151.612	0.100	
15	163.818	164.578	0.760	
16	163.998	164.578	0.580	
17	164.578			0.010
18	164.578	164.648	0.070	
19	164.578	165.318	0.740	
20	168.859	169.259	0.400	
21				0.010
22	169.259	169.399	0.140	
23	169.259	169.749	0.490	
24				0.010
25	169.749	169.979	0.230	
26	169.749	169.899	0.150	
27	167.290	167.770	0.480	
28	144.480	144.710	0.230	
29	159.818	160.048	0.230	
30				0.010
31	160.048	160.498	0.450	
32	163.335	163.990	0.655	
33	177.019	177.304	0.285	

(iii) Any Other line

(* This illustrative and may change as per features of existing utilities.)

Annex – II

(As per Clause 8.3 (i))

(Schedule-A)

Dates for providing Right of Way of Construction Zone

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

Sr. No.	From km To km	Length (Km)	Proposed ROW (m)	Date of providing ROW*
1	**2**	**3**	**4**	**5**
Full Right of Way (full width)	Excluding Bus bays& Toll Plaza	32.650	Rural Area :35m - 40m Built-up Location :30m- 45m Forest Location-30m	At appointed date
Balance Right of Way (Width)	Bus bays	0.330	45m	Within 150 days of declaration of appointed date
	Toll Plaza	0.704	-	

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

`Annex-III

(Schedule-A)

Alignment Plans

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

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

(iii) Traffic Signage plan of the Project Highway showing numbers & location of traffic signs is enclosed. The contractor shall, however,

(iv) Improve/upgrade upon the traffic signage plan as indicated in Annex-III based on site/design requirement as per the relevant specifications/IRC Codes/Manual.

Annex – IV

(Schedule-A)

Environment Clearances

The following environment clearances have been obtained:

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

<table>
<tr><th>Sr. No.</th><th>Clearances</th><th>Present Status</th></tr>
<tr><td>1</td><td>Environment clearance</td><td>Not Required</td></tr>
<tr><td>2</td><td>Forest Clearance</td><td>Required forest clearance.

The proposal is uploaded in the parivesh portal. Joint verification is completed with forest department.

The project stretch passes throughSingra Reserved Forest, Luki Reserved Forest, Jharikhuri Reserved Forest, Mogakhal Reserved Forest, Kothakoti Proposed Reserved Forest, Dudhkhuri Reserved Forest, Chaygaon Reserved Forest and Milmilia Reserved Forest. Details are given below.

<table>
<tr><th colspan="2">As per Existng Survey Ch(m)</th><th colspan="2">As per Existng NH-37 Ch</th><th rowspan="2">Side</th><th rowspan="2">Effective Length(m)</th><th rowspan="2">Length(m)</th><th rowspan="2">Remaks</th></tr>
<tr><th>From</th><th>To</th><th>From</th><th>To</th></tr>
<tr><td>148.980</td><td>150.614</td><td>79.606</td><td>81.240</td><td>LHS</td><td>1.634</td><td>1.634</td><td>Singra RF</td></tr>
<tr><td>150.614</td><td>151.219</td><td>81.240</td><td>81.845</td><td>BOTH</td><td>1.210</td><td>0.605</td><td>Singra RF</td></tr>
<tr><td>151.219</td><td>151.236</td><td>81.845</td><td>81.862</td><td>LHS</td><td>0.017</td><td>0.017</td><td>Singra RF</td></tr>
<tr><td>153.487</td><td>154.437</td><td>84.115</td><td>85.065</td><td>RHS</td><td>0.950</td><td>0.95</td><td>Luki RF</td></tr>
<tr><td rowspan="2">154.437</td><td rowspan="2">158.107</td><td rowspan="2">85.065</td><td rowspan="2">88.735</td><td>LHS</td><td>3.670</td><td rowspan="2">3.67</td><td>Jharikhuri RF</td></tr>
<tr><td>RHS</td><td>3.670</td><td>Luki RF</td></tr>
<tr><td>158.107</td><td>158.423</td><td>88.735</td><td>89.051</td><td>RHS</td><td>0.316</td><td>0.316</td><td>Luki RF</td></tr>
<tr><td>159.085</td><td>159.677</td><td>89.758</td><td>90.350</td><td>LHS</td><td>0.592</td><td>0.592</td><td>Mogakhal RF</td></tr>
<tr><td>165.819</td><td>166.352</td><td>96.428</td><td>96.961</td><td>RHS</td><td>0.533</td><td>0.533</td><td>Kothakoti PRF</td></tr>
<tr><td>166.352</td><td>167.339</td><td>96.961</td><td>97.948</td><td>BOTH</td><td>1.974</td><td>0.987</td><td>Dudhkhuri RF</td></tr>
<tr><td>171.625</td><td>172.689</td><td>102.142</td><td>103.206</td><td>RHS</td><td>1.064</td><td>1.064</td><td>Chaygaon RF</td></tr>
<tr><td>172.689</td><td>174.429</td><td>103.206</td><td>104.946</td><td>RHS</td><td>1.740</td><td>1.74</td><td>Milmilia RF</td></tr>
<tr><td>174.429</td><td>175.279</td><td>104.946</td><td>105.796</td><td>BOTH</td><td>1.700</td><td>0.85</td><td>Milmilia RF</td></tr>
<tr><td>175.279</td><td>175.776</td><td>105.796</td><td>106.293</td><td>RHS</td><td>0.497</td><td>0.497</td><td>Milmilia RF</td></tr>
</table></td></tr>
<tr><td>3</td><td>Wildlife Approval</td><td>Not Required</td></tr>
</table>

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 [Four-Laning and Strengthening] of the Project Highway as described in Annex-I of this Schedule-B and in Schedule-C.

3. Specifications and Standards

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

Annex – I

(Schedule-B)

Description of [Four-Laning]

[Note: Description of the Project Highway shall be given by the Authority in detail together with explanatory drawings (where necessary) to explain the Authority's requirements precisely in order to avoid subsequent changes in the Scope of the Project. The particulars that must be specified in this Schedule-B are listed below as per the requirements of the Manual of Specifications and Standards for [Four Laning of Highways (IRC: SP: 84-2014 & 2019)], referred to as the Manual. If any standards, specifications or details are not given in the Manual, the minimum design/construction requirements shall be specified in this Schedule. In addition to these particulars, all other essential project specific details, as required, should be provided in order to define the Scope of the Project clearly and precisely.]

1. Widening of the Existing Highway

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

(ii) Width of Carriageway

(a) Four-Lanning [with] paved shoulders shall be undertaken. The paved carriageway shall be [7(seven)m x2] wide in accordance with the typical cross sections drawings in the Manual.

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

Sl. No.	Built-up stretch (Township)	Location (kmto km)	Width (m)	Typical Cross Section (Refer to Manual)	Remarks
Nil					

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

2. Geometric Design and General Features

(i) General

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

(ii) Design speed

The design speed shall be 80-100 km per hr. for plain/ rolling terrain.

(iii) Improvement of the existing road geometrics

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

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

Sl. No.	Stretch (from km to km)	Type of deficiency	Remarks
Nil			

(iv) Right of Way
[Refer to provision of relevant Manual].Details of the Right of Way are given in Annex-II of Schedule-A.

v) Type of shoulders

[Refer to paragraph 2.5.2 of the Manual and specify]

(a) In built-up locations, Drain cum footpaths/fully paved shoulders shall be provided in the following stretches:

Sl. No.	Stretch (from Km to Km)	Fully Paved shoulders/ footpaths	Reference to TCS
1	Km 140.330 to km 141.070	2 X 2.5 m Paved Shoulder/ 2 X 1.0m width Drain Cum Footpath	TCS-4B
2	Km 144.670 to km 145.050	2 X 2.5 m Paved Shoulder/ 2 X 1.0m width Drain Cum Footpath	TCS-4B
3	Km 147.306 to km 147.820	2 X 2.5 m Paved Shoulder/ 2 X 1.0m width Drain Cum Footpath	TCS-4B
4	Km 149.000 to km 149.550	2 X 2.5 m Paved Shoulder/ 2 X 1.0m width Drain Cum Footpath	TCS-4B
5	Km 156.715 to km 157.235	2 X 2.5 m Paved Shoulder/ 2 X 1.0m width Drain Cum Footpath	TCS-4B
6	Km 159.440 to km 160.050	2 X 2.5 m Paved Shoulder/ 2 X 1.0m width Drain Cum Footpath	TCS-4B
7	Km 160.600 to km 161.550	2 X 2.5 m Paved Shoulder/ 2 X 1.0m width Drain Cum Footpath	TCS-4B2
8	Km 163.710 to km 164.100	2 X 2.5 m Paved Shoulder/ 2 X 1.0m width Drain Cum Footpath	TCS-4B
9	Km 164.950 to km 166.200	2 X 2.5 m Paved Shoulder/ 2 X 1.0m width Drain Cum Footpath	TCS-4E
10	Km 167.400 to km 167.686	2 X 2.5 m Paved Shoulder/ 2 X 1.0m width Drain Cum Footpath	TCS-4B

- For width of paved shoulder at flyover and VUP approaches refer TCS-6E and TCS-6A

(b) In open country, [paved shoulders of 2.5 m width and balance 1.5m width shall be covered with 150 mm thick compacted layer of granular material].

- For width of paved shoulder at EUP approaches refer TCS-6D

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

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

(vi) Lateral and vertical clearances at underpasses

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

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

Sl. No.	Location (Chainage)	Span/opening(m)	Remarks
1	156.283	1x30m	Riangdo Road(SH)(VUP)
2	157.550	1x15m	Samoriya Road (LVUP)
3	157.600	1x15m	Kampaduli Lampi Road(LVUP)

(vii) Lateral and vertical clearances at overpasses

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

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

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

(viii) Service roads

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

Sl. No.	Location of service road(from km to km)	Right hand side(RHS)/Left hand side(LHS)/or Both sides	Length (km)of service road	Reference to TCS	Remarks
1	Km 140.330 to km 141.070	Both sides	2X0.740=1.480	TCS 4B	2x5.5m
2	Km 144.670 to km 145.050	Both sides	2X0.380=0.760	TCS 4B	2x5.5m

Sl. No.	Location of service road(from km to km)	Right hand side(RHS)/Left hand side(LHS)/or Both sides	Length (km)of service road	Reference to TCS	Remarks
3	Km 145.442 to km 146.775	Both sides	2X1.333=2.666	TCS 6D	2x3.5m
4	Km 147.306 to km 147.820 km	Both sides	2X0.514=1.028	TCS 4B	2x5.5m
5	Km 149.000 to km 149.550	Both sides	2X0.550=1.100	TCS 4B	2x5.5m
6	Km 155.740 to km 155.897	Both sides	2X0.157=0.314	Tapered Location	Varying Width
7	Km 155.897 to km 156.715 km	Both sides	2X0.818=1.636	TCS 6A	2x7.5m
8	Km 156.715 to km 157.235	Both sides	2X0.520=1.040	TCS 4B	2x5.5m
9	Km 157.235 to km 157.722 km	Both sides	2X0.487=0.974	TCS 6E	2x7.5m
10	Km 157.722 to km 158.848	Both sides	2X1.126=2.252	TCS 8	2x7.5m
11	Km 158.848 to km 159.070 km	Both sides	2X0.222=0.444	TCS 6E	2x7.5m
12	Km 159.070 to km 159.295	Both sides	2X0.225=0.450	Tapered Location	Varying Width
13	Km 159.440 to km 160.050 km	Both sides	2X0.610=1.220	TCS 4B	2x5.5m
14	Km 160.600 to km 161.550	Both sides	2X0.950=1.900	TCS 4B2	2x5.5m
15	Km 163.710 to km 164.100 km	Both sides	2X0.390=0.780	TCS 4B	2x5.5m
16	Km 164.950 to km 166.200	Both sides	2X1.250=2.500	TCS 4E	2x5.5m
17	Km 167.400 to km 167.686	Both sides	2X0.286=0.572	TCS 4B	2x5.5m

*The specified length of Service Road indicated in this location is minimum

(ix) Grade separated structures

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

[Refer to requirements specified in the relevant Manual]

Sl. No.	Location of Structure	Length (m)	Number and length of spans (m)	Total Width (m)	Approach gradient	Remarks
1	Mugakhol (Ch. 156.283Km)	30	1x30m	2x9.5m(CW) + 4 x 0.5m(Crash Barrier) + 1x 0.5m(median gap)=21.5m	2.50%	PSC T Girder(VUP)
2	Boko(Ch. 157.550Km)	15	1x15m	2x10.5m(CW) + 2 x 0.5m(Crash Barrier) + 2x 0.45m(Crash barrier)+0.1(Gap)=23m		Integral Slab (LVUP)
3	Boko(Ch. 157.600Km)	15	1x15m			Integral Slab (LVUP)
4	Boko (Km 157.722 to Km 158.848)	1126	31 x 35m + 1 x 40m	2 x 10.5m(CW) + 2 x 0.5m(Crash Barrier) + 1x 1.0m(median)=23m		PSC Box Girder(Flyover)

InVUP, LVUP&Flyover approach locations, Reinforced Earth Wall shall be provided in the following stretches:

Location		Length (km)
From(km)	To(km)	
155.897	156.715	0.818
157.235	157.722	0.487
158.848	159.070	0.222
Total length=		**1.527**

*The specified length of Reinforced earth wall is the minimum requirement

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

Sl. No.	Location	Type of structure Length(m)	Cross road at			Remarks. If any
			Existing Level	Raised Level	Lowered Level	
1	Mugakhol (Ch. 156.283Km)	VUP, 1x30m	-	-	-	-
2	Boko(Ch. 157.550Km)	LVUP, 1x15m	-	-	-	-
3	Boko(Ch. 157.600Km)	LVUP, 1x15m	-	-	-	-
4	Boko(Km 157.722 to Km 158.848)	Flyover, 31 x 35m + 1 x 40m	-	-	-	-

(x) Cattle and pedestrian underpass /overpass

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

Sl.No.	Location	Type of crossing
Nil		

The details of Elephant Under passes is given below.

Sl.No.	Location(km)	Span Arrangement (No. x Span in m)	Type of Structure	Total Width (m)	Remarks
1	145.950	2 x 30m	PSC T Girder	2x9.5m(CW) + 4 x 0.5m(Crash Barrier) + 1x 0.5m(median)=21.5m	
2	146.270	2 x 30m	PSC T Girder		

In EUP approach locations, Reinforced Earth Wall shall be provided in the following stretches:

Location		Length (km)
From(km)	To(km)	
145.442	146.775	1.333
Total length=		**1.333**

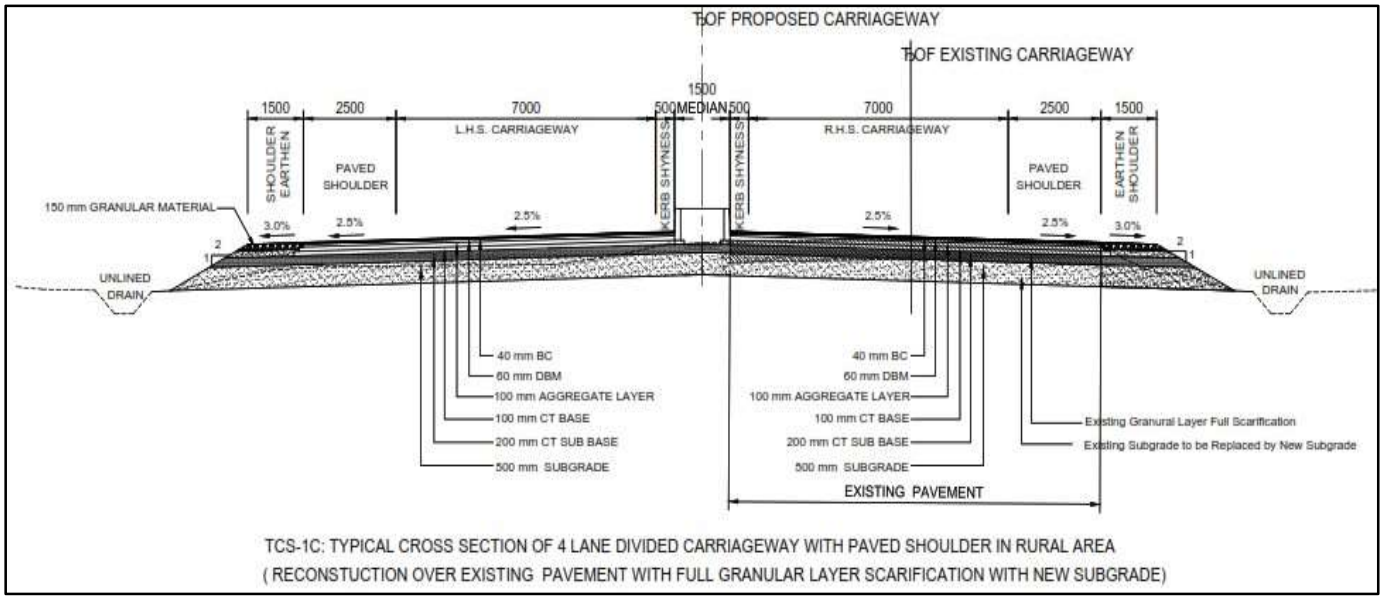
*The specified length of Reinforced earth wall is the minimum requirement

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

Sl. No.	Description	Length (m)
TCS 1C	TYPICAL CROSS SECTION OF 4 LANE DIVIDED CARRIAGEWAY WITH PAVED SHOULDER IN RURAL AREA (RECONSTRUCTION OVER EXISTING PAVEMENT WITH FULL GRANULAR LAYER SCARIFICATION WITH NEW SUBGRADE)	6997
TCS 1C2	TYPICAL CROSS SECTION OF 4 LANE DIVIDED CARRIAGEWAY WITH PAVED SHOULDER IN RURAL AREA(RECONSTRUCTION OVER EXISTING PAVEMENT WITH FULL GRANULAR LAYER SCARIFICATION AND RECOMPACTION OF EXISTING SUBGRADE)	2155
TCS 1E	TYPICAL CROSS SECTION OF 4 LANE DIVIDED CARRIAGEWAY WITH PAVED SHOULDER IN RURAL AREA AT BRIDGE APPROACH	1148
TCS-4B	TYPICAL CROSS SECTION OF 4 LANE CARRIAGEWAY WITH BOTH SIDE SERVICE ROAD IN BUILT-UP AREA(RECONSTUCTION OVER EXISTING PAVEMENT WITH FULL GRANULAR LAYER SCARIFICATION AND RECOMPACTION OF EXISTING SUBGRADE)	3990
TCS-4B2	TYPICAL CROSS SECTION OF 4 LANE CARRIAGEWAY WITH BOTH SIDE SERVICE ROAD IN BUILT-UP AREA(RECONSTUCTION OVER EXISTING PAVEMENT WITH FULL GRANULAR LAYER SCARIFICATION AND RECOMPACTION OF EXISTING SUBGRADE)	950

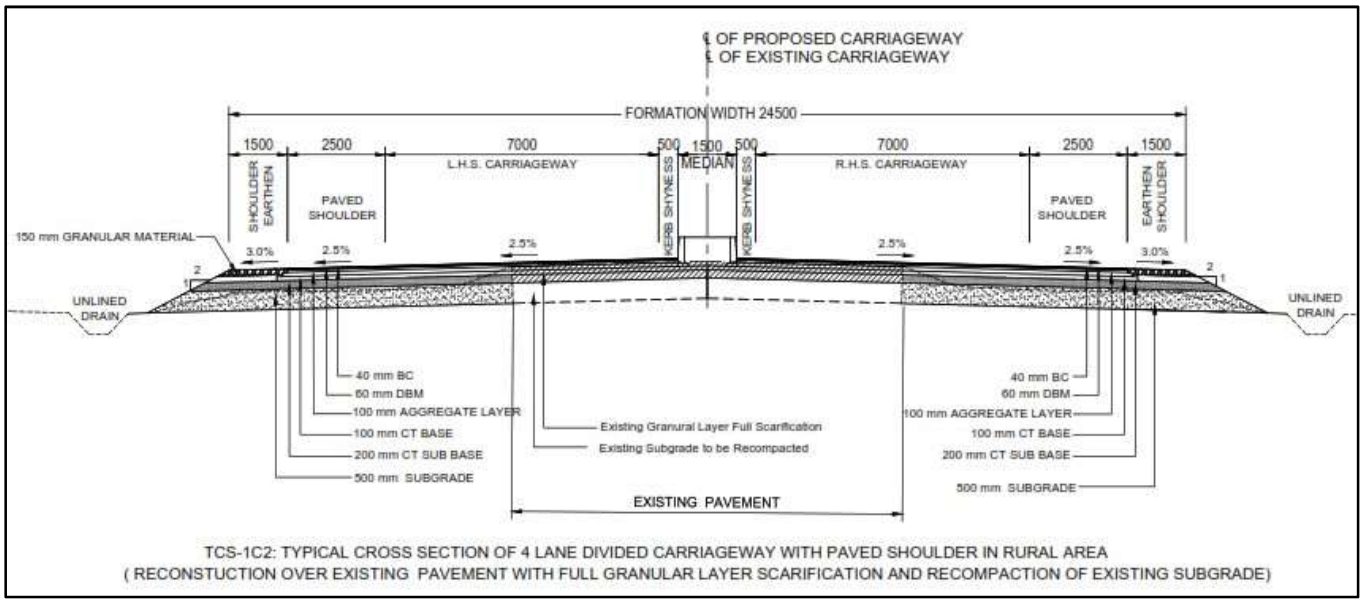
Sl. No.	Description	Length (m)
TCS-4E	TYPICAL CROSS SECTION OF 4 LANE CARRIAGEWAY WITH BOTH SIDE SERVICE ROAD IN BUILT-UP AREA (RECONSTUCTION OVER EXISTING PAVEMENT WITH FULL GRANULAR LAYER SCARIFICATION WITH NEW SUBGRADE)	1250
TCS-5B	TYPICAL CROSS SECTION OF 4 LANE DIVIDED CARRIAGEWAY WITH PAVED SHOULDER IN FOREST STRETCH (RECONSTRUCTION OVER EXISTING PAVEMENT WITH FULL GRANULAR LAYER SCARIFICATION AND RECOMPACTION OF EXISTING SUBGRADE)	5685
TCS-5B2	TYPICAL CROSS SECTION OF 4 LANE DIVIDED CARRIAGEWAY WITH PAVED SHOULDER IN FOREST STRETCH (RECONSTRUCTION OVER EXISTING PAVEMENT WITH FULL GRANULAR LAYER SCARIFICATION WITH NEW SUBGRADE)	6437
TCS-6A	TYPICAL CROSS SECTION OF 4 LANE DIVIDED CARRIAGEWAY WITH PAVED SHOULDER IN VUP APPROACHES WITH BOTH SIDE SERVICE ROAD IN BUILT UP/RURAL AREA FOLLOWS EXISTING 2-LANE ROAD(CONCENTRIC WIDENING)	818
TCS-6D	TYPICAL CROSS SECTION OF 4 LANE DIVIDED CARRIAGEWAY WITH PAVED SHOULDER IN EUP APPROACHES WITH BOTH SIDE SLIP ROAD	1333
TCS-6E	TYPICAL CROSS SECTION OF 4 LANE DIVIDED CARRIAGEWAY WITH PAVED SHOULDER IN FLYOVER APPROACHES WITH BOTH SIDE SERVICE ROAD	709
TCS 8	TYPICAL CROSS SECTION OF 4 LANE DIVIDED CARRIAGEWAY WITH PAVED SHOULDER IN FLYOVER WITH BOTH SIDE SERVICE ROAD IN BUILT-UP AREA	1126
	TOLL PLAZA	704
	TAPPERED PORTION	382
	Total Length=	**33684**

Typical cross-sections (TCS) drawings are given below:

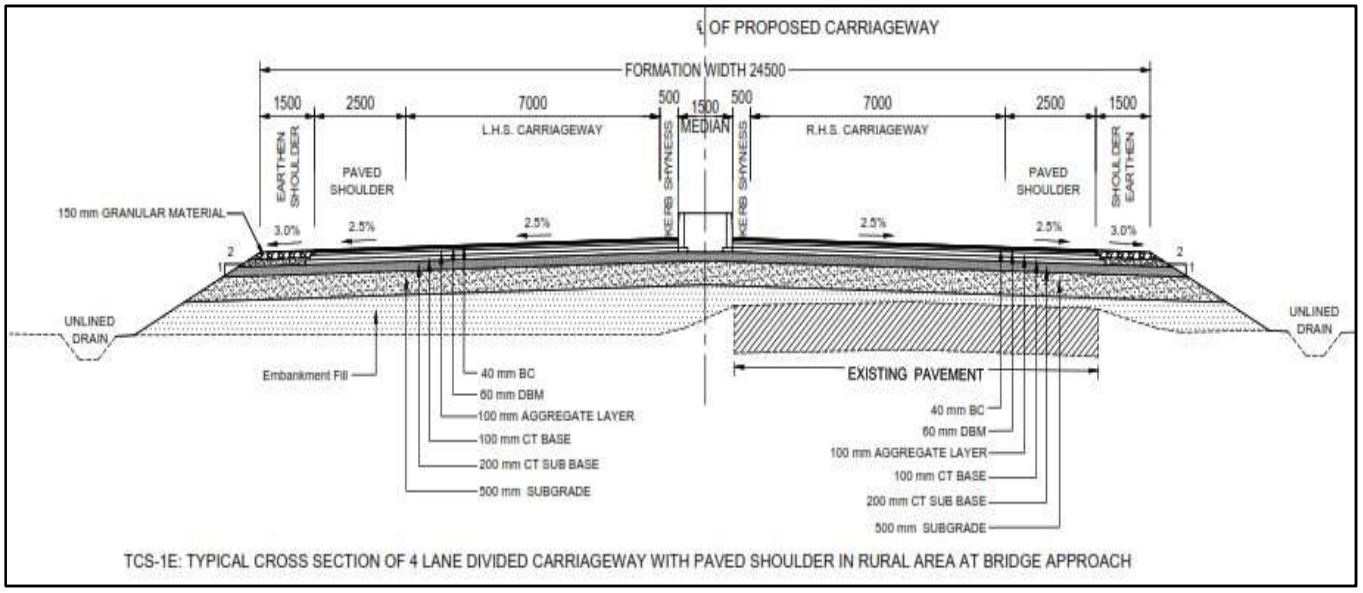


TCS-1C: TYPICAL CROSS SECTION OF 4 LANE DIVIDED CARRIAGEWAY WITH PAVED SHOULDER IN RURAL AREA
(RECONSTUCTION OVER EXISTING PAVEMENT WITH FULL GRANULAR LAYER SCARIFICATION WITH NEW SUBGRADE)

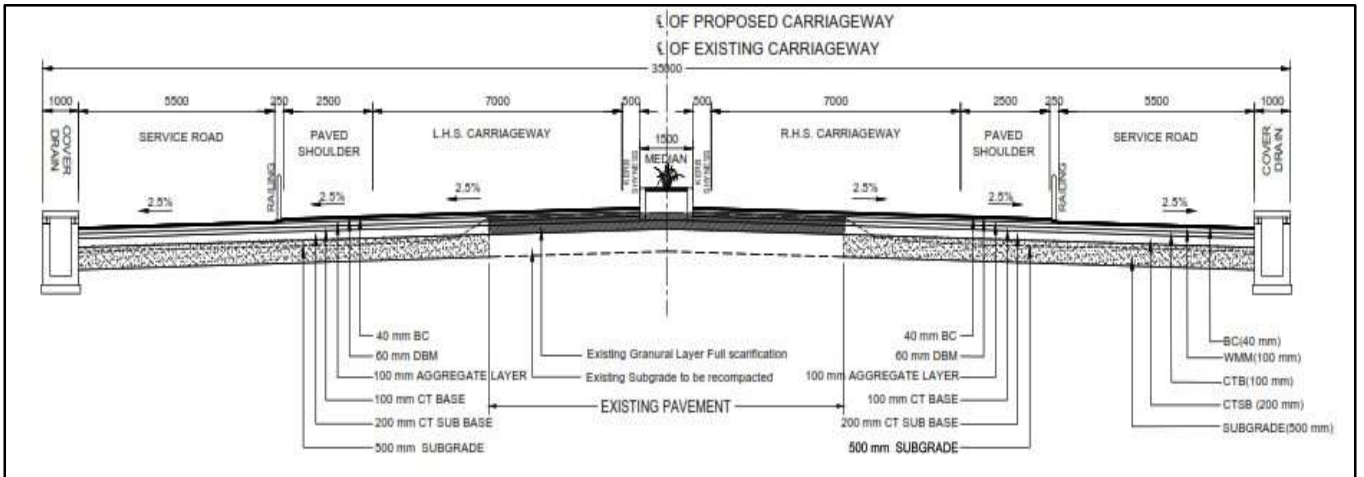
Widening/Improvement to 4 (Four) Lane with Paved Shoulder from Ch. 143.680km to Ch.177.372 km (Design Ch.139.750km to Ch.173.434km) for Package-9 of Bilasipura-Guwahati road(NH 17) (Section: Dhupdhara Sahar toMilmila R.F(before Chayagaon Market)) in the state of Assam on EPC mode.



TCS-1C2: TYPICAL CROSS SECTION OF 4 LANE DIVIDED CARRIAGEWAY WITH PAVED SHOULDER IN RURAL AREA
(RECONSTUCTION OVER EXISTING PAVEMENT WITH FULL GRANULAR LAYER SCARIFICATION AND RECOMPACTION OF EXISTING SUBGRADE)

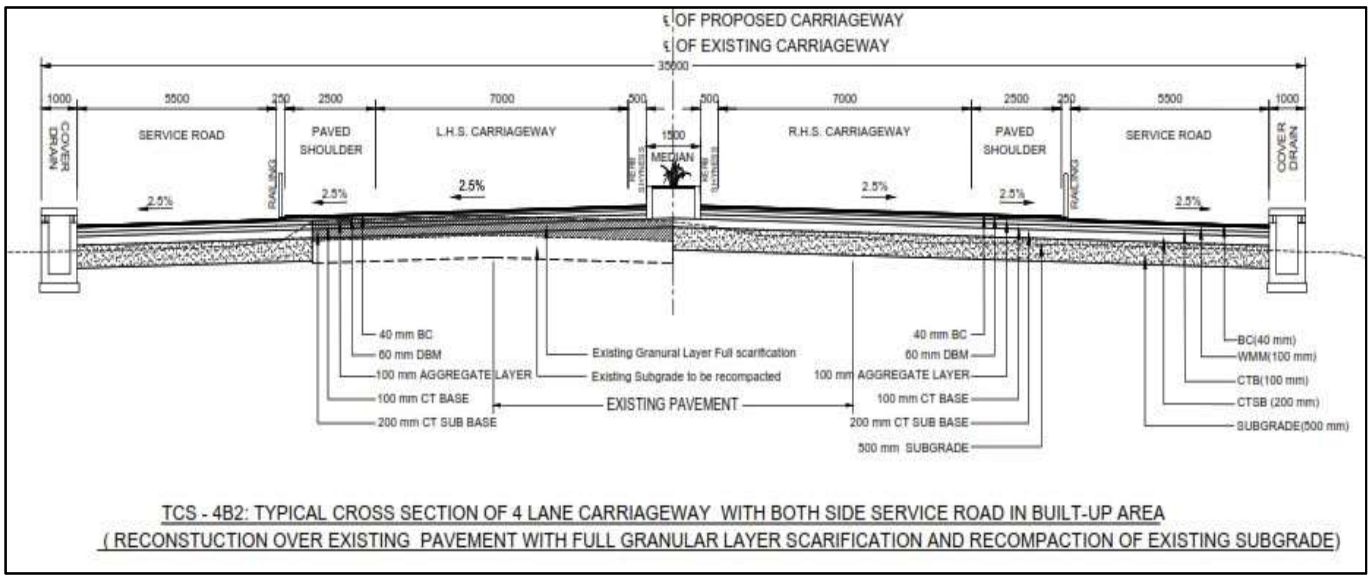


TCS-1E: TYPICAL CROSS SECTION OF 4 LANE DIVIDED CARRIAGEWAY WITH PAVED SHOULDER IN RURAL AREA AT BRIDGE APPROACH

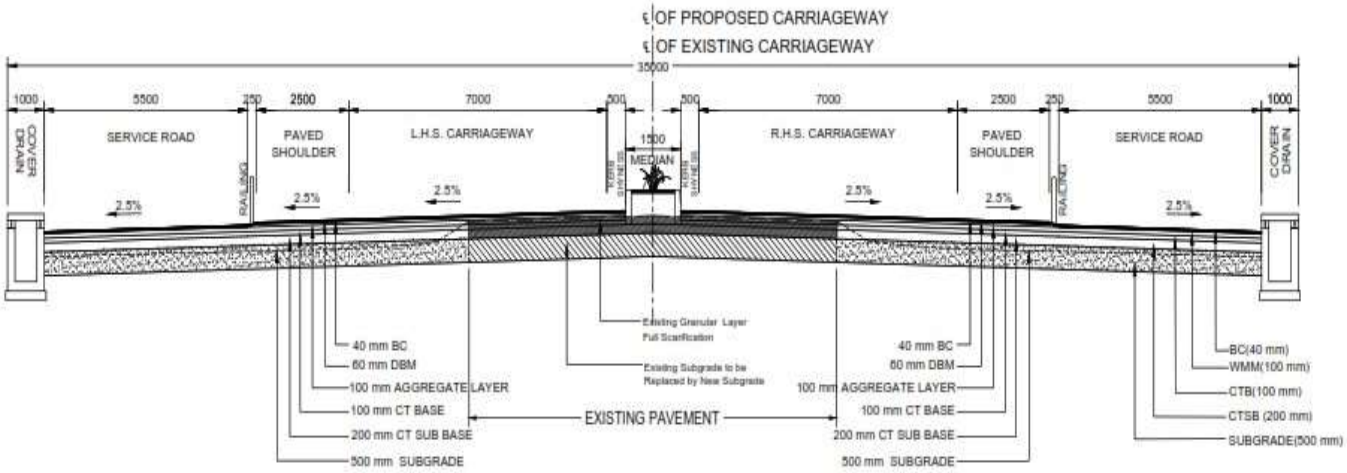


TCS - 4B: TYPICAL CROSS SECTION OF 4 LANE CARRIAGEWAY WITH BOTH SIDE SERVICE ROAD IN BUILT-UP AREA
(RECONSTUCTION OVER EXISTING PAVEMENT WITH FULL GRANULAR LAYER SCARIFICATION AND RECOMPACTION OF EXISTING SUBGRADE)

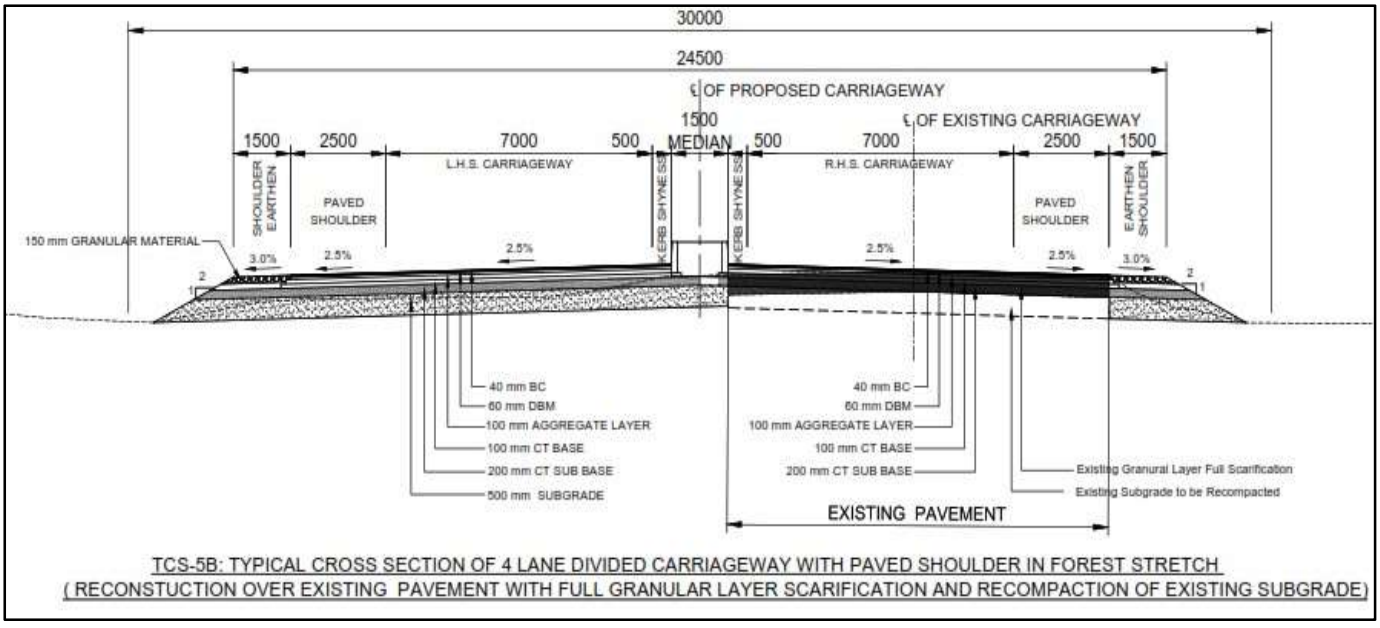
Widening/Improvement to 4 (Four) Lane with Paved Shoulder from Ch. 143.680km to Ch.177.372 km (Design Ch.139.750km to Ch.173.434km) for Package-9 of Bilasipura-Guwahati road(NH 17) (Section: Dhupdhara Sahar toMilmila R.F(before Chayagaon Market)) in the state of Assam on EPC mode.



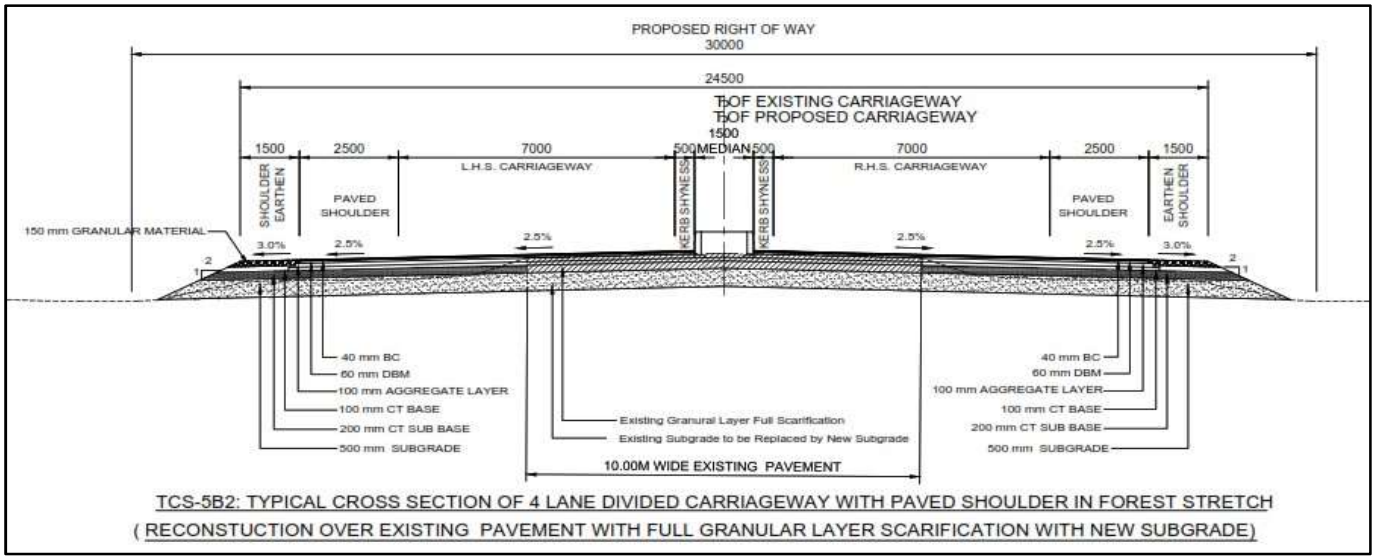
TCS - 4B2: TYPICAL CROSS SECTION OF 4 LANE CARRIAGEWAY WITH BOTH SIDE SERVICE ROAD IN BUILT-UP AREA
(RECONSTUCTION OVER EXISTING PAVEMENT WITH FULL GRANULAR LAYER SCARIFICATION AND RECOMPACTION OF EXISTING SUBGRADE)



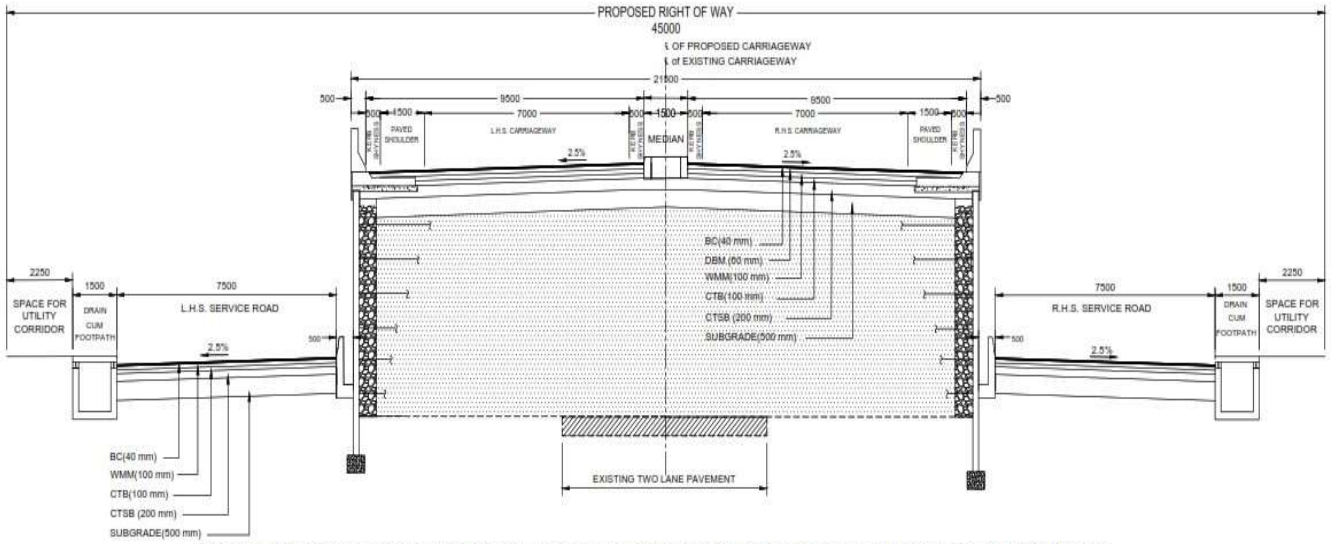
TCS - 4E: TYPICAL CROSS SECTION OF 4 LANE CARRIAGEWAY WITH BOTH SIDE SERVICE ROAD IN BUILT-UP AREA
(RECONSTUCTION OVER EXISTING PAVEMENT WITH FULL GRANULAR LAYER SCARIFICATION WITH NEW SUBGRADE)



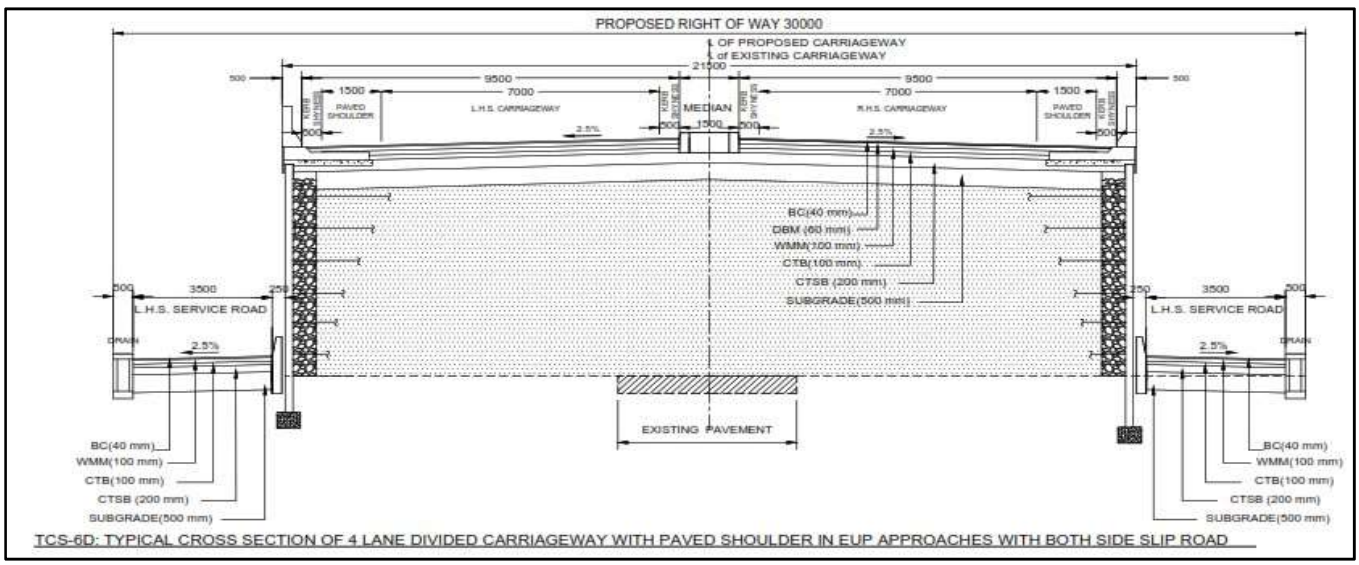
TCS-5B: TYPICAL CROSS SECTION OF 4 LANE DIVIDED CARRIAGEWAY WITH PAVED SHOULDER IN FOREST STRETCH
(RECONSTUCTION OVER EXISTING PAVEMENT WITH FULL GRANULAR LAYER SCARIFICATION AND RECOMPACTION OF EXISTING SUBGRADE)



TCS-5B2: TYPICAL CROSS SECTION OF 4 LANE DIVIDED CARRIAGEWAY WITH PAVED SHOULDER IN FOREST STRETCH
(RECONSTUCTION OVER EXISTING PAVEMENT WITH FULL GRANULAR LAYER SCARIFICATION WITH NEW SUBGRADE)

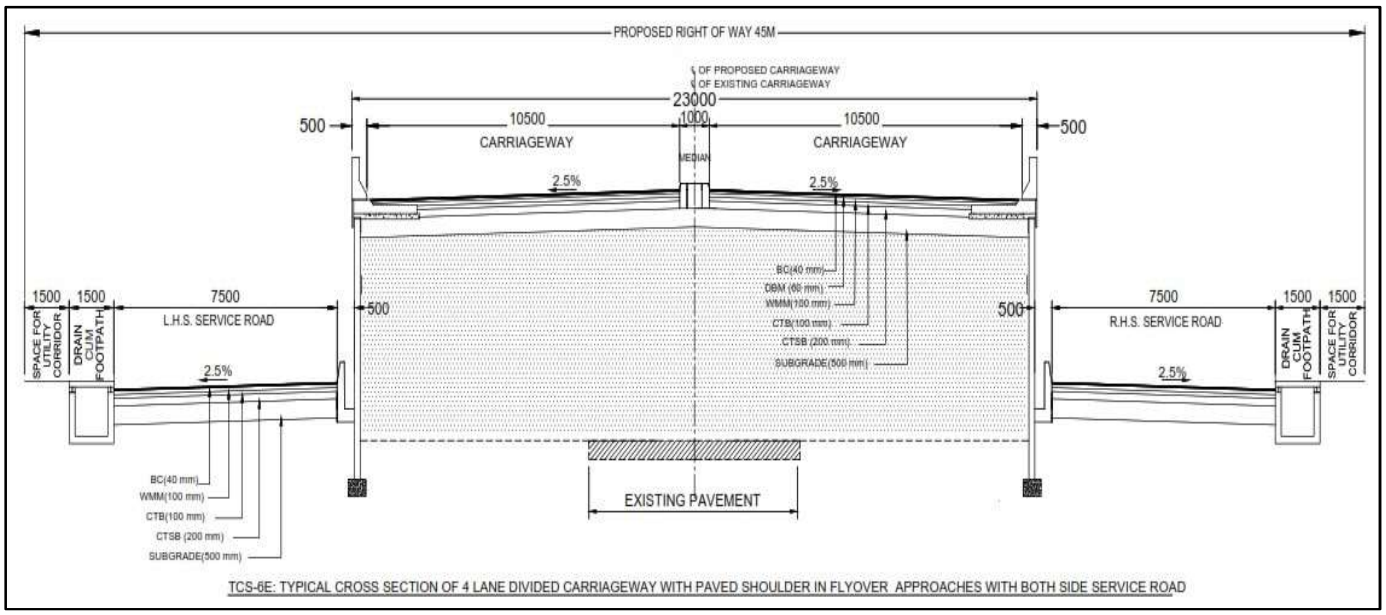


TCS-6A: TYPICAL CROSS SECTION OF 4 LANE DIVIDED CARRIAGEWAY WITH PAVED SHOULDER IN VUP APPROACHES WITH BOTH SIDE SERVICE ROAD
IN BUILT UP/ RURAL AREA FOLLOWS EXISTING 2-LANE ROAD (CONCENTRIC WIDENING)

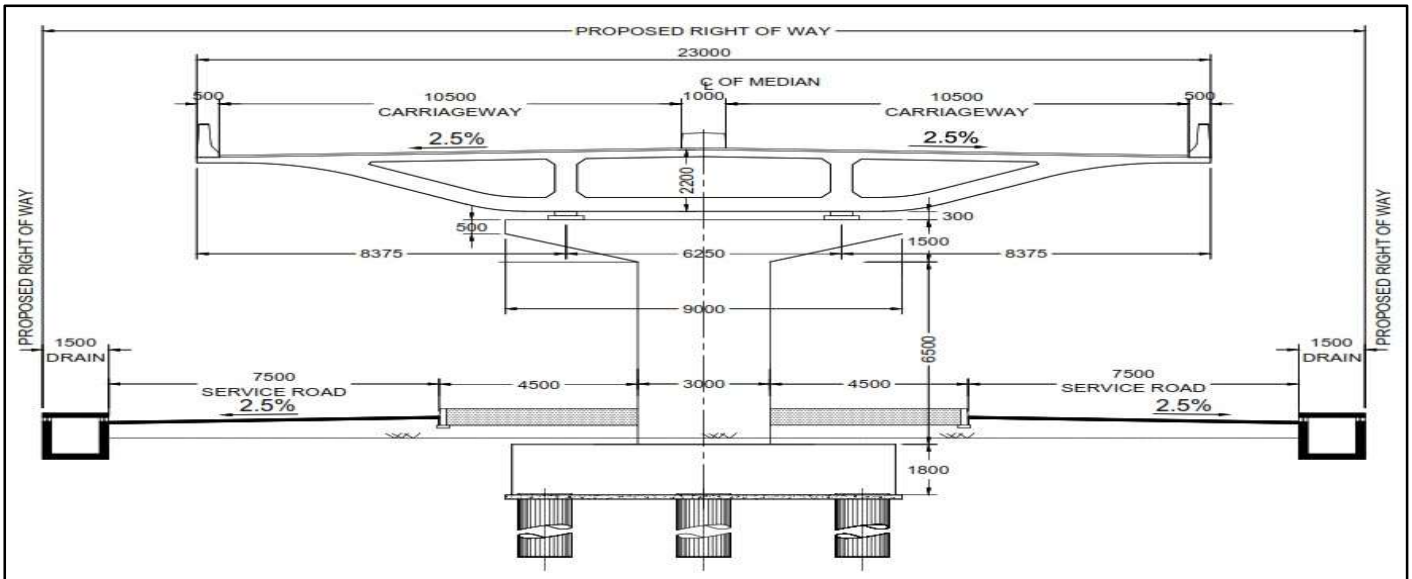


TCS-6D: TYPICAL CROSS SECTION OF 4 LANE DIVIDED CARRIAGEWAY WITH PAVED SHOULDER IN EUP APPROACHES WITH BOTH SIDE SLIP ROAD

Widening/Improvement to 4 (Four) Lane with Paved Shoulder from Ch. 143.680km to Ch.177.372 km (Design Ch.139.750km to Ch.173.434km) for Package-9 of Bilasipura-Guwahati road(NH 17) (Section: Dhupdhara Sahar toMilmila R.F(before Chayagaon Market)) in the state of Assam on EPC mode.



TCS-6E: TYPICAL CROSS SECTION OF 4 LANE DIVIDED CARRIAGEWAY WITH PAVED SHOULDER IN FLYOVER APPROACHES WITH BOTH SIDE SERVICE ROAD



TCS-8: Typical Cross Section of 4 Lane Divided Carriageway with Paved Shoulder in Flyover with Both Side Service Road in Built-up Area

Sl No	Chainage(m)		Length (m)	TCS Type
	From	To		
1	139750	139990	240	TCS 1C2
2	139990	140330	340	TCS 1C
3	140330	141070	740	TCS 4B
4	141070	144670	3600	TCS 1C
5	144670	145050	380	TCS 4B
6	145050	145442	392	TCS 5B
7	145442	146775	1333	TCS 6D
8	146775	147306	531	TCS 5B2
9	147306	147820	514	TCS 4B
10	147820	148400	580	TCS 1C
11	148400	149000	600	TCS 1E
12	149000	149550	550	TCS 4B
13	149550	150100	550	TCS 5B
14	150100	154486	4386	TCS 5B2
15	154486	154750	264	TCS 1C2
16	154750	155148	398	TCS 1E
17	155148	155740	592	TCS 5B
18	155740	155897	157	TAPPERED PORTION(TCS 5B – TCS 6A)
19	155897	156715	818	TCS 6A
20	156715	157235	520	TCS 4B
21	157235	157722	487	TCS 6E
22	157722	158848	1126	TCS 8
23	158848	159070	222	TCS 6E
24	159070	159295	225	TAPPERED PORTION(TCS 6E – TCS 1C2)
25	159295	159440	145	TCS 1C2
26	159440	160050	610	TCS 4B
27	160050	160600	550	TCS 1C
28	160600	161550	950	TCS 4B2
29	161550	161880	330	TCS 1C
30	161880	163400	1520	TCS 5B2
31	163400	163710	310	TCS 1C2
32	163710	164100	390	TCS 4B
33	164100	164950	850	TCS 1C2
34	164950	166200	1250	TCS 4E
35	166200	166450	250	TCS 1C2
36	166450	166600	150	TCS 1E
37	166600	167304	704	TOLL PLAZA
38	167304	167400	96	TCS 1C2
39	167400	167686	286	TCS 4B
40	167686	171837	4151	TCS 5B
41	171837	173434	1597	TCS 1C

Sl No	Chainage(m)		Length (m)	TCS Type
	From	To		
	Total Length		33684.00	

3. Intersections and Grade Separators

All intersections and grade separators shall be as per Section3 of the Manual. Existing intersections which are deficient shall be improved to the prescribed standards.

[Refer to provision of the relevant Manual and specify the requirements. Explain where necessary with drawings/sketches/general arrangement].
Properly designed intersections shall be provided at the locations and of the types and features given in the tables below:

(i) At-grade intersections

Major Intersections

Sl. No.	Location of intersection (Km)	Type of intersection	Other features
1	Mugakhol (Ch.156.283km)	3-legged	Service road withSH-10,Towards Riangdo
2	Boko(Ch.158.370km)	4-legged	Service road with other road, LHS- Towards Puiaranga, RHS- Towards Ruhimpur

Minor Intersections

Sl. No.	Location		Type	
	From km	To km	3/4 Legged	Cross Road
1	139.941		4- legged	Towards Shakhati(LHS & RHS)
2	140.767		3- legged	Towards Gopal Pura
3	141.019		3- legged	Towards Dakshin Chekhadari
4	141.139		3- legged	Towards Boko
5	141.654		3- legged	Towards Village
6	141.770		3- legged	Towards Khatajuli
7	142.058		3- legged	Towards Siliburi
8	142.112		3- legged	Towards Khatajuli
9	142.181		3- legged	Towards Village
10	142.936		3- legged	Towards Bondhapara
11	143.379		3- legged	Towards Bondhapara
12	143.776		3- legged	Towards Village
13	143.844		3- legged	Towards Village
14	144.354		3- legged	Towards Bekeli Village
15	144.491		3- legged	Towards Village
16	144.716		3- legged	Towards Village

Sl. No.	Location		Type	
	From km	To km	3/4 Legged	Cross Road
17	144.920		3- legged	Towards Village
18	145.552		3- legged	Towards Village
19	147.687		3- legged	Towards Dekapara
20	147.714		3- legged	Towards Malang
21	148.784		3- legged	Towards Majhpara
22	149.304		3- legged	Towards 2no Sakhadari
23	149.408		4- legged	Towards 2no Sakhadari(LHS),Towards Nalapara(RHS)
24	149.529		3- legged	Towards Singra Para
25	149.931		3- legged	Towards Singra Para
26	151.875		3- legged	Towards Maa Chandika Temple
27	154.157		3- legged	Towards Budubari Village
28	156.060		3- legged	Towards 2no Boko College
29	156.340		3- legged	Towards 2no Temple
30	156.599		3- legged	Towards Donbosco Jarpara
31	157.554		3- legged	Towards Samoriya
32	157.597		3- legged	Towards Kampaduli Lampi
33	157.908		3- legged	Towards Kalatali
34	157.979		3- legged	Towards Darisatra
35	158.090		3- legged	Towards Village
36	158.127		3- legged	Towards Village
37	158.139		3- legged	Towards Village
38	158.191		3- legged	Towards Village
39	158.288		3- legged	Towards Village
40	158.646		3- legged	Towards Village
41	158.922		3- legged	Towards Nala Ghat
42	159.286		3- legged	Towards Forest
43	159.523		3- legged	Towards Village
44	159.606		3- legged	Towards Village
45	159.644		3- legged	Towards Village
46	160.328		3- legged	Towards Forest
47	161.139		3- legged	Towards Village
48	161.369		3- legged	Towards Village
49	161.639		3- legged	Towards Fair Office
50	163.509		3- legged	Towards Deusawer Village
51	163.816		4- legged	Towards Gori Mari Village(LHS), Towards Lampara Village(RHS)
52	164.633		3- legged	Towards Village

Sl. No.	Location		Type	
	From km	To km	3/4 Legged	Cross Road
53	165.028		3- legged	Towards Village
54	165.217		3- legged	Towards Village
55	166.024		3- legged	Towards Village
56	166.160		3- legged	Towards Village
57	167.218		4- legged	Towards Jamdani(LHS),Towards Nijargai(RHS)
58	167.410		3- legged	Towards Bhurkibari Bazar
59	167.523		3- legged	Towards Santipur
60	167.777		3- legged	Towards Chudrapara
61	168.428		3- legged	Towards Patgaon
62	169.331		3- legged	Towards Khorkhori
63	169.722		3- legged	Towards Simsang Village
64	171.756		3- legged	Towards Chhaygaon Primary Health Center
65	172.338		3- legged	Towards Village
66	172.360		3- legged	Towards Village
67	172.907		3- legged	Towards Dhobargaon Village

*In case any other deficient junction with cross roads is identified during the Construction Period in addition to those mentioned above, shall be improved as per Manual and will not qualify for Change of Scope

(ii) Grade separated intersection with/without ramps

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

4. Road Embankment and Cut Section

(i) Widening and improvement of the existing road embankment/cuttings and construction of new road embankment/cuttings shall conform to the Specifications and Standards given in Section4 of the Manual and the specified cross-sectional details. Deficiencies in the plan and profile of the existing road shall be corrected.

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

The existing road shall be raised in the following sections:

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

5. Pavement Design

(i) Pavement design shall be carried out for a design life of 20 years considering 34 MSA (From Ch. 139.750Km to Ch.156.283 km) & 84 MSA (From Ch.156.283 km to Ch.173.434Km).

(ii) Type of pavement

[Refer to the provision of relevant Manual and state specific requirement, if any, of providing cement concrete pavement.]

Flexible pavement shall be designed as per IRC: 37-2018(Fourth Revision) and the details given below

Main Carriageway
<u>For Widening/RE Wall portion/ Reconstruction</u>
BC -40 mm
DBM -60 mm
Aggregate Layer- 100 mm
CT Base-100 mm
CT Sub-Base- 200 mm
Total -500 mm
Service Road
BC -40 mm
Aggregate Layer- 100 mm
CT Base-100 mm
CT Sub-Base- 200 mm
Total -440 mm

*The above details are minimum stipulations to be followed

- Toll Plaza location the proposed minimum thickness of the pavement is PQC=250mm, DLC=150mm &GSB=150mm.

(iii) Design requirements

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

(a) Design Period and strategy

Flexible pavement for new pavement or for widening and strengthening of the existing pavement shall be designed for a minimum design period of 20 years.

(b) Design Traffic

Not with standing anything to the contrary contained in this Agreement or the Manual. The Contractor shall design the pavement for a minimum design traffic of 34 million standard axles (From Ch. 139.750Km to Ch.156.283 km) & 84 million standard axles (From Ch.156.283 km to Ch.173.434Km).

(iv) Reconstruction of stretches

[Refer to the provision of relevant Manual and specify the stretches, if any, to be

reconstructed.]

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

Sl no	Chainage (km)		Length	TCS No
	From	To.	(km)	
1	139.750	139.990	0.240	TCS 1C2
2	139.990	140.330	0.340	TCS 1C
3	140.330	141.070	0.740	TCS 4B
4	141.070	144.670	3.600	TCS 1C
5	144.670	145.050	0.380	TCS 4B
6	145.050	145.442	0.392	TCS 5B
7	146.775	147.306	0.531	TCS 5B2
8	147.306	147.820	0.514	TCS 4B
9	147.820	148.400	0.580	TCS 1C
10	149.000	149.550	0.550	TCS 4B
11	149.550	150.100	0.550	TCS 5B
12	150.100	154.486	4.386	TCS 5B2
13	154.486	154.750	0.264	TCS 1C2
14	155.148	155.740	0.592	TCS 5B
15	156.715	157.235	0.520	TCS 4B
16	159.295	159.440	0.145	TCS 1C2
17	159.440	160.050	0.610	TCS 4B
18	160.050	160.600	0.550	TCS 1C
19	160.600	161.550	0.950	TCS 4B2
20	161.550	161.880	0.330	TCS 1C
21	161.880	163.400	1.520	TCS 5B2
22	163.400	163.710	0.310	TCS 1C2
23	163.710	164.100	0.390	TCS 4B
24	164.100	164.950	0.850	TCS 1C2
25	164.950	166.200	1.250	TCS 4E
26	166.200	166.450	0.250	TCS 1C2
27	167.304	167.400	0.096	TCS 1C2
28	167.400	167.686	0.286	TCS 4B
29	167.686	171.837	4.151	TCS 5B
30	171.837	173.434	1.597	TCS 1C
Total Length=			**27.464**	

6. Roadside Drainage

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

RCC Cover drain has been proposed in Built-up, Flyover and EUP locations. The details is given below:

RCC Covered Drain(Service Road)

Chainage (m)		Side	Length (m)	Remarks
From	To			
155897	156715	Both	2X818=1636	TCS-6A(VUP Approach Location)
157235	157722	Both	2X487=974	TCS-6E(Flyover Approach Location)
157722	158848	Both	2X1126=2252	TCS-8(Flyover Location)
158848	159070	Both	2X222=444	TCS-6E(Flyover Approach Location)
Total Length of 1.5m Width Covered Drain =			**5306**	
140330	141070	Both	2X740=1480	TCS-4B(Built-up Location)
144670	145050	Both	2X380=760	TCS-4B(Built-up Location)
147306	147820	Both	2X514=1028	TCS-4B(Built-up Location)
149000	149550	Both	2X550=1100	TCS-4B(Built-up Location)
156715	157235	Both	2X520=1040	TCS-4B(Built-up Location)
159440	160050	Both	2X610=1220	TCS-4B(Built-up Location)
160600	161550	Both	2X950=1900	TCS-4B2(Built-up Location)
163710	164100	Both	2X390=780	TCS-4B(Built-up Location)
164950	166200	Both	2X1250=2500	TCS-4E(Built-up Location)
167400	167686	Both	2X286=572	TCS-4B(Built-up Location)
Total Length of 1.0m Width Covered Drain =			**12380**	
145442	146775	Both	2X1333=2666	TCS-6D(EUP Approach Location)
Total Length of 0.5m Width Covered Drain =			**2666**	

* The EPC Contractor shall ensure proper functioning of the road side drains by designing them as per site conditions and considering the outfall locations."

7. Design of Structures

(i)General

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

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

[Refer to provision of the relevant Manual and specify the width of carriageway of new bridges and structures of more than 60(sixty) meter length. If the carriageway width is different from7.5 (seven point five) meters in the table below.]

Sl. No.	Bridge/Structure at km	Width of carriageway and cross-sectional features
1	148.626	• Carriageway Width = 9.5m • Width of Crash Barrier =2x0.5m • Footpath Width= 1.5m • Kerb Width = 0.50m • Overall width =12.5 m

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

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

Sl. No.	Bridge/Structure at km	Width of carriageway and cross-sectional features*
1	140.905	• Carriageway Width = 2x9.5m (Main bridge carriageway width) + 2x8m (service road carriageway width) • Width of Crash Barrier =8x0.5m • Footpath Width= 2x1.5m • Kerb Width = 2x0.30m • Clear Median =2x1m+0.5m • Overall width =45.1 m
2	142.296	• Carriageway Width= 2x9.5m • Median Width= 3m • Width of Crash Barrier =4x0.5m • Footpath Width= 2x1.5m • Kerb Width = 2x0.50m • Overall width =28m
3	143.495	• Carriageway Width= 2x9.5m • Median Width= 3m • Width of Crash Barrier =4x0.5m • Footpath Width= 2x1.5m • Kerb Width = 2x0.50m • Overall width =28m
4	143.910	• Carriageway Width = 9.5m • Width of Crash Barrier =2x0.5m • Footpath Width= 1.5m • Kerb Width = 0.50m • Overall width =12.5 m
5	144.252	• Carriageway Width = 9.5m • Width of Crash Barrier =2x0.5m • Footpath Width= 1.5m • Kerb Width = 0.50m • Overall width =12.5 m
6	148.626	• Carriageway Width = 9.5m • Width of Crash Barrier =2x0.5m • Footpath Width= 1.5m • Kerb Width = 0.50m • Overall width =12.5 m

Sl. No.	Bridge/Structure at km	Width of carriageway and cross-sectional features*
7	151.059	• Carriageway Width= 2x9.5m • Median Width= 3m • Width of Crash Barrier =4x0.5m • Footpath Width= 2x1.5m • Kerb Width = 2x0.50m • Overall width =28m
8	151.804	• Carriageway Width= 2x9.5m • Median Width= 3m • Width of Crash Barrier =4x0.5m • Footpath Width= 2x1.5m • Kerb Width = 2x0.50m • Overall width =28m
9	154.955	• Carriageway Width = 9.5m • Width of Crash Barrier =2x0.5m • Footpath Width= 1.5m • Kerb Width = 0.50m • Overall width =12.5 m
10	156.468	• Carriageway Width = 2x9.5m (Main bridge carriageway width) + 2x8m (service road carriageway width) • Median Width= 0.5m • Gap=2x0.02m • Width of Crash Barrier =8x0.5m • Footpath Width= 2x1.5m • Kerb Width = 2x0.30m • Overall width =43.14 m
11	156.779	• Carriageway Width=1x9.5m (Main bridge carriageway width) + 2x8m (service road carriageway width) • Width of Crash Barrier =6x0.5m • Median Gap=1m • Footpath Width= 2x1.5m • Kerb Width = 2x0.30m Overall width =33.10 m
12	157.751	• Carriageway Width = 8.0m • Width of Crash Barrier =2x0.5m • Footpath Width= 1.5m • Kerb Width = 0.30m • Overall width of each bridge =10.8 m(on both side)

Sl. No.	Bridge/Structure at km	Width of carriageway and cross-sectional features*
13	158.225	• Carriageway Width = 8.0m • Width of Crash Barrier =2x0.5m • Footpath Width= 1.5m • Kerb Width = 0.30m • Overall width =10.8 m(one side)
14	163.650	• Carriageway Width= 2x9.5m • Median Width= 3m • Width of Crash Barrier =4x0.5m • Footpath Width= 2x1.5m • Kerb Width = 2x0.50m • Overall width =28m
15	166.573	• Carriageway Width = 9.5m • Width of Crash Barrier =2x0.5m • Footpath Width= 1.5m • Kerb Width = 0.50m • Overall width =12.5 m
16	167.646	• Carriageway Width= 2x9.5m • Median Width= 3m • Width of Crash Barrier =4x0.5m • Footpath Width= 2x1.5m • Kerb Width = 2x0.50m • Overall width =28m
17	168.067	• Carriageway Width= 2x9.5m • Median Width= 3m • Width of Crash Barrier =4x0.5m • Footpath Width= 2x1.5m • Kerb Width = 2x0.50m • Overall width =28m
18	169.658	• Carriageway Width= 2x9.5m • Median Width= 3m • Width of Crash Barrier =4x0.5m • Footpath Width= 2x1.5m • Kerb Width = 2x0.50m • Overall width =28m
19	170.186	• Carriageway Width = 9.5m • Width of Crash Barrier =2x0.5m • Footpath Width= 1.5m • Kerb Width = 0.50m • Overall width =12.5 m

Sl. No.	Bridge/Structure at km	Width of carriageway and cross-sectional features*
20	171.713	• Carriageway Width = 9.5m • Width of Crash Barrier =2x0.5m • Footpath Width= 1.5m • Kerb Width = 0.50m • Overall width =12.5 m
21	172.786	• Carriageway Width = 9.5m • Width of Crash Barrier =2x0.5m • Footpath Width= 1.5m • Kerb Width = 0.50m • Overall width =12.5 m

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

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

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

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

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

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

(iv) Culverts

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

(b) Reconstruction of existing culverts:

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

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

Sl. No.	Culvert location (Design Ch.) (Km)	Span of existing culvert (m)	Span of proposed culvert (m)	Repairs to be carried out	Remarks
1	140.596	1.0 X 1.0m	1 X 2.0m X 2.0m	Reconstruction	Cast-in-situ
2	141.430	2.0 X 2.0m	1 X 2.0m X 3.0m	Reconstruction	RCC segmental box
3	141.878	2.0 X 2.2m	1 X 2.0m X 3.0m	Reconstruction	RCC segmental box
4	142.695	1.0 X 1.0m	1 X 2.0m X 2.0m	Reconstruction	RCC segmental box
5	143.177	1.0 X 1.0m	1 X 2.0m X 3.0m	Reconstruction	RCC segmental box
6	144.094	1 X 2.0m	1 X 2.0m X 2.0m_EC	Reconstruction	RCC segmental box

Widening/Improvement to 4 (Four) Lane with Paved Shoulder from Ch. 143.680km to Ch.177.372 km (Design Ch.139.750km to Ch.173.434km) for Package-9 of Bilasipura-Guwahati road(NH 17) (Section: Dhupdhara Sahar toMilmila R.F(before Chayagaon Market)) in the state of Assam on EPC mode.

Sl. No.	Culvert location (Design Ch.) (Km)	Span of existing culvert (m)	Span of proposed culvert (m)	Repairs to be carried out	Remarks
7	144.510	1.5 X 1.5m	1 X 2.0m X 3.0m	Reconstruction	RCC segmental box
8	144.570	1X 1.5 M	1 X 2.0m X 2.0m	Reconstruction	RCC segmental box
9	145.985	1.5 X 1.5m	1 X 2.0m X 2.0m	Reconstruction	Cast-in-situ
10	146.885	1.0 X 1.0m	1 X 2.0m X 3.0m	Reconstruction	RCC segmental box
11	147.295	1.5 X 1.5m	1 X 2.0mX 2.0m_EC	Reconstruction	RCC segmental box
12	148.207	1.2 X 1.5m	1 X 2.0m X 2.0m	Reconstruction	RCC segmental box
13	149.186	1.2 X 1.2m	1 X 2.0m X 3.0m	Reconstruction	Cast-in-situ
14	149.613	1.0 X 1.0m	1 X 2.0m X 3.0m	Reconstruction	RCC segmental box
15	149.882	1.0 X 1.0m	1 X 2.0m X 3.0m	Reconstruction	RCC segmental box
16	150.754	4.0 X 1.0m dia	1 X 4.0m X 4.0m	Reconstruction	Cast-in-situ
17	151.375	1.0 X 1.0m	1 X 2.0m X 3.0m	Reconstruction	RCC segmental box
18	152.165	1.5 X 1.5	1 X 2.0m X 3.0m	Reconstruction	RCC segmental box
19	152.516	1.5 X 2.0	1 X 2.0m X 3.0m	Reconstruction	RCC segmental box
20	152.762	3.5 X 3.0m	1 X 3.0m X 4.0m	Reconstruction	Cast-in-situ
21	152.987	1.0 X 1.0m	1 X 2.0m X 3.0m	Reconstruction	RCC segmental box
22	153.370	1.0 X 1.0m	1 X 2.0m X 3.0m	Reconstruction	RCC segmental box
23	153.497	1.0 X 1.0m	1 X 2.0m X 3.0m	Reconstruction	RCC segmental box
24	154.203	1.0 X 1.0m	1 X 2.0m X 2.0m	Reconstruction	RCC segmental box
25	155.518	1.0 X 1.8m	1 X 2.0m X 3.0m	Reconstruction	RCC segmental box
26	156.092	2X1.0m dia	1 X 2.0m X 3.0m	Reconstruction	Cast-in-situ
27	156.677	1.2 X 1.5m	1 X 2.0m X 3.0m	Reconstruction	Cast-in-situ
28	156.944	1.5 X 1.7m	1 X 2.0m X 2.0m	Reconstruction	Cast-in-situ
29	158.580	5.0 X 3.0m	1 X 5.0m X 3.0m	Reconstruction	Cast-in-situ
30	158.819	3X0.4m dia	1 X 3.0m X 3.0m	Reconstruction	Cast-in-situ
31	159.245	5.0 X 3.0m	1 X 5.0m X 3.0m_EC	Reconstruction	Cast-in-situ
32	159.672	1.0 X 1.0m	1 X 2.0mX 2.0m	Reconstruction	Cast-in-situ
33	159.939	1.0 X1.0m	1 X 2.0m X 3.0m	Reconstruction	Cast-in-situ
34	160.285	3.0 X 1.0m dia	1 X 2.0m X 3.0m	Reconstruction	RCC segmental box
35	160.627	5.0 X 3.0m	1 X 5.0m X 4.0m	Reconstruction	Cast-in-situ
36	161.002	1.0 X 1.0m	1 X 2.0m X 2.0m	Reconstruction	Cast-in-situ
37	161.253	1.0 x 1.0m	1 X 2.0m X 2.0m	Reconstruction	Cast-in-situ
38	161.556	4.0 X 1.0m dia	1 X 2.0m X 3.0m	Reconstruction	RCC segmental box
39	161.849	1.0 X 1.0m	1 X 2.0m X 3.0m	Reconstruction	RCC segmental box
40	162.184	1.0 X 1.0m	1 X 2.0m X 2.0m	Reconstruction	Cast-in-situ
41	162.240	1.0 X0.9m	1 X 2.0m X 2.0m	Reconstruction	RCC segmental box
42	162.455	1.0 X 1.0m	1 X 2.0m X 2.0m	Reconstruction	RCC segmental box
43	162.776	1.2 X 1.2m	1 X 2.0m X 2.0m	Reconstruction	RCC segmental box
44	163.078	1.0 X 1.0m	1 X 2.0m X 3.0m	Reconstruction	RCC segmental box
45	164.187	1.5 X 1.5m	1 X 2.0m X 3.0m	Reconstruction	RCC segmental box
46	164.646	1.0 X 1.0m	1 X 2.0m X 2.0m	Reconstruction	Cast-in-situ
47	164.895	1.0 X 1.0m	1 X 2.0m X 2.0m	Reconstruction	RCC segmental box
48	165.300	1.0 X 1.0m	1 X 2.0m X 2.0m	Reconstruction	Cast-in-situ

Sl. No.	Culvert location (Design Ch.) (Km)	Span of existing culvert (m)	Span of proposed culvert (m)	Repairs to be carried out	Remarks
49	165.725	1.0 X 1.0m	1 X 2.0m X 2.0m	Reconstruction	Cast-in-situ
50	165.783	2.0 X 1.5m	1 X 2.0m X 3.0m	Reconstruction	Cast-in-situ
51	165.832	1.5 X 1.5m	1 X 2.0m X 3.0m	Reconstruction	Cast-in-situ
52	165.972	2.0 X 0.7m dia	1 X 2.0m X 3.0m	Reconstruction	Cast-in-situ
53	166.844	2.5 X 2.0m	1 X 2.0mX 3.0m	Reconstruction	RCC segmental box
54	168.398	1.2 X 1.2m	1 X 2.0m X 3.0m	Reconstruction	RCC segmental box
55	168.416	1.0 X 1.5m	1 X 2.0m X 3.0m	Reconstruction	RCC segmental box
56	170.696	2.0 X 2.0m	1 X 2.0mX 3.0m	Reconstruction	RCC segmental box
57	170.806	1.0 X 1.2m	1 X 2.0m X 2.0m	Reconstruction	RCC segmental box
58	171.000	1.0 X 3.5m	1 X 2.0m X 2.0m_EC	Reconstruction	RCC segmental box
59	171.339	1.2 X 1.2m	1 X 2.0m X 2.0m	Reconstruction	RCC segmental box
60	171.520	1.2 X 1.2m	1 X 2.0m X 2.0m	Reconstruction	RCC segmental box

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

(c) Widening of existing culverts:

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

Sl. No.	Culvert location (Design Ch.) (Km)	Span of existing culvert (m)	Span of proposed culvert (m)	Repairs to be carried out [specify]
Nil				

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

Sl. No.	Culvert Location	Span /Opening (m)	Remarks*
1	139.844	1 X 2.0m X 2.0m	Cast-in-situ
2	141.119	1 X 2.0m X 2.0m	Cast-in-situ
3	142.482	1 X 2.0m X 2.0m	Cast-in-situ
4	143.716	1 X 2.0m X 2.0m	RCC segmental box
5	145.343	1 X 2.0m X 3.0m	RCC segmental box
6	145.753	1 X 2.0m X 2.0m	Cast-in-situ
7	146.416	1 X 2.0m X 2.0m	Cast-in-situ
8	150.350	1 X 2.0m X 2.0m	Cast-in-situ
9	154.767	1 X 2.0m X 2.0m	Cast-in-situ
10	155.230	1 X 2.0m X 2.0m	Cast-in-situ
11	155.916	1 X 2.0m X 2.0m	Cast-in-situ
12	157.009	1 X 2.0m X 2.0m	Cast-in-situ

Sl. No.	Culvert Location	Span /Opening (m)	Remarks*
13	157.288	1 X 2.0m X 2.0m	Cast-in-situ
14	157.951	1 X 2.0m X 3.0m	Cast-in-situ
15	158.992	1 X 2.0m X 2.0m	Cast-in-situ
16	165.579	1 X 2.0m X 2.0m	Cast-in-situ
17	166.003	1 X 2.0m X 3.0m	Cast-in-situ
18	166.277	1 X 2.0m X 3.0m	RCC segmental box
19	167.173	1 X 2.0m X 2.0m	Cast-in-situ
20	167.869	1 X 2.0m X 3.0m	RCC segmental box
21	168.595	1 X 2.0m X 2.0m	RCC segmental box
22	169.376	1 X 2.0m X 3.0m	RCC segmental box
23	172.124	1 X 2.0m X 3.0m	RCC segmental box
24	172.289	1 X 2.0m X 3.0m_EC	RCC segmental box
25	173.029	1 X 3.0m X 3.0m	Cast-in-situ

*The span and opening of these culverts as specified are indicative. The design of waterway has to be done as per site requirement, considering the site requirements. Any change in this configuration shall not attract provisions of Article 13 of this Agreement.

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

[Refer provision of the relevant Manual and provide details]

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

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

(iii) Bridges

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

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

[Refer provision of the relevant Manual and provide details]

Sl. No.	Salient details of existing bridge			Salient details of proposed bridge			Adequacy or otherwise of the existing waterway, vertical clearance etc.*	Total Width (m)	Remarks
	Bridge location(km)	Type of Structures	Span Arrangement and Total Vent way (No. x Length) (m)	Bridge location(km)	Type of Structures	Span Arrangement and Total Vent way (No. x Length) (m)			
1	144.830	RCC Slab	4x5.8m	140.905	RCC Box	4x6mx6m	-	45.1	Reconstruction minor bridge with both side SR
2	146.224	RCC Slab	1x5.8m	142.296	RCC Box	1x6mx3m	-	28	Reconstruction
3	147.424	RCC Slab	2x5.8m	143.495	RCC Box	2x6mx3m	-	28	Reconstruction
4	150.550	RCC Slab	6x4m	146.620	RCC Box with EC	4x6mx3m	-	32	Reconstruction minor bridge

Sl. No.	Salient details of existing bridge			Salient details of proposed bridge			Adequacy or otherwise of the existing waterway, vertical clearance etc.*	Total Width (m)	Remarks
	Bridge location(km)	Type of Structures	Span Arrangement and Total Vent way (No. x Length) (m)	Bridge location(km)	Type of Structures	Span Arrangement and Total Vent way (No. x Length) (m)			
									with both side SR
5	154.994	RCC Slab	1x6m	151.059	RCC Box	1x6mx3m	-	28	Reconstruction
6	155.739	RCC Slab	2x8m	151.804	RCC Box	2x8mx5m	-	28	Reconstruction
7	160.403	RCC Slab	1 x 6m	156.468	RCC Box_EC_RE	1x6mx4m	-	43.14	Reconstruction minor bridge with both side SR
8	161.688	RCC Slab	2x6.5m	157.751	RCC Box	2x6mx3m	-	21.6	Reconstruction Service Road
9	167.586	RCC Box	3x3x2m	163.650	RCC Box	3x3mx3m	-	28	Reconstruction
10	171.587	RCC Slab	2x6m	167.646	Integral Slab Bridge	1x12m	-	28	Reconstruction
11	172.000	Hume Pipe	9x0.9m dia	168.067	RCC Box	2x8mx6m	-	28	Reconstruction
12	173.594	RCC Slab	2x8m	169.658	RCC Box	2x8mx4m	-	28	Reconstruction

*Attach GAD

* The span and opening of these bridges as specified are indicative. The design of waterway has to be done as per site requirement, considering the site requirements. Any change in this configuration shall not attract provisions of Article 13 of this Agreement

(ii) The following narrow bridges shall be widened:

Sl. No.	Salient details of existing bridge			Salient details of proposed bridge			Adequacy or otherwise of the existing waterway, vertical clearance etc.*	Remarks
	Bridge location (km)	Type of Structures	Span Arrangement and Total Vent way (No. x Length) (m)	Bridge location(km)	Type of Structures	Span Arrangement and Total Vent way (No. x Length) (m)		
1	147.838	RCC Slab	3x5.8m	143.910	RCC Slab	3 x 5.8m	-	Existing bridge to be widened to achieve total width of 12.5m[9.5m(CW)+2x0.5m(Crash Barrier)+1.5m(Foot path)+0.5(kerb)]
2	158.891	RCC Slab	3x6m	154.955	RCC Slab	3x6m	-	Existing bridge to be

Sl. No.	Salient details of existing bridge			Salient details of proposed bridge			Adequacy or otherwise of the existing waterway, vertical clearance etc.*	Remarks
	Bridge location (km)	Type of Structures	Span Arrangement and Total Vent way (No. x Length) (m)	Bridge location(km)	Type of Structures	Span Arrangement and Total Vent way (No. x Length) (m)		
								widened to achieve total width of 12.5m[9.5m(CW)+2 x0.5m(Crash Barrier)+1.5m(Foot path)+0.5(kerb)]
3	160.715	RCC Slab	3x6m	156.779	RCC Slab	3x6m	-	Existing bridge to be widened to achieve total width of 10.5m[9.5m(CW)+2 x0.5m(Crash Barrier)]
4	170.509	RCC Box	6x3mx2m	166.573	RCC Box	6x3mx2m	-	Existing bridge to be widened to achieve total width of 12.5m[9.5m(CW)+2 x0.5m(Crash Barrier)+1.5m(Foot path)+0.5(kerb)]
5	175.651	RCC Slab	3x8m	171.713	RCC Slab	3x8m	-	Existing bridge to be widened to achieve total width of 12.5m[9.5m(CW)+2 x0.5m(Crash Barrier)+1.5m(Foot path)+0.5(kerb)]
6	176.721	RCC Slab	3x8m	172.786	RCC Slab	3x8m	-	Existing bridge to be widened to achieve total width of 12.5m[9.5m(CW)+2 x0.5m(Crash Barrier)+1.5m(Foot path)+0.5(kerb)]

@ Attach cross-section

(b) Additional new bridges

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

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

Sl. No.	Location (km)	Total Length (m)	Total Width (m)	Remarks. If any
1	143.910	3x6mx5m	12.5	RCC Box, Additional Two lane minor bridge
2	144.252	3x13m	12.5	Integral Slab, Additional Two lane minor bridge
3	148.626	2x40m	12.5	PSC T Girder, Additional two lane Major Bridge

Sl. No.	Location (km)	Total Length (m)	Total Width (m)	Remarks. If any
4	154.955	1x21m	12.5	Integral Voided Slab, Additional Two lane minor bridge
5	156.779	1x21m	33.1	Integral Voided Slab, Additional Two lane minor bridge with both side Service Road
6	158.225	1x35m	10.8	PSC T Girder, Existing Bridge Retained as service road bridge with an additional service road bridge at left side
7	166.573	3x6mx3m	12.5	RCC Box, Additional Two lane minor bridge
8	170.186	1x40m	12.5	PSC T Girder, Existing Structure Retained With an additional two lane
9	171.713	1x24m	12.5	Integral Voided Slab, Additional Two lane minor bridge
10	172.786	1x24m	12.5	Integral Voided Slab, Additional Two lane minor bridge

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

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

Sl.No.	Location at km	Remarks
1	147.838	-
2	158.891	-
3	160.715	-
4	170.509	-
5	175.651	-
6	176.721	-

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

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

Sl.No.	Location at km	Remarks
1	144.252	-
2	148.622	-
3	158.225	-
4	170.186	-

(e) Drainage system for bridge decks

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

(f) Structures in marine environment

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

(iv) Rail-road bridges

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

(b) Road over-bridges

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

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

(c) Road under-bridges

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

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

(v) Grade separated structures

[Refer provision of the relevant Manual]

The grade separated structures shall be provided at the locations and of the type and length specified in paragraphs 2(ix) and3 of this Annex-I.

(vi) Repairs and strengthening of bridges and structures

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

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

Sl.No.	Location at km	Remarks
1	143.910	Patching of Concrete Surface, Dismantling of concrete, Cleaning of the concrete surface, Dismantling of existing bituminous concrete wearing coat
2	144.252	Patching of Concrete Surface, Painting on concrete surface
3	154.955	Patching of Concrete Surface, Dismantling of concrete, Cleaning of the concrete surface, Dismantling of existing bituminous concrete wearing coat
4	156.779	Patching of Concrete Surface, Dismantling of concrete, Cleaning of the concrete surface, Dismantling of existing bituminous concrete wearing coat
5	158.225	Cleaning of the concrete surface, Repairing of damaged RCC railing, Dismantling of footpath, Construction of footpath, Painting on concrete surface

6	166.573	Patching of Concrete Surface, Dismantling of concrete, Dismantling of existing bituminous concrete wearing coat
7	170.186	Painting on concrete surface
8	171.713	Patching of Concrete Surface, Dismantling of concrete, Cleaning of the concrete surface, Cleaning of river bank, Dismantling of existing bituminous concrete wearing coat
9	172.786	Patching of Concrete Surface, Dismantling of concrete, Cleaning of the concrete surface, Dismantling of existing bituminous concrete wearing coat

(a) Bridges

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

(b) ROB / RUB

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

(c) Overpasses/Underpasses and other structures

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

(vii) List of Major Bridges andStructures

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

Sl.No.	**Location (km)**
List of the Major Bridges	
1	148.626
List of the Flyovers	
2	157.722 to 158.848

8. Traffic Control Devices and Road Safety Works

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

Sl No	Traffic Signages, Road Marking and other appurtenances	unit	Quantity
1	Right Hand Side Curve(900 mm Triangular)	Nos.	11
2	Left Hand Side Curve(900 mm Triangular)	Nos.	9
3	School (900 mm Triangular)	Nos.	32
4	Side road left(900 mm Triangular)	Nos.	74
5	Side road right(900 mm Triangular)	Nos.	50
6	Cross Road(900 mm Triangular)	Nos.	14
7	Petrol pump/ Filling facility(800 mm x 600 mm rectangular)	Nos.	4
8	Bus Stop(800 mm x 600 mm rectangular)	Nos.	20
9	Direction Sign<.0.9 sqm	Nos.	82
10	Direction Sign>0.9 sqm	Nos.	9
11	Stop Sign(900 mm Octagonal)	Nos.	138
12	Horn prohibited(600mm Circular)	Nos.	32
13	Hazard Marker (one way) (900mm x300 mm rectangular)	Nos.	452
14	Object Marker (one way) (900mm x300 mm rectangular)	Nos.	13
15	Object Marker (Two way)(900mm x450 mm rectangular)	No.	3
16	Pedestrian Crossing(900 mm Triangular)	Nos.	255
17	Rumble strip(900 mm Triangular)	Nos.	247
18	Road Stud	Nos.	2,162
19	Built-up area(900 mm Triangular)	Nos.	40
20	T Intersection(900 mm Triangular)	No.	3
21	Speed limit(600mm Circular)	No.	2
22	U-Turn prohibited(600mm Circular)	Nos.	6
23	Delineator	Nos.	290
24	Lane marking, edge marking	Sqm	27300
25	Solar Blinker	Nos.	20

*All above quantities are minimum to be installed/executed

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

9. Road side Furniture

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

(ii) Overhead traffic signs: location and size

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

Sl. No.	Location (Km)	Size
Nil		

10. Compulsory Afforestation

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

11. Hazard Location

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

a) Breast wall

Location		Side	Length (km)
From(km)	To(km)		
170.690	170.810	LHS	0.120

*The specified length of Breast wall is the minimum requirement

b) Retaining wall

Location		Side	Length (km)
From(km)	To(km)		
170.100	170.150	Both	0.100
170.220	170.250	Both	0.060
171.650	171.690	Both	0.080
171.730	171.770	Both	0.080
Total length=			0.320

*The specified length of Retaining wall is the minimum requirement

c) Reinforced Earth Wall

Location		Length (km)
From(km)	To(km)	
145.442	146.775	1.333
155.897	156.715	0.818
157.235	157.722	0.487
158.848	159.070	0.222
Total length=		**2.860**

*The specified length of Reinforcedearth wall is the minimum requirement

d) Turfing

Location		Side	Length (km)
From(km)	To(km)		
139.750	139.990	BOTH	0.480
139.990	140.330	BOTH	0.680
141.070	144.670	BOTH	7.200
145.050	145.442	BOTH	0.784
146.775	147.306	BOTH	1.062
147.820	148.400	BOTH	1.160
148.400	149.000	BOTH	1.200
149.550	150.100	BOTH	1.100
150.100	154.486	BOTH	8.772
154.486	154.750	BOTH	0.528
154.750	155.148	BOTH	0.796

Location		Side	Length (km)
From(km)	To(km)		
155.148	155.740	BOTH	1.184
155.740	155.897	BOTH	0.314
159.070	159.295	BOTH	0.450
159.295	159.440	BOTH	0.290
160.050	160.600	BOTH	1.100
161.550	161.880	BOTH	0.660
161.880	163.400	BOTH	3.040
163.400	163.710	BOTH	0.620
164.100	164.950	BOTH	1.700
166.200	166.450	BOTH	0.500
166.450	166.600	BOTH	0.300
167.304	167.400	BOTH	0.192
167.686	171.837	BOTH	8.302
171.837	173.434	BOTH	3.194
Total length=			**45.608**

*The specified length Turfingis the minimum requirement

e) W-Metal Beam Crash Barrier

W-Metal beam crash barrier of 5600m length has been proposed in the project stretch.

*The specified length W-Metal Beam Crash Barrier is the minimum requirement

12. Special Requirement for Hill Roads

Not applicable.

13. Change of Scope

The length of Structures and bridges specified here in above 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 Change of Scope save and except any variations in the length arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.

(Schedule B-1)

1. The shifting of utilities and felling of trees shall be carried out by the Contractor. The cost of the same shall be borne by the Authority. The details of proposed utilities are as follows:

The details of proposed electrical utility is given below.

S.No	Description	Unit	Quantity
1	11KV	Nos.	3037
2	33KV	Nos.	3038
3	Transformer	Nos.	54

The details of proposed PHE utility is given below

S.No	Description	Unit	Quantity
1	63mm PVC	Rm	2895
2	110 mm PVC	Rm	2870
3	90 mm PVC	Rm	2875
4	75 mm PVC	Rm	1770

** The quantity given above is indicative, the contractor has to finalize the actual requirement of shifting of various utilities in due consultation with Authority's Engineer and Authority, duly verified by the concerned utility authorities and approved by authority".

APPENDIX B – I of Annexure – I
(Schedule B-2)

The Plan & Profile & General Arrangement Drawing(GAD) of structures of the project Highway are given in soft copy.

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) Road side furniture;

(c) Pedestrian facilities;

(d) Tree plantation;

(e) Truck Lay byes;

(f) Bus-bays and passenger 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 :-

Sl. No.	Design Chainage (km)	Name of the Place	Remarks
1	166.950	Bamunigaon	16 Lane Toll Plaza.

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

b) Road side furniture:-

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

C) Pedestrian Facility:-

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

d) Truck Lay bye: -

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

e) Bus Bay with Passenger shelter: -

Sl. No.	Project Facility	Location (km)	Name of the Place
1	Passenger shelter	140.205(Both side)	Shakati Bazar
2	Passenger shelter	141.175(Both side)	Shakati Bazar
3	Passenger shelter	144.530(Both side)	Rajapara
4	Passenger shelter	147.900(Both side)	Chukunia para
5	Passenger shelter	148.880(Both side)	Singra
6	Passenger shelter	159.335(Both side)	Dakuapara
7	Passenger shelter	160.485(Both side)	Bamunigaon
8	Bus Bay with Passenger shelter	164.360(Both side)	Bamunigaon
9	Passenger shelter	164.860(Both side)	Bamunigaon
10	Passenger shelter	166.330(Both side)	Bamunigaon

f) Rest Areas

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

g) Roadside Amenities

Nil

h) Others to be specified

Foot Over Bridge:

Foot over bridge has been proposed at market location. The details is given below.

Sl.No	Design Ch.(km)	Location	Remarks
1	147.340	Chukunia para	FOB shall have minimum clear width of 3.0m with provision of 4 side stairs. Minimum clear height from road top level shall be 6.0m and minimum clear span of 35.0m.
2	149.330	Singra	
3	161.500	Bamunigaon	

Street Lighting:

(i) Minimum 570 Nos. Street lights shall be provided in Built up, Flyover,Bus bay,

Passenger Shelter &Major Junction locations or any other location as per the satisfaction of Authority's Engineer.

(ii) The EPC Contractor will obtain all permissions/load sanctions/power supply, etc. from the Electricity Authorities. The Contractor shall be solely responsible for submission of application along with all necessary documents to supply authority. Further the Contractor shall be responsible for follow up of the application and getting the release of the supply to lighting. All statutory approvals/permissions have to be obtained by the Contractor for energizing/operating the lights

Utility Duct:

Nil

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

Schedule - D

(See Clause 2.1)

Specifications and Standards

1. Construction

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

2. Design Standards

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

[Manual of Specifications and Standards for Four Lanning of Highways (IRC: SP: 84-2014 and IRC: SP: 84-2019), referred to herein as the Manual]

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

Annex – I

(Schedule-D)

Specifications and Standards for Construction

1. Specifications and Standards

All Materials, works and construction operations shall conform to the Manual of Specifications and Standards for [Four-Lanning of Highways (IRC:SP:84-2014 and IRC: SP: 84-2019)], referred to as the Manual, and MORTH Specifications for Road and Bridge Works. Where the specification for a work is not given, Good Industry Practice shall be adopted to the satisfaction of the Authority's Engineer.

2. Deviations from the Specifications and Standards

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

(ii) [Notwithstanding anything to the contrary contained in Paragraph 1 above, the following Specifications and Standards shall apply to the Project Highway, and for purposes of this Agreement, the aforesaid Specifications and Standards shall be deemed to be amended to the extent set forth below:]

SCHEDULE - E

(See Clauses 2.1 and 14.2)

MAINTENANCE REQUIREMENTS

1 Maintenance Requirements

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

1.2 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.

1.3 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 rectification of the Defects and deficiencies specified in Annex - I of this Schedule-E within the time limit set forth therein.

3 Other Defects and deficiencies

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

4 Extension of time limit

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

5 Emergency repairs/restoration

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

6 Daily inspection by the Contractor

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

7. Pre-monsoon inspection / Post-monsoon inspection

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

8. Repairs on account of natural calamities

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

Annex – I

(Schedule-E)

Repair/rectification of Defects and deficiencies

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

Table -1: Maintenance Criteria for Pavements:

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/Equip ment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	Acceptable					
Flexible Pavement (Pavement of MCW, Service Road, approache	Potholes	Nil	< 0.1 % of area and subject to limit of 10 mm in depth	Daily	Length Measuremen t 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 Specificatio n 3004.2

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**					
s of Grade structure, approaches of connecting roads, slip roads, lay byes etc. as applicable)	Cracking	Nil	< 5 % subject to limitof 0.5 sqm for any 50 m length	Daily			7-15 days	MORT&H Specification 3004.3
	Rutting	Nil	< 5 mm	Daily	Straight Edge		15 -30 days	MORT&H Specification 3004.2
	Corrugations and Shoving	Nil	< 0.1% ofarea	Daily	Length Measurement Unit like		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					
	Bleeding	Nil	< 1 % of area	Daily	Scale, Tape, odometer etc.		3-7 days	MORT&H Specification 3004.4
	Ravelling / Stripping	Nil	< 1 % of area	Daily			7-15 days	IRC:82-2015 read with IRC SP 81
	Edge Deformation/ Breaking	Nil	< 1 m for any 100 m section and width < 0.1 m at any location, restricte	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**					
			d to 30 cm from the edge					
	Roughness BI	2000 mm/km	2400 mm/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

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					
	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
Rigid Pavement (Pavement of MCW, Service Road, Grade structure,	Roughness BI	2200mm/km	2400mm/km	Bi-Annually	Class I Profilometer	ASTM E950 (98) :2004 and ASTM E1656 - 94: 2000	180 days	IRC:SP:83-2008
	Skid	Skid Resistance no. at different speed of vehicles		Bi-Annually	SCRIM (Sideway-force	IRC:SP:83-2008	180 days	IRC:SP:83-2008

AssetType	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					
approaches of connecting roads, slip roads, lay byes etc. as applicable)		Minimum SN	Traffic Speed (Km/h)		Coefficient Routine Investigation Machine or equivalent)			
		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
		Desirable	Acceptable					
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	Daily			7-15 days	MORT&H Specification 408.4
	Embankment Slopes	Nil	<15 % variation in prescribe	Daily			7-15 days	MORT&H Specification 408.4

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**					
			side slope					
	Embankment Protection	Nil	Nil	Daily	NA		7-15 days	MORT&H Specification
	Rain Cuts/ Gullies in slope	Nil	Nil	Daily Specially During Rainy Season	NA		7-15 days	MORT&H Specification

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

Table -2: **Maintenance Criteria for Rigid Pavements:**

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	**For the case d > D/2**
CRACKING						
1	**Single Discrete Cracks Not intersecting with any joint**	w = width of crack L = length of crack d = depth of crack D = depth ofslab	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-movingcar	Seal without delay	Seal, and stitch if L > lm.
			3	w = 0.5 - 1.5 mm, discernible from fast-movingcar		Within 7days

S.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	w = 1.5 - 3.0 mm	Seal, and stitch if L > l m. Within 7 days	Staple or Dowel Bar Retrofit, FDR for affected portion. Within 15days
			5	w > 3 mm.		
2	**Single Transverse (or Diagonal) Crack intersecting with one or morejoints**	w = width of crack L = length of crack d = depth of crack D = depth ofslab	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 15days
			2	w = 0.2 - 0.5 mm, discernible from slow vehicle		
			3	w = 0.5 - 3.0 mm, discernible from fast vehicle	Route, seal and stitch, if L > 1m.Within 7 days	

S.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	w = 3.0 - 6.0 mm	Dowel Bar Retrofit. Within 15 days	Full Depth Repair Dismantle and reconstructaffected. Portion with norms and specifications - See Para 5.5 & 9.2 Within 15days
			5	w > 6 mm, usually associated with spalling, and/or slab rocking under traffic	Not Applicable, as it may befulldepth	
3	**Single Longitudinal Crack intersecting with one or more joints**	w = width of crack L = length of crack d = depth of crack D = depth ofslab	0	Nil, not discernible	No Action	
			1	w < 0.5 mm, discernable from slow movingvehicle	Seal with epoxy, if L > 1 m.Within 7 days	Staple or dowel bar retrofit. Within 15days

S.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	w = 0.5 - 3.0 mm, discernible from fast vehicle	Route seal and stitch, ifL > l m.Within 15 days	-
			3	w = 3.0 - 6.0 mm	Staple, if L > 1 m. Within 15 days	Partial Depth Repair withstapling. Within 15 days
			4	w = 6.0 - 12.0 mm, usually associated withspalling	Not Applicable, as it may befulldepth	
			5	w > 12 mm, usually associated with spalling, and/or slab rocking under traffic		Full Depth Repair Dismantle and reconstruct affected portion as pernorms and specifications -

S.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
						See Para 5.6.4 Within 15 days
4	**Multiple Cracks intersecting with one or morejoints**	**w = width of crack**	0	Nil, not discernible	No Action	-
			1	w < 0.2 mm, hair cracks	Seal, and stitch if L > l m. 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	Dismantle, Reinstate subbase, Reconstruct whole slab as per specifications within 30 days
			4	w = 3.0 - 6.0 mm panel broken into 2 or 3pieces		
			5	w > 6 mm and/or panelbroken		

S.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
				into more than 4 pieces		
5	**Corner Break**	w = width of crack L = length of crack	0	Nil, not discernible	No Action	-
			1	w < 0.5 mm; only 1 corner broken	Seal with low viscosity epoxy tosecure broken parts Within 7 days	Seal with epoxy seal withepoxy Within 7days
			2	w < 1.5 mm; L < 0.6 m, only one cornerbroken		
			3	w < 1.5 mm; L < 0.6 m, two corners broken	Partial Depth (Refer Figure 8.3 ofIRC:SP: 83-2008) Within 15 days	Full depth repair
			4	w > 1.5 mm; L > 0.6 m or three corners broken		
			5	ree or four corners broken		Reinstate sub-base, and reconstructthe

S.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
						slab as per norms and specifications within 30days
6	**Punchout (Applicable to Continuous Reinforced Concrete Pavement (CRCP) only)**	w = width of crack L = length(m/m2)	0	Nil, not discernible		No Action
			1	w < 0.5 mm; L < 3 m/m^2	Not Applicable, as it may be fulldepth	Seal with low viscosity epoxy to secure broken parts. Within 15days
			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 < 3 m/m^2 and deformation		Full depth repair - Cut out and replace damaged area taking care not to damage reinforcement. Within30days
			5	w > 3 mm, L > 3 m/m^2 and deformation		

S.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
Surface Defects						
7	**Ravellingor Honeycomb type surface**	r = area 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 15 days	
			2	r = 2 - 10 %		
			3	r = 10-25%	Bonded Inlay, 2 or 3 slabs ifaffecting.	
			4	r = 25 - 50 %		

S.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**
					Within 30 days	
			5	r > 50% and h > 25 mm	Reconstruct slabs, 4 or more slabs ifaffecting. Within 30 days	
8	**Scaling**	r = damaged surface/total surface of slab (%) h = maximum depth of damage	0	Nil, not discernible	**Short Term**	**Long Term**
					No action.	Not Applicable
			1	r <**2 %**	Local repair of areas damaged and liable to be damaged. Within 7days	
			2	r = 2 - 10 %		

S.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	r = 10 - 20%	Bonded Inlay within 15 days	
			4	r = 20 - 30 %		
			5	r > 30 % and h > 25 mm	Reconstruct slab within 30 days	
9	**Polished Surface/Glazing**	t = texture depth, sand patchtest	0		No action.	Not Applicable
			1	t > 1 mm		
			2 '	t = 1 - 0.6 mm	Monitor rate of deterioration	
			3	t = 0.6 - 0.3 mm		
			4	t = 0.3 - 0.1 mm		

S.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	t < 0.1 mm	Diamond Grinding if affecting50% or more slabs ina continuou stretch of minimum5 km. Within 30 days	
10	**Popout (Small Hole), Pothole Refer Para 8.4**	n = number/m^2 d = diameter h = maximumdepth	0	d < 50 mm; h < 25 mm; n < 1 per 5 m^2	No action.	Not Applicable
			1	d=50-100mm;h<50mm;n<1 per 5 m^2	Partial depth repair 65 mm deep. Within 15 days	
			2	d=50-100mm;h>50mm;n<1 per 5 m^2		

S.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	d = 100 - 300 mm; h < 100 mm n < 1 per 5m^2	Partial depth repair 110mm i.e.10 mm more than the depthof the hole. Within 30 days	
			4	d = 100 - 300 mm; h > 100 mm; n < 1 per 5m^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 jointlength	0	Difficult to discern.	**Short Term**	**Long Term**
					No action.	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.	Clean and reapply sealant in selected locations. Within 7 days	
			5	Severe; w > 3 mm negligible protection against ingress ofwater	Clean, widen and reseal the joint. Within 7 days	

				and trapping Incompressible material.		
12	**Spalling of Joints**	w = width on either side of the joint L = length of spalled portion (as % joint length)	0	Nil, not discernible	No action.	Not Applicable
			1	w < 10 mm	Apply low viscosity epoxy resin/ mortar in crackedportion.	
			2	w = 10 - 20 mm, L < 25%	Within 7 days	
			3	w = 20 - 40 mm, L > 25%	Partial Depth Repair. Within 15 days	
			4	w = 40 - 80 mm, L > 25%	30 - 50 mm deep, h = w . 20% of w, within 30 days	
			5	w > 80 mm, and L > 25%	50 - 100 mm deep repair. H = w . 20% of w. Within 30 days	
13	**Faulting (orStepping)**	f = difference of level	0	not discernible, < 1 mm	No action.	No action.

	in Cracks or Joints		1	f < 3 mm		
			2	f = 3 - 6 mm	Determine cause and observe, take action for diamondgrinding	Replace the slab as appropriate. Within 30days
			3	f = 6 - 12 mm	Diamond Grinding	
			4	f= 12 - 18 mm	Raise sunken slab.	Replace the slab as appropriate. Within 30days
			5	f> 18 mm	Strengthen subgrade and sub-base by groutingand raising sunken slab	
14	**Blowup or Buckling**	h = vertical displacement from normalprofile	0	Nil, not discernible	**Short Term**	**Long Term**
			1	h < 6 mm	No Action	
			2	h = 6 - 12 mm	Install Signs to Warn Traffic	

			3	h = 12 - 25 mm	within 7 days	
			4	h > 25 mm	Full Depth Repair. Within 30 days	
			5	shattered slabs, ie 4 or morepieces	Replace broken slabs. Within 30 days	
15	**Depression**	h = negative vertical displacement from normal profile L =length	0	Not discernible, h < 5 mm	No action.	Not Applicable
			1	h = 5 - 15 mm		
			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	Strengthen subgrade. Reinstate pavement at normal level	

			5	h > 100 mm	if L < 20 m. Within 30 days	
16	**Heave**	h = positive vertical displacement from normal profile. L = length	0	Not discernible. h < 5 mm	**Short Term**	**Long Term**
					No action.	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 subgrade. Reinstate pavement at normal level if length < 20 m. Within 30 days	
			5	h > 100 mm		
17	**Bump**	h = vertical	0	h < 4 mm	No action	

		displacement from normalprofile	1	h = 4 - 7 mm	Grind, in case of new construction within 7 days	Construction Limit for New Construction.
			3	h = 7 - 15 mm	Grind, in case of ongoing Maintenance within 15 days	Replace in case of new construction. Within 30days
			5	h > 15 mm	Full Depth Repair. Within 30 days	Full Depth Repair. Within 30days
18	**Lane to Shoulder Dropoff**	f = difference of level	0	Nil, not discernible < 3mm	**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	

			4	f = 50 - 75 mm	within 7 dayss	For any 100 m stretch Reconstruct shoulder, if affecting 25% or more ofstretch. Within 30days
			5	f > 75 mm		
Drainage						
19	**Pumping**	quantity of fines and water expelled through open joints and cracks Nos	0	not discernible	No Action	
			1 to 2	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 subgrade and subbase. Replace slab. Within 30 days	

20	**Ponding**	Ponding on slabs due to blockage of drains	0-2	No discernible problem	No action.	
			3 to 4	Blockages observed in drains, but water flowing	Clean drains etc within 7 days, Follow up	Action required to stop water damaging foundation within 30 days.
			5	Ponding, accumulation of water observed	-do-	

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

<table>
<tr><th>Asset Type</th><th>Performance Parameter</th><th colspan="3">Level of Service (LOS)</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="5">Highway</td><td rowspan="5">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="5">Monthly</td><td rowspan="5">Manual Measurements with Odometer along with video/ image backup</td><td colspan="2" rowspan="5">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/improvementofdeficiency at theearliestSpeed 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="5">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 colspan="3"></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 2months</td><td>IRC:35-2015</td></tr>
</table>

<table>
<tr><th>Asset Type</th><th>Performance Parameter</th><th>Level of Service (LOS)</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></td><td>Day time Visibility</td><td>During expected life Service Time
Cement Road - 130mcd/m²/lux
Bituminous Road - 100mcd/m²/lux</td><td>Monthly</td><td>As per Annexure-D of IRC:35-2015</td><td>Re - painting</td><td>Cat-1 Defect – within 24 hours
Cat-2 Defect – within 2 months</td><td>IRC:35-2015</td></tr>
<tr><td></td><td>Night Time Visibility</td><td><u>Initial and Minimum Performancefor Dry Retro reflectivity during night time:</u>
<table>
<tr><td>Design Speed</td><td colspan="2">(RL) Retro Reflectivity (mcd/m²/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>
</table>
<u>Initial and Minimum Performance for Night Visibility under wet condition(Retro reflectivity):</u></td><td>Bi-Annually</td><td>As per Annexure-E 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>

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
		Initial 7 days Retro reflectivity: 100 mcd/m²/lux Minimum Threshold Level: 50 mcd/m²/lux					
	Skid Resistance	Initial and Minimum performance for SkidResistance: Initial (7days): 55BPN Min. Threshold: 44BPN *Note: shall be considered under urban/city traffic condition encompassing the locations like pedestrian crossings, bus bay, 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 speed of the section.	Daily	Visual with video/image backup	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 and Dual post signs) 15 Days in case of Gantry/Cantilever Sign boards	IRC:67-2012
	Retro reflectivity	As per specifications in IRC:67-2012	Bi-Annually	Testing of each	hange of ignboard	48 hours in case of Mandatory	RC:67-2012

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	TestingMethod	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
				Signboard using Retro Reflectivity Measuring Device. In accordance with ASTM D 4956-09.		Signs, Cautionary and Informatory Signs (Single and Dual post-signs) 1 Month in case of Gantry/Cantilever Sign boards	
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	RC 86:1983
	Kerb Painting	Functionality: Functioning of Kerb painting as intended	Daily	Visual with video/image backup	Kerb Repainting	Within 7-days	RC 35:2015
Other Road Furniture	Reflective Pavement Markers (Road Studs)	Numbers and Functionality as per specifications in IRC:SP:84-2014 and IRC:35-2015, unless specified in Schedule-B.	Daily	Counting	New Installation	Within 2 months	IRC:SP:84-2014,IRC:35-2015
	Pedestrian Guardrail	Functionality: Functioning of guardrail asintended	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC:SP:84-2014
	Traffic Safety Barriers	Functionality: Functioning of Safety Barriers as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP:84-2014, IRC:119-2015
	End Treatment of	Functionality: Functioning of End Treatment as intended	Daily	Visual with video/image	Rectification	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
	Traffic Safety Barriers			backup			IRC:119-2015
	Attenuators	Functionality: Functioning of Attenuators asintended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP-2014, IRC:119-2015
	Guard Posts and Delineators	Functionality: Functioning of Guard Posts and Delineators as intended	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC: 79 - 1981
	Overhead Sign Structure	Overhead sign structure shall be structurally adequate	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC:67-2012
	Traffic Blinkers	Functionality: Functioning of Traffic Blinkers as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP:84-2014
Highway Lighting System	Highway Lights	Illumination: Minimum 40 Lux illumination on the road surface	Daily	The illumination level shall be measured with luxmeter	Improvement in Lighting System	24 hours	IRC:SP:84-2014
		No major failure in the lighting system	Daily	-	Rectification of failure	24 hours	IRC:SP:84-2014
		No minor failure in the lighting system	Monthly	-	Rectification of failure	8 hours	IRC:SP:84-2014
	Toll Plaza Canopy Lights	Minimum 40 Lux illumination on the road surface	Daily	The illumination level shall be measured with luxmeter	Improvement in Lighting System	24 hours	IRC:SP:84-2014
		No major/minor failure in the lighting system	Daily	-	Rectification of failure	8 hours	IRC:SP:84-2014

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	Sight line shall be free from obstruction byvegetation	Daily	Visual with video/image backup	Removal of Trees	Immediate	IRC:SP 84-2014
Rest Areas	Cleaning of toilets	-	Daily	-	-	Every 4 hours	
	Defects in electrical, water and sanitary installations	-	Daily	-	Rectification	24 hours	

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
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

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Pipe/box/slab culverts	Free waterway/ unobstructed flow section	85% of culvert normal flow area to available.	2 times in a year (before and after rainy season)	Inspection by Bridge Engineer as per IRC SP: 35-1990 and recording of depth of silting and area of vegetation.	Cleaning silt up soils and debris in culvert barrel after rainy season, removal of bushes and vegetation, U/s of barrel, under barrel and D/s of barrelbefore rainy season.	15 days before onset of monsoon and within 30 days after end ofrainy season.	IRC 5-2015, IRC SP:40-1993 and IRC SP:13-2004
	Leak-proof expansion joints if any	No leakage through expansionjoints	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	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 perIRC: SP: 40-1993.	15 days	IRC SP 40-1993 and MORTH Specifications clause 2800
		Delamination of concrete not more than 0.25 sq.m.					
		Cracks wider than 0.3 mm not more than 1m aggregatelength					

	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 damaged aprons andpitching	30 days after defect observation or 2 weeks before onset of rainy season whichever is earlier.	IRC: SP 40-1993 and IRC:SP:13-2004.
Bridges including ROBs Flyover etc. as applicable	Riding quality or user comfort	No pothole in wearing coat on bridge deck	Daily	Visual inspection as per IRC SP:35-1990	Repairs to BC or wearing coat	15 days	MORT&H Specification 2811
Bridge -Super Structure	Bumps	No bump at expansionjoint	Daily	Visual inspection as per IRC SP:35-1990	Repairs to BC on either side of expansion joints, profile correction course on approach slab in case of settlement to approach embankment	15 days	MORT&H Specification 3004.2 & 2811.
	User safety (condition of crash barrier andguard 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	3days	IRC: 5-1998, IRC SP: 84-2014 and IRC SP: 40-1993.

	Rusted reinforcement	Not more than 0.25 sq.m	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge InspectionUnit	All the corroded reinforcement shall need to be thoroughly cleaned from rusting and applied with anti-corrosive coating before carrying out the repairs to affected concrete portionwith epoxy mortar / concrete.	15 days	IRC SP: 40-1993 and MORTH Specification 1600.
	Spalling of concrete	Not more than 0.50 sq.m					
	Delamination	Not more than 0.50 sq.m					
	Cracks wider than 0.30 mm	Not more than 1m total length	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge InspectionUnit	Grouting with epoxy mortar, investigating causes for cracks development and carry out necessary rehabilitation.	48 Hours	IRC SP: 40-1993 and MORTH Specification 2800.
	Rainwater seepage through deck slab	Leakage - nil	Quarterly	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge InspectionUnit	Grouting of deck slab at leakage areas, waterproofing, repairs to drainage spouts	1 months	MORTH Specifications 2600 & 2700.
	Deflection due to permanent loads and	Within design limits.	Once in every 10 years for spans more	Load test method	Carry out major rehabilitation works on bridge to retain original design loadscapacity	6 months	IRC SP: 51-1999.

	live loads		than 40 m				
	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 15mto 30 m	Laser displacement sensors or laser vibro-meters	Strengthening of super structure	4 months	AASHTO LRFD specifications
	Leakage in Expansion joints	No damage to elastomeric sealant compound in strip seal expansion joint, no leakage of rain water through expansion joint in case of buried and asphalt plug and copper stripjoint.	Bi-Annually	Detailed condition survey as per IRC SP:35-1990 using Mobile Bridge InspectionUnit	Replace of expansion in sea	15 days	MORTH specifications 2600 and IRC SP: 40-1993.
	Debris and dust in strip seal	No dust or debris in expansion joint	Monthly	Detailed condition survey as per IRC SP:35-1990 using	Cleaning of expansion joint gapsthoroughly	3 days	MORTH specifications 2600 and

	expansion joint	gap.		Mobile Bridge InspectionUnit			IRC SP: 40-1993.
	Drainage spouts	No down take pipe missing/broken below soffit of the deck slab. No silt, debris, clogging of drainage spout collection chamber.	Monthly	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge InspectionUnit	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 drainagespout if any leakages observed.	3 days	MORTH specification 2700.
Bridge-substructure	Cracks/spalling of concrete/ rusted steel	No cracks, spalling of concrete and rusted steel	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge InspectionUnit	All the corroded reinforcement shall need to be thoroughly cleaned from rusting and applied with anti-corrosive coating before carrying out repairs to substructure by grouting/guniting and micro concreting depending on type of defect noticed	30 days	IRC SP: 40-1993 and MORTH specification 2800.

	Bearings	Delamination of bearing reinforcement not more than 5%, cracking or tearing of rubber not more than 2 locations per side, no rupture ofreinforcement or rubber	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge InspectionUnit	In case of failure of even one bearing on any pier/abutment, all the bearings on that pier/abutment shall be replaced, in order to get uniform load transfer on tobearings.	3 months	MORTH specification 2810and IRC SP: 40-199.
Bridge Foundations	Scouring around foundations	Scouring shall not be lower than maximum scour level for the bridge	Bi-Annually	Condition survey and visual inspection as per IRC SP:35-1990 using Mobile Bridge Inspection Unit. In case of doubt, use Underwater camera for inspection of deep wells inmajor Rivers.	Suitable protection works around pier/abutment	1 month	IRC SP: 40-1993, IRC 83-2014, MORTH specification 2500
	Protection works in good condition	Damaged of rough stone apron or bank revetment not more than 3	2 times in a year (before and after rainy season)	Condition survey as per IRC SP:35-1990	Repairs to damaged aprons andpitching.	30 days after defect observation or 2	IRC: SP 40-1993 and IRC:SP:13-2004.

		sq.m, damage to solid apron (concrete apron) not more than 1 sq.m				weeks before onset of rainy season whichever is earlier.	
Note: Any Structure during the entire contract period which is found that does not complies with all requirements of this Table will be prepared, rehabilitated or even reconstructed under the scope of thecontractor.							

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. FlexiblePavement

Nature of Defect or deficiency		Time limit for repair/ rectification
(b)	**Granular earth shoulders, side slopes, drains andculverts**	
(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 pavementmarking**	
(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)	**Roadlighting**	
(i)	Any major failure of the system	24 (twenty four) hours
(ii)	Faults and minor failures	8 (eight) hours
(e)	**Trees andplantation**	

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 requiringreplacement	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)	**[TollPlaza]**	
(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 mobilecrane	4 (four) hours
Bridges		
(a)	**Superstructure**	
(i)	Any damage, cracks, spalling/ scaling Temporarymeasures Permanentmeasures	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 wingwalls**	
(i)	Cracks and damages including settlement and tilting, spalling, scaling	30 (thirty) days
(d)	**Bearings (metallic) ofbridges**	
(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)	**Otheritems**	
(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, pitching, apron, toes, floor or guidebunds	30 (thirty) days
(vii)	Growth of vegetation affecting the structure or obstructing the waterway	15 (fifteen) days
(g)	**HillRoads**	
(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 beforeissuing the bidding document, with the approval of the competent authority.]

Schedule - F

(See Clause 4.1 (vii)(a))

ApplicablePermits

1. Applicable Permits

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

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

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

(c) Licence for use ofexplosives;

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

(e) Licence from inspector of factories or other competent Authority for setting up batchingplant;

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

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

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

(i) Any other permits or clearances required under ApplicableLaws.

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

SCHEDULE - G

(See Clauses 7.1.and 19.2)

FORM OF BANK GUARANTEE

Annexure-I

(See Clause 7.1)

[Performance Security/Additional Performance Security]

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

WHEREAS:

(A) _____ [name and address of contractor] (hereinafter called the "Contractor") and National Highways and Infrastructure Development Corporation Ltd. , (hereinafter called the "Authority") have entered into an agreement (hereinafter called the "Agreement") for "Widening/Improvement to 4 (Four) Lane with Paved Shoulder from Ch. 143.680km to Ch.177.372 km (Design Ch.139.750km to Ch.173.434km)for Package-9 of Bilasipura- Guwahati road(NH 17) (Section: Dhupdhara Sahar to Milmila R.F(before Chayagaon Market)) in the state of Assam on EPC modein the state of Assam " subject to and in accordance with the provisions of the Agreement

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

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

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

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful performance of the Contractor's obligations during the {Construction Period/ Defects Liability Period and Maintenance Period} under and in accordance with the Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.

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

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

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

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

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

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

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

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

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

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

shall be conclusive.

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

12. Bank Guarantee has been sent to authority's bank through SFMS gateway as per the details below:-

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

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

SIGNED , SEALED AND DELIVERED

For and on behalf of the bank by:

(Signature)

(Name)

(Designation)

(Code Number)

(Address)

Notes:

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

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

Annexure – II

(Schedule - G)

(See Clause 19.2)

Form for Guarantee for Advance Payment

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

WHEREAS:

(A) [name and address of contractor] (hereinafter called the "**Contractor**") has executed an agreement (hereinafter called the "**Agreement**") with the National Highways and Infrastructure Corporation Ltd., (hereinafter called the "**Authority**") for the **"**Widening/Improvement to 4 (Four) Lane with Paved Shoulder from Ch. 143.680km to Ch.177.372 km (Design Ch.139.750km to Ch.173.434km) for Package-9 of Bilasipura- Guwahati road(NH 17) **(Section: Dhupdhara Sahar to Milmila R.F(before Chayagaon Market)) in the state of Assam on EPC mode** in the state of asam 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 free 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 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 first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.

   A letter from the Authority, under the hand of an officer not below the rank of [General Manager in the National Highways& Infrastructure Development Corporation Limited], that the Contractor has committed default in the due and faithful performance of all or any of its obligations for the repayment of the instalment of the Advance Payment under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the

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

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

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

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

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

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

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

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

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

10. This Guarantee shall come into force with immediate effect and shall remain in force

and effect up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.

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

SIGNED, SEALED AND DELIVERED

For and on behalf of the bank by:

(Signature)

(Name)

(Designation)

(Code Number)

(Address)

Notes:

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

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

Schedule-H

(SeeClauses10.1(iv)and19.3)

Contract PriceWeightages

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

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

Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4
Road Works including Culverts, wideningand repair ofculverts	42.33 %	**A- Widening and strengthening of existing road**	
		(1) Earthwork up to top of the sub- grade	11.38%
		(2) Sub-base Course	23.89%
		(3) Non bituminous Base course	11.64%
		(4) Bituminous Basecourse	19.78%
		(5) Wearing Coat	9.4%
		(6) Widening and repair of culverts	[Nil]
		B.1-Reconstruction/New 2-Lane Realignment /Bypass(Flexible Pavement)	
		(1) Earthwork up to top of the sub- grade	[Nil]
		(2) Sub-base Course	[Nil]
		(3) Non bituminous Base course	[Nil]
		(4) Bituminous Basecourse	[Nil]
		(5) Wearing Coat	[Nil]
		B.2-Reconstruction/New 8-Lane Realignment/ Bypass(Rigid Pavement)	
		(1) Earthwork up to top of the sub- grade	[Nil]
		(2) Sub-base Course	[Nil]
		(3) DryLean Concrete (DLC) Course	[Nil]
		(4) Pavement Quality Control (PQC) Course	[Nil]
		C.1-Reconstruction/ New Service Road(Flexible Pavement)	
		(1) Earthwork up to top of the sub- grade	0.90%
		(2) Sub-base Course	3.94%
		(3) Non bituminous Base course	2.3%
		(4) Bituminous Basecourse	0.77%
		(5) Wearing Coat	2.53%
		C.2- Reconstruction/New Service road(Rigid Pavement)	
		(1) Earthwork up to top of the sub- grade	[Nil]
		(2) Sub-base Course	[Nil]

Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4
		(3) DryLean Concrete (DLC) Course	[Nil]
		(4) Pavement Quality Control (PQC) Course	[Nil]
		D- Reconstruction &New Culverts onexisting road, realignments, bypasses Culverts (length <6m)	13.47%
Minorbridge/ Underpasses/ Overpasses	13.68 %	**A.1-widening and repairing of Minor Bridges (length >6 m&<60m)**	
		Minor Bridges	5.46%
		A.2- New Minor bridges (length >6 mand<60m)	
		(1) Foundation : On completion of the foundation work .	20.84%
		(2)Sub-Structure: On completion of the Sub structure work	18.20%
		(3) Super-structure:On completion of the super-structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road,signs & markings, tests on completion etc. complete in all respect.	17.65%
		(4)Approaches:On completionof approaches includingRetainingwalls, stonepitching, protection works complete in all and fit for use	4.85%
		(5) GuideBundsand River Training Works:On completion of GuideBunds andriver training works complete in all respects	[Nil]
		B.1- Widening and repairs of underpasses/overpasses	
		Underpasses/ Overpasses	[Nil]
		B.2-New Underpasses/Overpasses	
		(1)Foundation + Sub-Structure: On completion of the foundation work including foundations for wing and return walls, abutments, piers upto the abutment/pier cap.	22.4%
		(2)Super-structure:On completion of the super-structure in all respects including wearing coat, bearings, expansion joints, hand rails,crash barriers, road signs & markings, tests on completion etc. complete in all respect. Wearing Coat (a) in case of Overpass-wearing coat including expansion joints complete in all respects as specified and (b) in case of underpass- rigid pavement including drainage facility complete in all respects as	10.6%

Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4
		specified.	
		(3) Approaches: On completion of approaches including Retaining walls/ Reinforced Earth walls, stone pitching, protection works complete in all respect and fit for use.	[Nil]
Major bridge(length >60 m)worksand ROB/RUB/elevatedsections /flyovers including viaducts,ifany	20.32 %	**A.1- Wideningand repairs of Major Bridges**	
		(1)Foundation	[Nil]
		(2)Sub-structure	[Nil]
		(3)Super-structure(including bearings)	[Nil]
		(4)WearingCoatincludingexpansion joints	[Nil]
		(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	0.005%
		(6) Wing walls/return walls	[Nil]
		(7)Guidebunds,RiverTrainingworks etc.	[Nil]
		(8)Approaches(including Retaining walls, stone pitchingandprotection works)	[Nil]
		A.2-New Major Bridges	
		(1)Foundation	3.225%
		(2)Sub-structure	0.69%
		(3)Super-structure(including bearings)	1.84%
		(4)WearingCoatincludingexpansion joints	0.02%
		(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	0.014%
		(6) Wing walls/return walls	[Nil]
		(7)Guidebunds,RiverTrainingworks etc.	[Nil]
		(8)Approaches(including Retaining walls, stone pitchingand protection works)	0.41%
		B.1-Wideningandrepairsof (a) ROB (b) RUB	
		(1) Foundations	[Nil]
		(2) Sub-Structure	[Nil]
		(3) Super-Structure (Including bearings)	[Nil]
		(4)Wearing Coat(a)in case of ROB-wearing coat including expansion joints complete in all respectsas specified and (b) incase of RUB-rigid pavement under RUB including drainagefacility completein all respects as specified	[Nil]
		(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]
		(6) Wing walls/Return walls	[Nil]
		(7) Approaches (Including Retaining walls,Stone Pitching and protection works)	[Nil]
		B.2-New ROB/RUB	
		(1)Foundations	[Nil]
		(2) Sub-Structure	[Nil]

Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4
		(3) Super-Structure (Including bearings)	[Nil]
		(4)Wearing Coat (a) in case of ROB-wearing coat including expansion joints complete in all respectsas specified and (b) incase of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified	[Nil]
		(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]
		(6) Wing walls/Return walls	[Nil]
		(7)Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[Nil]
		C.1- Widening and repair of Elevated Section/Flyovers/Grade Separators	
		(1) Foundations	[Nil]
		(2) Sub-Structure	[Nil]
		(3)Super-Structure(Including bearings)	[Nil]
		(4)WearingCoatincludingexpansion joints	[Nil]
		(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]
		(6) Wing walls/Return walls	[Nil]
		(7)Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[Nil]
		C.2- New Elevated Section/Flyovers/Grade Separators	
		(1) Foundations	44.11%
		(2) Sub-Structure	4.98%
		(3)Super-Structure(Including bearings)	44.346%
		(4)WearingCoatincludingexpansion joints	0.28%
		(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	0.08%
		(6) Wing walls/Return walls	[Nil]
		(7)Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[Nil]
Other Works	23.67 %	(i) Toll Plaza	14.63%
		(ii) Road side drains	13.07%
		(iii) Road signs,markings,km stones,safety devices etc	5.7%
		(iv) Project facilities	
		a) Bus Bays	0.4%
		b) Truck Lay-byes	[Nil]
		c) Passenger Shelter	0.19%
		d) Rest Area	[Nil]
		e) Road Side Aminities	[Nil]

Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4
		f) Street Light	1.095%
		g) Utility Duct	[Nil]
		(v) Road side Plantation	[Nil]
		(vi)Repair of Protection Works other than approaches to the bridges, elevated sections/flyover/grade separators and ROBs/ RUBs	[Nil]
		(vii) Safety &Traffic Management during const.	[Nil]
		(viii) Junction	
		(ix) Toe Wall	[Nil]
		(x) Retaining Wall	0.91%
		(xi) Boundarywall	[Nil]
		(xii) Site Clearance & Dismanteling	4.9%
		(xiii) Reinforced Earth Wall	25.435%
		(xiv) Junction	2.7%
		(xv) Turfing	1%
		(xvi) Breast Wall	0.21%
		(xvii) Chute Drain	[Nil]
		(xvii) Ground Improvement Works (Sand Pile)	[Nil]
		(xvii) Protection Work (Stone Pitching)	[Nil]
		(xviii) Foot Over Bridge	5%
		(xvix) Electrical Utilities & Public Health Utilities(Water Pipe Line & Sewage Line)	[Nil]
		a) EHT line	[Nil]
		b) EHT Crossing	[Nil]
		c) HT I LT line (including transformers if any)	24.36%
		d) HT I LT line crossings	
		e) Water Pipe Line	0.4%
		f)Water Pipe Line Crossing	
		g) Sewage Line	[Nil]
		h) Sewage Line Crossing	[Nil]

1.3 Procedure of estimating the value of work done

1.3.1 Roadworks

Procedure for estimatingthe value ofroad work done shall be as follows:

Table1.3.1

Stage of Payment	Percentage weightage	Payment Procedure
A- Widening&Strengthening ofroad		
(1)Earthwork up to top of the sub-grade	11.38%	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 500 m. In case of Hill Cutting, the payment procedure will be as under : Hill Cutting : 40% of Weightage of A (1) Preparation of Sub-Grade: 60% of Weightage of A (1)
(2) Sub-base Course	23.89%	Unit of measurement is linear length length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m.
(3) Non bituminous Base course	11.64%	
(4) Bituminous Base course	19.78%	
(5) Wearing Coat	9.4%	
(6) Widening and repair of culverts	[Nil]	Cost of completed culverts shall be determined on pro rata basis with respect to the total no. of culverts. The payment shall be made on the completion of at least five culverts..
B.1- Reconstruction/New2-Lane Realignment/Bypass(FlexiblePavement)		
(1) Earthwork up to top of the sub-grade	[Nil]	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 500 m. In case of Hill Cutting, the payment procedure will be as under : Hill Cutting : 40% of Weightage of A (1) Preparation of Sub-Grade: 60% of Weightage of A (1)
(2) Sub-base Course	[Nil]	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 500 m.
(3) Non bituminous Base course	[Nil]	
(4) Bituminous Base course	[Nil]	
(5) Wearing Coat	[Nil]	
B.2- Reconstruction/New 8-Lane Realignment/Bypass(Rigid Pavement)		

Stage of Payment	Percentage weightage	Payment Procedure
(1)Earthwork upto top of the sub-grade	[Nil]	
(2) Sub-base Course	[Nil]	
(3) Dry Lean Concrete (DLC) Course	[Nil]	
(4) Pavement Quality Control (PQC) Course	[Nil]	
C.1- Reconstruction/New Service Road/ Slip Road(Flexible Pavement)		
(1)Earthwork upto top of the sub-grade	0.90%	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 500 m. In case of Hill Cutting, the payment procedure will be as under : Hill Cutting : 40% of Weightage of A (1) Preparation of Sub-Grade: 60% of Weightage of A (1)
(2) Sub-base Course	3.94%	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 500 m.
(3) Non bituminous Base course	2.3%	
(4) Bituminous Basecourse	0.77%	
(5) Wearing Coat	2.53%	
C.2- Reconstruction/New Service road (Rigid Pavement)		
(1)Earthworkuptotopofthe sub-grade	[Nil]	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 500 m. In case of Hill Cutting, the payment procedure will be as under : Hill Cutting : 40% of Weightage of A (1) Preparation of Sub-Grade: 60% of Weightage of A (1)
(2) Sub-base Course	[Nil]	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 500 m
(3) DryLean Concrete (DLC)Course	[Nil]	
(4) Pavement Quality Control (PQC) Course	[Nil]	
D- Reconstruction & New Culverts on existingroad,realignments,bypasses		Cost of each culvert shall be determined on pro rata basis with respect to the total number of culverts. Payment shall be made on the completion of at least one culvert
Culverts (length <6m)	13.47%	

@ 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 xweightage for road work xweightage for bituminous workx (1/L)

Where,

P = Contract Price

L = Total length in km

Similarly, the rates perkm for otherstages shallbe workedout accordingly.

Note: The length affected due tolaw-and-order problemsor litigation during execution due to which the Contractor is unable to execute the work, maybedeductedfromthetotalproject lengthforpaymentpurposes. Thetotallengthcalculatedhereisonlyforpaymentpurposesandwillnotaffect andreferredinotherclauses oftheContractAgreement.

1.3.2 Minor Bridges and Underpasses/Overpasses.

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

Table 1.3.2

Stage of Payment	Weightage	Payment Procedure
1	2	3
A.1-Widening and repairs of Minor Bridges (length>6m&<60m)	5.46%	Cost of each minor bridge shall be determined on pro rata basis with respect to the total linear length of the minor bridges. Payment shall be made on completion of widening & repair works of a minor bridge.
A.2- New Minor Bridges (length>6m& <60m)		Cost of each minor bridge shall be determined on pro rata basis with respect to the total linear length of the minor bridges
(1)Foundation : On completion of the foundation work .	20.84%	Foundation: Payment against foundation shall be made on pro-rata basis on completion of at least two foundations. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2)Sub-Structure: On completion of the Sub structure work	18.20%	Sub Structure: Payment against sub structure shall be made on pro-rata basis on completion of at least two substructure upto abutment/pier cap level of each bridge

Stage of Payment	Weightage	Payment Procedure
1	2	3
(2)Super-structure:On completion of the super-structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road,signs & markings, tests on completion etc. complete in all respect.	17.65%	Super structure: Payment shall be made on pro rata basis on completion of a stage i.e. completion of superstructure of at least one span in all respect as specified in the Colum of "Stage payment in the sub clause.
(3)Approaches:On completionof approaches includingRetainingwalls, stonepitching, protection works complete in all and fit for use	4.85%	Approaches: Payment shall be made on pro-rata basis on completion of a stage i.e.completion of approaches in all respect as specified in the column of "Stage of Payment" in this sub-clause.
(4) GuideBundsand River Training Works:On completion of GuideBunds andriver training works complete in all respects	[Nil]	Guide Bunds and River Training Works: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of Guide Bund sand River training Works in all respects as specified
B.1- Wideningand repairs ofunderpasses/overpasses	[Nil]	Cost of each underpass/overpass shall be determined on pro rata basis with respect to the total linear length of the underpasses/ overpasses. Payment shall be made on the completion of widening &repairworks of a underpass/overpass.
B.2- NewUnderpasses/Overpasses		
(1)Foundation + Sub-Structure: On completion of the foundation work including foundations for wing and return walls, abutments, piers upto the abutment/pier cap.	22.4%	**Foundation:** Payment against foundation shall be made on pro-rata basis on completion of at least two foundations. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified. **Sub Structure** :Payment sub structure shall be made on pro-rata basis on completion of at least two substructure upto abutment/pier cap level of each underpass/overpass
(2)Super-structure:On completion of the super-structure in all respects including wearing coat, bearings, expansion joints, hand rails,crash barriers, road signs & markings, tests on completion etc. complete in all respect. Wearing Coat (a) in case of Overpass-wearing coat including expansion joints complete in all respects as specified and (b) in case	10.6%	**Super structure**: Payment shall be made on pro rata basis on completion of a stage i.e. completion of superstructure of at least one span in all respect as specified in the Colum of "Stage payment in the sub clause.

Stage of Payment	Weightage	Payment Procedure
1	2	3
of underpass- rigid pavement including drainage facility complete in all respects as specified.		
(3) Approaches: On completion of approaches including Retaining walls/ Reinforced Earth walls, stone pitching, protection works complete in all respect and fit for use.	[Nil]	**(iii) Approaches:** Payment shall be made on pro-rata basis on completion of a stage i.e. completion of approaches in all respect as specified in the column of "Stage of Payment" in this sub-clause.

1.3.3 Major Bridge works, ROB/RUB and Structures.

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

Table 1.3.3

Stage of Payment	Weightage	Payment Procedure
A.1- Widening and repairs of Major Bridges		
(1)Foundation	[Nil]	Foundation: Cost of each Major Bridge shall be determined on pro rata basis with respect to the total linear length (m) of the Major Bridge. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the major Bridge. Incase where load testing is required for foundation,the trigger of first payment shall include loadtesting also where specified.
(2)Sub-structure	[Nil]	Sub-structure:Payment against sub- structure shall bemade on pro-rata basis on completion of a stagei.e. not less than 25% of the scope of sub- structure of majorbridge.
(3)Super-structure(including bearings)	[Nil]	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e.completion of super- structure including bearings of atleast one span inall respects asspecified.In case of structures where pre-cast girders have been proposed by the Contractor,50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above
(4)WearingCoatincludingexpansion joints	[Nil]	WearingCoat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	0.005%	Miscellaneous: Payments shall be made on completion of all miscellaneousworkslike handrails, crashbarriers,road markingsetc. completein all respects as specified.
(6) Wing walls/return walls	[Nil]	Wingwalls/return walls:Payments shall be made on completion of all wing walls/returnwalls complete in all respects as specified.
(7)Guidebunds,River Trainingworks etc.	[Nil]	Guide Bunds, River Trainingworks: Payments shall be made on completion ofall guidebunds/river training works etc. complete in all respects as specified.
(8)Approaches(including Retaining walls, stone pitchingandprotection works)	[Nil]	Approaches: Payments shallbe made on pro rata basis on completion of 10% of the scope of each stage.

Stage of Payment	Weightage	Payment Procedure
A.2-New MajorBridges		
(1)Foundation	3.225%	**(i) Foundation:** Payment against foundation shall be made on the pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of a bridge as per Weightage given in this table, subject to completion of atleast two foundations in all respect. In case load testing is required for foundation, the trigger for first payment shall include load testing also where specified
(2)Sub-structure	0.69%	**ii) Sub-structure :** Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of a bridge as per Weightage given in this table, subject to completion of atleast two sub structure up to abutment/pier cap level of a bridge..
(3)Super-structure including girder deck slab bearings (excluding wearing coat and expansion joints) i. Super Structure :Casting of Girder/Fabrication of Girder ii Super Structure Casting of segment iii Super Structure erection of Girder ,deck slab and bearings	1.84%	Super Structure (casting of Girder): Unit of measurement is numbers. Payment against casting of girder shall be made on pro rata basis with respect to total number of girders required in the structure on completion of a stage i.e. not less than completion of casting of atleast five girders of the structures ii) Super Structure (casting of Segment): Unit of measurement is numbers. Payment against casting of segment shall be made on pro rata basis with respect to total number of segments required in the structure on completion of a stage i.e. not less than completion of casting of atleast 10 segments of the structures iii) Super Structure (Erection of Girders,deck slab and bearing): Payment shall be made on pro rata basis on completion of a stage i.e. completion of super structure including bearing of at least one span in all respects as specified
(4)WearingCoatinclu dingexpansion joints	0.02%	WearingCoat: Payment shall be made on pro rata basis on completion of a stage in all respects as specified.
(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	0.014%	Payment shall be made on prorate basis on completion of the stage in all respects as specified for each structure.
(6) Wing walls/return walls	[Nil]	**Wing walls/return walls:** Payments shall be made on completion of all wing walls/return walls for a bridge as per Weightage given in this table,complete in all respects as specified.
(7)Guidebunds,River Trainingworks etc.	[Nil]	**Guide Bunds, River Training works :** Payment shall be made on pro rata basis on completion of all stage in all respect as specified, for each structure.
(8)Approaches(inclu ding Retaining walls, stone pitchingand protection works)	0.41%	Approaches: Payments shall be made on pro ratabasison completion of 10% of the scope of each stage.

Stage of Payment	Weightage	Payment Procedure
B.1- Widening and repairs of (a)ROB (b)RUB		
(1) Foundations	[Nil]	Foundation: Foundation cost of each ROB/RUB shall be determined on pro rata basiswith respect to the total linear length (m) ROB/RUB .Payment against foundation shall be made on pro rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of ROB/RUB, subject to completion of atleast two foundations of the ROB/RUB. In case load testing is required for foundation, the trigger for first payment shall include load testing also where specified.
(2) Sub-Structure	[Nil]	Sub-structure: Payment against sub- structure shallbe made on pro-rata basis on completion of a stage i.e.not lessthan 25% of the scope of sub- structure of ROB/RUB **subject to completion of at least two sub-structures of abutments/piers upto abutment/pier cap level of the ROB/RUB..**
(3) Super-Structure (Including bearings)	[Nil]	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e.completion of super- structure including bearings of at least one span in all respects as specified.
(4)Wearing Coat(a)in case of ROB- wearing coat including expansion joints complete in all respectsas specified and (b) incase of RUB-rigid pavement under RUB including drainagefacility completein all respects as specified	[Nil]	WearingCoat: Payment shall be made on completion (a) in caseof ROB-wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB-rigid pavement underRUB including drainage facility completein all respects as specified.
(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]	Miscellaneous: Payments shall be made on completion of all miscellaneous works like handrails, crashbarriers,road markingsetc. complete in all respects as specified.
(6) Wing walls/Return walls	[Nil]	Wingwalls/return walls:Payments shall be made on completion of all wing walls/returnwalls completeinall respects as specified.
(7) Approaches (Including Retaining walls,Stone Pitching and protection works)	[Nil]	Payments shall be made on prorata basis on completion of 20% of the total area.
B.2-NewROB/RUB		
(1) Foundation	[Nil]	**(i) Foundation:** Payment against foundation shall be made on the pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of a ROB/RUB as per Weightage given in this table, subject to completion of atleast two foundations in all respect. In case load testing is required for foundation, the trigger for first payment shall include load

Stage of Payment	Weightage	Payment Procedure
		testing also where specified
(2) Sub-structure	[Nil]	**Sub-structure :** Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of a ROB/RUB as per Weightage given in this table, subject to completion of atleast two sub structure up to abutment/pier cap level of a ROB/RUB
(3)Super-structure including girder deck slab bearings (excluding wearing coat and expansion joints) i. Super Structure :Casting of Girder/Fabrication of Girder ii Super Structure Casting of segment iii Super Structure erection of Girder ,deck slab and bearings	[Nil]	i) Super Structure (casting of Girder): Unit of measurement is numbers. Payment against casting of girder shall be made on pro rata basis with respect to total number of girders required in the structure on completion of a stage i.e. not less than completion of casting of atleast five girders of the structures ii) Super Structure (casting of Segment): Unit of measurement is numbers. Payment against casting of segment shall be made on pro rata basis with respect to total number of girders required in the structure on completion of a stage i.e. not less than completion of casting of atleast 10 segments of the structures iii) Super Structure (Erection of Girders,deck slab and bearing): Payment shall be made on pro rata basis on completion of a stage i.e. completion of super structure including bearing of at least one span in all respects as specified
(4)Wearing Coat (a) in case of ROB- wearing coat including expansion joints complete in all respectsas specified and (b) incase of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified	[Nil]	WearingCoat: Payment shall be made on pro rata basis on completion of a stage i. in all respects as specified
(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]	Payment shall be made on prorate basis on completion of the stage in all respects as specified for each structure.
(6) Wing walls/Return walls	[Nil]	**Wing walls/return walls:** Payments shall be made on completion of all wing walls/return walls for a bridge as per Weightage given in this table,complete in all respects as specified.
(7)Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[Nil]	Approaches: Payments shall be made on pro ratabasison completion of 10% of the scope of each stage.

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

Stage of Payment	Weightage	Payment Procedure
(1) Foundations	44.11%	**(i) Foundation:** Foundation: Payment against foundation shall be made on prorata basis on completion of a stage i.e. not less than 25% of the scope of foundation of structure as per Weightage given in this table subject to completion of atleast two foundations in all respect. In case load testing is required for foundation, the trigger for first payment shall include load testing also where specified
(2) Sub-Structure	4.98%	**Sub-structure :** Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of the each structure as per Weightage given in this table subject to completion of atleast two sub structure up to abutment/pier cap level of each structure
(3)Super-structure including girder deck slab bearings (excluding wearing coat and expansion joints) i. Super Structure :Casting of Girder/Fabrication of Girder ii Super Structure Casting of segment iii Super Structure erection of Girder ,deck slab and bearings	44.346%	Super Structure (casting of Girder): Unit of measurement is numbers. Payment against casting of girder shall be made on pro rata basis with respect to total number of girders required in the structure on completion of a stage i.e. not less than completion of casting of atleast five girders of the structures ii) Super Structure (casting of Segment): Unit of measurement is numbers. Payment against casting of segment shall be made on pro rata basis with respect to total number of girders required in the structure on completion of a stage i.e. not less than completion of casting of atleast 10 segments of the structures iii) Super Structure (Erection of Girders,deck slab and bearing): Payment shall be made on pro rata basis on completion of a stage i.e. completion of super structure including bearing of at least one span in all respects as specified
(4)WearingCoatincludingexpansion joints	0.28%	WearingCoat: WearingCoat: Payment shall be made on pro rata basis on completion of a stage i. in all respects as specified
(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	0.08%	Miscellaneous: Payment shall be made on prorate basis on completion of the stage in all respects as specified for each structure.
(6) Wing walls/Return walls	[Nil]	**Wing walls/return walls:** Payments shall be made on completion of all wing walls/return walls for a bridge as per Weightage given in this table,complete in all respects as specified.
(7)Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[Nil]	Payments shall be made on pro rata basis on completion of 20% of the total area.

Note: (1) In caseofinnovateMajor Bridge projects like cablesuspension/cable stayed/Extra Dozedandexceptionallylongspanbridges, theschedulemay bemodifiedasper site

requirements before biddingwith due approval ofCompetentAuthority.

(2) The Schedule for exclusive tunnel projects may be prepared as per site requirements beforebiddingwith dueapproval of CompetentAuthority.

1.3.4 Other works.

Procedureforestimating thevalueofotherworksdoneshallbeasstatedin table 1.3.4.

Table1.3.4

Stage of Payment	Weightage	Payment Procedure
1	2	3
(1) Toll Plaza	14.63%	(i) Rigid Pavement up to DLC(LHS)-12.5%
		(ii)Rigid Pavement up to DLC(RHS)-12.5%
		(iii)PQC (LHS)-25%
		Iv) PQC (RHS)- 25%
		(v)Admin Building, Maintenance Building & Misc. Works-10%
		(vi)Canopy, Toll Booth, Safety Items & Miscellaneous Works-12.5 %
		(vii)Toll Plaza Tunnel-2.5 %
(2) Road side drains	13.07%	Unit of measurement is linear length in km. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 5 % (five percent) of the total length.
(3) Road signs,markings,km stones,safety devices etc	5.7%	
(4) Project Facilities		Payment shall be made on pro rata basis for completed facilities.
a) Bus Bays	0.4%	
b) Truck Lay-byes	[Nil]	
c) Passenger Shelter	0.19%	
d) Rest Area	[Nil]	
e) Road Side Aminities	[Nil]	
f) Street Light	1.095%	
g) Utility Duct	[Nil]	
(5) Retaining Wall	0.91%	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 5% (five percent)ofthe total length.
(6) Road side Plantation including Horticulturein Wayside Amenities	[Nil]	
(7) Repair of Protection Works other than approaches to the bridges, elevated sections/flyover/grade	[Nil]	

Stage of Payment	Weightage	Payment Procedure
1	2	3
separators and ROBs/ RUBs		
(8) Boundary wall	[Nil]	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 5% (five percent)of the total length
(9) Safety andtraffic management during construction	[Nil]	Payment shall be made on prorate basis every six months.
(10) Breast Wall	0.21%	Unit of measurement is linear length.Payment shall be madeon pro rata basis on completion of a stage in a length of not less than 5% (five percent)of the total length.
(11) Toe Wall	[Nil]	
(12) Site Clearance & Dismanteling	4.9%	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 5% (five percent)of the total length.
(13) Reinforced Earth Wall	25.435%	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 5% (five percent)of the total length.
(14) Junction	2.7%	Cost of each Junction shall be determined on pro rata basis with respect to the total number of junctions. Payment shall be made on the completion of at least five junctions.
(15)Turfing	1%	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 5% (five percent)of the total length.
(16) Ground Improvement Works (Sand Pile)	[Nil]	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 5% (five percent)of the total length.
(17) Protection Work (Stone Pitching)	[Nil]	Unit of measurement is linear length in km. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 5 % (five percent) of the total length.
(18) Foot Over Bridge	5%	Payment shall be made on the completion of at least one Foot Over Bridge.
(19) Electrical Utilities & Public Health Utilities(Water Pipe Line & Sewage Line)		

Stage of Payment	Weightage	Payment Procedure
1	2	3
a) EHT line		Unit of measurement is as per completed activities. Cost per activity shall be determined on pro-rate basis as per its weightage with reference to total cost of EHT line. Payment shall be made for completed activity. (The average weightage of major activities (only for payment purpose) in shifting work is (i) Erection of Poles-20, (ii) Conductor stringing including laying of cable-30, (iii) DTR erection (if involved)-15 and (iv) Charging of line including dismantling and site clearance-35 (with DTR) and 50 (without DTR)
b) EHT Crossing		Cost of each crossing shall be determined on pro-rata basis with reference to total no. of crossings. Payment shall be made for not less than 25% of the crossings subject to a minimum of 4 crossings.
c) HT / LT line (including transformers if any)	24.36%	Unit of measurement is as per completed activities. Cost per activity shall be determined on pro-rata basis as per its weightage with reference to total cost of LT / HT line. Payment shall be made for completed activity. (The average weightage of major activities (only for payment purpose) in shifting work is (i) Erection of Poles-20 (ii) Conductor stringing including laying of cable-30, (iii) DTR erection (if involved)-10 and (iv) Charging of line including dismantling and site clearance-40 (with DTR) and 50 without DTR)
d) HT / LT line crossings		Cost of each crossing shall be determined on pro-rata basis with reference to total no. of crossings. Payment shall be made for not less than 25 of the crossings subject to a minimum of 10 crossings.
e) Water Pipe Line	0.4%	Unit of measurement is as per completed activities. Cost per activity shall be determined on pro-rata basis as per its weightage with reference to total cost of pipe line. Payment shall be made for completed activity. (The average weightage of major activities (only for payment purpose) in shifting work is laying of pipe-50, Charging of line including all miscellaneous works and dismantling and site clearance-50%)
f)Water Pipe Line Crossing		Cost of each crossing shall be determined on pro-rata basis with reference to total no. of crossings. Payment shall be made for not less than 25 of the crossings subject to a minimum of 8 crossings.

Stage of Payment	Weightage	Payment Procedure
1	2	3
g) Sewage Line	[Nil]	Unit of measurement is as per completed activities. Cost per activity shall be determined on pro-rata basis as per its weightage with reference to total cost of pipe line. Payment shall be made for completed activity. (The average weightage of major activities (only for payment purpose) in shifting work is laying of pipe-50%, Charging of line including all miscellaneous works and dismantling and site clearance-50%)
h) Sewage Line Crossing	[Nil]	Cost of each crossing shall be determined on pro-rata basis with reference to total no. of crossings. Payment shall be made for completed activity. (The average weightage of major activities in shifting work is laying pipe-50%, Charging of line including all miscellaneous works and dismantling and site clearance-50%)

2. ProcedureforpaymentforMaintenance

2.1 The cost formaintenanceshall be as stated inClause14.1.1.

2.2 PaymentforMaintenanceshallbemadein quarterly installments in accordance with the provisions of Clause 19.7.

Schedule - I

(See Clause 10.2 (iv))

Drawings

1. Drawings

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

2. Additional Drawings

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

Annex – I

(Schedule - I)

List of Drawings

[**Note**: The Authority shall describe in this Annex-I, all the Drawings that the Contractor is required to furnish under Clause 10.2.]

Schedule - J

(See Clause 10.3 (ii))

Project Completion Schedule

1. Project Completion Schedule

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

2. ProjectMilestone-I

(i) Project Milestone-I shall occur on the date falling on the **319th**day from the Appointed Date (the "**Project Milestone-I**").

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

3. ProjectMilestone-II

(i) Project Milestone-II shall occur on the date falling on the **548th**day from the Appointed Date (the "**Project Milestone-II**").

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

4. ProjectMilestone-III

(i) Project Milestone-III shall occur on the date falling on the **776th**day from the Appointed Date (the "**Project Milestone-III**").

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

5. Scheduled CompletionDate

(i) The Scheduled Completion Date shall occur on the **913th** day from the Appointed Date.

(ii) On or before the Scheduled Completion Date, the Contractor shall have completed

construction in accordance with thisAgreement.

6. Extension oftime

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

Schedule - K

(See Clause 12.1 (ii))

Tests on Completion

1. Schedule forTests

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

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

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

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

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

3. Agency for conductingTests

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. CompletionCertificate

Upon successful completion ofTests, 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)	At least twice a year (As per survey months defined for the state basis rainy season)
2	Roughness of pavement	Network Survey Vehicle (NSV)	At least twice a year (As per survey months defined for the state basis rainy season)
3	Strength of pavement	Falling Weight Deflectometer(FWD)	At least once a year
4	Bridges	Mobile Bridge Inspection Unit(MBU)	At least twice a year (As per survey months defined for the state basis rainy season)
5	Road signs	Retro-reflectometer	At least twice a year (As per survey months defined for the state basis rainy season)

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

Schedule - L

(See Clause 12.2)

Completion Certificate

1 I, ……. (Name of the Authority's Engineer), acting as the Authority's Engineer, under and in accordance with the Agreement dated..... (the "**Agreement**"), for "Widening/Improvement to 4 (Four) Lane with Paved Shoulder from Ch. 143.680km to Ch.177.372 km (Design Ch.139.750km to Ch.173.434km) for Package-9 of Bilasipura- Guwahati road(NH 17) (Section: Dhupdhara Sahar to Milmila R.F(before Chayagaon Market)) in the state of Assam on EPC modein the state of Assam on EPC mode"through (Name of Contractor),herebycertify 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 forentryintooperationonthisthe…….dayof……20…,ScheduledCompleted Date for which was the ……. day of ……20…..

SIGNED, SEALED ANDDELIVERED

For and on behalf of the Authority's Engineerby:

(Signature)

(Name)

(Designation)(Address)

Schedule - M

(See Clauses 14.6, 15.2 and 19.7)

Payment Reduction for Non-Compliance

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

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

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

(iii) The Authority's Engineer shall calculate the amount of payment reduction on the basis of weightage in percentage assigned to non-conforming items as given in Paragraph2.

2. Percentage reductions in lump sum 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, pruning 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 road signs, delineators, road markings, 200 m/km/5th kmstones	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 asunder:

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

Where,

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

M1= Monthly lump-sum payment in accordance para 1.2 above 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 Defect in a part 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'sEngineer.

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

2. Terms of Reference

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

3. Appointment of Government entity as Authority's Engineer

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

Annex – I

(Schedule - N)

Terms of Reference for Authority's Engineer

1. Scope

(i) TheseTermsofReference(the"**TOR**")for the Authority'sEngineerarebeingspecified pursuant to the EPC Agreement dated ..... (the "**Agreement**), which has been enteredintobetweenthe[nameandaddressoftheAuthority](the"**Authority**")and ..... (the**"Contractor")**# **for "Widening/Improvement to 4 (Four) Lane with Paved Shoulder from** Ch. 143.680km to Ch.177.372 km (Design Ch.139.750km to Ch.173.434km) for Package-9 of Bilasipura- Guwahati road(NH 17) (Section: Dhupdhara Sahar to Milmila R.F(before Chayagaon Market)) in the state of Assam **on EPC mode in the state of Assam on EPC mode**"and a copy of which is annexed hereto and marked as Annex-A to form part of this TOR.

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

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

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 theAgreement.

(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 thisTOR.

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

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 IndustryPractice.

(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 beforedetermining:

(a) any Time Extension;

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

(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 eitherParty.

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

(iv) The Authority's Engineer shall inform the Contractor of any delegation of its duties and responsibilities to its suitably qualified and experienced personnel; provided, however, that it shall not delegate the authority to refer any matter for the Authority's prior approval in accordance with the provisions of Clause18.2.

(v) The Authority's Engineer shall aid and advise the Authority on any proposal for Change of Scope under Article13.

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

4. Construction Period

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

(ii) The Authority's Engineer shall review 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 of Clause10.4.

(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 suchreport.

(vii) TheAuthority'sEngineershallinspecttheConstructionWorksandtheProjectHighway 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 SafetyConsultant.

(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 mayrequire.

(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 test check at least 50 (fifty) percent of the quantity or number of tests prescribed for each category or type of test for quality control by the Contractor.

(xi) The timing of tests referred to in Paragraph 4 (ix), and the criteria for acceptance/ rejection of their results shall be determined by the Authority's Engineer in accordance with the Quality Control Manuals. The tests shall be undertaken on a random sample basis and shall be in addition to, and independent of, the tests that may be carried out by the Contractor for its own quality assurance in accordance with Good Industry Practice.

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

(xiii) The Authority's Engineer may instruct the Contractor to execute any work which is urgently required for the safety of the Project Highway, whether because of an accident, unforeseeable eventorotherwise;providedthatincaseofany work required on account of a Force Majeure Event, the provisions of Clause 21.6 shallapply.

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

(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 forthwith and make a report to the Authority recommending whether or not the suspension hereunder may be revoked.

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

(xviii) The Authority's Engineer shall carry out, or cause to be carried out, all the Tests specified in Schedule-K and issue a Completion Certificate, 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 Programmed 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 their reasonableness, that are required to be determined by it under the Agreement.

(ii) TheAuthority'sEngineershalldeterminetheperiodofTimeExtensionthatisrequired 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 withhold payments for the affected works for which the Contractor fails to revise and resubmit the Drawings to the Authority's Engineer in accordance with the provisions of Clause 10.2 (IV) (d).

(ii) Authority's Engineer shall-

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

(b) within 15 (fifteen) days of the receipt of the Stage Payment Statement referred to in Clause 19.4, deliver to the Authority and the Contractor an Interim Payment Certificate certifying the amount due and payable title

Contractor , after adjustments in accordance with the provisions of Clause 19.10.

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

(iv) The Authority's Engineer shall certify final payment within 30 (thirty) days of the receipt of the final payment statement of Maintenance in accordance with the provisions of Clause19.16.

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-builtsurveyillustratingthelayoutoftheProjectHighwayandsetbacklines,ifany,ofthe buildingsandstructures 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) TheAuthority'sEngineershallinformtheAuthorityandtheContractorofanyeventof Contractor's Default within one week of its occurrence.

Schedule - O

(See Clauses 19.4 (i), 19.6 (i), and 19.8 (i))

Forms of Payment Statements

1. Stage Payment Statement for Works

The Stage Payment Statement for Works shall state:

(a) TheestimatedamountfortheWorksexecutedinaccordancewithClause19.3 (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) amountsreflectingadjustmentinprice,ifany,for(c)aboveinaccordancewith 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 up to the last claim:

i. For the Works executed (excluding Change of Scope orders);

ii. For Change of Scope Orders, and

iii. Taxes deducted

2. Monthly MaintenancePayment Statement

The monthly Statement for Maintenance Payment shall state:

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

(b) the deductions for maintenance work not done;

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

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

(e) amount towards deduction of taxes

3. Contractor's claim for Damages

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

Schedule - P

(See Clause 20.1)

Insurance

1. Insurance during Construction Period

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

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

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

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

2. Insurance for Contractor'sDefects Liability

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

3. Insurance against injury to personsand damageto property

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

The insurance cover shall be not less than: Rs. [*****]

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

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

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

4. Insurance to be in joint names

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

Schedule-Q

(See Clause 14.10)

Tests on Completion of Maintenance Period

1. RidingQuality test:

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

2. Visual and physical test:

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

Schedule-R

(See Clause 14.10)

Taking Over Certificate

I, …….. (Name and designation of the Authority's Representative) under and in accordance with the Agreement dated …… (The "**Agreement**"), for [construction of the ****section (km ** to km **) of

****] (the "**Project Highway**") on Engineering, Procurement and Construction (EPC) basis through..... (NameofContractor), hereby certify that theTestsoncompletionof 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 ANDDELIVERED

(Signature)

(Name and designation of Authority's Representative)

(Address)

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