Schedules

SCHEDULE - A

(See Clauses 2.1 and 8.1)

SITE OF THE PROJECT

1. TheSite

1.1 Single/Intermediate lane shall include the land, buildings, structures and road works as described in Annex-I of thisSchedule-A.

1.2 The dates of handing over Right of Way to the Contractor are specified in the Annex-II of this ScheduleA.

1.3 An inventory of the Site including the land, buildings, structures, road works, trees and any other immovable property on, or attached to, the Site shall be prepared jointly by the Authority Representative and the Contractor, and such inventory shall form part of the memorandum referred to in Clause 8.2.1 of thisAgreement.

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

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

Annexure -I

(Schedule-A)

Site

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

1. Site

The Site of the single/intermediate lane Project Highway comprises the section of National Highway – 223(New NH-4), Kalara Village at Km 298.0 to Lamiya Bay at Km 330.662 in the Union Territory of Andaman & Nicobar Islands. The land, carriageway and structures comprises the Site are describedbelow.

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:

Land Details

Sr.No.	Chainage(km)	Existing ROW			Remark
		Left side (in m)	Right side (in m)	Total (in m)	
1	298.025	15	15	30	
2	298.100	15	15	30	
3	298.200	15	15	30	
4	298.300	15	15	30	
5	298.400	15	15	30	
6	298.500	15	15	30	
7	298.600	15	15	30	
8	298.700	15	15	30	
9	298.800	15	15	30	
10	298.900	15	15	30	
11	299.000	15	15	30	
12	299.100	15	15	30	
13	299.200	15	15	30	
14	299.300	15	15	30	
15	299.400	15	15	30	
16	299.500	15	15	30	
17	299.600	15	15	30	
18	299.700	15	15	30	
19	299.800	15	15	30	
20	299.900	15	15	30	
21	300.000	15	15	30	

Sr.No.	Chainage(km)	Existing ROW			Remark
		Left side (in m)	Right side (in m)	Total (in m)	
22	300.100	15	15	30	
23	300.200	15	15	30	
24	300.300	15	15	30	
25	300.400	15	15	30	
26	300.500	15	15	30	
27	300.600	15	15	30	
28	300.700	15	15	30	
29	300.800	15	15	30	
30	300.900	15	15	30	
31	301.000	15	15	30	
32	301.100	15	15	30	
33	301.200	15	15	30	
34	301.300	15	15	30	
35	301.400	15	15	30	
36	301.500	15	15	30	
37	301.600	15	15	30	
38	301.700	15	15	30	
39	301.800	15	15	30	
40	301.900	15	15	30	
41	302.000	15	15	30	
42	302.100	15	15	30	
43	302.200	15	15	30	
44	302.300	15	15	30	
45	302.400	15	15	30	
46	302.500	15	15	30	
47	302.600	15	15	30	
48	302.700	15	15	30	
49	302.800	15	15	30	
50	302.900	15	15	30	
51	303.000	15	15	30	
52	303.100	15	15	30	
53	303.200	15	15	30	
54	303.300	15	15	30	
55	303.400	15	15	30	
56	303.500	15	15	30	
57	303.600	15	15	30	
58	303.700	20	10	30	
59	303.800	15	15	30	
60	303.900	11	19	30	
61	304.000	15	15	30	
62	304.100	15	15	30	
63	304.200	15	15	30	

Sr.No.	Chainage(km)	Existing ROW			Remark
		Left side (in m)	Right side (in m)	Total (in m)	
64	304.300	13.95	16.05	30	
65	304.400	13.35	16.65	30	
66	304.500	12.75	17.25	30	
67	304.600	12.15	17.85	30	
68	304.700	11.55	18.45	30	
69	304.800	10.95	19.05	30	
70	304.900	10.4	19.6	30	
71	305.000	15	15	30	
72	305.100	15	15	30	
73	305.200	15	15	30	
74	305.300	15	15	30	
75	305.400	15	15	30	
76	305.500	15	15	30	
77	305.600	15	15	30	
78	305.700	15	15	30	
79	305.800	15	15	30	
80	305.900	15	15	30	
81	306.000	15	15	30	
82	306.100	15	15	30	
83	306.200	15	15	30	
84	306.300	15	15	30	
85	306.400	15	15	30	
86	306.500	15	15	30	
87	306.600	15	15	30	
88	306.700	15	15	30	
89	306.800	15	15	30	
90	306.900	15	15	30	
91	307.000	15	15	30	
92	307.100	15	15	30	
93	307.200	15	15	30	
94	307.300	15	15	30	
95	307.400	13.5	16.5	30	
96	307.500	12.9	17.1	30	
97	307.600	12.3	17.7	30	
98	307.700	15	15	30	
99	307.800	15	15	30	
100	307.900	14	16	30	
101	308.000	15	15	30	
102	308.100	15	15	30	
103	308.200	15	15	30	
104	308.300	15	15	30	
105	308.400	15	15	30	

Sr.No.	Chainage(km)	Existing ROW			Remark
		Left side (in m)	Right side (in m)	Total (in m)	
106	308.500	28.5	1.5	30	
107	308.600	26	4	30	
108	308.700	15	15	30	
109	308.800	15	15	30	
110	308.900	15	15	30	
111	309.000	15	15	30	
112	309.100	15	15	30	
113	309.200	15	15	30	
114	309.300	15	15	30	
115	309.400	15	15	30	
116	309.500	15	15	30	
117	309.600	15	15	30	
118	309.700	15	15	30	
119	309.800	15	15	30	
120	309.900	15	15	30	
121	310.000	15	15	30	
122	310.100	15	15	30	
123	310.200	15	15	30	
124	310.300	15	15	30	
125	310.400	15	15	30	
126	310.500	15	15	30	
127	310.600	15	15	30	
128	310.700	15	15	30	
129	310.800	15	15	30	
130	310.900	15	15	30	
131	311.000	15	15	30	
132	311.100	15	15	30	
133	311.200	15	15	30	
134	311.300	15	15	30	
135	311.400	15	15	30	
136	311.500	15	15	30	
137	311.600	15	15	30	
138	311.700	15	15	30	
139	311.800	15	15	30	
140	311.900	15	15	30	
141	312.000	15	15	30	
142	312.100	8	9	17	
143	312.200	11	10	21	
144	312.300	10	10	20	
145	312.400	10	10	20	
146	312.500	12	13	25	
147	312.600	10	13	23	

Sr.No.	Chainage(km)	Existing ROW			Remark
		Left side (in m)	Right side (in m)	Total (in m)	
148	312.700	10	12	22	
149	312.800	12	13	25	
150	312.900	17	18	35	
151	313.000	15	15	30	
152	313.100	12	13	25	
153	313.200	12	13	25	
154	313.300	13	14	27	
155	313.400	8	15	23	
156	313.500	15	15	30	
157	313.600	15	15	30	
158	313.700	15	15	30	
159	313.800	15	15	30	
160	313.900	15	15	30	
161	314.000	15	15	30	
162	314.100	15	15	30	
163	314.200	15	15	30	
164	314.300	15	15	30	
165	314.400	15	15	30	
166	314.500	14	14	28	
167	314.600	14	15	29	
168	314.700	13	14	27	
169	314.800	12	13	25	
170	314.900	13	13	26	
171	315.000	12	12	24	
172	315.100	10	10	20	
173	315.200	10	10	20	
174	315.300	9	10	19	
175	315.400	12	13	25	
176	315.500	15	15	30	
177	315.600	20	20	40	
178	315.700	13	13	26	
179	315.800	12	12	24	
180	315.900	12	13	25	
181	316.000	11	11	22	
182	316.100	11	11	22	
183	316.200	11	11	22	
184	316.300	11	11	22	
185	316.400	12	11	23	
186	316.500	10	10	20	
187	316.600	10	10	20	
188	316.700	8	8	16	
189	316.800	9	8	17	

Sr.No.	Chainage(km)	Existing ROW			Remark
		Left side (in m)	Right side (in m)	Total (in m)	
190	316.900	9	8	17	
191	317.000	10	10	20	
192	317.100	8	9	17	
193	317.200	12	13	25	
194	317.300	11	12	23	
195	317.400	10	10	20	
196	317.500	10	10	20	
197	317.600	9	9	18	
198	317.700	12	12	24	
199	317.800	15	15	30	
200	317.900	14	14	28	
201	318.000	14	14	28	
202	318.100	12	13	25	
203	318.200	12	12	24	
204	318.300	11	11	22	
205	318.400	10	10	20	
206	318.500	10	20	30	
207	318.600	10	20	30	
208	318.700	11	11	22	
209	318.800	8	17	25	
210	318.900	10	17	27	
211	319.000	7	16	23	
212	319.100	8	14	22	
213	319.200	7	12	19	
214	319.700	15	15	30	
215	319.800	15	15	30	
216	319.900	15	15	30	
217	320.000	13	12	25	
218	320.100	15	15	30	
219	320.200	11	11	22	
220	320.300	13	12	25	
221	320.400	8	7	15	
222	320.500	8	7	15	
223	320.600	8	7	15	
224	320.700	8	7	15	
225	320.800	9	9	18	
226	320.900	8	8	16	
227	321.000	8	7	15	
228	321.100	9	8	17	
229	321.200	11	11	22	
230	321.300	7	7	14	
231	321.400	6	5	11	

Sr.No.	Chainage(km)	Existing ROW			Remark
		Left side (in m)	Right side (in m)	Total (in m)	
232	321.500	8	8	16	
233	321.600	8	7	15	
234	321.700	6	6	12	
235	321.800	5	5	10	
236	321.900	4	5	9	
237	322.000	6	6	12	
238	322.100	6	6	12	
239	322.200	7	7	14	
240	322.300	6	6	12	
241	322.400	6	6	12	
242	322.500	5	6	11	
243	322.600	11	11	22	
244	322.700	7.5	7.5	15	
245	322.800	20	10	30	
246	322.900	6	6	12	
247	323.000	9	9	18	
248	323.100	10	10	20	
249	323.200	15	12	27	
250	323.300	5	6	11	
251	323.400	8	7	15	
252	323.500	13	12	25	
253	323.600	0	4	4	
254	323.700	6	6	12	
255	323.800	8	9	17	
256	323.900	12	12	24	
257	324.000	9	9	18	
258	324.100	7	8	15	
259	324.200	13	10	23	
260	324.300	6	6	12	
261	324.400	8	7	15	
262	324.500	9	8	17	
263	324.600	10	10	20	
264	324.700	8	7	15	
265	324.800	8	7	15	
266	324.900	9	9	18	
267	325.000	7	6	13	
268	325.100	8	7	15	
269	325.200	9	9	18	
270	325.300	10	9	19	
271	325.400	10	11	21	
272	325.500	10	10	20	
273	325.600	10	10	20	

Sr.No.	Chainage(km)	Existing ROW			Remark
		Left side (in m)	Right side (in m)	Total (in m)	
274	325.700	12	12	24	
275	325.800	10	10	20	
276	325.900	15	15	30	
277	326.000	13	14	27	
278	326.100	12	12	24	
279	326.200	10	13	23	
280	326.300	10	13	23	
281	326.400	10	10	20	
282	326.500	8	8	16	
283	326.600	9	10	19	
284	326.700	10	10	20	
285	326.800	13	13	26	
286	326.900	10	11	21	
287	327.000	11	11	22	
288	327.100	15	13	28	
289	327.200	13	13	26	
290	327.300	13	14	27	
291	327.400	12	11	23	
292	327.500	12	11	23	
293	327.600	12	13	25	
294	327.700	14	14	28	
295	327.800	13	13	26	
296	327.900	15	15	30	
297	328.000	15	15	30	
298	328.100	15	15	30	
299	328.200	11	11	22	
300	328.300	10	10	20	
301	328.750	7	7	14	
302	328.800	7	7	14	
303	328.900	4	4	8	
304	329.000	4	4	8	
305	329.100	4	4	8	
306	329.200	4	4	8	
307	329.300	4	4	8	
308	329.400	4	4	8	
309	329.500	4	4	8	
310	329.600	4	4	8	
311	329.700	4	4	8	
312	329.800	4	4	8	
313	329.900	4	4	8	
314	330.000	4	4	8	
315	330.100	4	4	8	

Sr.No.	Chainage(km)	Existing ROW			Remark
		Left side (in m)	Right side (in m)	Total (in m)	
316	330.200	4	4	8	
317	330.300	4	4	8	
318	330.400	4	4	8	
319	330.500	4	4	8	
320	330.600	4	4	8	
321	330.650	4	4	8	
Note :- Minimum encumbrances free RoW is 7.5m available all along the road.					

3. Carriageway

The present carriageway of the Project Highway is of Single Lane carriageway flexible pavement having carriageway varying from 3.0m to 3.5m.

4. MajorBridges

The Site includes the following Major Bridges:

Sr. No.	Existing Chainage (km)	Type of Structure			No. of Spans with span length (m)	Width (m)
		Foundation	Sub-Structure	Super-Structure		
NIL						

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

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

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

6. Gradeseparators

The Site includes the following grade separators:

Sr. No	Existing Chainage (km)	Type of Structure		No. of Spans with span length (m)	Width (m)
		Foundation	Superstructure		
NIL					

7. MinorBridges

The Site includes the following minor bridges

Sr. No.	Existing Chainage (km)	Type of Structure			No. of Spans with span length (c/c of exp gap)	Total Width (m)
		Foundation	Sub-Structure	Super-Structure		
1	298.473	Open	RC WALL	RC SOLID SLAB	2x6.5	8.4
2	310.591	Balley Bridge			27.5+24.4	4.9
3	311.900	Open	RC WALL	RC SOLID SLAB	3x6.1	4.5
4	314.490	Open	RC WALL	RC SOLID SLAB	2x7.0	7.5
5	320.34	Open	RC WALL	RC SOLID SLAB	2x7.2	6.7

8. Railway levelcrossings

The Site includes the following level crossing:

Sr. No.	Existing Chainage (km)	Remarks
NIL		

9. Underpasses (Vehicular,Non-Vehicular)

The Site includes the following underpasses:

Sr. No.	Existing Chainage (Km)	Type of Structure	No. of Spans with span length (m)	Width (m)
NIL				

10. Culverts

The Site has the following culverts:

Sr. No.	Existing chainage	Type of structures (Pipe. Slab Box, Arch)	Span Arrangement (No.x Length(m))
1	298.087	RCC SLAB	1X1.8
2	298.205	RCC SLAB	1X1.7
3	298.597	HP	1X1.0
4	298.66	HP	1X0.9

Sr. No.	Existing chainage	Type of structures (Pipe. Slab	Span Arrangement (No.x
5	298.928	HP	1X1.2
6	299.052	HP	1X0.9
7	299.09	HP	1X1.2
8	299.384	HP	2X0.9
9	299.555	HP	2X0.9
10	299.772	HP	2X0.9
11	300.016	HP	2X0.9
12	300.167	RCC SLAB	1X6.0
13	300.435	HP	2x0.9
14	300.595	HP	2X0.9
15	300.795	HP	2X0.9
16	301.231	RCC SLAB	1X2.6
17	301.39	RCC SLAB	1X2.2
18	301.75	RCC SLAB	BLOCKED
19	302.064	RCC SLAB	1X5.7
20	302.212	RCC SLAB	1X2.7
21	302.428	RCC SLAB	1X3.1
22	302.605	RCC SLAB	1X2.3
23	302.917	RCC SLAB	1X4.5
24	303.022	RCC SLAB	1X4.8
25	303.267	HP	1X0.8
26	303.345	RCC SLAB	1X6.0
27	303.65	HP	1X0.90
28	303.762	RCC SLAB	1X1.9
29	304.084	RCC SLAB	1x2.5
30	304.22	RCC SLAB	1x2.5
31	304.595	RCC SLAB	1X3.6
32	304.723	HP	1X0.9
33	304.855	HP	1X0.9
34	305.219	HP	1X0.9
35	305.428	HP	1X0.9
36	305.589	HP	1X0.9
37	305.734	HP	1X0.9
38	306.075	RCC SLAB	1X2.3
39	306.274	RCC SLAB	1X4.7
40	306.913	RCC SLAB	1X4.5
41	307.513	RCC SLAB	BLOCKED
42	307.779	RCC SLAB	1X4.70
43	308.005	RCC SLAB	1X2.4
44	308.256	RCC SLAB	1X1.7
45	308.802	RCC SLAB	1X2.6
46	309.071	RCC SLAB	1X5.5

Sr. No.	Existing chainage	Type of structures (Pipe. Slab	Span Arrangement (No.x
47	309.225	HP	BLOCKED
48	309.315	HP	1 X 0.9
49	309.366	HP	2 X 1.2
50	309.439	HP	2 X 1.2
51	309.637	RCC SLAB	1 X 2.5
52	310.98	RCC SLAB	1X5.9
53	311.715	RCC SLAB	1X2.7
54	312.107	RCC SLAB	1X1.8
55	312.232	RCC SLAB	1X1.3
56	312.314	RCC SLAB	1X1.5
57	312.475	RCC SLAB	1 X 2.1
58	312.608	RCC SLAB	1X2.8
59	313.163	RCC SLAB	1X2.6
60	313.294	RCC SLAB	1X1.2
61	313.323	RCC SLAB	1X1.85
62	313.435	RCC SLAB	1X1.3
63	313.536	RCC SLAB	1X5.4
64	313.857	RCC SLAB	1X1.70
65	314.614	RCC SLAB	1X2.1
66	315.138	RCC SLAB	1X1
67	315.507	RCC SLAB	1X1.2
68	315.601	RCC SLAB	1X2.9
69	315.842	RCC SLAB	1X1.5
70	316.032	RCC SLAB	1X.5
71	316.322	RCC SLAB	1X1.5
72	316.355	RCC SLAB	1X2
73	316.566	HP	1X0.6
74	316.708	RCC SLAB	1X1.5
75	316.767	RCC SLAB	1X0.8
76	316.897	RCC SLAB	1X1.1
77	316.966	RCC SLAB	1X0.8
78	317.104	RCC SLAB	1X0.65
79	317.313	RCC SLAB	1X0.91
80	317.36	RCC SLAB	1X1.7
81	317.684	RCC SLAB	1X0.9
82	317.768	RCC SLAB	1X0.8
83	317.825	RCC SLAB	1X1.1
84	318.035	RCC SLAB	1X1
85	318.234	RCC SLAB	1X1.15
86	318.37	RCC SLAB	1X1.7
87	318.445	RCC SLAB	1X0.8
88	318.543	RCC SLAB	1X0.8

Sr. No.	Existing chainage	Type of structures (Pipe. Slab	Span Arrangement (No.x
89	318.58	RCC SLAB	1X0.83
90	318.717	HP	1X0.9
91	318.943	HP	1X0.6
92	319.153	HP	1X0.9
93	319.334	HP	1X0.6
94	319.46	HP	1X0.6
95	319.571	HP	1X0.6
96	319.651	HP	1X0.9
97	319.767	HP	2X0.6
98	319.915	HP	2X0.9
99	320.036	HP	2X0.9
100	320.571	HP	1X0.9
101	321.187	HP	1X0.6
102	321.308	RCC SLAB	1X1.8
103	321.312	HP	2X0.9
104	321.525	HP	1X0.9
105	321.952	HP	1X0.9
106	321.995	HP	1X0.9
107	322.133	HP	1X0.6
108	322.301	HP	1X0.9
109	322.372	HP	2X0.9
110	322.496	HP	1X1.2
111	322.683	HP	2X0.9
112	323.022	HP	1X0.9
113	323.14	HP	2X1.2
114	323.247	HP	2X0.9
115	323.325	HP	2X0.6
116	323.395	RCC SLAB	1X2.18
117	323.61	HP	1X0.6
118	323.84	HP	1X0.6
119	324.06	HP	1X0.6
120	324.135	HP	1X0.6
121	324.307	RCC SLAB	1X4.1
122	324.412	HP	1X0.6
123	324.525	HP	1X0.6
124	324.675	HP	1X0.6
125	324.739	HP	1X0.6
126	325.131	HP	2 X 0.9
127	325.754	RCC SLAB	1X6
128	326.437	HP	1X1.2
129	326.645	HP	2x1.2
130	326.792	HP	1X1.2

Sr. No.	Existing chainage	Type of structures (Pipe. Slab	Span Arrangement (No.x
131	327.147	HP	1X1.2
132	327.295	RCC SLAB	1X3
133	327.897	RCC SLAB	1X3
134	328.192	RCC SLAB	1X4
135	328.549	RCC SLAB	1X2
136	328.61	RCC SLAB	1X1
137	329.181	RCC SLAB	1X5.8
138	329.276	RCC SLAB	1X1
139	329.511	RCC SLAB	1X1.7
140	329.709	RCC SLAB	1X1.4
141	329.799	RCC SLAB	1X1.2
142	329.849	RCC SLAB	1X2
143	329.963	RCC SLAB	1X1.2
144	330.115	RCC SLAB	1X1.2
145	330.198	RCC SLAB	1X1.2
146	330.319	RCC SLAB	1X1.2
147	330.417	RCC SLAB	1X1.2
148	330.525	RCC SLAB	1X1.2
149	330.663	RCC SLAB	1X1.2

11. Bus bays/BusShelters

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

Sr.no	Existing CH	Side
1	303.500	LHS
2	303.700	RHS
3	304.100	RHS
4	304.400	LHS
5	304.400	LHS
6	305.000	RHS
7	305.300	LHS
8	306.173	LHS
9	306.473	RHS
10	306.900	LHS
11	307.350	RHS
12	307.900	LHS
13	308.600	LHS
14	309.200	RHS
15	310.700	LHS
16	310.900	RHS
17	311.700	RHS
18	312.100	LHS
19	312.573	LHS

20	312.800	RHS
21	313.400	LHS
22	314.073	RHS
23	314.673	RHS
24	315.000	RHS
25	315.500	LHS
26	316.173	RHS
27	316.673	LHS
28	318.073	RHS
29	320.073	RHS
30	320.573	RHS
31	320.873	RHS
32	322.473	LHS
33	323.273	LHS
34	324.600	RHS
35	325.000	LHS
36	325.973	LHS
37	326.473	LHS
38	327.173	RHS
39	328.073	RHS
40	328.673	RHS

12. Truck Lay byes

The details of truck lay byes are as follows:

Sr. No.	Existing Chainage (Km)	Length (m)	Left Hand Side	Right Hand Side
NIL				

13. Road sidedrains

The details of the roadside drains are as follows:

Sr.No.	Existing Chainage (km)		Side
	From	To	
1	298.631	299.554	Right
2	299.77	299.824	Right
3	300.237	300.256	Right

4	300.256	300.377	Both Side
5	300.377	301.224	Right
6	301.53	302.012	Left
7	302.091	302.116	Right
8	302.215	302.241	Right

Sr.No.	Existing Chainage (km)		Side
	From	To	
9	302.481	302.894	Right
10	303.044	303.106	Right
11	303.352	303.528	Right
12	303.658	303.758	Right
13	303.853	304.079	Right
14	305.441	305.554	Right
15	306.39	306.411	Right
16	307.417	307.513	Right
17	308.034	308.177	Right
18	309.25	309.488	Right
19	309.488	309.697	Both Side
20	309.697	309.712	Right
21	310.62	310.764	Right
22	310.99	311.091	Right
23	312.107	312.45	Right
24	312.681	312.819	Right
25	313.044	313.135	Right
26	313.201	313.325	Right
27	313.325	313.36	Both Side
28	313.36	313.492	Right
29	315.203	315.445	Both Side
30	315.445	315.507	Left

14. Majorjunctions

The details of major junctions are as follows:

Sr.No	Existing Chainage (km)	At Grade	Grade Separated	Category of Cross Road+			
				NH	SH	MDR	Others
1	309.875	At Grade	-	-	-	MDR-Y	-

+ NH= National Highway, SH= State Highway, MDR= Major District Road.

15. Minorjunctions

The details of the minor junctions are as follows:

Sr. No	Existing Chainage (km)	Village Name	Side	Type of Junction
1	304.127	TO SCHOOL	RIGHT	T
2	304.965	TO VILLAGE	LEFT	T
3	305.202	TO SITANAGAR	RIGHT	Y
4	305.575	TO VILLAGE	LEFT	y
5	306.416	TO MORDEN TIKRI	RIGHT	T
6	307.406	TO SITANAGAR VILLAGE	LEFT	Y
7	307.483	TO SITANAGAR VILLAGE	RIGHT	Y
8	307.802	TO SITANAGAR VILLAGE	RIGHT	T
9	308.958	TO SUBHAS GRAM	RIGHT	T
10	309.346	TO SUBHAS GRAM	LEFT	Y
11	309.719	TO KUDHIRAMPUR	RIGHT	Y
12	309.875	TO RADHANAGAR	LEFT	Y
13	309.878	TO GOVT.PRIMARY SCHOOL	RIGHT	Y
14	310.175	TO KALIPUR	RIGHT	Y
15	310.346	TO DIGLIPUR MARKET	RIGHT	T
16	310.775	TO DIGLIPUR MARKET	RIGHT	Y
17	311.094	TO R.K VILLAGE	RIGHT	Y
18	311.934	TO MADHUPUR	LEFT	Y
19	312.050	TO R.K VILLAGE	RIGHT	Y
20	312.478	TO R.K VILLAGE	RIGHT	T
21	312.492	TO R.K VILLAGE	RIGHT	T
22	312.677	TO PANCHABOTI	RIGHT	Y
23	313.23	TO VILLAGE	LEFT	Y
24	313.840	TO V.S PALLY	LEFT	Y
25	313.938	TO VILLAGE	RIGHT	Y
26	314.473	TO V.S PALLY(2)	RIGHT	T
27	314.475	TO V.S PALLY(3)	LEFT	Y
28	314.723	TO KARALAPURAM	LEFT	T
29	315.021	TO KARALAPURAM	RIGHT	T
30	315.025	TO KARALAPURAM	LEFT	T
31	315.369	TO KARALAPURAM	RIGHT	Y
32	316.266	TO KARALAPURAM	LEFT	T
33	318.059	TO ARIAL BAY	RIGHT	Y
34	318.2	TO A.B.W.D STORE	RIGHT	Y
35	318.338	TO VILLAGE	RIGHT	T

Sr. No	Existing Chainage (km)	Village Name	Side	Type of Junction
36	318.515	TO PANCHYAT	RIGHT	T
37	320.159	TO VILLAGE	RIGHT	Y
38	320.325	TO FISHER COLONY	LEFT	Y
39	320.615	TO FISHER COLONY	RIGHT	T
40	320.615	TO DURGAPUR VILLAGE	LEFT	T
41	321.218	TO DURGAPUR VILLAGE	LEFT	Y
42	321.35	TO DURGAPUR VILLAGE	RIGHT	T
43	324.321	TO VILLAGE	LEFT	Y
44	325.087	TO GOVT. SECONDARY SCHOOL	RIGHT	Y
45	326.2	TO SHIVPUR SCHOOL	RIGHT	Y
46	326.298	TO NAVAL AIR STATION	LEFT	Y
47	326.53	TO SHIVPUR VILLAGE	LEFT	Y
48	327.125	TO TURTLE NESTING SITE	LEFT	Y
49	327.888	TO KALIPUR VILLAGE	RIGHT	Y
50	328.418	TO KALIPUR VILLAGE	RIGHT	Y
51	328.59	TO VILLAGE	RIGHT	T
52	328.666	TO VILLAGE	LEFT	T

16. Bypasses

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

Sr. No	Name of bypass (Town)	Existing Chainage (Km)		Length (Km)
		From	To	
NIL				

17. Other Structures : Following are the details of existingcauseways:

Sr. No	Existing Chainage (km)	Structure Type	Openings / Spans X Length	Width (m)
NIL				

18. Details of Existing Utilities

The site includes the following electrical utilities:-

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

S. No.	Chainage		Length (in KM)			
	From	To	400KV	220 KV	110 KV	66KV
			NIL			

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

S. No.	Chainage		Length (in KM)			Transformers		Remarks
	From	To	33KV	11 KV	LT	No.	Capacity	
	Kalara Junct	SNPH	9			1	33 KV	Double Pole
	APWD labour Barrack	Lamiya Bay		24				Single pole
	SNPH	APWD Work Shop		4				Double Pole
	Kalara Junc ,	Forest Chunabhata camp		15				
	APWD labour Barrack	SNPH						
	Kalipur Guest House	Lamiya Bay						
	Kalara Junct	Lamiya Bay				33	11 KV	

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

The site includes the following public health utilities:-

S. No.	Chainage		Length (in Km)		
	from	To	Water Pipe Line		Remarks
			With Pumping	With Gravity flow	
	298 (Kalra Junct)	310 (Diglipur Bazaar)	1.782		15mm to 40mm dia
			13.571		Above 40 mm dia
	310 (Diglipur Bazaar)	318 (Ariel Bay Jetty)	1.2		15mm to 40mm dia
			28.1		Above 40 mm dia
	318 (Ariel Bay Jetty)	330 (Lamiya Bay)	0.5		15mm to 40mm dia
			5.95		Above 40 mm dia

Annex - II

(Schedule-A)

Dates for providing Right of Way

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

S. No.	Design Chainage (Km)		Design Length (Km)	Width (In Meter)	Dates of Providing ROW
	From	To			
1	2	3	4	5	6
	Part Right of Way				
	Width of Land as per Clause 2 of Annexure-I of Schedule A				On Appointed Date

Annex-III
(Schedule-A)

Alignment Plans

The existing alignment of the Project Highway shall be followed.

Annex - IV

(Schedule-A)

Environment Clearances

Not Applicable for this section.

SCHEDULE -B

(See Clause2.1)

Development of the Project Highway

1. Development of the ProjectHighway

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 andUpgradation

Rehabilitation and Upgradation shall include Intermediate lane with Hard shoulder from Ch 298+0 to 330+662 of the Project Highway as described in Annex-I of this Schedule-B and in Schedule-C.

3. Specifications andStandards

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

4. Availability of the aggregates in the A&NIsland

Although local aggregates are available but time to time restriction on quarrying the aggregate is imposed by the A&N administration. The arrangement of stones/aggregates to be planned by the contractor including its import from mainland/Asian countries. The estimation has been done accordingly. Bidders need to carry out due diligence while quoting financial quote. Bidders should explore the alternate technologies as per IRC to optimize the cost ofwork.

Annex - I
(Schedule-B)

Description of Two-Laning

Project Description:-

Rehabilitation and Upgradation of NH-4 (Old NH-223) popularly known as Andaman Trunk Road (ATR) has been entrusted to NHIDCL for the entire stretch of 330.7 Km distributed in South Andaman and North & Middle Andaman. In North Andaman the stretch from 298.00 (kalara junction) to km 330.662 (lamiya Bay) is proposed to be upgraded to 5.5 m main carriage way and 0.5m hard shoulder on both sides. The road is to be constructed on the existing alignment only. There is no realignment.

1. WIDENING OF THE EXISTINGHIGHWAY

1.1 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. Minimum formation width should not be less than7.5mtr.

1.2 WIDTH OFCARRIAGEWAY

1.2.1 Intermediate-Lane with hard shoulders in rural section and intermediate lane with drain covered foothpath from Ch 298+0 to 330+662 shall be undertaken. The carriageway shall be 5.5m wide in rural and urban section conformation with the typical cross sections drawings in theManual.

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

Sr.No.	Built up Stretch (Township)	Design Chainage (Km) *		Length (km)	Typical Cross Section Proposed
		From	To		
1	Sita Nagar Village	307.370	308.127	757	TCS VI
2	DiglipurMarket	309.570	310.448	878	TCS V
3	KaralaPuram Village	316.800	317.700	900	TCS II
4	ABWD STORE Panchayat	318.100	318.800	700	TCS V

* Exact location to be decided at site

1.2.2 Except as otherwise provided in this Agreement, the width of the paved carriagewayand cross-sectional features shall conform to paragraph 1.2.1above

2. GEOMETRIC DESIGN AND GENERALFEATURES

2.1 General

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

2.2 DesignSpeed

The design speed shall in accordance with section 2 of the manual.

2.3 Improvement of the existing roadgeometry

In the following sections, where improvement of the existing road geometrics to the prescribed standards is not possible within existing ROW, 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 beprovided:

Deficient Curves:

Sr. No	Design Chainage (km)	Radius (m)
1	298+052	40
2	298+724	70
3	299+491	40
4	300+106	65
5	300+457	50
6	300+877	65
7	300+999	60
8	301+876	60
9	303+836	50
10	303+910	60
11	307+373	60
12	307+671	50
13	308+163	70
14	310+364	60
15	310+582	60
16	310+684	50
17	312+165	70

Sr.No	Design Chainage (km)	Radius (m)
18	312+356	60
19	312+958	70
20	313+186	50
21	316+664	70
22	317+086	50
23	317+386	50
24	317+772	50
25	318+032	50
26	318+540	45
27	318+722	40
28	319+228	50
29	319+793	60
30	320+025	40
31	321+483	45
32	321+564	35

Bypasses

Sr. No	DesignChainage (Km)		Length (Km)	Name of village	Remarks
	From	To			
NIL					

2.4 Right ofWay

The Site of the Project Highway comprises the land as described in Annexure-I of Schedule-A.

2.5 Type of Shoulders

Paved shoulder in built up area and Hard shoulder with cement and chemical stabilized base in other areas for impervious quality.

a) Design and specification of paved shoulder and granular material shall confirm to the requirements specified in paragraph 5.9.9 and 5.9.10 of theManual.

b) In built up area full road width to be paved whereas in other area hard shoulder of 0.5m either side with CTB is to bedone.

2.6 Lateral and vertical clearances atunderpasses

2.6.1 Lateralandverticalclearancesatunderpassesandprovisionofguardrails/crashbarriersshall be as per paragraph 2.11 of theManual.

2.6.2 Lateral clearance: The width of the opening at the underpasses shall be asfollows:

Sr. No.	Design Chainage (Km)	Span/opening (m)	Remarks
NIL			

2.7 Lateral and vertical clearances at overpasses

2.7.1 Lateralandverticalclearancesatoverpassesandprovisionofguardrails/crashbarriersshall be as per paragraph 2.12 of theManual.

2.7.2 Lateral clearance: The width of the opening at the overpasses shall be asfollows:

Sr. No.	Design Chainage (Km)	Span/opening (m)	Remarks
NIL			

2.8 Serviceroads

Service roads/Slip Roads shall be constructed at the locations and for the lengths indicated below:

Sr. No	Design Chainage (Km)	RHS/LHS	Length of the Service Road (m)
NIL			

2.9 Grade separatedstructures

2.9.1 Grade separated structures shall be provided as per paragraph 2.14 of the Manual. The requisite particulars are givenbelow:

Sr. No.	Design Chainage (Km)	Length (m)	Number and length of spans	Approach gradient	Remarks, if any
NIL					

2.9.2 Inthecaseofgradeseparatedstructures,thetypeofstructureandthelevelofthe Project Highway and the cross roads shall be asfollows:

Sr. No.	Design Chainage (Km)	Type of structure Length (m)	Cross road at		
			Existing level	Raised Level	Lowered Level
NIL					

2.10 Cattle and pedestrian under pass / over pass

Cattle and pedestrian underpass shall be constructed as follows:

Sr. No.	Design Chainage (Km)	Type of Crossing
NIL		

2.11 Typical cross-sections of the ProjectHighway

Indicative typical cross sections along with different types of cross-sections required to be developed in different segments of the project highway are indicated in Appendix B-I. Cross Section schedule for the project highway is as follows:

Sr. No.	Design Chainage		Length (m)	Widening Proposal	TCS Proposed
	From	To			
1	298+000	298+400	400	Rehabilitation to IL in Rural section (Plain terrain)	TCS I
2	298+400	298+820	420	Rehabilitation to IL in Rural section (Rolling & Hilly terrain)	TCS III*
3	298+820	299+280	460	Rehabilitation to IL in Rural section (Plain terrain)	TCS I
4	299+280	299+380	100	Rehabilitation to IL in Rural section (Rolling & Hilly terrain)	TCS III*
5	299+380	299+800	420	Rehabilitation to IL in Rural section (Plain terrain)	TCS I
6	299+800	299+920	120	Rehabilitation to IL in Rural section (Rolling & Hilly terrain)	TCS III*
7	299+920 0	300+020	100	Rehabilitation to IL in Rural section (Plain terrain)	TCS I
8	300+020	300+400	380	Rehabilitation to IL in Rural section (Rolling & Hilly terrain)	TCS III*
9	300+400	300+960	560	Rehabilitation to IL in Rural section (Plain terrain)	TCS I
10	300+960	301+460	500	Rehabilitation to IL in Rural section (Rolling & Hilly terrain)	TCS III*
11	301+460	301+800	340	Rehabilitation to IL in Rural section (Plain terrain)	TCS I
12	301+800	302+100	300	Rehabilitation to IL in Rural section (Rolling & Hilly terrain)	TCS III
13	302+100	307+370	5270	Rehabilitation to IL in Rural section (Plain terrain)	TCS I
14	307+370	308+127	757	Rehabilitation to IL in Urban section with both side RCC drain	TCS VI
15	308+127	309+570	1443	Rehabilitation to IL in Rural section	TCS I
16	309+570	310+448	878	Overlaying of existing carriage way having both side drain	TCS V
17	310+448	316+800	6352	Overlaying of existing carriage way + construction of both side hard shoulder	TCS IV
18	316+800	317+700	900	Overlaying of existing carriage way + construction of both side drain in urban section	TCS II
19	317+700	318+100	400	Overlaying of existing carriage way + construction of both side hard shoulder	TCS IV

20	318+100	318+800	700	Overlaying of existing carriage way having both side drain	TCS V
21	318+800	319+900	1100	Rehabilitation to IL in Rural section (Plain terrain)	TCS I
22	319+900	323+600	3700	Rehabilitation to IL in Rural section (Rolling & Hilly terrain)	TCS III
23	323+600	328+600	5000	Rehabilitation to IL in Rural section (Plain terrain)	TCS I
24	328+600	328+700	100	Rehabilitation to IL in Rural section (Rolling & Hilly terrain)	TCS III
25	328+700	330+662	1962	Rehabilitation to IL in Rural section (Plain terrain)	TCS I

Any change in above chainages shall be decided as per site condition in consultation with Authority Engineer.

TCS I is for widening and rehabilitation with both side earthen drain

TCS II is for overlaying on existing road and construction of both side RCC drain. Exact location to be decided at site

Retaining wall and Breast wall shown in TCS III drawing is typical. Location of these components should be applied as per sitecondition.

Wherever required the retaining wall must be provided, to confine the toe within ROW.

TCS IV is for over laying on existing road but construction of both side hard shoulder

TCS V is for overlaying on existing carriage way having already both side covered drain

TCS VI is for reconstruction of existing roads and construction of both side RCC drain

3. INTERSECTIONS AND GRADESEPARATORS

All intersections and grade separators shall be as per section 3 of the Manual. Existing intersections which are deficient shall be improved to the prescribed standards within the available road width only. Junction road to be developed upto 50 m lengthonly.

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

a) At-grade intersections (MajorJunctions)

Sr. No.	Design Chainage (Km)	Type of Intersection	Side	Remarks
1	309+752	Y	Left	

b) At-grade intersections (MinorJunctions)

Sr. No	Design Chainage	Type of Intersection
1	304+021	T
2	304+858	T
3	305+089	Y
4	305+462	y

5	306+316	T
6	307+279	Y
7	307+358	Y
8	307+674	T
9	308+854	T
10	309+231	Y
11	309+608	Y
12	309+759	Y
13	309+764	Y
14	310+059	Y
15	310+233	T
16	310+671	Y
17	310+977	Y
18	311+820	Y
19	311+935	Y
20	312+362	T
21	312+376	T
22	312+561	Y
23	313+112	Y
24	313+719	Y
25	313+817	Y
26	314+352	T
27	314+354	Y
28	314+602	T
29	314+892	T
30	314+896	T
31	315+368	Y
32	316+141	T
33	317+925	Y
34	318+069	Y
35	318+200	T
36	318+374	T
37	320+020	Y
38	320+186	Y
39	320+476	T
40	320+477	T
41	320+853	Y
42	320+985	T
43	324+968	Y
44	324+780	Y
45	325+894	Y
46	325+993	Y
47	326+224	Y
48	326+819	Y
49	327+583	Y
50	328+087	Y
51	328+286	T

52	328+361	T

c) Grade separated intersection withoutramps

Sr. No.	Design Chainage (Km)	Salient features	Minimum length of viaduct to be provided	Road to be carried over/under the structures
NIL				

4. ROAD EMBANKMENT AND CUTSECTION

4.1 Widening and improvement of the existing road embankment/cuttings and construction of new road embankment/ cuttings shall conform to the Specifications and Standards given in section 4 of the Manual and the specified cross sectional details. Deficiencies in the plan and profile of the existing road shall be corrected. Minimum formation width should not be less than7.5 mtr.

4.2 Raising of the existingroad

The existing road shall be raised at the required locations as per proposed plan and profile including the followingsections:

Sr. No	Design Chainage (Km)		Length (Km)	Extent of raising (Top of finished road level)
	From	To		
NIL				

5. PAVEMENTDESIGN

5.1 Pavement design shall be carried out in accordance with Section 5 of theManual.

5.2 Type of pavement

Flexible Pavement from Ch 298+000 to 330+662 will be constructed as per new technology with cement and chemical treated 330 mm base over cement stabilized 500mm thick subgrade having 8% CBR as per IRC:37-2018

5.3 DesignRequirements

Design will be as per new technology (CRRI Design) with cement and chemical
treated 330 mm base over cement stabilized 500mm thick subgrade having 8% CBR for msa20 as per IRC:37-2018
Design requirement for the flexible pavement shall be in accordance with section 5 of the IRC:SP-73-2015 and IRC:37-2018.

5.3.1 Design Period andstrategy

Flexible pavement for new pavement or for widening and strengthening of the existing pavement shall be designed for a minimum design period of ***15 years***. Stage construction shall not be permitted.

5.3.2 Design Traffic

Not with standing anything to the contrary contained in this Agreement or the Manual, the Contractor shall design the pavement for design traffic as given below.

Sr. No.	Design Chainage (Km)		Minimum Design MSA for 15 years
	From	To	

1	298+000	330+662	20

The designs are indicative only and the contractor can submit the design as per the requirement. In all cases 40mm BC is mandatory requirement. The design should be based on IIT pave andshould only be designed byCRRI.

5.4 Reconstruction ofstretches

Reconstruction of stretches for matching the proposed plan & profile shall be taken up as per actual requirements.

Sr. No	Design Chainage (Km)		Remarks
	From	To	
1	298+000	309.570	Reconstruction with cement and chemically treated base over cement stabilized sub-grade with 8% CBR
	318.800	330+662	
2	309.570	318.800	Overlay of 60 mm DBM & 40 mm BC

5.5 Maintenance beforeConstruction:

The contractor shall maintain the road in the best possible manner to provide smooth trafficability. The existing road shall be kept pothole free during construction period with bituminous material. However the provisions are optional and the execution of the same shall be determined as per the site condition in consultation with the Authority's Engineer. The contractor has to maintain the road in accordance with Clause 10.4.1 of the Draft Contract Agreement as pot hole free road only duringconstruction.

6. ROADSIDEDRAINAGE

Drainagesystemincludingsurfaceandsubsurfacedrainsfortheproject Highwayshallbeprovidedasper Section 6 of theManual.

Unlined drain has been provided in complete stretch except at locations of breast wall, retaining walls and urban stretches. A minimum length of 14000 m has to be constructed.

Lined Drain of Random Rubble Masonry has been provided in hilly sections at the locations of Breast wall and in urban stretches. Minimum length of 940m has to beconstructed.

Covered RCC Drains:- Providing covered RCC drain in urban areas excluding excavation as per drawing and technical specifications section 1500,1600,1700. Aminimum length of 3270m hasto be constructed.

7. DESIGN OFSTRUCTURES

7.1 General

7.1.1 All bridges, culverts and structures shall be designed and constructed in accordance with section 7 of the manual and shall conform to the cross-sectional features and other details specified

therein.

7.1.2 Widthofthecarriagewayofnewstructuresof morethan60mlengthshallbeasfollows,ifthe carriageway width is different from 7.5m in the tablebelow.

Sr.No	Design Chainage (Km)	Width of Carriageway (m) and cross sectional features
NIL		

7.1.3 The following structures shall be provided withfootpaths:

Sr. No.	Design Chainage (Km)	Remarks
NIL		

7.1.4 All bridges shall be high-level bridges.**No**

7.1.5 The following structures shall be designed to carry utility services specified intable below.

Sr. No.	Design Chainage (Km)	Utility service to be carried	Remarks
NIL			

7.1.6 Cross-sectionofthenewculvertsandbridgesatdecklevel fortheProjectHighwayshall conform to the typical cross-sections for the ProjectHighway.

7.2 Culverts

7.2.1 The Culverts overall width shall be equal to the roadway width of theapproaches.

7.2.2 ***Reconstruction of existingculverts***:

Sr. No.	Chainage	Type of structures	Span Arrangement No.X Length(m)	Width
1	318.943	BOX CULVERT	1 X 1.5	7.5
2	319.460	BOX CULVERT	1 X 1.5	7.5
3	319.571	BOX CULVERT	1 X 1.5	7.5
4	319.651	BOX CULVERT	1 X 1.5	7.5
5	319.767	BOX CULVERT	1 X 2.0	7.5
6	320.036	BOX CULVERT	1 X 1.5	7.5
7	320.571	BOX CULVERT	1 X 1.5	7.5
8	321.187	BOX CULVERT	1 X 1.5	7.5

9	321.312	BOX CULVERT	1 X 2.5	7.5
10	321.525	BOX CULVERT	1 X 1.5	7.5
11	321.952	BOX CULVERT	1 X 1.5	7.5
12	321.995	BOX CULVERT	1 X 1.5	7.5
13	322.133	BOX CULVERT	1 X 1.5	7.5
14	322.301	BOX CULVERT	1 X 1.5	7.5
15	322.372	BOX CULVERT	1 X 2.5	7.5
16	322.496	BOX CULVERT	1 X 1.5	7.5
17	322.683	BOX CULVERT	1 X 2.5	7.5
18	323.022	BOX CULVERT	1 X 1.5	7.5
19	323.140	BOX CULVERT	1 X 3.0	7.5
20	323.247	BOX CULVERT	1 X 2.5	7.5
21	323.325	BOX CULVERT	1 X 2.0	7.5
22	323.610	BOX CULVERT	1 X 1.5	7.5
23	323.840	BOX CULVERT	1 X 1.5	7.5
24	324.060	BOX CULVERT	1 X 1.5	7.5
25	324.307	BOX CULVERT	1 X 4.0	7.5
26	324.412	BOX CULVERT	1 X 1.5	7.5
27	324.675	BOX CULVERT	1 X 1.5	7.5
28	324.739	BOX CULVERT	1 X 1.5	7.5

- Note: The cross section of opening shall be kept same as per existing structure
- Any change in above chainages shall be decided as per site condition in consultation with Authority Engineer

7.2.3 Repairing and Maintenance of ExistingCulverts

The following existing culverts, which are not to be reconstructed, shall becleaned,repaired, painted and floor,wing wall, parapet & retaining wall on both side of culvert as per site requirements shall be constructed.

Sr. No.	Existing chainage	Type of structures	Span Arrangement No.X Length (m)	Existing Width
1	298.087	SLAB CULVERT	1 X 1.8	8.2
2	298.205	SLAB CULVERT	1 X 1.7	7.5
3	302.917	SLAB CULVERT	1 X 4.5	8.6
4	303.345	SLAB CULVERT	1 X 6.0	7.5
5	303.762	SLAB CULVERT	1 X 1.9	7.5
6	304.084	SLAB CULVERT	1 X 2.5	7.9
7	304.220	SLAB CULVERT	1 X 2.5	7.9
8	304.595	SLAB CULVERT	1 X 3.6	7.5
9	306.075	SLAB CULVERT	1 X 2.3	7.5
10	306.274	SLAB CULVERT	1 X 4.7	8.5
11	306.913	SLAB CULVERT	1 X 4.5	7.5
12	307.513	SLAB CULVERT	1 X 2.0	8.6
13	311.715	SLAB CULVERT	1 X 2.7	8.2
14	312.608	SLAB CULVERT	1 X 2.8	7.5
15	313.163	SLAB CULVERT	1 X 2.6	7.9
16	329.276	SLAB CULVERT	1 X 1.0	7.5
17	329.511	SLAB CULVERT	1 X 1.7	7.5
18	329.709	SLAB CULVERT	1 X 1.4	7.5
19	329.799	SLAB CULVERT	1 X 1.2	7.5
20	329.849	SLAB CULVERT	1 X 2.0	7.5
21	329.963	SLAB CULVERT	1 X 1.2	7.5
22	330.115	SLAB CULVERT	1 X 1.2	7.5
23	330.198	SLAB CULVERT	1 X 1.2	7.5
24	330.319	SLAB CULVERT	1 X 1.2	7.5

25	330.417	SLAB CULVERT	1 X 1.2	7.5
26	330.525	SLAB CULVERT	1 X 1.2	7.5
27	330.612	SLAB CULVERT	1 X 1.2	7.5

7.2.4 Additional new culverts (given in table below) shall be constructed for width equal to the roadway width of the Project Highway & as per typical cross-section given in themanual:

Sr. No.	Design Chainage (Km)	Proposed type	No. of Spans X span length (m)
NIL			

7.2.5 Repairs/replacements of railing/parapets, flooring and protection works of the existing culverts shall be undertaken as required :

7.2.6 Floor protection works shall be as specified in the relevant IRC Codes andSpecifications

7.2.6.1 Provision in Schedule H has been kept for repair of all existing culverts other than reconstruction shall be done including cleaning, maintenance, pointing, painting etc in all respect.

7.3 Bridges

7.3.1 Existing bridges to bere-constructed/widened:

(i) The Existing bridges at the following locations shall bere-constructed:

Sr. No	Bridge Location (Design Chainage, in Km)	Salient Features of Existing Bridge		Features of Proposed Bridge	
		No. of Spans with Span Length (c/c of exp. Gap)	Total Width (m)	Proposed Length (m)	Total proposed Width
1	310+476	27.5 + 24.4	4.9	56.600	8.5
2	311.900	3 x 6.1	4.5	19.500	8.5

(ii) The following narrow bridges shall bewidened:

Sr. No.	Design Chainage (Km)	Width (m)	Extent* of Widening	Span Arrangement (m)	Type of Structure			Cross Section at Deck Level for widening
					Foundation	Sub-Structure	Super-Structure	
NIL								

7.3.2 Additional newbridges

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

Sr. No.	Bridge Location (Design Chainage, in Km)	Total Length (m)	Remarks
NIL			

7.3.3 Therailingsofexistingbridgesshallbereplacedbycrashbarriersatthefollowing locations:

Sr. No.	Design Chainage (Km)	Total length (m)	Remarks
NIL			

7.3.4 Drainage system for bridgedeck

An effective drainage system for bridge decks shall be provided as specified in paragraph 7.21 of the Manual

735 Structures in marineenvironment

The Project Alignment does not lie in Marine Alignment.

7.4 Rail-roadbridges

7.4.1 Design,constructionanddetailingof ROB/RUBshallbeasspecifiedintheManual.TheWidth of proposed ROB shall be as specified in ScheduleD.

7.4.2 Roadover-bridges

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

Sr. No	Proposed Structure	Existing Chainage	Design Chainage	Name of Crossing	Proposed structural configuration	Proposed Super Structur e	Proposed span arrangement (m)	Total Width of Structure
NIL								

7.4.3 Roadunder-bridges

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

Sr. No	Design Chainage (Km)	Number and length of span (m)
NIL		

7.5 Grade separatedstructures

The grade separated structures shall be provided at the locations and of the type and length specified in paragraphs 2.9 and 3 of this Annex-I.

7.6 Repairs and strengthening of bridges andstructures

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

A. Bridges

Sr. No.	Design Chainage (Km)	Nature and extent of repairs /strengthening to be carried out
1	298+473	Minor repair works (Cleaning, Shotcreting, Painting, Pointing, Replacement of railing with Crash Barrier, etc.)
2	314+490	
3	320.340	

B. ROB / RUB

Sr. No.	Design Chainage (Km)	Nature and extent of repairs /strengthening to be carried out
NIL		

C. Overpasses/Underpasses and otherstructures

Sr. No.	Design Chainage (Km)	Nature and extent of repairs /strengthening to be carried out
NIL		

7.7 List of Major Bridges andStructures

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

Sr. No.	Type of Structure	Design Chainage (Km)	Remark
NIL			

8 TRAFFIC CONTROL DEVICES AND ROAD SAFETY WORK.

8.3 Traffic control devices and road safety works shall be provided in accordance with Section 9 of the IRC:SP:73-2015.

8.4 Specifications of the reflective sheeting shall be as per the Manual of Specifications (IRC:SP:73-2015).

9 ROAD SIDEFURNITURE

9.3 Road side furniture shall be provided in accordance with the provisions of Section 11 of the IRC:SP:73-2015.

a) Road boundary stones for the entire projecthighway.
b) Pedestrian guard rails: At each bus stoplocation.
c) Delineators: For the entire project highway at the locations as suggested in scheduleD.

9.4 Overhead traffic signs: location andsize

a) Full width overhead signs: 2Nos.

b) Cantilever overhead signs:Nil

c) The size of Overhead Traffic Signs shall conform to the Manual of Specifications (IRC:SP:73-2015). The location shall be decided as per site conditions with Authority's Engineer.

10 COMPULSORYAFFORESTATION

The Land for compensatory afforestation as per forest conservation act shall be approximately 7.4112 Ha which are required to be planned by the contractor

11 HAZARDOUSLOCATIONS

The road side safety/Crash barriers shall be provided at following locations for minimum length as per the Manual of Specifications (IRC:SP:73-2015). However, the actual length shall be identified as per requirement of clause 9.4 of IRC:SP:73-2015 in consultation with Authority Engineer. Any increase or decrease in length as specified shall not be treated as change of scope. Metal beam has been provided at curve locations where radius is less than or equal to 50m. At every location it has been provided in the length of 150m on both sides. Locations of metal beam crash barrier are as tabulated below:

a) In curve portion

S.No	Design Chainage	Total Length
1	298+051	In curve portion 5100 rmt And Other location at more than 3m height 1420 rmt of crash barrier to be provided. The final locations shall be finalized in consultation with Authority
2	299+491	
3	300+457	
4	303+835	
5	307+670	
6	310+683	
7	313+186	
8	317+085	
9	317+385	
10	317+772	
11	318+032	
12	318+539	
13	318+722	
14	319+227	
15	320+025	
16	321+482	

17	321+563	

12 SPECIAL REQUIREMENTS FOR HILLROAD

In accordance with the section 13 of the manual (IRC: SP 73:2015 & IRC: SP 48:1998) and recommended practices for the treatment of embankment and road side slopes erosion control (First Revision), IRC: 56-2011 and relevant IRC.

12.1 Slope Protection

As the project involves cutting of existing hill slope, it is imperative that slope are stabilized for ensuring longevity of the slope and the road. Slope stability, erosion control and landslide correction shall be accomplished in accordance with IRC: SP: 48-1998, IRC SP: 116-2018 and IRC SP: 23-2014. Reference may be drawn from IRC:56-2011.

(i) The Minimum Quantity of Protection work may be taken asbelow:-

Type of Protection Work	**Unit**	**Quantity**
Breast wall	Rm	940
Retaining wall	Rm	820

a) Breast Wall / RetainingWall

Breast Wall have been proposed along the roadway edge on the hilly side of the section of project road where cutting is required or cutting is more than available ROW. In hilly sections, Breast Wall of rubble stone masonry shall be provided.

Breast wall and Retaining wall shall be provided as specified in table below & in accordance with the Manual of Specifications and Standards as referred inSchedule-D.

Breast Wall locations

	Chainage			
S.No	**From**	**To**	**Side**	**Length (m)**
1	298+520	298+560	RHS	40
2	299+880	299+900	RHS	20
3	300+120	300+300	RHS	180
4	300+980	301+080	RHS	100
5	301+400	301+500	RHS	100
6	308+380	308+420	L.H.S	40
7	319+270	319+470	R.H.S	200
8	320+063	320+123	R.H.S	60
9	321+583	321+683	R.H.S	100
10	328+600	328+700	R.H.S	100
			Total	**940**

Retaining wall shall be proposed to be installed in sections of the project road having embankment height > 3m or toe of the filling section is beyond available ROW to confine it within ROW. Retaining wall of Random Rubble Masonry shall beprovided.

Retaining Wall locations

	Chainage			
S.No	**From**	**To**	**Side**	**Length (m)**
1	298+420	298+460	Both	80
2	298+640	298+820	Right	180
3	299+650	299+690	L.H.S	40
4	300+060	300+120	L.H.S	60
5	300+650	300+750	L.H.S	100
6	301+260	301+380	L.H.S	120
7	301+600	301+680	L.H.S	80
8	304+140	304+180	L.H.S	40
9	305+300	305+340	L.H.S	40
10	310+460	310+480	Both	40
11	311+880	311+900	Both	40
Total length (m)				**820**

b) Passing places

As per availability of ROW along the project highway, 50 nos of passing places (70 sqm each) shall be constructed by the contractor with consultation of Authority Engineer to facilitate the passing of vehicles. The location of the passing places will be decided as per site condition with consultation of Authority Engineer.

Note – The Contractor shall be responsible for accurate assessment of the actual requirement as per site situation & prepared design for slope protection & stabilization as per the specification & standard stipulated in schedule 'D' and submit the same to the AE for review through the proof consultant and implement it accordancethereafter.

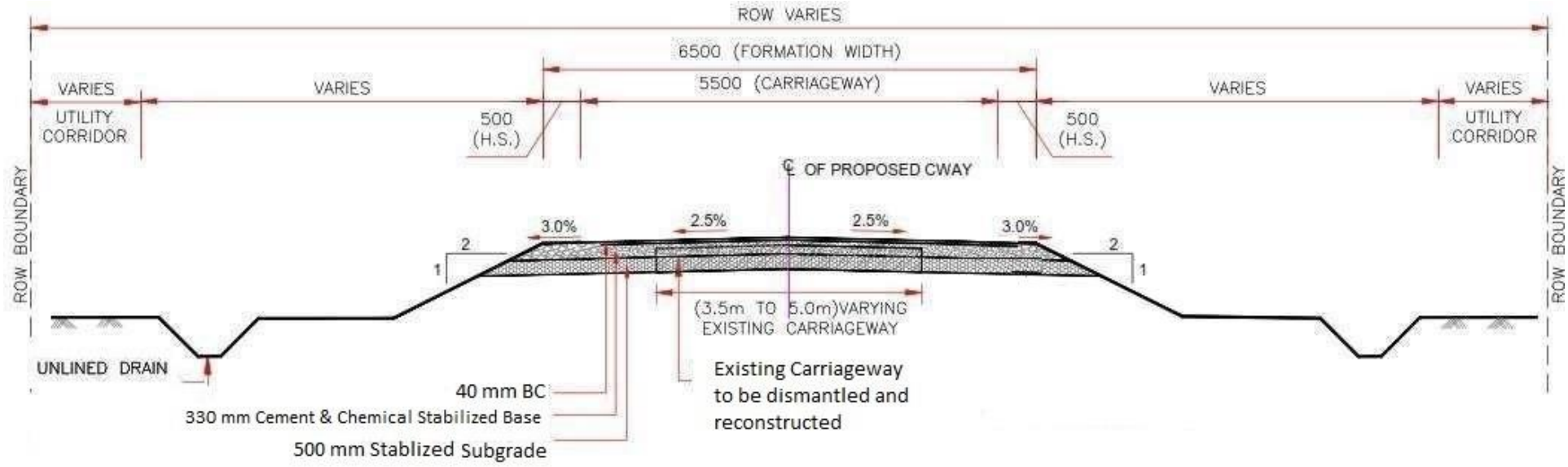
Any Increase in quantity over and above the tentative quantity as mentioned in the above table or through change in specification will not be considered as change of scope. Therefore contractor shall make thorough investigation at site and assess the requirement of slope protection and slide prone zone and other safety features at his own before submission of bid.

CHANGE OFSCOPE

The length of Structures and bridges specified hereinabove shall be treated as an approximate assessment. The Contractor in accordance with the Specifications and Standards shall determine the actual lengths as required on the basis of detailed investigations. Any variations in the lengths specified in this Schedule-B shall not constitute a Change of Scope, save and except any variations in the length arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article13.

(Schedule-B-1)

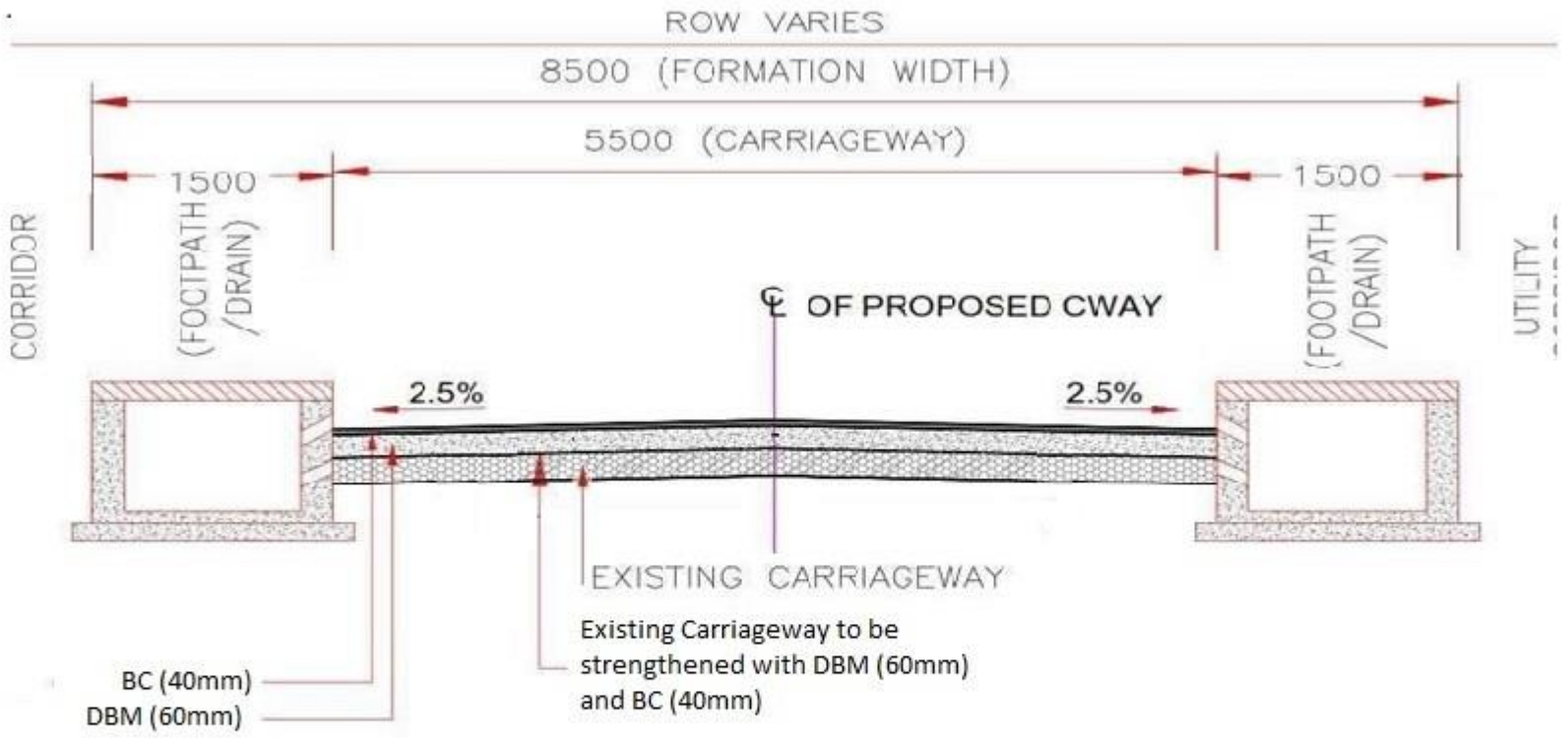
Sr. No.	Details of Utilities	Unit	Quantity
A. Electrical Utilities			
1	Laying of 09 Km. 33 KV HT line double pole structure with new utilities/materials (Kalra Junction to SNPH)	Km	09
2	Laying of 24 Km. 11 KV HT line single pole structure with new utilities/ materials (APWD Labour Barrack to Lamiya Bay).	Km	24
3	Laying of 04 Km. 11 KV HT line double pole structure with new utilities/ materials (SNPH to APWD workshop)	Km	04
4	Laying of 15 Km. 11 KV LT line with new utilities/materials (kalara Junction to Forest Chunnabatta camp, APWD Barrack to SNPH, Kalipur guest House to Lamiya Bay)	Km	15
5	Laying of 01 No. 2 pole structure for 33 KV Isolator/Transformer with new utilities/materials (Kalara Junction to Lamiya Bay).	Nos	01
6	Laying of 33 Nos. of 2 pole structure for 11 KV Isolator/Transformer with new utilities/ materials (kalara Junction to Lamiya Bay)	Nos	33
B. Water Pipe Lines			
7	Laying of Existing Pipeline adjacent to NH-4 i/c providing and Laying New Pipe Line wherever required 298.00km to 310.00 km Kalra Junction to Diglipur Bazar	Km	12
8	Laying of Existing Pipeline adjacent to NH-4 i/c providing and Laying New Pipe Line wherever required 310.00km to 318.00 km Diglipur Bazar to Aerial Bay Jetty	Km	08
9	Laying of Existing Pipeline adjacent to NH-4 i/c providing and Laying New Pipe Line wherever required 318.00km to 330.00 km Aerial Bay Jetty to Lamiya Bay	Km	12.66



Type-I
Reconstruction

TYPE-I

Appendix-B-I

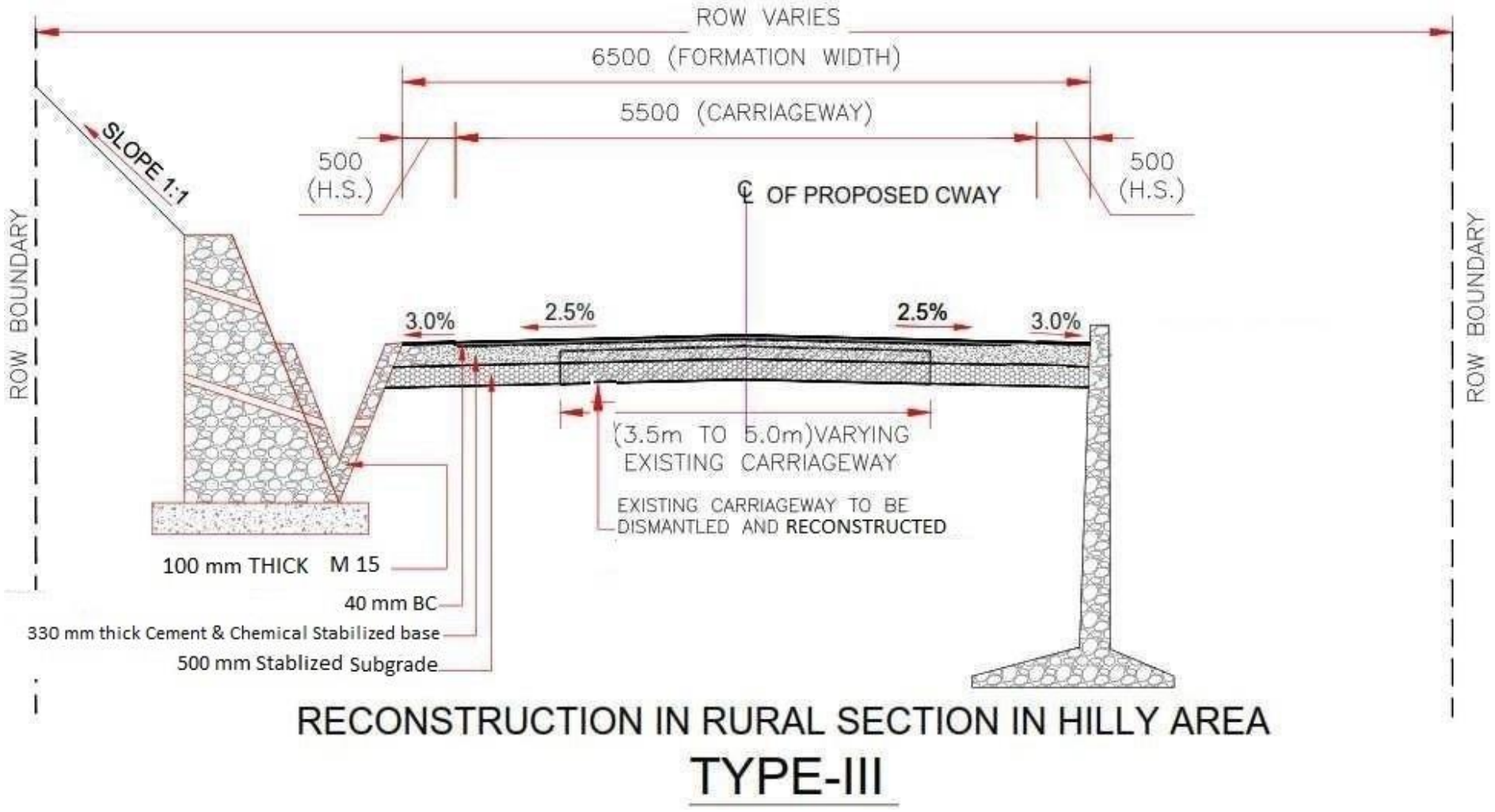


OVERLAYING IN URBAN SECTION

TYPE-II

NHIDC L

Appendix-B-I

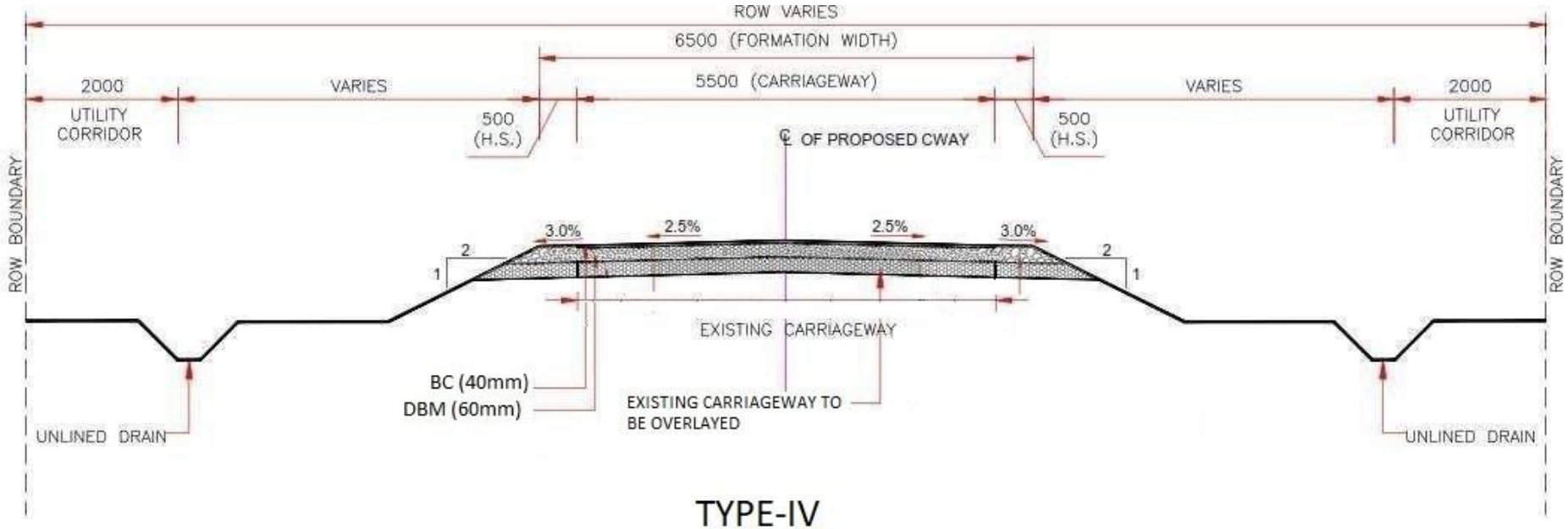


RECONSTRUCTION IN RURAL SECTION IN HILLY AREA

TYPE-III

* Retaining wall and Breast wall shown in TCS III drawing is typical. Location of these components should be applied as per sitecondition.

Appendix-B-I

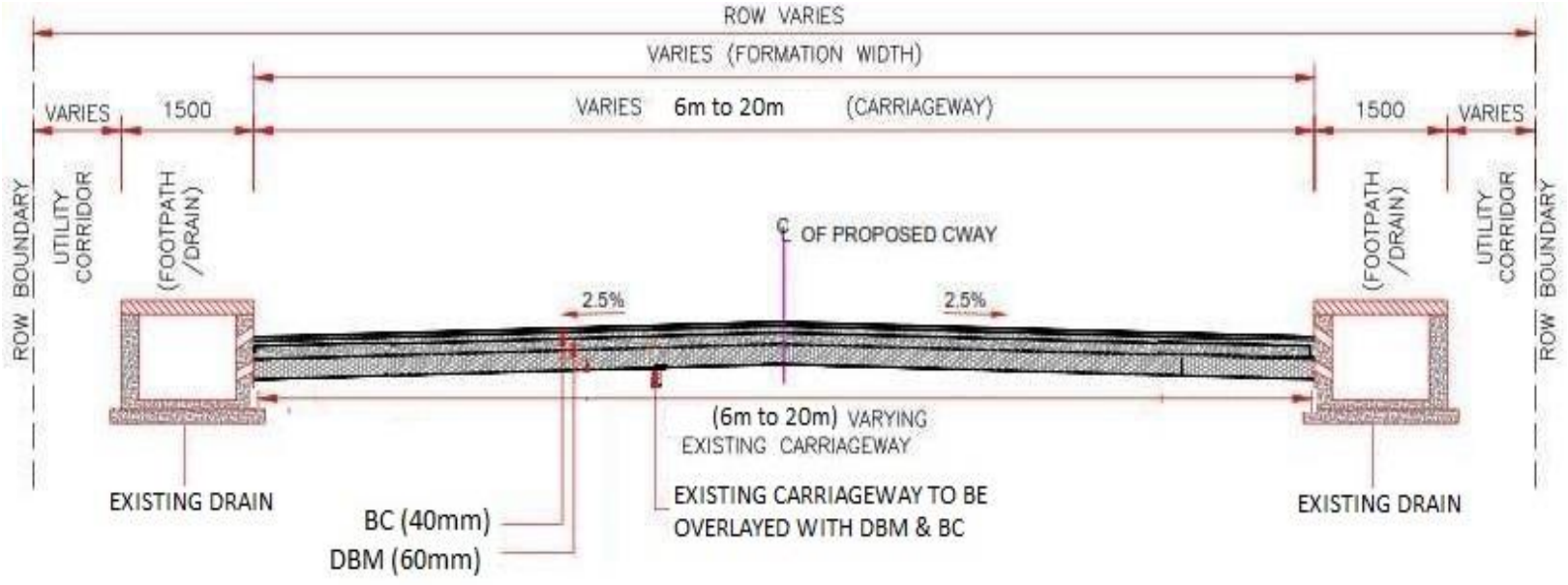


TYPE-IV
OVERLAYED

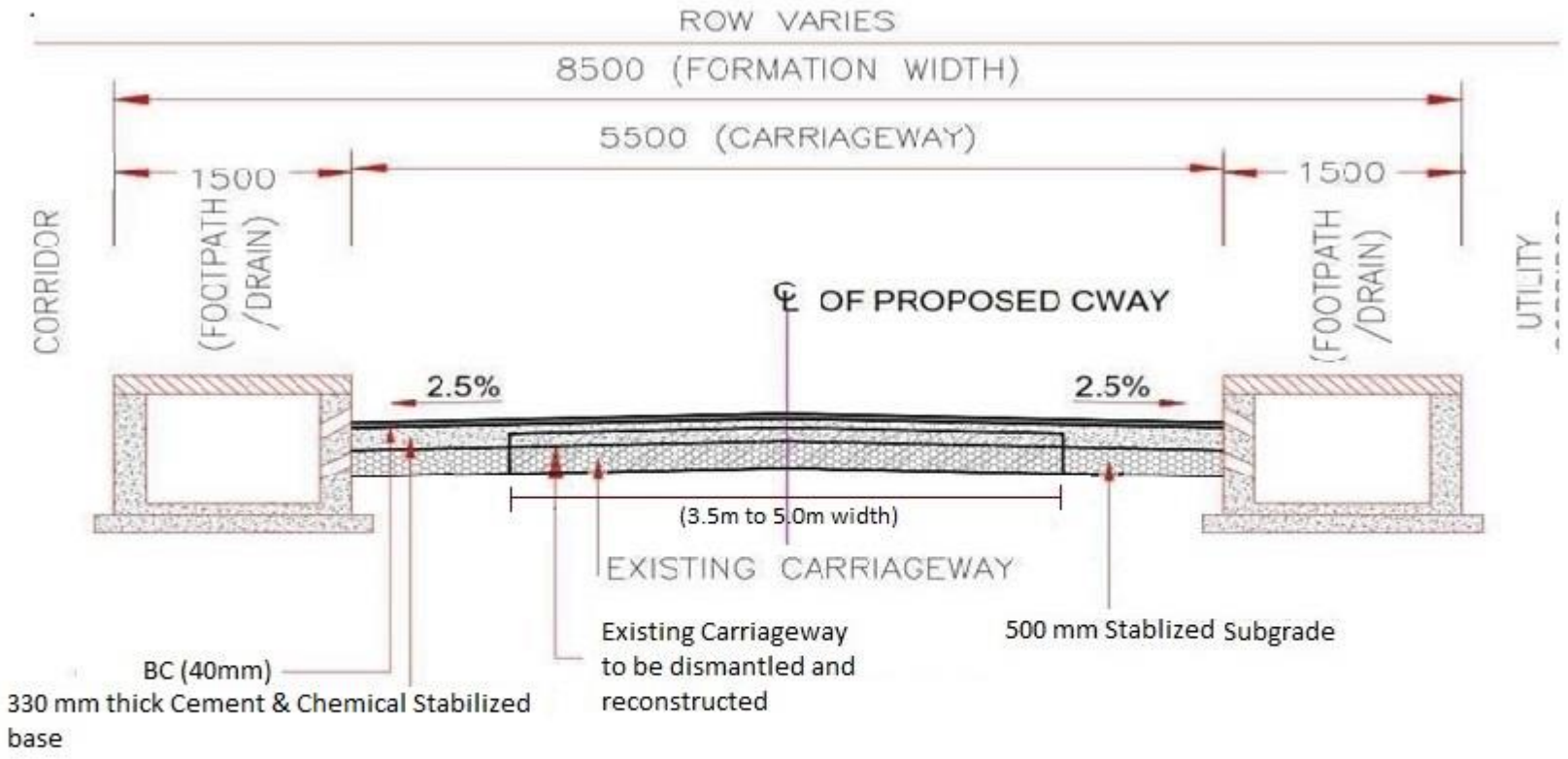
TYPE-IV

** TCS V is proposed for cutting in rural section and drawing shown for the same is typical. Wherever required the breast wall must be provided, if there is cutting in hill here is cutting in hill.

Appendix-B-I



TYPE V
OVERLAYED



OVERLAYING IN URBAN SECTION

TYPE- VI

SCHEDULE - C

(See Clause 2.1)

PROJECT FACILITIES

1. ProjectFacilities

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

a) Roadsidefurniture;

b) Pedestrian facilities

c) Busshelter

d) PassingPlaces

e) Parking Spaces

Other to be specified

2. Description of ProjectFacilities

Each of the Project Facilities is described below:

a) Roadsidefurniture;

The roadside furniture shall include the provision of:

i. TrafficSigns:
Traffic signs include roadside signs, overhead signs and kerb-mounted signs along the entire Project Highway as per the manual of specifications.

ii. PavementMarkings:
Pavement markings shall cover road marking as per the manual of specifications.

iii. LED TrafficBlinkers:
LED Traffic Blinkers for the entire project highway at the locations as suggested in Manual.

iv. Crashbarrier
As per clause 9.4 of IRC:SP-73 and as per details given in schedule-B

v. Delineators
Delineators for the entire Project Highway at the locations as suggested in Manual.

vi. Road Studs:
Road studs (RRPM) is to be provided as per the specifications of IRC:SP:73-2015.

vii) Hectometre / Kilometrestones:
Hectometre/ Kilometre Stones for the entire Project Highway at the locations

as suggested in Manual.

b) Pedestrian facilities

The Pedestrian facilities shall be provided as per the Manual

c)BusShelter

i) The Contractor shall provide additional 21 nos. of Bus Shelters along the project highway and the locations are given below. The design of Bus Shelters should be aesthetically pleased with surrounding. The locations of these bus shelters shall be finalized by the Contractor in consultation with Authority's Engineer..

S.no	Proposed CH	Side
1	303+500	LHS
2	303+700	RHS
3	304+100	RHS
4	304+400	LHS
5	305+000	RHS
6	305+300	LHS
7	306+900	LHS
8	307+350	RHS
9	307+900	LHS
10	308+600	LHS
11	309+200	RHS
12	310+700	LHS
13	310+900	RHS
14	311+700	RHS
15	312+100	LHS
16	312+800	RHS
17	313+400	LHS
18	315+000	RHS
19	315+500	LHS
20	324+600	RHS
21	325+000	LHS

ii) The following existing bus shelter shall be repaired and painted.

Existing Passenger Bus Shelter
(To be Repaired and Painted)

S.no	Proposed CH	Side
1	304.400	LHS
2	306.173	LHS
3	306.473	RHS
4	312.573	LHS
5	314.073	RHS
6	314.673	RHS
7	316.173	RHS
8	316.673	LHS
9	318.073	RHS
10	320.073	RHS
11	320.573	RHS
12	320.873	RHS
13	322.473	LHS
14	323.273	LHS
15	325.973	LHS
16	326.473	LHS
17	327.173	RHS
18	328.073	RHS
19	328.673	RHS

d) Passing Places

As per availability of ROW along the project highway, 50 nos of passing places (70 sqm each) shall be constructed by the contractor with consultation of Authority Engineer to facilitate the passing of vehicles. The location of the passing places will be decided as per site condition with consultation of Authority Engineer.

e) **Parking Spaces**

As per availability of ROW along the project highway, 2 nos of parking spaces (270sqm each) shall be constructed by the contractor with consultation of Authority Engineer to facilitate the parking of vehicles. The location of the parking area will be decided as per site condition with consultation of Authority Engineer.

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.
"As regards, the work of utility shifting, the relevant specification, relevant rules, regulations and acts of Utility Owning department/Agencies shall be applicable."

2. Design Standards

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

Manual of Specifications and Standards for Two-Laning of Highways (IRC:SP:73-2015), referred to herein as the Manual.

Annex - I

(Schedule-D)

Specifications and Standards for Construction

1. Specification and Standards

All Materials, works and construction operations shall conform to the Manual of Specifications and Standards for Two-Lanning of Highways (IRC:SP:73-2015), referred to as the Manual, and MORTH Specifications for Road and Bridge Works. Where the specification for a work is not given, Good Industry Practice shall be adopted to the satisfaction of the Engineer in charge.

2. Deviations from the Specifications andStandards

(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 forthbelow:

S. No.	Clause Referred in Manual	Item	Provisions as per Manual	Modified Provision
1	2.2.1	Design Speed	80 kmph (min. speed for plain/rolling terrain)	Design speed has not been as per Manual to restrict the construction within the available ROW
2	7.3(iv)	Width of bridge	11m carriageway including 0.5m Kerb shyness on both sides. 0.5m Crash barrier to be provided on both sides after kerb shyness.	8.5m width including crash barrier has been provided because of less traffic on the road.

SCHEDULE – E

(See Clause 2.1 and 14.2)

MAINTENANCE REQUIREMENTS

1. MaintenanceRequirements

1.1. The Contractor shall, at all-time 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 Terminationthereof.

1.3. All Materials, works and construction operations shall conform to the "SPECIFICATIONS FOR ROAD ANDBRIDGE WORKS (FIFTH REVISION, April 2013)", including latest corrections slips, issued by the Ministry of Surface Transport & Highways, Government of India and published by the Indian Roads Congress.

This being not an item rate contract, the procedure for Measurement and Payment for the items of works shall be in accordance with provision of Article 19 of the Agreement. Therefore the Sub Clauses of measurement for payment and rates in above specifications standdeleted.

Where the specifications for a work are not given, Good Industry Practice shall be adopted to the satisfaction of the Authority's Engineer.

2. Repair/rectification of Defects anddeficiencies

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 anddeficiencies

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 timelimit

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 reasonsthereof;

5. Emergencyrepairs/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 theContractor

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 officehours.

7. Pre-monsoon inspection / Post-monsooninspection

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: SP:35. 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 naturalcalamities

All damages occurring to the Project Highway on account of torrential rains, floods, earthquake or other natural disasters shall be undertaken by the Contractor at its own cost and/or out of the proceeds of insurance.

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.

Nature of Defect or deficiency		Time limit for repair/ rectification
ROADS		
(a)	**Carriageway and paved shoulders**	
(i)	Breach or blockade	Temporary restoration of traffic within 24 hours; permanent restoration within 15 (fifteen) days
(ii)	Any significant change in roughness value from original value [more than 5%] in a stretch of 1 km (as measured by a Calibrated bump integrator)	120 (one hundred and twenty) days
(iii)	Pot holes	24 hours
(iv)	Any cracks in road surface	15 (fifteen) days
(v)	Any depressions, rutting exceeding 10 mm in road surface	30 (Thirty) days
(vi)	Skidding	7 (seven) days
(vii)	Any other defect/distress on the road	15 (fifteen) days
(viii)	Damage to pavement edges	15 (fifteen) days
(ix)	Removal of debris, dead animals	6 hours
(x)	Any other defects/deficiency not covered above but pointed out by Engineer	3 (Three) days
(b)	**Granular earth shoulders, side slopes, drains and culverts**	
(i)	Edge drop at shoulders exceeding 40 mm	7 (Seven) days
(ii)	Variation by more than 1% in the prescribed	7 (seven) days

	slope of camber/cross fall (shall not be less than the camber on the main carriageway)	
(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 hours
(vii)	Railing, parapets, crash barriers	7 (Seven) days (Restore immediately if causing safety hazard)
(viii)	Any other defects/deficiency not covered above but pointed out by Engineer	3 (Three) days
(c)	**Road side furniture including road sign and pavement marking**	
(i)	Damage to shape or position, poor visibility or loss of retro-reflectivity	48 hours
(ii)	Painting of KM stone, railing, parapets, crash barriers	As and when required/Once every year
(iii)	Damaged/missing roa signs required replacement	7 (Seven) days
(iv)	Damage to road mark ups	7 (Seven) days
(v)	Any other defects/deficiency not covered above but pointed out by Engineer	3 (Three) days
(d)	**Road lighting**	
(i)	Any major failure of the system	24 hours
(ii)	Faults and minor failures	8 hours
(iii)	Any other defects/deficiency not covered above but pointed out by Engineer	3 (Three) days
(e)	**Trees and plantation**	
(i)	Obstruction in a minimum head-room of 5 m above carriageway or obstruction in visibility of road signs	24 hours
(ii)	Removal of fallen trees from carriageway	4 hours

(iii)	Deterioration in health of trees and bushes	Timely watering and treatment
(iv)	Trees and bushes requiring replacement	30 (Thirty) days
(v)	Removal of vegetation affecting sight line and road structures	15 (fifteen) days
(vi)	Any other defects/deficiency not covered above but pointed out by Engineer	3 (Three) days
(f)	**Other Project Facilities, Rest Area and Approach roads**	
(i)	Damage in pedestrian facilities, truck lay-buys, bus-bays, bus-shelters, cattle, crossings, [Traffic Aid Posts, Medical Aid Posts] and service roads	15 (fifteen) days
(ii)	Cleaning of toilets	Every 4 hours
(iii)	Defects in electrical, water and sanitary installations	24 hours
(iv)	Any other defects/deficiency not covered above but pointed out by Engineer	3 (Three) days
(v)	Rescue operations and attendance at accidents	Round the clock patrolling Inform police and other agencies immediately Removal of vehicles or debris. Assistance for first-aid and transport of accident victim to hospital Arrangement for safe movement of traffic
(vi)	Any other defects/deficiency not covered above but pointed out by Engineer	3 (Three) days
(vii)	Damaged vehicles or debris on the road	4 (Four) hours
(viii)	Malfunctioning of the mobile cranes	4 (four) hours
Bridges		
(a)	**Superstructure**	
(i)	Any damage, cracks, spalling/scaling	

	Temporarymeasures Permanentmeasures	 Within 48 hours Within 15 (fifteen) days or as specified by the Authority's Engineer
(b)	**Bearings (metallic) of bridges**	
(i)	Deformation	15 (fifteen) days Greasing of metallic bearings once in a year
(c)	**Joints**	
(i)	malfunctioning of joints	15 (fifteen) days
(ii)	Any other defects/deficiency not covered above (a) , (b) &(c) but pointed out by Engineer	3 (Three) days
(d)	**Foundations**	
(i)	Scouring and/or cavitation	15 (fifteen) days
(e)	**Piers, abutments, return walls and wing walls**	
(i)	Cracks and damages including settlement and tilting, Spalling, scaling	30 (thirty) days
(ii)	Any other defects/deficiency not covered above (d) & (e) but pointed out by Engineer	3 (Three) days
(f)	**Other items**	
(i)	Deforming of pads in elastomeric bearings	7 (seven) days
(ii)	Gathering of dirt in bearings and joints; or clogging of spouts, weep holes and vent-holes	3 (three) days
(iii)	Damage or deterioration in kerbs, parapets, handrails and crash barriers	3 (three) days (immediately within 24 hours if posing danger of 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 guide bunds	30 (thirty) days
(vii)	Growth of vegetation affecting the structure or obstructing the waterway	15 (fifteen) days
(viii)	Any other defects/deficiency not covered above but pointed out by Engineer	3 (Three) days

The failure to address above measures for any of the defects/deficiency may attract reduction in payment as per schedule M

Schedule-F

(See Clause 3.1.5(a))

APPLICABLE PERMITS

1. ApplicablePermits

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

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

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

(c) License for use ofexplosives;

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

(e) License 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, clearances or approvals required under ApplicableLaws.

1.2 Applicable permits, as required, relating to environmental protection and conservation shall have been produced by the Authority in accordance with the provisions of this Agreement

Schedule-G

(See Clause 7.1.1, 7.5.3 and 19.2)

FORM OF BANK GUARANTEE

Annex-I

(See Clause 7.1.1)

PERFORMANCE SECURITY

The Managing
Director, NHIDCL,
3rd Floor, PTI Building, SansadMarg,
New Delhi

WHEREAS:

(A) [name and address of contractor] (hereinafter called "the Contractor") and [**NHIDCL**], (**"the Authority"**) have entered into an agreement (the **"Agreement"**) for "Rehabilitation and up-gradation of section fromKm 0.000 to 12.000 (After Chidiyatapu to Beodnabad) of NH-4 to Intermediate lane with hard shoulder in the Union Territory of Andaman & Nicobar Islands through Engineering, Procurement & Construction (EPC) Basis Contract", subject to and in accordance with the provisions of theAgreement.

(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 and Defects Liability Period and maintenance period (as defined in the Agreement) in a sum of Rs. …. Crore (Rupees …. Crore) (the "GuaranteeAmount").

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

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 and 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 specifiedtherein.

2. A letter from the Authority, under the hand of an officer not below the rank of [Executive Director, NHIDCL], 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 difference 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 reasonwhatsoever.

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 thisGuarantee.

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 suchlaw.

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 theAgreement.

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 liabilitieshereunder.

8. The Performance Security shall cease to be in force and effect upto 90 (ninety) days after the end of the Defects Liability Period as set forth in Clauses 17.1 of EPC agreement.

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 theBank.

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

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

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

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

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

S.No.	Particulars	Details
1	Name of Beneficiary	National Highways & Infrastructure Development Corporation Limited
2	Beneficiary Bank Account No.	90621010002659
3	Beneficiary Bank Branch	IFSC SYNB0009062
4	Beneficiary Bank Branch Name	Transport Bhawan, New Delhi
5	Beneficiary Bank Address	Canara Bank (erstwhile Syndicate Bank), Transport Bhawan, 1st Parliament Street, NewDelhi110001

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 theguarantee.

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

Annex-II

(Schedule-G)

(See Clause 19.2)

Form for Guarantee for Advance Payment

The Managing
Director, NHIDCL,
3rd Floor, PTI Building, SansadMarg,
New Delhi

WHEREAS:

(A) [name and address of contractor] (hereinafter called "**the Contractor**") has executed an agreement (hereinafter called the "Agreement") with the [**NHIDCL**], (hereinafter called "**the Authority**") for the "Rehabilitation and up-gradation of section from Km 0.00 to 12.000 (After Chidiyatapu to Beodnabad) of NH-4 to Intermediate lane with hard shoulder in the Union Territory of Andaman & Nicobar Islands through Engineering, Procurement & Construction (EPC) Basis Contract", subject to and in accordance with the provisions of theAgreement.

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

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

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

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

2. A letter from the Authority, under the hand of an officer not below the rank of [General Manager in the National Highways Authority of India], that the Contractor has committed default in the due and faithful performance of all or any of its obligations 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 reasonwhatsoever

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 thisGuarantee.

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 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 suchlaw.

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 AdvancePayment.

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 90 (ninety) days after the end of the one year from the date of payment of the installment of the Advance Payment, as set forth in Clause 19.2 of theAgreement.

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 theBank.

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

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

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

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

14. Intimation regarding issuance of this Bank Guarantee shall be sent to Authority's BankthroughSFMSgatewayasperthedetailsbelow:

S.No.	Particulars	Details
1	Name of Beneficiary	National Highways & Infrastructure Development Corporation Limited
2	Beneficiary Bank Account No.	90621010002659
3	Beneficiary Bank Branch	IFSC SYNB0009062
4	Beneficiary Bank Branch Name	Transport Bhawan, New Delhi
5	Beneficiary Bank Address	Canara Bank (erstwhile Syndicate Bank), Transport Bhawan, 1st Parliament Street, NewDelhi110001

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)

Schedule-H

(See Clauses 10.1.4 and19.3)

Contract PriceWeightages

1. (i) The Contract Price for this Agreementis**Rs. Crore.**

1. (ii) Proportions of the Contract Price for different stages of Construction of the Project Highway shall be as specifiedbelow:

Item	Weightage in percentage to the Contract price	Stage for Payment	Percentage weightage
1	2	3	4
A) Road works including reconstruction and repair & maintenance ofexisting culverts	61.05%	**1) Reconstruction of Existing roads**	
		a)Site Clearance, Dismantling and Scarifying	0.41%
		b) Earthwork and subgrade	9.86%
		c)Cement and Chemical Treated Base	42.78%
		d)Bituminous Wearing Course	30.35%
		e) Hard Shoulder	3.85%
		2) Re-Construction of culverts	
		a) Construction of culverts	9.53%
		b) CulvertsRepair and maintenance	3.22%
B) Construction and repair of Minor Bridges	**5.12%**		
		(1) Reconstruction of minor bridge	98.61 %
		(2) Repair and maintenance of minor bridge	1.39 %

C) Other works	20.11%	i). Road side drains	
		(a) Unlined Drains	0.58%
		(b) Lined drains	0.45%
		(c) RCC Covered drains	18.62%
		ii). Protection Works	
		Breast Wall/Retaining Wall	23.76%
		iii)Metal beam crash barrier	14.08%
		iv). Junction	
		Major Junction	1.24%
		Minor Junction	16.88%
		v). Parking Space	0.62%
		vi). Bus Shelter	
		Construction of new bus shelter	6.21%
		Repairing and painting of existing bus shelter	0.28%
		vii). Passing Places	4.03%
		viii) Traffic Sign, Marking, Km Stones and other Appurtenances after cleaning of sites	13.25%

D) Utility Shifting (13.72%)			
	(Electrical Utilities) 47.03%	**a. Laying of 09 Km 33 KV HT line double pole structure with new utilities/materials (KalraJunction to SNPH)**	**29.79%**
		b. Laying of 24 Kms. 11 KV HT line single pole structure with new utilities/ materials (APWD Labour Barrack to Lamiya Bay).	**24.67**
		c. Laying of 04 Kms. 11 KV HT line double pole structure with new utilities/ materials (SNPH to APWD workshop)	**13.04%**
		d. Laying of 15 Kms. 11 KV LT line with new utilities/materials (kalara Junction to Forest Chunnabatta camp, APWD Barrack to SNPH, Kalipur guest House to Lamiya Bay)	**22.39%**
		e. Lying of 01 No. 2 pole structure for 33 KV Isolator/Transformer with new utilities/materials (Kalara Junction to Lamiya Bay).	**0.38%**
		f. Laying of 33 Nos. of 2 pole structure for 11 KV Isolator/Transformer with new utilities/ materials (kalara Junction to Lamiya Bay)	**9.73%**
	(Water Supply Pipe line) 52.97%	**a) Laying of Existing Pipeline adjacent to NH-4 i/c providing and Laying New Pipe Line wherever required 298.00km to 310.00 km Kalra Junction to Diglipur Bazar**	**15.42%**
		b) Laying of Existing Pipeline adjacent to NH-4 i/c providing and Laying New Pipe Line wherever required 310.00km to 318.00 km Diglipur Bazar to Aerial Bay Jetty	**48.53%**
		c) Laying of Existing Pipeline adjacent to NH-4 i/c providing and Laying New Pipe Line wherever required 318.00km to 330.00 km Aerial Bay Jetty to Lamiya Bay	**36.05%**

Procedure of estimating the value of work done.

(i) Road works.

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

Table 1.3.1

Stage for Payment	Percentage weightage	Payment Procedure
1) Road works including reconstruction, wideningand repair of existing culverts (61.05%)		
a) Site Clearance, Dismantling and Scarifying,	0.41%	Unit of measurement is linear length. Cost of work will be with respect to total 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 1km
b) Earthwork and subgrade	9.86%	Unit of measurement is linear length. Cost of work will be with respect to total linear length. Payment of each stage shall be made on pro rata basis on completion of subgrade top level in a length of not less than1km.
c) Cement and Chemical Treated Base	42.78%	Unit of measurement is linear length. Cost of work will be with respect to total linear length. Payment of each stage shall be made on pro rata basis on completion of CTB top level in a length of not less than 1km.
d) Bituminous Course	30.35%	Unit of measurement is linear length. Cost of work will be with respect to total linear length.Payment of each stage shall be made on pro rata basis on completion of Bituminous Concrete top level in a length of not less than 1 km
e) Hard Shoulder	3.85%	Unit of measurement is linear length. Cost of work will be with respect to total 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 1 km
2) Re-Construction of culverts		
(1) Construction of Culverts	9.53%	Cost of construction of culvert shall be on pro rata basis with respect to the total number of culverts. Payment shall be made on the completion of at least four culverts
Culverts widening and maintenance	3.22%	Cost of widening and repairing of culverts will be based on pro rata basis with respect to the total no of culverts.Payment shall be made on the completion of at least four culverts

8.1.1 Minor Bridge Cost estimation and procedure for payment is as follows

Table 1.3.2

Stage of Payment	Weightage	Payment Procedure
1	2	3
B) Construction and repair of Minor Bridges (5.12%)		
(1) Reconstruction of minor bridge	**98.61 %**	Cost of each minor bridge shall bedetermined on pro rata basis with respect to the totallinear length of the minor bridges. Payment shall be made on the completion of one minor bridge or 10% linear length whichever is less
(2) Repair and maintenance of minor bridge	**1.39 %**	Cost of each minor bridge shall bedetermined on pro rata basis with respect to the totalno of the minor bridges. Payment shall be made on the completion of at least one minor bridge.

8.1.2 Otherworks.

Procedure for estimating the value of other works is as below

Table 1.3.4

C) Other Works – 20.11 %

Stage of Payment	Weightage	Payment Procedure
i). Road side drains		
(a) Unlined Drains	**0.58%**	Unit of measurement is linear length. Cost of work will be with respect to total 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 2km
(b) Lined drains	**0.45%**	Unit of measurement is linear length. Cost of work will be with respect to total 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 0.5km
(c) RCC Covered drains	**18.62%**	Unit of measurement is linear length. Cost of work will be with respect to total 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 100m
ii). Protection Works		
Breast Wall/ Retaining Wall	**23.76%**	Unit of measurement is linear length. Cost of work will be with respect to total 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 200 m
iii) Metal Beam Crash Barrier	**14.08%**	Unit of measurement is linear length. Cost of work will be with respect to total 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
iv) Junction		
Major Junction	**1.24%**	Unit of measurement is no of junction. Cost of work will be with respect to total no of junction. Payment of each stage shall be made on pro rata basis on completion of atleast one junction in all respects
Minor Junction	**16.88%**	Unit of measurement is no of junction. Cost of work will be with respect to total no of junction. Payment of each stage shall be made on pro rata basis on completion of at least five junction in all

		respects
v) Parking Space	**0.62%**	Unit of measurement is no of parking spaces. Cost of work will be with respect to total no of parking spaces. Payment of each stage shall be made on pro rata basis on completion of at least one parking space in all respects
vi). Bus Shelter		Payment will be made in nos on pro rata basis on completion of at least 5 nos
Construction of new bus shelter	**6.21%**	Unit of measurement is no of bus shelters. Cost of work will be with respect to total no of bus shelters. Payment of each stage shall be made on pro rata basis on completion of at least five bus shelter in all respects
Repairing and painting of existing bus shelter	**0.28 %**	Unit of measurement is no of bus shelters. Cost of work will be with respect to total no of bus shelters. Payment of each stage shall be made on pro rata basis on completion of at least five bus shelter in all respects
vii) Passing places	**4.03%**	Unit of measurement is no of passing places. Cost of work will be with respect to total no of passing places. Payment of each stage shall be made on pro rata basis on completion of at least five passing places
v) Traffic Sign, Marking, Km Stones and other Appurtenances after cleaning of sites	**13.25%**	Unit of measurement is linear length. Cost of work will be with respect to total 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 5km in all respects

D) Utility Shifting – 13.72 %

A) Electrical -47.03%

Stage of Payment	Weightage	Payment Procedure
a. Laying of 09 Km 33 KV HT line double pole structure with new utilities/materials (KalraJunction to SNPH)	**29.79%**	**Unit of measurement is as per complete activities. Cost per activity shall be determined on pro-rata basis as per its weightage with reference to total cost of EHT line. Payment shall be made for completed activities. (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. Laying of 24 Kms. 11 KV HT line single pole structure with new utilities/ materials (APWD Labour Barrack to Lamiya Bay).	**24.67**	**Unit of measurement is as per complete activities. Cost per activity shall be determined on pro-rata basis as per its weightage with reference to total cost of EHT line. Payment shall be made for completed activities. (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)**
c. Laying of 04 Kms. 11 KV HT line double pole structure with new utilities/ materials (SNPH to APWD workshop)	**13.04%**	**Unit of measurement is as per complete activities. Cost per activity shall be determined on pro-rata basis as per its weightage with reference to total cost of EHT line. Payment shall be made for completed activities. (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)**
d. Laying of 15 Kms. 11 KV LT line with new utilities/materials (kalara Junction to Forest Chunnabatta camp, APWD Barrack to SNPH, Kalipur guest House to Lamiya Bay)	**22.39%**	**Unit of measurement is as per complete activities. Cost per activity shall be determined on pro-rata basis as per its weightage with reference to total cost of ELT line. Payment shall be made for completed activities. (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)
e. Laying of 01 No. 2 pole structure for 33 KV Isolator/Transformer with new utilities/materials (Kalara Junction to Lamiya Bay).	**0.38%**	**Unit of measurement is as per complete activities. Cost per activity shall be determined on pro-rata basis as per its weightage with reference to total cost of Isolator/Transformer. Payment shall be made for completed activities. (The average weightage of major activities (only for payment purpose) in shifting work is (i) Erection of Isolator/Transformer- 20%, (ii) Complete in line and level assemble - 30%, (iii) Charging and commissioning including miscellaneous and site clearance- 50%**
f. Laying of 33 Nos. of 2 pole structure for 11 KV Isolator/Transformer with new utilities/ materials (kalara Junction to Lamiya Bay)	**9.73%**	**Unit of measurement is as per complete activities. Cost per activity shall be determined on pro-rata basis as per its weightage with reference to total cost Isolator/Transformer. Payment shall be made for completed activities. (The average weightage of major activities (only for payment purpose) in shifting work is (i) Erection of Isolator/Transformer- 20%, (ii) Complete in line and level assemble - 30%, (iii) Charging and commissioning including miscellaneous and site clearance- 50%**

B) Water Pipe Lines – 52.97%

Stage of Payment	Weightage	Payment Procedure
a) Laying of Existing Pipeline adjacent to NH-4 i/c providing and Laying New Pipe Line wherever required 298.00km to 310.00 km Kalra Junction to Diglipur Bazar	**15.42%**	**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 activities. (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 dismantkling and site clearance -50%)**
b) Laying of Existing Pipeline adjacent to NH-4 i/c providing and Laying New Pipe Line wherever required 310.00km to 318.00 km Diglipur Bazar to Aerial Bay Jetty	**48.53%**	**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 activities. (The average weightage of major activities (only for payment purpose) in shifting work is laying of pipe-50%, charging of line including all miscellaniouse works and dismantkling and site clearance -50%)**
c) Laying of Existing Pipeline adjacent to NH-4 i/c providing and Laying New Pipe Line wherever required 318.00km to 330.00 km Aerial Bay Jetty to Lamiya Bay	**36.05%**	**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 activities. (The**

		average weightage of major activities (only for payment purpose) in shifting work is laying of pipe-50%, charging of line including all miscellaniouse works and dismantkling and site clearance -50%)

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

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

Where P = Contract Price

L = Total length in km

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

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

SCHEDULE-I

(See Clause 10.2)

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. AdditionalDrawings

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 thisSchedule-I.

Annex-I

(Schedule-I)

List of Drawings

- Horizontal and Vertical Alignment (with Plan & Profile) with details of reference pillars. Horizontal Intersection Point, Vertical Intersection Points, elements of curves, and sight distances.
- Typical Cross-section with details of pavement structures.
- GAD and SCHEDULE drawing of individual Bridges/Structures.

SCHEDULE-J

(See Clause 10.3.2)

PROJECT COMPLETION SCHEDULE

1. Project CompletionSchedule

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 180th (One Hundred and Eighty) day from the Appointed Date (the "**ProjectMilestone-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 completion schedule in reference to Schedule-H Items, Stages and Sub-stages payment statements for an amount not less than 10% (ten per cent) of the ContractPrice.

3. ProjectMilestone-II

(i) Project Milestone-II shall occur on the date falling on the 410th (Four hundred and ten) day from the Appointment Date (the **"ProjectMilestone-II**").

Prior to the occurrence of Project Milestone-II, the Contractor shall have commenced construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements completion schedule in reference to Schedule-H Items, Stages and Sub-stages payment statements for an amount not less than 35% (thirty five per cent) of the Contract Price and should have started construction of all project facilities.

4. ProjectMilestone-III

(i) Project Milestone-III shall occur on the date falling on the 610th (Six hundred and ten) day from the Appointed Date (the "**ProjectMilestone-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 payment Statements for an amount not less than 60% (sixty per cent) of the Contract Price and should have started construction of all project facilities.

5 Schedule Completion Date

(i) The Schedule Completion Date shall occur on the 730th (seven hundred and thirtieth) day from the Appointed Date.

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

6 Extension of time

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

SCHEDULE-K

(See Clause 12.1.2)

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 ofWorks.

(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: all the tests specified in IRC code, manual and MORTH specifications for the road and Bridge works, 5th revision,2013.

(ii) Riding quality test: Riding quality of each lane of the carriageway shall be checked with the help of a Network Survey Vehicle (NSV) fitted with latest equipments and the maximum permissible roughness for purposes of this Test shall be [2,000 (two thousand)] mm for eachkilometre.

(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) meters or more shall also be subjected to loadtesting.

(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 ApplicablePermits.

(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 IndustryPractice.

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

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

Sr. No.	Key metrics of Asset	Equipment to be used	Frequency of condition survey
1	Surface Defectsof 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	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 and 12.4)

COMPLETION CERTIFICATE

1. I, …….. (Name of the Authority's Engineer), acting as Authority's Engineer, under and in accordance with the Agreement dated …….. (the "**Agreement**"), for construction of the "Rehabilitation and up-gradation of section from Km 298.0 to 330.662 (Karala Village to Kalipur Village of NH-4 to Intermediate lane with hard shoulder in the Union Territory of Andaman & Nicobar Islands through Engineering, Procurement & Construction (EPC) BasisContractthrough ..... (Name of Contractor), hereby certify that the Tests in accordance with Article 12 of the Agreement have been successfully undertaken to determine compliance of the Project Highway with the provisions of the Agreement, and I am satisfied that the Project Highway can be safety and reliably placed in service of the Usersthereof..

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

SIGNED, SEALED AND DELIVERED

For and on behalf of

Authority's Engineer by:

(Signature)

(Name)

(Designation)

(Address)

SCHEDULE-M

(See Clauses 14.6., 15.2 and 19.7)

PAYMENT REDUCTION FOR NON-COMPLIANCE

1. Payment reduction for non-compliance with the MaintenanceRequirements

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

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

(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 sumpayments

(i) The following percentages shall govern the paymentreduction:

S. No.	Item/Defect/Deficiency	Percentage
(a)	**Carriageway/Pavement**	
(i)	Potholes, cracks, other surface defects	15%
(ii)	Repairs of Edges, Rutting	5%
(b)	**Road, Embankment, Cuttings, Shoulders**	
(i)	Edge drop, inadequate crossfall, undulations, settlement, potholes, ponding, obstructions	10%
(ii)	Deficient slopes, raincuts, disturbed pitching, vegetation growth, pruning of trees	5%

(c)	**Bridges and Culverts**	
(i)	Desilting, cleaning. vegetation growth, damaged pitching, flooring, parapets, wearing course, footpaths, any damage to foundations	20%
(ii)	Any Defects in superstructures, bearings and sub-structures	10%
(iii)	Painting, repairs/replacement kerbs, railings, parapets, guideposts/crash barriers	5%
(d)	**Roadside Drains**	
(i)	Cleaning and repair of drains	5%
(e)	**Road Furniture**	
(i)	Cleaning, painting, replacement of road signs, delineators, road markings, 200 m/km/5th km stones	5%
(f)	**Miscellaneous Items**	
(i)	Removal of dead animals, broken down/accidented vehicles, fallen trees, road blockades or malfunctioning of mobile crane	10%
(ii)	Any other Defects in accordance with paragraph 1.	5%
(g)	**Defects in Other Project Facilities**	5%

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

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

Where,

P= Percentage of particular item/Defect/deficiency fordeduction

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,

L = Total length of the road,

R = Reduction (the amount to be deducted for noncompliance 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 noncompliance.

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

SCHEDULE-N

(See Clause18.1.1)

SELECTION OF AUTHORITY'S ENGINEER

1 Selection of Authority'sEngineer

(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 ofReference

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'sEngineer

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'sEngineer.

Annex – I

(Schedule - N)

TERMS OF REFERENCE FOR AUTHORITY'S ENGINEER

1. Scope

(i) These Terms of Reference (the "**TOR**") for the Authority's Engineer are being specified pursuant to the EPC Agreementdated..... (the "**Agreement**), whichhas been entered into between the Ministry of Road Transport and Highways (the "**Authority**") and ..... (the "**Contractor**") for "Rehabilitation and up-gradation of section from Km 298.0 to 330.662 (Karala Village to Kalipur Village) of NH-4 to Intermediate lane with hard shoulder in the Union Territory of Andaman & Nicobar Islands through Engineering, Procurement & Construction (EPC) Contract, and a copy of which is annexed hereto and marked as Annex-A to form part of thisTOR.

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

2. Definitions andinterpretation

(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 this TOR.

(iii) The rules of interpretation stated in Clauses 1.2, 1.3 and 1.4 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 Timeextension;

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

(c) The Termination Payment; or
(d)issuance of Completion Certificateor

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

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

(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,

4 ConstructionPeriod

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

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

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

(iv) The Authority's Engineer shall complete the review 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 theContractor.

(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) The Authority's Engineer shall inspect the Construction Works and the Project Highway and shall submit a monthly Inspection Report bringing out the results of inspections and the remedial action taken by the Contractor in respect of Defects or deficiencies. In particular, the Authority's Engineer shall include in its Inspection Report, the compliance of the recommendations made by the 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 4.9, the tests specified in the IRC Special Publication-11 (Handbook of Quality Control for Construction of Roads and Runways) and the Specifications for Road and Bridge Works issued by MORTH (the "Quality Control Manuals") or any modification/substitution thereof shall be deemed to be tests conforming to Good Industry Practice for qualityassurance.

(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 theContractor.

(xi) The timing of tests referred to in Paragraph 4.9, and the criteria for acceptance/ rejection of their results shall be determined by the Authority's Engineer in accordance with the Quality Control Manuals. The tests shall be undertaken on a random sample basis and shall be in addition to, and independent of, the teststhat

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 remedialmeasures.

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

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

(xv) The Authority's Engineer shall obtain from the Contractor a copy of all the Contractor's quality control records and documents before the Completion Certificate is issued pursuant to Clause12.4.

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

(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 theAuthority.

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

5. MaintenancePeriod

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

(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 theContractor.

(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 thisbehalf.

(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 permissiblelimit.

(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 andtime

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

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

(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 10.2.4(d).

(ii) Authority's Engineer shall-

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

(b) within 15 (fifteen) days of the receipt of the Stage Payment Statement referred to in Clause19.4,delivertotheAuthorityandtheContractoranInterimPayment

Certificate certifying the amount due and payable to the Contractor, after adjustments in accordance with the provisions of Clause 19.10.

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

(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 andfunctions

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 Authorityforthwith.

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

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

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

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

SCHEDULE - O

(See Clauses 19.4.1, 19.6.1, and 19.8.1)

Forms of Payment Statements

1. Stage Payment Statement forWorks

The Stage Payment Statement for Works shall state:

(a) The estimated amount for the Works executed in accordance with Clause 19.3.1 subsequent to the lastclaim;

(b) Amounts reflecting adjustments in price for the aforesaidclaim;

(c) The estimated amount of each Change of Scope Order executed subsequent to the lastclaim;

(d) Amounts reflecting adjustment in price, if any, for (c) above in accordance with the provisions of Clause 13.2.3(a);

(e) Total of (a), (b), (c) and (d)above;

(f) Deductions:

(i) Any amount to be deducted in accordance with the provisions of the Agreement except taxes;

(ii) Any amount towards deduction of taxes;and

(iii) Total of (i) and (ii) above.

(g) Net claim: (e) – (f)(iii);

(h) The amounts received by the Contractor upto the lastclaim:

(i) For the Works executed (excluding Change of Scopeorders);

(ii) For Change of Scope Orders,and

(iii) Taxesdeducted

2. Monthly Maintenance PaymentStatement

The monthly Statement for Maintenance Payment shallstate:

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

(b) the deductions for maintenance work notdone;

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

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

(e) amount towards deduction oftaxes

3. Contractor's claim forDamages

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

INSURANCE

1. Insurance during ConstructionPeriod

(i) The Contractor shall effect and maintain at its own cost, from the Appointed Date till the date of issue of the last 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 theSite.

(ii) The insurance under paragraph 1.1 (a) and (b) above shall cover the authority and the Contractor against all loss or damage from whatsoever cause arising underparagraph

1.1 other than risks which are not insurable at commercial terms.

2. Insurance for Contractor's DefectsLiability

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 totheissueoftheCompletionCertificate.TheContractorshallalsomaintain

other insurances for maximum sums as may be required under the Applicable Laws and in accordance with Good Industry Practice.

3. Insurance against injury to persons and damage toproperty

(i) The Contractor shall insure against each Party's liability for any loss, damage, death or bodily injury which may occur to any physical property (except things insured under Paragraph l 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 and occurring before the issue of the Performance Certificate. This insurance shall be for a limit per occurrence of not less than the amount stated below with no limit on the number ofoccurrences.

The insurance cover shall be as per the applicable laws of government and procedure in vogue.

(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 and unavoidable result of the Contractor's obligations to execute theWorks.

4. Insurance to be in jointnames

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

Schedule-Q

(See Clause 14.10)

Tests on Completion of Maintenance Period

1. Riding Qualitytest:

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 eachkilometre.

2. Visual and physicaltest:

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 andin accordance with theAgreementdated .....(the "**Agreement**"), for [construction ofthe ****section (km ** to km **) of

****] (the "**Project Highway**") on Engineering, Procurement and Construction (EPC) basis through.....(Name of Contractor), hereby certify that the Tests on completionof 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, SEALEDANDDELIVERED

(Signature)

(Name and designation of Authority'sRepresentative)

(Address)

*******END OF THE DOCUMENT*******