Schedules

SCHEDULE - A

(See Clauses 2.1 and 8.1)

SITE OF THE PROJECT

1 The Site

1.1 Site of the Single-Lane Project Highway shall include the land, buildings, structures and road works as described in Annex-I of this Schedule-A.

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

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

1.4 The alignment plans of the Project Highway are specified in Annex-III. In the case of sections where no modification in the existing alignment of the Project Highway is contemplated, the alignment plan has not been provided. Alignment plans have only been given for sections where the existing alignment is proposed to be modified.

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

Annex - I

(Schedule-A)

Site

1. **Site**

The site of the single lane of length is about 43.10 Km consisting of MDR-17 & MDR-20 from Nongstoin town to Wahkaji in the West Khasi Hill District of the state of Meghalaya.

The project road contain complete MDR-17 (25 Kms) from Nongstoin to Laitsawsnai , Thereafter it joins MDR-20 at its chainage at Km 46 and follows up to Km 64 at Wahkaji (18 Kms).

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

2. **Land**

The Site of the Project Road comprises of ROW of about 30 m except from Km 10.00 to 16.00 where ROW is 9 m. The existing condition of the road is poor in most of the stretch. The terrain is hilly in the entire stretch.

3. **Carriageway**

The present carriageway of the Project Road is Single lane with average formation width of 6 m and carriageway width of 3.5 m with earthen shoulders of width 1.25 m on either side for the entire stretch. The type of the existing pavement is flexible.

4. **Major Bridges**

The Site includes the following major bridges:

Sl. No.	Existing Chainage (Km)	Type of structure			Length (m)	Width (m)	Remarks
		Foundation	Sub-Structure	Super-Structure			
1	9.111	Open	RCC Wall Type	Iron	89.718	4.228	Poor condition

5. **ROB**

The Site includes the following ROB/RUB:

S. No.	Chainage (km)	Type of structure		No. of Spans with span length(m)	Width(m)	ROB/RUB
		Foundation	superstructure			
NIL						

6. **Grade separators**

The Site includes the following grade separators:

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

7. **Railway level crossings**

The Site includes the following underpasses:

S. No.	Location(km)	Remar
NIL		

8. Underpasses (vehicular, non vehicular)

The Site includes the following underpasses:

S. No.	Chainage (km)	Type of structure	No. of spans with span length(m)	Width(m)
NIL				

9. Truck Lay byes

The details of truck lay byes are as follows:

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

10. Road side drains

The details of the roadside drains are as follows:

S. No.	Locatio		Typ	
	From km	to km	Masonry/cc Pucca)	Earthen
NIL				

11. Minor bridges

The Site includes the following minor bridges:

Sl. No	Chainage (Km)	Type of structure			No. of Spans with span length (m)(c/c of exp gap)	Width (m)
		Foundation	Sub-Structure	Super-Structure		
1	2.425	Open	RCC Wall	RCC Solid	1 x 13.522	6.155
2	9.875	Open	RCC Wall	RCC Solid	1 x 12.448	5.544
3	15.050	Open	RCC Wall	RCC Solid	1x 8.539	5.210
4	27.795	Open	RCC Wall	Iron	1x 19.376	3.863
5	40.137	Open	RCC Wall	RCC Solid	1 x 10.345	5.019
6	40.516	Open	Wooden	Wooden	1 x 8.178	4.806
7	41.827	Open	RCC Wall	RCC Solid	1 x 11.430	4.555

12. Culverts

The Site has the following culverts:

Sl. No	EXISTING CULVERT					
	Location (km)	Type of structure	Span Arrangement and Total vent way (No.x Length(m)	Width of culvert (m)	vent height	Remarks
1	0+150	STONE	1 X 1.9	6.90	0.800	POOR
2	0+257	STONE	-	-		CHOKED
3	0+346	STONE	-	-		CHOKED
4	0+396	HP	1 X 0.600	-		POOR
5	0+444	HP	1 X 1.200	-		POOR
6	0+476	STONE	-	-		POOR
7	0+537	HP	1 X 0.600	-		POOR
8	0+637	STONE	-	-		CHOKED
9	0+700	STONE	1 X 2.06	6.90	0.673	POOR
10	0+766	BOX	1 X 0.68	8.03	0.900	POOR
11	0+841	STONE	1 X 2.06	6.90	0.673	POOR
12	0+914	STONE	1 X 2.83	5.17	0.499	POOR
13	0+977	STONE	1 X 1.31	6.70	0.422	POOR
14	1+146	STONE	-	-		CHOKED

15	1+282	STONE	-	-		CHOKED
16	1+345	STONE	-	-		CHOKED
17	1+500	STONE	-	-		CHOKED
18	1+575	STONE	-	-		CHOKED
19	1+580	STONE	-	-		CHOKED
20	1+624	STONE	-	-		CHOKED
21	1+710	STONE	1 X 0.8	11.66		POOR
22	1+759	STONE	-	-	-	CHOKED
23	1+979	STONE	-	-	-	CHOKED
24	2+060	STONE	-	-	-	CHOKED
25	2+125	STONE	-	-	-	CHOKED
26	2+173	STONE	-	-	-	CHOKED
27	2+200	STONE	-	-	-	CHOKED
28	2+283	STONE	-	-	-	CHOKED
29	2+390	STONE	1 X 1.885	12.46	0.800	POOR
30	2+572	STONE	-	-	-	CHOKED
31	2+645	SLAB	1 X 3.0	5.20	2.200	POOR
32	2+760	HP	1 X 1.200	-	-	POOR
33	3+060	HP	1 X 1.200	-	-	POOR
34	3+151	STONe	-	-	-	CHOKED
35	3+290	SLAB	1 X 1.6	5.10	2.500	POOR
36	3+413	HP	1 X 0.600	-	-	POOR
37	3+482	STONE	1X0.9	6.11	0.658	POOR
38	3+650	STONE	1X0.6	7.00	0.800	POOR
39	3+790	STONE	1X0.6	7.00	0.800	POOR
40	3+857	STONE	1X08	7.40	0.600	POOR
41	3+900	HP	1X1600	-	-	POOR
42	4+075	STONE	1X0.3	7.62	0.500	POOR
43	4+134	HP	1X900	-	-	POOR
44	4+212	STONE	1X0.3	6.80	0.500	POOR
45	4+336	STONE	-	-	-	CHOKED
46	4+404	STONE	-	-	-	CHOKED
47	4+450	STONE	-	-	-	CHOKED

Sl. No.	EXISTING CULVERT					
	Location (km)	Type of structure	Span Arrangement and Total vent way (No.x Length(m)	Width of culvert (m)	vent heigh t	Remarks
48	4+507	HP	1X1600	-	-	POOR
49	4+475	STONE	-	-	-	CHOKED
50	4+726	STONE	-	-	-	CHOKED
51	4+845	STONE	-	-	-	CHOKED
52	4+962	STONE	-	-	-	CHOKED
53	4+971	STONE	-	-	-	CHOKED
54	5+015	HP	1X1200	-	-	POOR
55	5+090	HP	1X1600	-	-	POOR
56	5+152	STONE	1X0.5	8.40	0.70	POOR
57	5+195	STONE	1X0.5	8.40	0.80	POOR
58	5+333	HP	2X1200	-	-	POOR
59	5+472	HP	1X1200	-	-	POOR
60	5+560	HP	1X900	-	-	POOR
61	5+868	HP	2X1200	-	-	POOR
62	5+870	HP	1X1200	-	-	POOR
63	5+900	HP	1X900	-	-	POOR
64	5+929	HP	1X900	-	-	POOR
65	6+064	HP	1x900	-	-	CHOKED
66	6+142	SLAB	4.47	3.95	3.66	POOR
67	6+343	HP	1X1200	-	-	POOR
68	6+386	HP	1X1200	-	-	POOR
69	6+480	HP	1X1200	-	-	POOR
70	6+604	HP	1X600	-	-	POOR
71	6+716	SLAB	1X0.8	8.30	0.90	POOR
72	6+744	HP	1X900	-	-	POOR
73	6+764	SLAB	5.93	4.00	3.94	POOR
74	6+778	HP	1X600	-	-	POOR
75	6+868	HP	1X1200	-	-	POOR
76	7+000	HP	1X600	-	-	POOR
77	7+231	HP	1X600	-	-	POOR
78	7+336	HP	1X600	-	-	POOR
79	7+386	HP	1X600	-	-	POOR
80	7+470	HP	1X900	-	-	POOR
81	7+612	HP	1X1200	-	-	POOR
82	7+712	HP	1X1200	-	-	POOR
83	7+800	HP	1X600	-	-	POOR
84	7+900	HP	1X1200	-	-	POOR
85	8+038	HP	1X900	-	-	POOR
86	8+181	HP	1X600	-	-	POOR
87	8+425	HP	1X600	-	-	POOR
88	8+508	HP	1X900	-	-	POOR
89	8+577	HP	1X900	-	-	POOR
90	8+612	HP	1X1200	-	-	POOR
91	8+731	HP	1X900	-	-	POOR
92	8+757	BOX	1X0.9	8.50	0.70	POOR
93	8+825	HP	1X900	-	-	POOR
94	8+853	HP	1X900	-	-	POOR
95	8+918	HP	1X600	-	-	POOR
96	8+975	BOX	-	-	0.50	CHOKED
97	9+011	HP	1X900	-	-	POOR

Sl. No	EXISTING CULVERT					
	Location (km)	Type of structure	Span Arrangement and Total vent way (No.x Length(m)	Width of culvert (m)	vent height	Remarks
98	9+297	HP	1X900	-	-	POOR
99	9+389	HP	1X900	-	-	POOR
100	9+475	HP	1X900	-	-	POOR
101	9+553	HP	1X900	-	-	POOR
102	9+618	HP	1X900	-	-	POOR
103	9+800	HP	1X900	-	-	POOR
104	10+043	HP	1X900	-	-	POOR
105	10+127	HP	1X900	-	-	POOR
106	10+175	HP	-	-	-	CHOKED
107	10+455	HP	1X900	-	-	POOR
108	10+750	HP	1X1200	-	-	POOR
109	10+969	HP	1X1200	-	-	POOR
110	11+159	HP	1X900	-	-	POOR
111	11+300	HP	1X1200	-	-	POOR
112	11+445	HP	1X1200	-	-	POOR
113	11+467	HP	1X1200	-	-	POOR
114	11+570	HP	1X600	-	-	POOR
115	11+652	HP	1X1200	-	-	POOR
116	11+781	HP	1X900	-	-	POOR
117	11+925	HP	1X900	-	-	POOR
118	12+034	HP	1X900	-	-	POOR
119	12+185	HP	1X900	-	-	POOR
120	12+216	HP	1X1200	-	-	POOR
121	12+313	HP	1X1200	-	-	POOR
122	12+372	HP	1X1200	-	-	POOR
123	12+482	HP	1X1200	-	-	POOR
124	12+757	HP	1X1200	-	-	POOR
125	13+217	HP	1X900	-	-	POOR
126	13+382	HP	-	-	-	CHOKED
127	13+456	HP	1X900	-	-	POOR
128	13+525	HP	1X900	-	-	POOR
129	13+838	HP	1X1200	-	-	POOR
130	14+044	HP	1X1200	-	-	POOR
131	14+270	HP	1X1200	-	-	POOR
132	14+435	HP	1X1200	-	-	POOR
133	14+477	HP	1X900	-	-	POOR
134	14+550	HP	1X900	-	-	POOR
135	14+555	HP	1X900	-	-	POOR
136	14+632	HP	1X900	-	-	POOR
137	14+696	HP	1X1200	-	-	POOR
138	14+727	HP	-	-	-	CHOKED
139	14+759	HP	1X1200	-	-	POOR
140	14+862	HP	1X1200	-	-	POOR
141	14+937	HP	1X900	-	-	POOR
142	15+186	HP	1X1200	-	-	POOR
143	15+244	HP	1X900	-	-	POOR
144	15+291	HP	1X1200	-	-	POOR
145	15+384	HP	-	-	-	CHOKED
146	1+558	HP	1X1200	-	-	POOR
147	15+694	HP	1X1200	-	-	POOR

Sl. No	EXISTING CULVERT					
	Location (km)	Type of structure	Span Arrangement and Total vent way (No x Length(m)	Width of culvert (m)	vent height	Remarks
148	15+750	HP	1X1200	-	-	POOR
149	15+783	HP	1X1200	-	-	POOR
150	15+825	HP	1X1200	-	-	POOR
151	15+984	HP	-	-	-	CHOKED
152	16+048	HP	1X1200	-	-	POOR
153	16+088	HP	1X1200	-	-	POOR
154	16+230	HP	1X900	-	-	POOR
155	16+285	HP	1X1200	-	-	POOR
156	16+591	HP	1X1200	-	-	POOR
157	16+762	HP	1X1200	-	-	POOR
158	16+813	HP	1 x	-	-	POOR
159	16+884	HP	1X1200	-	-	POOR
160	17+023	HP	1X1200	-	-	POOR
161	17+108	HP	1X1200	-	-	POOR
162	17+215	HP	1X1200	-	-	POOR
163	17+246	HP	1X900	-	-	POOR
164	17+312	HP	-	-	-	CHOKED
165	17+360	HP	1X900	-	-	POOR
166	17+405	HP	1X1200	-	-	POOR
167	17+467	HP	1X900	-	-	POOR
168	17+537	HP	1X1200	-	-	POOR
169	17+652	HP	1X1200	-	-	POOR
170	17+846	HP	1X1200	-	-	POOR
171	17+905	HP	1X900	-	-	POOR
172	18+025	HP	1X900	-	-	POOR
173	18+096	HP	1X1200	-	-	POOR
174	18+114	HP	1X1200	-	-	POOR
175	18+339	HP	1X900	-	-	POOR
176	18+363	HP	1X1200	-	-	POOR
177	18+421	HP	1X1200	-	-	POOR
178	18+475	HP	1X1200	-	-	POOR
179	18+548	HP	1X1200	-	-	POOR
180	18+614	HP	1X900	-	-	POOR
181	18+862	HP	1X1200	-	-	POOR
182	18+923	HP	1X1200	-	-	POOR
183	19+250	HP	1X1200	-	-	POOR
184	19+677	HP	1X900	-	-	POOR
185	19+825	HP	1X900	-	-	POOR
186	19+944	HP	1X900	-	-	POOR
187	20+164	BOX	-	-	-	CHOKED
188	20+260	HP	1X900	-	-	POOR
189	20+616	STONE	1X0.5	8.60	0.800	POOR
190	20+725	STONE	1X0.6	5.60	0.400	POOR
191	20+789	HP	1X1200	-	-	POOR
192	20+909	HP	1X1200	-	-	POOR
193	21+219	HP	1X1200	-	-	POOR
194	21+309	HP	1X1200	-	-	POOR
195	21+788	STONE	1X0.6	8.60	0.800	POOR
196	22+250	HP	1X1200	-	-	POOR
197	22+361	HP	2X1600	-	-	POOR

Sl. No	EXISTING CULVERT					
	Location (km)	Type of structure	Span Arrangement and Total vent way (No.x Length(m)	Width of culvert	vent height	Remarks
198	22+510	HP	1X1200	-	-	POOR
199	22+632	STONE	-	-	-	CHOKED
200	22+823	STONE	1X0.6	8.60	0.900	POOR
201	22+923	HP	1X1600	-	-	POOR
202	23+198	HP	1X1200	-	-	POOR
203	23+421	HP	1X1200	-	-	POOR
204	23+679	HP	1X1600	-	-	POOR
205	23+761	HP	1X1600	-	-	POOR
206	23+885	HP	1X1600	-	-	POOR
207	23+946	STONE	1X0.6	8.60	0.400	POOR
208	23+994	STONE	1X0.6	8.60	1.500	POOR
209	24+190	STONE	-	-	-	CHOKED
210	24+800	HP	1X1200	-	-	POOR
211	25+041	SLAB	2X2.4	7.30	3.200	POOR
212	25+187	HP	1X900	-	-	POOR
213	25+350	HP	1X900	-	-	POOR
214	25+450	HP	1X1200	-	-	POOR
215	25+753	HP	1X900	-	-	POOR
216	25+900	HP	1X900	-	-	POOR
217	26+111	BOX	1X0.7	8.70	0.600	POOR
218	26+170	SLAB	1X0.8	8.30	1.100	POOR
219	26+341	SLAB	1X0.8	5.60	2.600	POOR
220	26+458	HP	1X1200	-	-	POOR
221	26+566	HP	1X1200	-	-	POOR
222	26+634	HP	1X1200	-	-	POOR
223	26+693	HP	1X600	-	-	POOR
224	26+788	HP	1X900	-	-	POOR
225	26+875	HP	1X900	-	-	POOR
226	26+954	HP	1X600	-	-	POOR
227	26+998	HP	1X900	-	-	POOR
228	27+143	HP	1X1200	-	-	POOR
229	27+225	HP	1X1200	-	-	POOR
230	27+325	HP	1X900	-	-	POOR
231	27+409	HP	1X1200	-	-	POOR
232	27+485	HP	1X600	-	-	POOR
233	27+568	HP	1X900	-	-	POOR
234	27+583	HP	1X1200	-	-	POOR
235	27+636	HP	1X900	-	-	POOR
236	27+656	HP	1X1200	-	-	POOR
237	27+691	HP	1X900	-	-	POOR
238	27+871	HP	1X600	-	-	POOR
239	27+898	HP	1X600	-	-	POOR
240	27+975	HP	1X1200	-	-	POOR
241	28+030	HP	1X600	-	-	POOR
242	28+084	HP	1X600	-	-	POOR
243	28+128	HP	1X600	-	-	POOR
244	28+293	HP	1X1200	-	-	POOR
245	28+352	HP	2X600	-	-	POOR
246	28+439	HP	1X900	-	-	POOR
247	28+479	HP	1X900	-	-	POOR

Sl. No	EXISTING CULVERT					
	Location (km)	Type of structure	Span Arrangement and Total vent way (No.x Length(m)	Width of culvert	vent height	Remarks
248	28+530	HP	1X900	-	-	POOR
249	28+600	HP	1X600	-	-	POOR
250	28+617	HP	1X900	-	-	POOR
251	28+663	BOX	1X0.7	7.90	0.900	POOR
252	28+700	HP	1X600	-	-	POOR
253	28+741	HP	1X900	-	-	POOR
254	28+838	HP	1X600	-	-	POOR
255	28+898	HP	1X900	-	-	POOR
256	28+838	HP	1X900	-	-	POOR
257	29+003	BOX	1X1.5	6.74	2.500	POOR
258	29+066	HP	1X900	-	-	POOR
259	29+080	HP	1X600	-	-	POOR
260	29+100	HP	1X600	-	-	POOR
261	29+219	HP	1X1200	-	-	POOR
262	29+288	HP	1X900	-	-	POOR
263	29+405	BOX	-	-	-	CHOKED
264	29+456	HP	1X600	-	-	POOR
265	29+512	HP	1X600	-	-	POOR
266	29+539	HP	1X600	-	-	POOR
267	29+609	HP	1X600	-	-	POOR
268	29+650	HP	1X1200	-	-	POOR
269	29+748	BOX	-	-	-	CHOKED
270	29+963	BOX	-	-	-	CHOKED
271	30+575	STONE	-	-	-	CHOKED
272	30+807	BOX	1X6.0	9.10	1.100	POOR
273	30+874	HP	1X1200	-	-	POOR
274	30+883	STONE	1X0.5	6.30	1.200	POOR
275	31+138	HP	1X1600	-	-	POOR
276	31+287	STONE	1X0.8	6.00	1.000	POOR
277	31+323	STONE	1X0.4	10.00	0.500	POOR
278	31+416	HP	1X1200	-	-	POOR
279	31+521	HP	1X600	-	-	POOR
280	31+585	HP	1X600	-	-	POOR
281	31+674	HP	1X900	-	-	POOR
282	31+789	HP	1X1200	-	-	POOR
283	31+946	HP	1X1200	-	-	POOR
284	32+203	HP	1X600	-	-	POOR
285	32+251	HP	1X600	-	-	POOR
286	32+350	HP	1X750	-	-	POOR
287	32+434	HP	1X900	-	-	POOR
288	33+202	STONE	-	-	-	CHOKED
289	33+556	STONE	-	-	-	CHOKED
290	34+256	STONE	-	-	-	CHOKED
291	34+433	STONE	-	-	-	CHOKED
292	34+538	STONE	-	-	-	CHOKED
293	34+888	STONE	-	-	-	CHOKED
294	35+096	STONE	1X0.6	6.50	0.500	POOR
295	35+238	STONE	1X0.6	6.60	0.300	POOR
296	35+276	STONE	1X0.6	6.10	0.300	POOR
297	35+365	STONE	1X0.6	8.00	1.000	POOR

Sl. No	EXISTING CULVERT					
	Location (km)	Type of structure	Span Arrangement and Total vent way (No. x Length(m)	Width of culvert (m)	vent height	Remarks
298	35+549	STONE	1X1.1	8.80	0.900	POOR
299	35+604	STONE	1X1.1	9.60	0.700	POOR
300	35+763	STONE	1X0.6	7.80	0.700	POOR
301	35+944	STONE	1X1.1	6.80	1.600	POOR
302	36+042	SLAB	1X2.4	6.60	1.200	POOR
303	36+157	STONE	-	-	-	CHOKED
304	36+908	STONE	1X0.6	7.30	0.700	POOR
305	37+039	STONE	1X0.9	8.40	1.100	POOR
306	37+192	STONE	1X0.9	6.00	1.100	POOR
307	37+279	STONE	1X0.2	8.00	1.000	POOR
308	37+360	STONE	1X0.4	8.80	0.800	POOR
309	37+448	STONE	1X0.3	6.30	1.000	POOR
310	37+460	STONE	1X0.2	8.20	0.700	POOR
311	37+491	STONE	1X0.5	9.60	0.600	POOR
312	37+564	STONE	1X0.3	11.10	0.400	POOR
313	37+623	STONE	1X0.9	8.70	0.700	POOR
314	37+775	STONE	1X0.8	12.00	0.800	POOR
315	37+918	STONE	-	-	-	CHOKED
316	37+966	STONE	-	-	-	CHOKED
317	38+051	STONE	1X0.3	9.50	0.600	POOR
318	38+094	STONE	1X0.7	8.10	0.500	POOR
319	38+202	STONE	1X0.6	8.00	0.700	POOR
320	38+585	STONE	1X0.6	7.80	1.000	POOR
321	38+650	STONE	-	-	-	CHOKED
322	38+815	STONE	1X0.7	7.40	0.900	POOR
323	39+818	STONE	1X0.4	10.50	1.000	POOR
324	39+975	STONE	1X0.9	7.00	0.500	POOR
325	40+300	SLAB	1X0.5	6.50	0.500	POOR
326	40+632	HP	2X1200	-	-	POOR
327	40+883	SLAB	1X0.6	6.00	0.500	POOR
328	41+069	STONE	1X0.6	6.40	1.000	POOR
329	41+527	STONE	1X0.6	6.10	1.000	POOR
330	41+597	STONE	1X0.6	6.40	1.000	POOR
331	41+885	SLAB	1X2.2	4.70	2.700	POOR
332	41+948	SLAB	1X1.0	8.90	2.100	POOR
333	42+112	STONE	1X0.6	7.90	0.800	POOR
334	42+188	STONE	1X0.3	10.70	0.400	POOR
335	42+271	STONE	1X0.6	8.50	1.000	POOR
336	42+318	SLAB	1X0.9	7.40	1.100	POOR
337	42+419	SLAB	1X0.7	10.70	0.500	POOR
338	42+576	STONE	-	-	-	CHOKED
339	42+923	HP	2X1200	-	-	POOR
340	43+040	HP	1X1200	-	-	POOR

13. Major junctions

The details of major junctions are as follows:

Sl. No.	Location (Km)	Side	At grade/ Separated	Type of Junction
1	0.000	RHS	At Grade	T
2	20.800	RHS	At Grade	T
3	43.100	RHS	At Grade	T

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

14. Minor junctions

The details of the minor junctions are as follows:

Sl.	Existing Chainage	Side (Left/	Typ
1	2.575	LHS	Y
2	4.775	LHS	T
3	9.025	RHS	Y
4	10.875	LHS	Y
5	11.890	LHS	T
6	15.065	RHS	T
7	19.562	RHS	Y
8	19.638	RHS	T
9	20.575	RHS	T
10	20.787	RHS	T
11	24.175	LHS	Y
12	25.675	LHS	T
13	29.737	RHS	T
14	33.813	RHS	Y
15	40.215	RHS	T
16	42.400	LHS	T

16. BYPASSES

The details of bypasses are noted below:

S. No.	Name of bypass (town)	Chainage (km) From ---- to	Length (in Km)	Carriageway	
				Width (m)	Type
NIL					

17. DETAIL OF ANY OTHER STRUCTURES

NIL

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:

Sl. No	From km to km	Length (km)	Width (m)	Date of providing
1	2	3	4	5
(i) Full Right of Way (full width) (a) Stretch	Km. 0.000 to Km. 43.060 (except stretches mentioned in (ii) &(iii) below)	34.66	30m	15 days from Appointed date
(ii) Part Right of Way (part width) (a) Stretch	Km 10 to Km 16	6	9 m	180 days from appointed date
(iii) Balance Right of Way (width)				
a) Stretch	Km 2.396 - Km 4.178	1.782	30	180 days from Appointed date
b) Stretch	Km 13.089 - Km 13.600	0.511	30	
c) Stretch	Km 25.923 - Km 26.430	0.507	30	
d) Stretch	Km. 19.200 - Km 19.300	0.100	30	
e) Stretch	Km. 39.400 - Km 39.700	0.300	30	
f) Stretch	Km. 42.300 - Km. 42.500	0.200	30	

* The dates specified herein shall in no case be beyond 180 (one hundred and eighty) days after the Appointed Date.

Annex - III
(Schedule-A)

Alignment Plans

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

Annex - IV
(Schedule-A)

Environment Clearances

Environment clearances not required for project road as per Guidelines of MOEF.

SCHEDULE - B
(See Clause 2.1)

Development of the Project Road

1 Development of the Project Road

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

2 Rehabilitation and augmentation

Rehabilitation and augmentation shall include Two-Laning and strengthening of the Project Road as described in Annex-I of this Schedule-B and in Schedule-C.

3 Specifications and Standards

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

Annex - I
(Schedule-B)

Description of Two Laning

1 WIDENING OF THE EXISTING ROAD

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

1.2 WIDTH OF CARRIAGEWAY

1.2.1 Two-Laning without paved shoulders shall be undertaken. Adequate roadway width is the pre-requisite for accommodating the required number of traffic lanes and for operational safety in respect of road structure and road function. As specified in the IRC 73-1980, the paved carriageway shall be 7 (seven) m wide in accordance with the typical cross sections drawings in the Manual/ Enclosed herewith.

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

Sl. No	Location (Design Chainage)		Width (m)	Typical cross section (Ref. to Manual)	Side Of Widening
	From(Km)	To(Km)			
1	0+000	0+100	7.0	Type-II	Both
2	0+100	1+300	7.0	Type-I	Right
3	1+300	2+396	7.0	Type-I	Left
4	2+396	4+178	7.0	Type-IV	Reconstn.
5	4+178	8+990	7.0	Type-I	Left
6	8+990	9+980	7.0	Type-I	Right
7	9+980	12+185	7.0	Type-I	Left
8	12+185	13+089	7.0	Type-I	Right
9	13+089	13+600	7.0	Type-IV	Reconstn.
10	13+600	13+800	7.0	Type-I	Left
11	13+800	14+840	7.0	Type-I	Right
12	14+840	16+168	7.0	Type-I	Left
13	16+168	16+410	7.0	Type-I	Right
14	16+410	17+710	7.0	Type-I	Left
15	17+710	18+057	7.0	Type-I	Right
16	18+057	18+210	7.0	Type-I	Left
17	18+210	19+110	7.0	Type-I	Right
18	19+110	19+315	7.0	Type-III	Both
19	19+315	21+120	7.0	Type-I	Left
20	21+120	22+160	7.0	Type-I	Right
21	22+160	22+417	7.0	Type-II	Both
22	22+417	23+420	7.0	Type-I	Left
23	23+420	25+015	7.0	Type-I	Right
24	25+015	25+210	7.0	Type-I	Left
25	25+210	25+923	7.0	Type-I	Right
26	25+923	26+430	7.0	Type-IV	Reconstn.
27	26+430	29+910	7.0	Type-I	Left
28	29+910	33+990	7.0	Type-I	Right
29	33+990	34+483	7.0	Type-I	Left

30	34+483	37+68	7.0	Type-I	Right
31	37+680	57+99	7.0	Type-IV	Reconstn

1.2.2 Except as otherwise provided in this Agreement, the width of the paved carriageway and cross-sectional features shall conform to paragraph 1.1

2 GEOMETRIC DESIGN AND GENERAL FEATURES

2.1 General

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

2.2 Design speed

The design speed should correspond to general topography and adjacent land use. The speed selected for design should also cater to travel needs and habits of nearly all the road users. The present project road is of MDR category & normally designed for speed as per IRC Codal provision for MDR.

S. No.	Road Classification	Design Speed, Km/h			
		Rolling Terrain		Mountainous	
		Ruling Desig	Minimum Design Speed	Ruling Desig	Minimum Design
1	National and State	80	65	50	40
2	Major District Roads	65	50	40	30

2.3 Improvement of the existing road geometrics

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

Sl. No.	Location (Design Chainage)	Type of deficiency	Remarks
1	1.475	hairpin bend	Curve restricted to Radius=18m due to hairpin bend
2	2.760	hairpin bend	Curve restricted to Radius=19m due to hairpin bend
3	2.900	hairpin bend	Curve restricted to Radius=15m due to hairpin bend
4	3.065	hairpin bend	Curve restricted to Radius=15m due to hairpin bend
5	3.170	hairpin bend	Curve restricted to Radius=15m due to hairpin bend
6	3.310	hairpin bend	Curve restricted to Radius=15m due to hairpin bend
7	3.440	hairpin bend	Curve restricted to Radius=15m due to hairpin bend
8	3.590	hairpin bend	Curve restricted to Radius=15m due to hairpin bend
9	3.610	hairpin bend	Curve restricted to Radius=15m due to hairpin bend
10	3.735	hairpin bend	Curve restricted to Radius=14m due to hairpin bend
11	3.840	hairpin bend	Curve restricted to Radius=15m due to hairpin bend
12	4.570	hairpin bend	Curve restricted to Radius=15m due to hairpin bend
13	4.635	hairpin bend	Curve restricted to Radius=15m due to hairpin bend
14	6.465	hairpin bend	Curve restricted to Radius=15m due to hairpin bend
15	6.660	hairpin bend	Curve restricted to Radius=15m due to hairpin bend
16	8.760	hairpin bend	Curve restricted to Radius=19m due to hairpin bend
17	9.600	hairpin bend	Curve restricted to Radius=15m due to hairpin bend

Sl. No.	Location (Design Chainage)	Type of deficiency	Remarks
18	9.700	hairpin bend	Curve restricted to Radius=15m due to hairpin bend
19	13.800	hairpin bend	Curve restricted to Radius=15m due to hairpin bend
20	15.617	hairpin bend	Curve restricted to Radius=15m due to hairpin bend
21	16.270	hairpin bend	Curve restricted to Radius=18m due to hairpin bend
22	17.100	hairpin bend	Curve restricted to Radius=15m due to hairpin bend
23	17.285	hairpin bend	Curve restricted to Radius=15m due to hairpin bend
24	17.560	Curve Deficiency	Curve restricted to Radius=15m due to limited ROW & S-Curve
25	17.620	Curve Deficiency	Curve restricted to Radius=18m due to limited ROW & S-Curve
26	18.025	hairpin bend	Curve restricted to Radius=15m due to hairpin bend
27	18.363	hairpin bend	Curve restricted to Radius=15m due to hairpin bend
28	18.460	hairpin bend	Curve restricted to Radius=18m due to hairpin bend
29	18.700	hairpin bend	Curve restricted to Radius=15m due to hairpin bend
30	18.872	hairpin bend	Curve restricted to Radius=18m due to hairpin bend
31	20.275	hairpin bend	Curve restricted to Radius=18m due to hairpin bend
32	20.595	hairpin bend	Curve restricted to Radius=15m due to hairpin bend
33	20.810	hairpin bend	Curve restricted to Radius=18m due to hairpin bend
34	21.315	hairpin bend	Curve restricted to Radius=18m due to hairpin bend
35	22.220	hairpin bend	Curve restricted to Radius=18m due to hairpin bend
36	22.660	hairpin bend	Curve restricted to Radius=15m due to hairpin bend
37	22.785	Curve Deficiency	Curve restricted to Radius=18m due to limited ROW & S-Curve
38	23.300	hairpin bend	Curve restricted to Radius=18m due to hairpin bend
39	23.445	hairpin bend	Curve restricted to Radius=18m due to hairpin bend
40	24.010	hairpin bend	Curve restricted to Radius=18m due to hairpin bend
41	24.125	hairpin bend	Curve restricted to Radius=15m due to hairpin bend
42	24.175	hairpin bend	Curve restricted to Radius=15m due to hairpin bend
43	24.625	hairpin bend	Curve restricted to Radius=18m due to hairpin bend
44	24.820	Curve Deficiency	Curve restricted to Radius=15m due to limited ROW & S-Curve
45	24.860	Curve Deficiency	Curve restricted to Radius=15m due to limited ROW & S-Curve
46	26.910	Curve Deficiency	Curve restricted to Radius=15m due to limited ROW & S-Curve
47	26.940	Curve Deficiency	Curve restricted to Radius=18m due to limited ROW & S-Curve
48	27.105	hairpin bend	Curve restricted to Radius=15m due to hairpin bend
49	27.840	Curve Deficiency	Curve restricted to Radius=18m due to limited ROW & existing
50	29.100	hairpin bend	Curve restricted to Radius=17m due to hairpin bend
51	29.585	hairpin bend	Curve restricted to Radius=15m due to hairpin bend
52	30.285	hairpin bend	Curve restricted to Radius=15m due to hairpin bend
53	30.580	hairpin bend	Curve restricted to Radius=15m due to hairpin bend
54	32.440	Curve Deficiency	Curve restricted to Radius=15m due to limited ROW & S-Curve
55	32.480	Curve Deficiency	Curve restricted to Radius=15m due to limited ROW & S-Curve
56	33.950	hairpin bend	Curve restricted to Radius=15m due to hairpin bend
57	34.200	Curve Deficiency	Curve restricted to Radius=15m due to limited ROW & S-Curve
58	34.235	Curve Deficiency	Curve restricted to Radius=15m due to limited ROW & S-Curve
59	35.340	hairpin bend	Curve restricted to Radius=15m due to hairpin bend
60	37.265	Curve Deficiency	Curve restricted to Radius=15m due to limited ROW & S-Curve
61	37.403	Curve Deficiency	Curve restricted to Radius=15m due to limited ROW & S-Curve
62	37.442	hairpin bend	Curve restricted to Radius=16m due to hairpin bend
63	37.755	hairpin bend	Curve restricted to Radius=18m due to hairpin bend
64	37.900	hairpin bend	Curve restricted to Radius=16m due to hairpin bend
65	38.540	hairpin bend	Curve restricted to Radius=18m due to hairpin bend
66	38.626	hairpin bend	Curve restricted to Radius=17m due to hairpin bend
67	39.038	hairpin bend	Curve restricted to Radius=17m due to hairpin bend
68	39.140	hairpin bend	Curve restricted to Radius=17m due to hairpin bend

2.4 Right of Way

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

2.5 Type of shoulders

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

Sl. No.	Stretch (from	To (km)	Fully Paved shoulders	Reference to cross section
1	19+130	19+272	1.5	TCS – Type-III

2.6 Lateral and vertical clearances at underpasses

2.6.1 Lateral and vertical clearances at underpasses and provision of guardrails/crash barriers shall be as per paragraph 2.11 of the Manual.

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

Sl. No.	Location (chainage)	Span/opening (m)	Remarks
NIL			

2.7 Lateral and vertical clearances at overpasses

2.7.1 Lateral and vertical clearances at overpasses shall be as per paragraph 2.12 of the manual.

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

Sl. No.	Location (chainage)	Span/opening (m)	Remarks
NIL			

2.8 Service roads

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

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

2.9 Grade separated structures

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

Sl.	Location of	Length (m)	Number of spans	Approach	Remark
NIL					

2.9.2 In the case of grade separated structures, the type of structure and the level of the Project Road and the cross roads shall be as follows:

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

2.10 Cattle and pedestrian underpass /overpass

Cattle and pedestrian underpass/ overpass shall be constructed as follows:

Sl. No.	Location	Type of crossing
NIL		

2.11 Typical cross-sections of the Project Road

From the topographical survey conducted for the project road, four types of typical cross-sections are proposed for the improvement of the project road. The details of typical cross-section are given below in Table.

Sl. N.	Location (Design Chainage)		Width (m)	Typical cross section (Ref. to Manual)
	From(Km)	To(Km)		
1	0+000	0+100	7.0	Type-II
2	0+100	1+300	7.0	Type-I
3	1+300	2+396	7.0	Type-I
4	2+396	4+178	7.0	Type-IV
5	4+178	8+990	7.0	Type-I
6	8+990	9+980	7.0	Type-I
7	9+980	12+185	7.0	Type-I
8	12+185	13+089	7.0	Type-I
9	13+089	13+600	7.0	Type-IV
10	13+600	13+800	7.0	Type-I
11	13+800	14+840	7.0	Type-I
12	14+840	16+168	7.0	Type-I
13	16+168	16+410	7.0	Type-I
14	16+410	17+710	7.0	Type-I
15	17+710	18+057	7.0	Type-I
16	18+057	18+210	7.0	Type-I
17	18+210	19+110	7.0	Type-I
18	19+110	19+315	7.0	Type-IV
19	19+315	21+120	7.0	Type-I
20	21+120	22+160	7.0	Type-I
21	22+160	22+417	7.0	Type-II
22	22+417	23+420	7.0	Type-I
23	23+420	25+015	7.0	Type-I
24	25+015	25+210	7.0	Type-I
25	25+210	25+923	7.0	Type-I
26	25+923	26+430	7.0	Type-IV
27	26+430	29+910	7.0	Type-I
28	29+910	33+990	7.0	Type-I
29	33+990	34+483	7.0	Type-I
30	34+483	37+680	7.0	Type-I
31	37+680	43.060	7.0	Type-IV

Disclaimer: *The payment type and crust details indicated in the TCS are indicative only. Being on EPC Project, the design of pavement shall be done as per IRC: 37-2012 for 15 years design life.*

3 INTERSECTIONS AND GRADE SEPARATORS

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

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

(a) At-grade intersections:

Major Junction: Nongstoin – Wahkhaji Road**:**

SL No.	Location of intersection	Type of intersection	Other features	Remarks
1	0.000	MDR	T	Nongstoin
2	20.78	MDR	Y	
3	43.10	SH	T	Wahkaji

Minor Junction:

S.No	Location of intersection	Junction Type	Remark
1	2+575	Y	Bitumen Road to village
2	4+805	T	Bitumen Road to WEINIA FALLS
3	9+041	Y	Bitumen Road to JAIDON Village
4	10+90	Y	Earthen road to PINBAH
5	11+91	T	Earthen road to Nonglwai
6	15+05	T	Bitumen road MARSKOEN
7	19+57	Y	Bitumen road to SCHAME
8	19+65	T	Bitumen road to MAWSYN TIEW
9	20+59	T	Bitumen road WAHAKJI
10	20+81	T	Bitumen road MAUKGRWAT
11	24+19	Y	Earthen road to RANG LANG
12	25+69	T	Earthen road to village
13	29+73	T	Earthen road to MAWTHEWPDAH
14	33+81	Y	Moorum road to E.C.L.
15	40+18	T	Earthen road to village
16	42+36	T	Earthen road to

(b) Grade separated intersection with/without ramps

Sl. No.	Location	Salient features	Span length	Road to be carried over/under the
NIL				

4 ROAD EMBANKMENT AND CUT SECTION

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.

4.2 Raising of the existing road

The existing road shall be raised in the following sections:

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

5 PAVEMENT DESIGN

Pavement design shall be carried out in accordance with Section 5 of the Manual. Minimum crust thickness of pavement shall be as per the following components.

5.1 Type of pavement

S.No	Type of Pavement	Pavement Thickness (in mm) (As per IRC 37:2001)
1	**Wearing Course**	
	(a) Bituminous Concrete (BC)	40 mm
	(b) Dense Bituminous Macadam (DBM)	100 mm
2	**Base : Wet Mix Macadam (WMM)**	250 mm
3	**Sub-base: Granular Sub base (GSB)**	230 mm
	Total	**620 mm**

Disclaimer: *The payment type and crust details indicated in the TCS are indicative only. Being on EPC Project, the design of pavement shall be done as per IRC: 37-2012 for 15 years design life.*

5.2 Design requirements

The following parameters are required for designing of new pavement

Parameters	Value considered for design of new pavement
Design Life (Years)	15 Years
Traffic Loading in Million Standard Axles (MSA)	20 MSA

5.2.1 Design Period and strategy

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

5.2.2 Design Traffic

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

5.3 Reconstruction of stretches

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

Sl. No	Location (Design Chainage)		Width (m)	Typical cross section (Ref. to Manual)
	From(Km)	To(Km)		
1	2+396	4+178	7.0	Type-IV
2	13+089	13+600	7.0	Type-IV
3	25+923	26+430	7.0	Type-IV
4	37+680	43.060	7.0	Type-IV
NIL				

6 ROADSIDE DRAINAGE

Lined Drain of Trapezoidal Shape with 0.3m bottom width and 0.6 m top width and the height is 0.5m proposed along the entire section. RCC Covered drains are proposed in the following stretches.

Sl. No.	Stretch		Reference to cross section
	(from km)	To (km)	
1	19+130	19+272	TCS – Type-III

7 DESIGN OF STRUCTURES

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

Sl No.	Bridge at km	Width of carriageway and cross- sectional features
1	2+425	7.5
2	9+121	7.5
3	9+890	7.5
4	15+041	7.5
5	27+814	7.5
6	40+106	7.5
7	40+520	7.5
8	41+782	7.5

7.1.3 The above structures shall be provided with footpaths.

7.1.4 All bridges shall be high-level bridges.

7.1.5 The following structures shall be designed to carry utility services specified in table below:

Sl. No.	Bridge at km	Utility service to be carried
1	2+425	W.P & OFC
2	9+121	Elec. Line, W.P & OFC
3	9+875	W.P & OFC
4	15+050	Elec. Line, W.P & OFC
5	27+795	W.P & OFC
6	40+137	W.P & OFC
7	40+516	W.P & OFC
8	41+827	W.P & OFC

7.1.6 Cross-section of the new culverts and bridges at deck level for the Project Road shall conform to the typical cross-sections given in section 7 of the Manual.

7.2 Culverts

7.2.1 Overall width of all culverts shall be equal to the roadway width of the approaches.

7.2.2 Reconstruction of existing culverts:

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

Sl.No	Existing Chainage	Proposed Chainage	Prop. Span	Proposed Type of structures	Prop. Width	Improvement Proposal
1	0+150	0+150	1 X 2.0 X 2.0	RCC BOX	12	Reconstruction
2	0+257	0+255	1 X 2.0 X 2.0	RCC BOX	12	Reconstruction
3	0+346	0+344	1 X 2.0 X 2.0	RCC BOX	12	Reconstruction
4	0+396	0+394	1 X 1.5 X 1.5	RCC BOX	12	Reconstruction
5	0+444	0+443	1 X 2.0 X 2.0	RCC BOX	12	Reconstruction
6	0+476	0+476	1 X 2.0 X 2.0	RCC BOX	12	Reconstruction
7	0+537	0+537	1 X 1.5 X 1.5	RCC BOX	12	Reconstruction
8	0+637	0+637	1 X 2.0 X 2.0	RCC BOX	12	Reconstruction
9	0+700	0+696	1 X 2.0 X 2.0	RCC BOX	12	Reconstruction
10	0+766	0+764	1 X 1.5 X 1.5	RCC BOX	12	Reconstruction
11	0+841	0+840	1 X 2.0 X 2.0	RCC BOX	12	Reconstruction
12	0+914	0+911	1 X 3.0 X 3.0	RCC BOX	12	Reconstruction
13	0+977	0+974	1 X 1.5 X 1.5	RCC BOX	12	Reconstruction
14	1+146	1+146	1 X 1.5 X 1.5	RCC BOX	12	Reconstruction
15	1+282	1+282	1 X 1.5 X 1.5	RCC BOX	12	Reconstruction
16	1+375	1+371	1 X 1.5 X 1.5	RCC BOX	12	Reconstruction
17	1+500	1+496	1 X 1.5 X 1.5	RCC BOX	12	Reconstruction
18	1+575	1+573	1 X 1.5 X 1.5	RCC BOX	12	Reconstruction
19	1+580	1+580	1 X 1.5 X 1.5	RCC BOX	12	Reconstruction
20	1+624	1+621	1 X 1.5 X 1.5	RCC BOX	12	Reconstruction
21	1+710	1+708	1 X 1.5 X 1.5	RCC BOX	12	Reconstruction
22	1+759	1+759	1x1.5x1.5	RCC BOX	12	Reconstruction
23	1+979	1+985	1x1.5x1.5	RCC BOX	12	Reconstruction
24	2+060	2+067	1x1.5x1.5	RCC BOX	12	Reconstruction
25	2+125	2+124	1x1.5x1.5	RCC BOX	12	Reconstruction
26	2+173	2+171	1x1.5x1.5	RCC BOX	12	Reconstruction
27	2+200	2+197	1x1.5x1.5	RCC BOX	12	Reconstruction

Sl.No	Existing Chainage	Proposed Chainage	Prop. Span	Proposed Type of structures	Prop. Width	Improvement Proposal
28	2+283	2+276	1x1.5x1.5	RCC BOX	12	Reconstruction
29	2+390	2+387	1 x 2 x 2	RCC BOX	12	Reconstruction
30	2+572	2+572	1x1.5x1.5	RCC BOX	12	Reconstruction
31	2+645	2+645	1 x 3 x 3	RCC BOX	12	Reconstruction
32	2+760	2+759	1 x 2 x 2	RCC BOX	12	Reconstruction
33	3+060	3+084	1 x 2 x 2	RCC BOX	12	Reconstruction
34	3+151	3+276	1 x 2 x 2	RCC BOX	12	Reconstruction
35	3+290	3+309	1 x 2 x 2	RCC BOX	12	Reconstruction
36	3+413	3+439	1x1.5x1.5	RCC BOX	12	Reconstruction
37	3+482	3+504	1x1.5x1.5	RCC BOX	12	Reconstruction
38	3+650	3+676	1x1.5x1.5	RCC BOX	12	Reconstruction
39	3+790	3+812	1x1.5x1.5	RCC BOX	12	Reconstruction
40	3+857	3+878	1x1.5x1.5	RCC BOX	12	Reconstruction
41	3+900	3+921	1 x 2 x 2	RCC BOX	12	Reconstruction
42	4+075	4+101	1x1.5x1.5	RCC BOX	12	Reconstruction
43	4+134	4+158	1x1.5x1.5	RCC BOX	12	Reconstruction
44	4+212	4+235	1x1.5x1.5	RCC BOX	12	Reconstruction
45	4+336	4+359	1x1.5x1.5	RCC BOX	12	Reconstruction
46	4+404	4+426	1x1.5x1.5	RCC BOX	12	Reconstruction
47	4+450	4+470	1x1.5x1.5	RCC BOX	12	Reconstruction
48	4+507	4+526	1 x 2 x 2	RCC BOX	12	Reconstruction
49	4+475	4+595	1x1.5x1.5	RCC BOX	12	Reconstruction
50	4+726	4+747	1x1.5x1.5	RCC BOX	12	Reconstruction
51	4+845	4+866	1x1.5x1.5	RCC BOX	12	Reconstruction
52	4+962	4+983	1x1.5x1.5	RCC BOX	12	Reconstruction
53	4+971	4+991	1x1.5x1.5	RCC BOX	12	Reconstruction
54	5+015	5+035	1 x 2 x 2	RCC BOX	12	Reconstruction
55	5+090	5+110	1 x 2 x 2	RCC BOX	12	Reconstruction
56	5+152	5+176	1x1.5x1.5	RCC BOX	12	Reconstruction
57	5+195	5+218	1x1.5x1.5	RCC BOX	12	Reconstruction
58	5+333	5+357	1 x 2 x 2	RCC BOX	12	Reconstruction
59	5+472	5+496	1 x 2 x 2	RCC BOX	12	Reconstruction
60	5+560	5+584	1x1.5x1.5	RCC BOX	12	Reconstruction
61	5+868	5+888	2x 2 x 2	RCC BOX	12	Reconstruction
62	5+870	5+890	1 x 2 x 2	RCC BOX	12	Reconstruction
63	5+900	5+919	1x1.5x1.5	RCC BOX	12	Reconstruction
64	5+929	5+953	1x1.5x1.5	RCC BOX	12	Reconstruction
65	6+064	6+084	1x1.5x1.5	RCC BOX	12	Reconstruction
66	6+142	6+162	2 x 3 x 3	RCC BOX	12	Reconstruction
67	6+343	6+363	1 x 2 x 2	RCC BOX	12	Reconstruction
68	6+386	6+405	1 x 2 x 2	RCC BOX	12	Reconstruction
69	6+480	6+497	1 x 2 x 2	RCC BOX	12	Reconstruction
70	6+604	6+620	1x1.5x1.5	RCC BOX	12	Reconstruction
71	6+716	6+727	1x1.5x1.5	RCC BOX	12	Reconstruction
72	6+744	6+755	1x1.5x1.5	RCC BOX	12	Reconstruction
73	6+764	6+775	1x1.5x1.5	RCC BOX	12	Reconstruction
74	6+778	6+791	1x1.5x1.5	RCC BOX	12	Reconstruction
75	6+868	6+883	1 x 2 x 2	RCC BOX	12	Reconstruction
76	7+000	7+0175	1x1.5x1.5	RCC BOX	12	Reconstruction
77	7+231	7+242	1x1.5x1.5	RCC BOX	12	Reconstruction

Sl.No	Existing Chainage	Proposed Chainage	Prop. Span	Proposed Type of structures	Prop. Width	Improvement Proposal
78	7+336	7+347	1x1.5x1.5	RCC BOX	12	Reconstruction
79	7+386	7+399	1x1.5x1.5	RCC BOX	12	Reconstruction
80	7+470	7+483	1x1.5x1.5	RCC BOX	12	Reconstruction
81	7+612	7+623	1 x 2 x 2	RCC BOX	12	Reconstruction
82	7+712	7+723	1 x 2 x 2	RCC BOX	12	Reconstruction
83	7+800	7+812	1x1.5x1.5	RCC BOX	12	Reconstruction
84	7+900	7+911	1 x 2 x 2	RCC BOX	12	Reconstruction
85	8+038	8+050	1x1.5x1.5	RCC BOX	12	Reconstruction
86	8+181	8+191	1x1.5x1.5	RCC BOX	12	Reconstruction
87	8+425	8+438	1x1.5x1.5	RCC BOX	12	Reconstruction
88	8+508	8+514	1x1.5x1.5	RCC BOX	12	Reconstruction
89	8+577	8+564	1x1.5x1.5	RCC BOX	12	Reconstruction
90	8+612	8+619	1 x 2 x 2	RCC BOX	12	Reconstruction
91	8+731	8+734	1x1.5x1.5	RCC BOX	12	Reconstruction
92	8+757	8+761	1x1.5x1.5	RCC BOX	12	Reconstruction
93	8+825	8+835	1x1.5x1.5	RCC BOX	12	Reconstruction
94	8+853	8+862	1x1.5x1.5	RCC BOX	12	Reconstruction
95	8+918	8+926	1x1.5x1.5	RCC BOX	12	Reconstruction
96	8+975	8+983	1x1.5x1.5	RCC BOX	12	Reconstruction
97	9+011	9+021	1x1.5x1.5	RCC BOX	12	Reconstruction
98	9+297	9+310	1x1.5x1.5	RCC BOX	12	Reconstruction
99	9+389	9+407	1x1.5x1.5	RCC BOX	12	Reconstruction
100	9+475	9+498	1x1.5x1.5	RCC BOX	12	Reconstruction
101	9+553	9+576	1x1.5x1.5	RCC BOX	12	Reconstruction
102	9+618	9+640	1x1.5x1.5	RCC BOX	12	Reconstruction
103	9+800	9+818	1x1.5x1.5	RCC BOX	12	Reconstruction
104	10+043	10+062	1x1.5x1.5	RCC BOX	12	Reconstruction
105	10+127	10+146	1x1.5x1.5	RCC BOX	12	Reconstruction
106	10+175	10+191	1x1.5x1.5	RCC BOX	12	Reconstruction
107	10+455	10+455	1x1.5x1.5	RCC BOX	12	Reconstruction
108	10+750	10+75	1 x 2 x 2	RCC BOX	12	Reconstruction
109	10+969	10+984	1 x 2 x 2	RCC BOX	12	Reconstruction
110	11+159	11+177	1x1.5x1.5	RCC BOX	12	Reconstruction
111	11+300	11+322	1 x 2 x 2	RCC BOX	12	Reconstruction
112	11+445	11+465	1 x 2 x 2	RCC BOX	12	Reconstruction
113	11+467	11+483	1 x 2 x 2	RCC BOX	12	Reconstruction
114	11+570	11+588	1x1.5x1.5	RCC BOX	12	Reconstruction
115	11+652	11+672	1 x 2 x 2	RCC BOX	12	Reconstruction
116	11+781	11+802	1x1.5x1.5	RCC BOX	12	Reconstruction
117	11+925	11+943	1x1.5x1.5	RCC BOX	12	Reconstruction
118	12+034	12+052	1x1.5x1.5	RCC BOX	12	Reconstruction
119	12+185	12+202	1x1.5x1.5	RCC BOX	12	Reconstruction
120	12+216	12+233	1 x 2 x 2	RCC BOX	12	Reconstruction
121	12+313	12+332	1 x 2 x 2	RCC BOX	12	Reconstruction
122	12+372	12+392	1 x 2 x 2	RCC BOX	12	Reconstruction
123	12+482	12+497	1 x 2 x 2	RCC BOX	12	Reconstruction
124	12+757	12+767	1 x 2 x 2	RCC BOX	12	Reconstruction
125	13+217	13+225	1x1.5x1.5	RCC BOX	12	Reconstruction
126	13+382	13+385	1x1.5x1.5	RCC BOX	12	Reconstruction
127	13+456	13+459	1x1.5x1.5	RCC BOX	12	Reconstruction

Sl.No	Existing Chainage	Proposed Chainage	Prop. Span	Proposed Type of structures	Prop. Width	Improvement Proposal
128	13+525	13+524	1x1.5x1.5	RCC BOX	12	Reconstruction
129	13+838	13+837	1 x 2 x 2	RCC BOX	12	Reconstruction
130	14+044	14+042	1 x 2 x 2	RCC BOX	12	Reconstruction
131	14+270	14+268	1 x 2 x 2	RCC BOX	12	Reconstruction
132	14+435	14+424	1 x 2 x 2	RCC BOX	12	Reconstruction
133	14+477	14+470	1x1.5x1.5	RCC BOX	12	Reconstruction
134	14+550	14+542	1x1.5x1.5	RCC BOX	12	Reconstruction
135	14+555	14+548	1x1.5x1.5	RCC BOX	12	Reconstruction
136	14+632	14+623	1x1.5x1.5	RCC BOX	12	Reconstruction
137	14+696	14+686	1 x 2 x 2	RCC BOX	12	Reconstruction
138	14+727	14+717	1x1.5x1.5	RCC BOX	12	Reconstruction
139	14+759	14+749	1 x 2 x 2	RCC BOX	12	Reconstruction
140	14+862	14+856	1 x 2 x 2	RCC BOX	12	Reconstruction
141	14+937	14+929	1x1.5x1.5	RCC BOX	12	Reconstruction
142	15+186	15+178	1 x 2 x 2	RCC BOX	12	Reconstruction
143	15+244	15+236	1x1.5x1.5	RCC BOX	12	Reconstruction
144	15+291	15+282	1 x 2 x 2	RCC BOX	12	Reconstruction
145	15+384	15+375	1x1.5x1.5	RCC BOX	12	Reconstruction
146	15+558	15+562	1 x 2 x 2	RCC BOX	12	Reconstruction
147	15+694	15+697	1 x 2 x 2	RCC BOX	12	Reconstruction
148	15+750	15+755	1 x 2 x 2	RCC BOX	12	Reconstruction
149	15+783	15+769	1 x 2 x 2	RCC BOX	12	Reconstruction
150	15+825	15+838	1 x 2 x 2	RCC BOX	12	Reconstruction
151	15+984	16+000	1x1.5x1.5	RCC BOX	12	Reconstruction
152	16+048	16+062	1 x 2 x 2	RCC BOX	12	Reconstruction
153	16+088	16+102	1 x 2 x 2	RCC BOX	12	Reconstruction
154	16+230	16+243	1x1.5x1.5	RCC BOX	12	Reconstruction
155	16+285	16+296	1 x 2 x 2	RCC BOX	12	Reconstruction
156	16+591	16+608	1 x 2 x 2	RCC BOX	12	Reconstruction
157	16+762	16+782	1 x 2 x 2	RCC BOX	12	Reconstruction
158	16+813	16+831	1 x 2 x 2	RCC BOX	12	Reconstruction
159	16+884	16+897	1 x 2 x 2	RCC BOX	12	Reconstruction
160	17+023	17+034	1 x 2 x 2	RCC BOX	12	Reconstruction
161	17+108	17+120	1 x 2 x 2	RCC BOX	12	Reconstruction
162	17+215	17+228	1 x 2 x 2	RCC BOX	12	Reconstruction
163	17+246	17+225	1x1.5x1.5	RCC BOX	12	Reconstruction
164	17+312	17+326	1x1.5x1.5	RCC BOX	12	Reconstruction
165	17+360	17+369	1x1.5x1.5	RCC BOX	12	Reconstruction
166	17+405	17+414	1 x 2 x 2	RCC BOX	12	Reconstruction
167	17+467	17+478	1x1.5x1.5	RCC BOX	12	Reconstruction
168	17+537	17+546	1 x 2 x 2	RCC BOX	12	Reconstruction
169	17+652	17+666	1 x 2 x 2	RCC BOX	12	Reconstruction
170	17+846	17+849	1 x 2 x 2	RCC BOX	12	Reconstruction
171	17+905	17+908	1x1.5x1.5	RCC BOX	12	Reconstruction
172	18+025	18+024	1x1.5x1.5	RCC BOX	12	Reconstruction
173	18+096	18+102	1 x 2 x 2	RCC BOX	12	Reconstruction
174	18+114	18+122	1 x 2 x 2	RCC BOX	12	Reconstruction
175	18+339	18+349	1x1.5x1.5	RCC BOX	12	Reconstruction
176	18+363	18+379	1 x 2 x 2	RCC BOX	12	Reconstruction
177	18+421	18+436	1 x 2 x 2	RCC BOX	12	Reconstruction

Sl.No	Existing Chainage	Proposed Chainage	Prop. Span	Proposed Type of structures	Prop. Width	Improvement Proposal
178	18+475	18+487	1 x 2 x 2	RCC BOX	12	Reconstruction
179	18+548	18+559	1 x 2 x 2	RCC BOX	12	Reconstruction
180	18+614	18+623	1x1.5x1.5	RCC BOX	12	Reconstruction
181	18+862	18+872	1 x 2 x 2	RCC BOX	12	Reconstruction
182	18+923	18+934	1 x 2 x 2	RCC BOX	12	Reconstruction
183	19+250	19+261	1 x 2 x 2	RCC BOX	12	Reconstruction
184	19+677	19+692	1x1.5x1.5	RCC BOX	12	Reconstruction
185	19+825	19+838	1x1.5x1.5	RCC BOX	12	Reconstruction
186	19+944	19+953	1x1.5x1.5	RCC BOX	12	Reconstruction
187	20+164	20+176	1 x 2 x 2	RCC BOX	12	Reconstruction
188	20+260	20+275	1x1.5x1.5	RCC BOX	12	Reconstruction
189	20+616	20+636	1x1.5x1.5	RCC BOX	12	Reconstruction
190	20+725	20+745	1x1.5x1.5	RCC BOX	12	Reconstruction
191	20+789	20+811	1 x 2 x 2	RCC BOX	12	Reconstruction
192	20+909	20+929	1 x 2 x 2	RCC BOX	12	Reconstruction
193	21+219	21+232	1 x 2 x 2	RCC BOX	12	Reconstruction
194	21+309	21+316	1 x 2 x 2	RCC BOX	12	Reconstruction
195	21+788	21+800	1x1.5x1.5	RCC BOX	12	Reconstruction
196	22+250	22+263	1 x 2 x 2	RCC BOX	12	Reconstruction
197	22+361	22+375	2 x 2 x 2	RCC BOX	12	Reconstruction
198	22+510	22+524	1 x 2 x 2	RCC BOX	12	Reconstruction
199	22+632	22+642	1x1.5x1.5	RCC BOX	12	Reconstruction
200	22+823	22+830	1x1.5x1.5	RCC BOX	12	Reconstruction
201	22+923	22+938	1 x 2 x 2	RCC BOX	12	Reconstruction
202	23+198	23+220	1 x 2 x 2	RCC BOX	12	Reconstruction
203	23+421	23+438	1 x 2 x 2	RCC BOX	12	Reconstruction
204	23+679	23+694	1 x 2 x 2	RCC BOX	12	Reconstruction
205	23+761	23+775	1 x 2 x 2	RCC BOX	12	Reconstruction
206	23+885	23+895	1 x 2 x 2	RCC BOX	12	Reconstruction
207	23+946	23+956	1x1.5x1.5	RCC BOX	12	Reconstruction
208	23+994	24+005	1x1.5x1.5	RCC BOX	12	Reconstruction
209	24+190	24+204	1x1.5x1.5	RCC BOX	12	Reconstruction
210	24+800	24+809	1 x 2 x 2	RCC BOX	12	Reconstruction
211	25+041	25+056	1x1.5x1.5	RCC BOX	12	Reconstruction
212	25+187	25+202	1x1.5x1.5	RCC BOX	12	Reconstruction
213	25+350	25+364	1x1.5x1.5	RCC BOX	12	Reconstruction
214	25+450	25+473	1 x 2 x 2	RCC BOX	12	Reconstruction
215	25+753	25+778	1x1.5x1.5	RCC BOX	12	Reconstruction
216	25+900	25+921	1x1.5x1.5	RCC BOX	12	Reconstruction
217	26+111	26+136	1x1.5x1.5	RCC BOX	12	Reconstruction
218	26+170	26+200	1x1.5x1.5	RCC BOX	12	Reconstruction
219	26+341	26+368	1x1.5x1.5	RCC BOX	12	Reconstruction
220	26+458	26+488	1 x 2 x 2	RCC BOX	12	Reconstruction
221	26+566	26+595	1 x 2 x 2	RCC BOX	12	Reconstruction
222	26+634	26+661	1 x 2 x 2	RCC BOX	12	Reconstruction
223	26+693	26+723	1x1.5x1.5	RCC BOX	12	Reconstruction
224	26+788	26+816	1x1.5x1.5	RCC BOX	12	Reconstruction
225	26+875	26+905	1x1.5x1.5	RCC BOX	12	Reconstruction
226	26+954	27+978	1x1.5x1.5	RCC BOX	12	Reconstruction
227	26+998	27+022	1x1.5x1.5	RCC BOX	12	Reconstruction

Sl.No	Existing Chainage	Proposed Chainage	Prop. Span	Proposed Type of structures	Prop. Width	Improvement Proposal
228	27+143	27+165	1 x 2 x 2	RCC BOX	12	Reconstruction
229	27+225	27+248	1 x 2 x 2	RCC BOX	12	Reconstruction
230	27+325	27+343	1x1.5x1.5	RCC BOX	12	Reconstruction
231	27+409	27+429	1 x 2 x 2	RCC BOX	12	Reconstruction
232	27+485	27+503	1x1.5x1.5	RCC BOX	12	Reconstruction
233	27+568	27+584	1x1.5x1.5	RCC BOX	12	Reconstruction
234	27+583	27+598	1 x 2 x 2	RCC BOX	12	Reconstruction
235	27+636	27+651	1x1.5x1.5	RCC BOX	12	Reconstruction
236	27+656	27+672	1 x 2 x 2	RCC BOX	12	Reconstruction
237	27+691	27+707	1x1.5x1.5	RCC BOX	12	Reconstruction
238	27+871	27+887	1x1.5x1.5	RCC BOX	12	Reconstruction
239	27+898	27+912	1x1.5x1.5	RCC BOX	12	Reconstruction
240	27+975	27+991	1 x 2 x 2	RCC BOX	12	Reconstruction
241	28+030	28+046	1x1.5x1.5	RCC BOX	12	Reconstruction
242	28+084	28+101	1x1.5x1.5	RCC BOX	12	Reconstruction
243	28+128	28+145	1x1.5x1.5	RCC BOX	12	Reconstruction
244	28+293	28+304	1 x 2 x 2	RCC BOX	12	Reconstruction
245	28+352	28+362	1 x 3 x 3	RCC BOX	12	Reconstruction
246	28+439	28+451	1x1.5x1.5	RCC BOX	12	Reconstruction
247	28+479	28+491	1x1.5x1.5	RCC BOX	12	Reconstruction
248	28+530	28+541	1x1.5x1.5	RCC BOX	12	Reconstruction
249	28+600	28+610	1x1.5x1.5	RCC BOX	12	Reconstruction
250	28+617	28+626	1x1.5x1.5	RCC BOX	12	Reconstruction
251	28+663	28+670	1x1.5x1.5	RCC BOX	12	Reconstruction
252	28+700	28+714	1x1.5x1.5	RCC BOX	12	Reconstruction
253	28+741	28+754	1x1.5x1.5	RCC BOX	12	Reconstruction
254	28+838	28+849	1x1.5x1.5	RCC BOX	12	Reconstruction
255	28+898	28+902	1x1.5x1.5	RCC BOX	12	Reconstruction
256	28+838	28+981	1x1.5x1.5	RCC BOX	12	Reconstruction
257	29+003	29+009	1x1.5x1.5	RCC BOX	12	Reconstruction
258	29+066	29+073	1x1.5x1.5	RCC BOX	12	Reconstruction
259	29+080	29+089	1x1.5x1.5	RCC BOX	12	Reconstruction
260	29+100	29+111	1x1.5x1.5	RCC BOX	12	Reconstruction
261	29+219	29+228	1 x 2 x 2	RCC BOX	12	Reconstruction
262	29+288	29+300	1x1.5x1.5	RCC BOX	12	Reconstruction
263	29+405	29+416	1x1.5x1.5	RCC BOX	12	Reconstruction
264	29+456	29+466	1x1.5x1.5	RCC BOX	12	Reconstruction
265	29+512	29+523	1x1.5x1.5	RCC BOX	12	Reconstruction
266	29+539	29+550	1x1.5x1.5	RCC BOX	12	Reconstruction
267	29+609	29+616	1x1.5x1.5	RCC BOX	12	Reconstruction
268	29+650	29+656	1 x 2 x 2	RCC BOX	12	Reconstruction
269	29+748	29+751	1x1.5x1.5	RCC BOX	12	Reconstruction
270	29+963	29+965	1x1.5x1.5	RCC BOX	12	Reconstruction
271	30+575	30+580	1x1.5x1.5	RCC BOX	12	Reconstruction
272	30+807	30+805	1x1.5x1.5	RCC BOX	12	Reconstruction
273	30+874	30+876	1 x 2 x 2	RCC BOX	12	Reconstruction
274	30+883	30+884	1x1.5x1.5	RCC BOX	12	Reconstruction
275	31+138	31+131	1 x 2 x 2	RCC BOX	12	Reconstruction
276	31+287	31+290	1x1.5x1.5	RCC BOX	12	Reconstruction
277	31+323	31+325	1x1.5x1.5	RCC BOX	12	Reconstruction

Sl.No	Existing Chainage	Proposed Chainage	Prop. Span	Proposed Type of structures	Prop. Width	Improvement Proposal
278	31+416	31+421	1 x 2 x 2	RCC BOX	12	Reconstruction
279	31+521	31+525	1x1.5x1.5	RCC BOX	12	Reconstruction
280	31+585	31+589	1x1.5x1.5	RCC BOX	12	Reconstruction
281	31+674	31+676	1x1.5x1.5	RCC BOX	12	Reconstruction
282	31+789	31+790	1 x 2 x 2	RCC BOX	12	Reconstruction
283	31+946	31+945	1 x 2 x 2	RCC BOX	12	Reconstruction
284	32+203	32+205	1x1.5x1.5	RCC BOX	12	Reconstruction
285	32+251	32+252	1x1.5x1.5	RCC BOX	12	Reconstruction
286	32+350	32+350	1x1.5x1.5	RCC BOX	12	Reconstruction
287	32+434	32+431	1x1.5x1.5	RCC BOX	12	Reconstruction
288	33+202	33+208	1x1.5x1.5	RCC BOX	12	Reconstruction
289	33+556	33+558	1x1.5x1.5	RCC BOX	12	Reconstruction
290	34+256	34+242	1x1.5x1.5	RCC BOX	12	Reconstruction
291	34+433	34+419	1x1.5x1.5	RCC BOX	12	Reconstruction
292	34+538	34+526	1x1.5x1.5	RCC BOX	12	Reconstruction
293	34+888	34+886	1x1.5x1.5	RCC BOX	12	Reconstruction
294	35+096	35+093	1x1.5x1.5	RCC BOX	12	Reconstruction
295	35+238	35+231	1x1.5x1.5	RCC BOX	12	Reconstruction
296	35+276	35+269	1x1.5x1.5	RCC BOX	12	Reconstruction
297	35+365	35+356	1x1.5x1.5	RCC BOX	12	Reconstruction
298	35+549	35+537	1x1.5x1.5	RCC BOX	12	Reconstruction
299	35+604	35+596	1x1.5x1.5	RCC BOX	12	Reconstruction
300	35+763	35+748	1x1.5x1.5	RCC BOX	12	Reconstruction
301	35+944	35+926	1x1.5x1.5	RCC BOX	12	Reconstruction
302	36+042	36+023	1 x 3 x 3	RCC BOX	12	Reconstruction
303	36+157	36+143	1x1.5x1.5	RCC BOX	12	Reconstruction
304	36+908	36+891	1x1.5x1.5	RCC BOX	12	Reconstruction
305	37+039	37+022	1x1.5x1.5	RCC BOX	12	Reconstruction
306	37+192	37+178	1x1.5x1.5	RCC BOX	12	Reconstruction
307	37+279	37+265	1x1.5x1.5	RCC BOX	12	Reconstruction
308	37+360	37+346	1x1.5x1.5	RCC BOX	12	Reconstruction
309	37+448	37+430	1x1.5x1.5	RCC BOX	12	Reconstruction
310	37+460	37+444	1x1.5x1.5	RCC BOX	12	Reconstruction
311	37+491	37+478	1x1.5x1.5	RCC BOX	12	Reconstruction
312	37+564	37+550	1x1.5x1.5	RCC BOX	12	Reconstruction
313	37+623	37+606	1x1.5x1.5	RCC BOX	12	Reconstruction
314	37+775	37+756	1x1.5x1.5	RCC BOX	12	Reconstruction
315	37+918	37+906	1x1.5x1.5	RCC BOX	12	Reconstruction
316	37+966	38+954	1x1.5x1.5	RCC BOX	12	Reconstruction
317	38+051	38+039	1x1.5x1.5	RCC BOX	12	Reconstruction
318	38+094	38+081	1x1.5x1.5	RCC BOX	12	Reconstruction
319	38+202	38+189	1x1.5x1.5	RCC BOX	12	Reconstruction
320	38+585	38+563	1x1.5x1.5	RCC BOX	12	Reconstruction
321	38+650	38+626	1x1.5x1.5	RCC BOX	12	Reconstruction
322	38+815	38+788	1x1.5x1.5	RCC BOX	12	Reconstruction
323	39+818	39+794	1x1.5x1.5	RCC BOX	12	Reconstruction
324	39+975	39+943	1x1.5x1.5	RCC BOX	12	Reconstruction
325	40+300	40+269	1x1.5x1.5	RCC BOX	12	Reconstruction
326	40+632	40+596	2 x 2 x 2	RCC BOX	12	Reconstruction
327	40+883	40+839	1x1.5x1.5	RCC BOX	12	Reconstruction

Sl.No	Existing Chainage	Proposed Chainage	Prop. Span	Proposed Type of structures	Prop. Width	Improvement Proposal
328	41+069	41+030	1x1.5x1.5	RCC BOX	12	Reconstruction
329	41+527	41+480	1x1.5x1.5	RCC BOX	12	Reconstruction
330	41+597	41+549	1x1.5x1.5	RCC BOX	12	Reconstruction
331	41+885	41+840	1 x 3 x 3	RCC BOX	12	Reconstruction
332	41+948	41+906	1x1.5x1.5	RCC BOX	12	Reconstruction
333	42+112	42+065	1x1.5x1.5	RCC BOX	12	Reconstruction
334	42+188	42+141	1x1.5x1.5	RCC BOX	12	Reconstruction
335	42+271	42+223	1x1.5x1.5	RCC BOX	12	Reconstruction
336	42+318	42+272	1x1.5x1.5	RCC BOX	12	Reconstruction
337	42+419	42+375	1x1.5x1.5	RCC BOX	12	Reconstruction
338	42+576	42+532	1x1.5x1.5	RCC BOX	12	Reconstruction
339	42+923	42+875	2 x 2 x 2	RCC BOX	12	Reconstruction
340	43+040	43+991	1 x 2 x 2	RCC BOX	12	Reconstruction

7.2.3 Widening of existing culverts

All existing culverts which are not to be reconstructed shall be widened to the roadway width of the Project Road as per the typical cross section given in section 7 of the Manual. Repairs and strengthening of existing structures where required shall be carried out.

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

7.2.4 Additional new culverts shall be constructed as per particulars given in the table below:

S.No.	Proposed Chainag	Proposed Type of structure	Span	Width of New culverts	Proposal	Remark
1	3+391	RCC BOX	1x1.5x1.5	12	New	New Culvert
2	3+660	RCC BOX	1x1.5x1.5	12	New	New Culvert
3	3+700	RCC BOX	1x1.5x1.5	12	New	New Culvert
4	3+991	RCC BOX	1x1.5x1.5	12	New	New Culvert
5	4+183	RCC BOX	1x1.5x1.5	12	New	New Culvert
6	4+386	RCC BOX	1x1.5x1.5	12	New	New Culvert
7	4+460	RCC BOX	1x1.5x1.5	12	New	New Culvert
8	4+563	RCC BOX	1x1.5x1.5	12	New	New Culvert

S.No.	Proposed Chainag	Proposed Type of structure	Span	Width of New	Proposal	Remark
9	4+754	RCC BOX	1x1.5x1.5	12	New Construction	New Culvert
10	4+864	RCC BOX	1x1.5x1.5	12	New Construction	New Culvert
11	5+016	RCC BOX	1x1.5x1.5	12	New Construction	New Culvert
12	5+200	RCC BOX	1x1.5x1.5	12	New Construction	New Culvert
13	5+330	RCC BOX	1x1.5x1.5	12	New Construction	New Culvert
14	5+748	RCC BOX	1x1.5x1.5	12	New Construction	New Culvert
15	5+948	RCC BOX	1x1.5x1.5	12	New Construction	New Culvert
16	6+132	RCC BOX	1x1.5x1.5	12	New Construction	New Culvert
17	6+370	RCC BOX	1x1.5x1.5	12	New Construction	New Culvert
18	6+725	RCC BOX	1x1.5x1.5	12	New Construction	New Culvert
19	6+845	RCC BOX	1x1.5x1.5	12	New Construction	New Culvert
20	6+993	RCC BOX	1x1.5x1.5	12	New Construction	New Culvert
21	7+192	RCC BOX	1x1.5x1.5	12	New Construction	New Culvert
22	7+296	RCC BOX	1x1.5x1.5	12	New Construction	New Culvert
23	7+430	RCC BOX	1x1.5x1.5	12	New Construction	New Culvert
24	7+675	RCC BOX	1x1.5x1.5	12	New Construction	New Culvert
25	8+079	RCC BOX	1x1.5x1.5	12	New Construction	New Culvert

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

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

7.2.6 Floor protection works shall be as specified in the relevant IRC Codes and Specifications.

7.3 Bridges

7.3.1 Existing bridges to be re- constructed/widened

Sl. No.	Bridge location(km)	Salient details of existing bridge	Type	Span Arrangement	Remarks
1	2+425	1 x 13.5	RCC	1 x 14.0	reconstructed
2	9+111	1 x	RCC	3 x 30.0	reconstructed
3	9+875	1 x 12.4	RCC	1 x 14.0	reconstructed
4	15+050	1 x 8.5	RCC	1 x 10.0	reconstructed
5	27+795	1 x 19.3	RCC	1 x 20.0	reconstructed
6	40+137	1 x 10.3	RCC	1 x 12.0	reconstructed
7	40+516	1 x 8.1	RCC	1 x 10.0	reconstructed
8	41+827	1 x 11.4	RCC	1 x 12.0	reconstructed

* GADs Attached

(ii) The following narrow bridges shall be widened:

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

7.3.2 Additional new bridges

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

Sl. No.	Location at km	Remar
NIL		

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

Sl. No.	Location at km	Remar
NIL		

7.3.4 Repairs/replacements of railing/parapets of the existing bridges shall be undertaken as follows:

Sl. No.	Location at km	Remar
NIL		

7.3.5 Drainage system for bridge decks

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

7.3.6 Structures in marine environment

NIL

7.4. Rail-road bridges

7.4.1 Design, construction and detailing of ROB/RUB shall be as specified in section 7 of the Manual.

NIL

7.4.2 Road over-bridges

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

Sl. No.	Location of Level crossing (chainage km)	Length of bridge (m)
NIL		

7.4.3 Road under-bridges

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

Sl. No.	Location of Level crossing (chainage km)	Number and length of span (m)
NIL		

7.5 Grade separated structures

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 and structures

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

A. Bridges

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

B. ROB / RUB

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

C. Overpasses/Underpasses and other structures

Sl. No.	Location o	Nature and extent of repairs /strengthening to be
NIL		

7.7 List of Major Bridges and Structures

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

Sl.	Location
1	9+121

8 TRAFFIC CONTROL DEVICES AND ROAD SAFETY WORKS

8.1 Traffic control devices and road safety works shall be provided in accordance with Section 9 of the Manual.

8.2 Specifications of the reflective sheeting shall as per latest MORT&H Specifications.

9 ROADSIDE FURNITURE

9.1 Roadside furniture shall be provided in accordance with the provisions of Section 11 of the Manual.

9.2 Overhead traffic signs: location and size

1. At Design Ch. 20+800 (Junction with Rd. leading towards Mawkrywat)

10 COMPULSORY AFFORESTATION

The number of trees which are required to be planted by the Contractor as compensatory Afforestation shall be thrice that of the trees to be cut.

11 HAZARDOUS LOCATIONS

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

Sl. No.	Location stretch from (km) to	LHS/RHS
NIL		

12 SPECIAL REQUIREMENTS FOR HILL ROADS

1. Retaining wall of 4.0m Ht. in Existing Nongstoin – Wahkhaji Rd. beyond design chainage 1+725 – 2611m of total length.

13 CHANGE OF SCOPE

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

SCHEDULE - C
(See Clause 2.1)

PROJECT FACILITIES

1 Project Facilities

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

(a) Roadside furniture;

(b) Pedestrian facilities;

(c) tree plantation;

(d) Truck lay-byes;

(e) bus-bays and bus shelters;

(f) rest areas; and

(g) Others to be specified

2 Description of Project Facilities

(a) Roadside furniture shall include Ordinary Km. Stone, 5^{th} Km. stone, hectometer stone, boundary pillars, sign boards, pavement markings etc. and shall be as per relevant IRC codes and conforming to MORT&H Specifications.

(b) Pedestrian facilities (Footpath): to be given in Nongstoin-Wahkhaji road.

Sl. No.	Stretch (from	To (km)	Reference to cross section
1	19+130	19+272	TCS – Type-III

(c) Tree plantation shall be done in urban areas as per directions of Engineer-in-Charge

(d) Truck lay byes – **NIL**

(e) Bus Bays/ Bus shelters

S. No.	Locatio	
	Existing	Village / Town
1	0+000	Nongstoin
2	10+000	Kynron

S. No.	Location	
	Existing Chainage	Village / Town
3	18+200	Umsaitshriew
4	21+100	Laitjynrai
5	24+900	Nongba Rangblang
6	34+600	Marium
7	39+600	Umdulun
8	42+600	Wahkaji

(f) Rest Areas - NIL

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 Road.

2 Design Standards

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

[Manual of Specifications and Standards for Two-Laning of Roads (IRC: SP: 73- 2007), referred to herein as the Manual & and MORTH Specifications for Road and Bridge Works]

Annex - I
(Schedule-D)

Specifications and Standards for Construction

1 Specifications and Standards

All Materials, works and construction operations shall conform to the Manual of Specifications and Standards for Two-Laning of Highways (IRC:SP:73-2007), referred to as the Manual, and MORTH Specifications for Road and Bridge Works. Where the specification for a work is not given, Good Industry Practice shall be adopted to the satisfaction of the Authority's Engineer.

2 Deviations from the Specifications and Standards

2.1 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.

SCHEDULE - E

(See Clauses 2.1 and 14.2)

MAINTENANCE REQUIREMENTS

1 **Maintenance Requirements**

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

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

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

2 **Repair/rectification of Defects and deficiencies**

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

3 **Other Defects and deficiencies**

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

4 **Extension of time limit**

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

5 **Emergency repairs/restoration**

Notwithstanding anything to the contrary contained in this Schedule-E, if any

Defect, deficiency or deterioration in the Project Highway poses a hazard to safety or risk of damage to property, the Contractor shall promptly take all reasonable measures for eliminating or minimizing such danger.

6 **Daily inspection by the Contractor**

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

7. Pre-monsoon inspection / Post-monsoon inspection

The Contractor shall carry out a detailed pre-monsoon inspection of all bridges, culverts and drainage system before 1st June every year in accordance with the guidelines contained in IRC: 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 natural calamities

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

Annex - I

(Schedule -E)

Repair/rectification of Defects and deficiencies

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

Nature of deficiency		Time limit for repair/ratification
Roads		
a	**Carriageway and paved shoulders**	
I	Breach or blockade	Temporary restoration of traffic within 24 hours; permanent restoration within 15 (fifteen) days
II	Roughness value exceeding 2,200 mm 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	Bleeding/skidding	7 (seven) days
VII	Any other defects distress on road	15(fifteen) days
VIII	Damage to pavement edges	15(fifteen) days
IX	Removal of debris, dead animals	6 hours
b	**Granular earth shoulders, side slopes, drains and culverts**	
I	Variation by more than 1 % in the prescribed slope of camber/cross fall (shall not be less than the camber on the main carriageway)	7 (seven) days
II	Edge drop at shoulders exceeding 40mm	7 (seven) days
III	Variation by more than 15% in the prescribed 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

Nature of deficiency		Time limit for repair/ratification
		causing safety hazard.
c	**Road side furniture including road sign and pavement marking**	
I	Damage to shape or position, poor visibility or loss of retro-reflectivity	48 hours
II	Painting of km stone, railing, parapets/crash barrier	As and when required /once in a year
III	Damaged/missing road signs requiring replacement	7 (seven) days
IV	Damage to road mark ups	7 (seven) days
d	**Road lighting**	
I	Any major failure of the system	24 hours
II	Faults or minor failures	8 hours
e	**Trees and plantation**	
I	Obstruction in a minimum head-room of 5 m above carriageway or obstruction in visibility of road signs	24 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
f	**Rest Area**	
I	Cleaning of toilets	Every 4 hours
II	Defects in electrical, water and sanitary installations	24 hours
g	**Toll Plazas**	
h	**Other project facilities and approach roads**	
I	Damage in approach roads, pedestrian facilities, truck lay-byes, bus-bays, bus -shelters, cattle crossings, Traffic Aid Posts, Medical Aid Posts and service roads	15 (fifteen) days
II	Damaged vehicles or debris on the road	4 hours
III	Malfunctioning crane	4 hours

Nature of deficiency		Time limit for repair/ratification
BRIDGES		
a	**Superstructures**	
I	Any damage, cracks, scaling Temporary measures Permanent measures	 within 48 hours within 15 (fifteen) days or as specified by the Authority's Engineer
b	**Foundation**	
I	Scouring and/or cavitation	15 (fifteen) days
c	**Piers, abutments, return walls and wing walls**	
I	Cracks and damages including settlement and tilting, spalling, scaling	30 (thirty) days
d	**Bearing (metallic) of bridges**	
I	Deformation, damages, tilting or shifting of bearings	14 (fifteen) days Greasing of metallic bearings once in a year
e	**Joints**	
I	Malfunctioning of joints	15 (fifteen) days
f	**Other items**	
I	Deforming of pads in elastomeric bearings	7 (seven) days
II	Gathering of dirt in bearings and joints; or clogging of spouts, weep holes and vent-holes	3 (three) days
III	Damage or deterioration in kerbs, parapets, handrails and crash barriers	3 (three) days (immediately within 24 hours if posing danger to safety)
IV	Rain cuts or erosion of banks on the side slopes of approaches	7 (seven) days
V	Damage to wearing coat	15 (fifteen) days
VI	Damage or deterioration in Approach slabs, pitching, apron, toes, floor or guide bunds	30 (thirty) days
VII	Growth of vegetation affecting the Structure or obstructing the waterway	15 (fifteen) days
g	**Hill Roads**	
I	Damage to retaining wall/breast wall	7 (seven) days
II	Landslides requiring clearance	12 hours
III	Snow requiring clearance	24 hours

Note: Where necessary, the Authority may modify the time limit for repair/rectification, or add to the nature of Defect or deficiency before issuing the bidding document, with the approval of the competent authority.

SCHEDULE - F

(See Clause 3.1.7(a))

APPLICABLE PERMITS

1 **Applicable Permits**

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

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

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

(c) License for use of explosives;

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

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

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

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

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

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

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

SCHEDULE - G

(See Clauses 7.1.1, 7.5.3 and 19.2)

FORM OF BANK GUARANTEE

Annex-I
(See Clause 7.1.1)
Performance Security

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

WHEREAS:

_____ [**name and address of contractor**] (hereinafter called the "Contractor") and National Highways & Infrastructure Development Corporation Limited, (hereinafter called the "Authority") have entered into an agreement (hereinafter called the "Agreement") for the construction of **"Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section (Design chainage Km. 0.00 to Km. 43.060) in the state of Meghalaya under SARDP-NE"** subject to and in accordance with the provisions of the Agreement

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

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

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

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

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

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

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

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

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

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

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

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

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

10. Any notice by way of request, demand or otherwise hereunder may be sent by

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

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

12. Notwithstanding anything contained herein before, our liability under this Bank Guarantee is restricted to Rs. _____(Rs. _____in words) and the bank guarantee shall remain valid till _____. Unless a claim or a demand in writing is served upon us on or before _____ all our liability under this Bank Guarantee shall cease.

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

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

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

No	rticulars	tails
	me of the Beneficiary	tional Highways and Infrastructure Development Corporation Limited
	neficiary Bank Account No.	0621010002659
	neficiary Bank Branch	SC SYNB0009062
	neficiary Bank Branch Name	ansport Bhawan, New Delhi
	neficiary Bank Address	ndicate Bank, Transport Bhawan, 1st Parliament street, New Delhi-110001

Signed and sealed this ……. day of …….., 20…… at ……..
SIGNED , SEALED AND DELIVERED

For and on behalf of the bank by:

(Signature)

(Name)

(Designation)

(Code Number)

(Address)

Notes:

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

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

Annex – II
(Schedule - G)
(See Clause 7.5.3)

Form for Guarantee for Withdrawal of Retention Money

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

New Delhi - 110001

WHEREAS:

[name and address of contractor] (hereinafter called the "Contractor") has executed an agreement (hereinafter called the "Agreement") with the National Highways and Infrastructure Development Corporation Ltd., (hereinafter called the "Authority") for the **"Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section (Design chainage Km. 0.00 to Km. 43.060) in the state of Meghalaya under SARDP-NE**" subject to and in accordance with the provisions of the Agreement.

(A) In accordance with Clause 7.5.3 of the Agreement, the Contractor may withdraw the retention money (hereinafter called the "Retention Money") after furnishing to the Authority a bank guarantee for an amount equal to the proposed withdrawal.

(B) We, …….. through our branch at ……. (the "Bank") have agreed to furnish this bank guarantee (hereinafter called the "Guarantee") for the amount of Rs. -------- - cr. (Rs.----------crore) (the "Guarantee Amount").

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

1. The Bank hereby unconditionally and irrevocably undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.

2. A letter from the Authority, under the hand of an officer not below the rank of General Manager in the National Highways & Infrastructure Development Corporation Limited, that the Contractor has committed default in the due and faithful performance of all or any of its obligations for under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final, and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.

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

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

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

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

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 date of the Completion Certificate specified in Clause 12.4 of the 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 the Bank.

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

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

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

12. Notwithstanding anything contained herein before, our liability under this Bank Guarantee is restricted to Rs. _____ (Rs. _____in words) and the bank guarantee shall remain valid till _____. Unless a claim or a demand in writing is served upon us on or before _____ all our liability under this Bank Guarantee shall cease.

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

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

No	rticulars	tails
	me of the Beneficiary	tional Highways and Infrastructure Development Corporation Limited
	neficiary Bank Account No.	0621010002659
	neficiary Bank Branch	SC SYNB0009062
	neficiary Bank Branch Name	ansport Bhawan, New Delhi
	neficiary Bank Address	ndicate Bank, Transport Bhawan, 1st Parliament street, New Delhi-110001

Signed and sealed this ……. day of …….., 20…… at ……..
SIGNED , SEALED AND DELIVERED

For and on behalf of the bank by:

(Signature)

(Name)

(Designation)

(Code Number)

(Address)
Notes:

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

(iv) 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 – III
(Schedule - G)
(See Clause 19.2)

Form for Guarantee for Advance Payment

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

WHEREAS:

[name and address of contractor] (hereinafter called the "Contractor") has executed an agreement (hereinafter called the "Agreement") with the National Highways and Infrastructure Corporation Ltd., (hereinafter called the "Authority") for the **"Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section (Design chainage Km. 0.00 to Km. 43.060) in the state of Meghalaya under SARDP-NE"**, subject to and in accordance with the provisions of the Agreement

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

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

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

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful repayment on time of the aforesaid instalment of the Advance Payment under and in

---

[$] *The Guarantee Amount should be equivalent to 110% of the value of the applicable instalment.*

accordance with the Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.

2. A letter from the Authority, under the hand of an officer not below the rank of General Manager in the National Highways & Infrastructure Development Corporation Limited, that the Contractor has committed default in the due and faithful performance of all or any of its obligations for the repayment of the instalment of the Advance Payment under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.

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

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

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

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

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

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

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

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

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

12. Notwithstanding anything contained herein before, our liability under this Bank Guarantee is restricted to Rs. _____(Rs. _____in words) and the bank guarantee shall remain valid till _____. Unless a claim or a demand in writing is served upon us on or before _____ all our liability under this Bank Guarantee shall cease.

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

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

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

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

Signed and sealed this ……. day of …….., 20…… at ……..
SIGNED , SEALED AND DELIVERED

For and on behalf of the bank by:

(Signature)

(Name)

(Designation)

(Code Number)

(Address)

Notes:

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

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

Schedule-H

(See Clauses 10.1.4 and 19.3)

Contract Price Weightages

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

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

Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage to Particular item(col:2)
1	2	3	4
Road works including culverts, minor bridges, Underpasses, overpasses, approaches to ROB/RUB/ Major Bridges/ Structures (but excluding service roads)	80.52 %	A- <u>New 2-lane realignment/ bypass</u> (1) Earthwork up to top of the sub-grade (2) Granular work (sub-base, base, shoulders) (3) Bituminous work (4) Widening & repair of culverts (5) Widening & repair of minor bridges B- <u>Existing 2-lane alignment</u> 1. Earthwork up to top of the sub-grade 2. Granular work (sub-base, base, shoulders) 3. Bituminous work 4. Widening & repair of culverts 5. Widening & repair of minor bridges	3.78% 10.97% 8.14% 0.00% 0.00% 6.65% 21.60% 18.98% 0.0% 0.0%

Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage to Particular item(col:2)
1	2	3	4
		C- New culverts, minor bridges, underpasses, overpasses on existing road, realignments, bypasses: (1) Culverts (2) Minor bridges (3) Cattle/Pedestrian underpasses (4) Pedestrian overpasses (5) Grade separated structures (a) Underpasses (b) Overpass	 19.70% 10.18% 0.00% 0.00% 0.00% 0.00%
Major Bridge works	4.72%	A-Widening and repairs of major bridges (1)Foundation (2)Sub-structure (3)Super-structure (including crash barriers etc. complete) B-Widening and repair of (a) ROB (b) RUB C-New major bridges (1)Foundation (2)Sub-structure (3)Super-structure (including crash barriers etc. complete) (4) Protection Works D-New rail-road bridges (a) ROB	 0% 0% 0% 0% 0% 10.94% 56.18% 32.86% 0.02% 0% 0%
Structures (elevated sections, reinforced earth)	0.0%	(1) Foundation (2) Sub-structure (3) Super-structure (including crash barriers etc. complete)	0% 0% 0% 0%

Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage to Particular item(col:2)
1	2	3	4
Other works	14.76%	(i)Service roads/Slip Roads	0%
		(ii)Toll Plaza	0%
		(iii)Road side drains	5.73%
		(iv)Road signs, markings, km stones, Boundary stones, safety devices etc.	19.34%
		(v)Project facilities	
		a) Bus bye/Bus shelter	3.20%
		b) Truck lay bye	0.00%
		c) Others (Traffic Aid Post, Vehicle Rescue, Lighting etc.)	0.00%
		(vi)Repairs to bridges/ structures	0.00%
		a) Providing wearing cost	0.00%
		b) Replacement of bearings, joints	0.00%
		c) Providing crash barriers	0.00%
		d) Other items	0.00%
		(vii) Road side plantation	0.00%
		(viii) Protection works	1.96%
		(ix) Site Clearance	10.27%
		(x) Safety and traffic management during construction	10.27%
		(xi) Junctions	49.23%
		(xii) Retaining Wall/ Breast wall	0.00%
		(xiii) Miscellaneous items- Vehicle, Phone, Photographs, Lighting etc.	

Procedure of estimating the value of work done.

Road works including approaches to minor bridges, Major Bridges and Structures (excluding service roads).

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

Table 1.3.1

Stage of Payment	Percentage – weightage	Payment Procedure
A- New 2-lane realignment, bypass		Unit of measurement is linear length. Payment of each stage shall be made on pro- rata basis on completion of a stage in full length or 4.3 (four point three) km
(1) Earthwork up to top of the sub-grade	3.78%	
(2) Granular work (sub-base, base, shoulders)	10.97%	
(3) Bituminous work	8.14%	
(4) CC Pavement	0.00%	
B- Existing 2-lane alignment		
(1) Earthwork up to top of the sub-grade	6.65%	
(2) Granular work (sub-base, base, shoulders)	21.60%	
(3) Bituminous work	18.98%	
(4) CC Pavement	0.0%	
C- New culverts, minor bridges, underpasses, overpasses on existing road, realignments, bypasses:		
(1) Culverts	19.70%	Cost of each culvert shall be determined on pro- rata basis with respect to the total number of culverts. Payment shall be made on the completion of five culverts.
(2) Minor bridges	10.18%	Cost of each minor bridge shall be determined on pro- rata basis with respect to the total linear length of the minor bridges. Payment shall be made on the completion of a minor bridge.

Stage of Payment	Percentage – weightage	Payment Procedure
(3) Cattle/Pedestrian underpasses	0%	Cost of each underpass shall be determined on pro- rata basis with respect to the total number of cattle/pedestrian underpasses. Payment shall be made on the completion of the number of underpasses specified below: Total no. Stage for Payment (i) 1 to 5 - on completion of all, (ii) 6 or more - on completion of five
(4) Pedestrian Overpasses	0%	Same as for (3) above
(5) Grade separated structures (a) Underpasses (b) Overpasses	 0% 0%	 Same as for (3) above Same as for (3) above

@ 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 (1), (2) and (4) above shall be worked out.

Major Bridge works

Procedure for estimating the value of Major Bridge works shall be as stated in table 1.3.2:

Table 1.3.2

Stage of Payment	Weightage	Payment Procedure
A - Widening and repairs of Major Bridges		
(1) Foundation: On completion of the foundation work including foundations for wing and return walls	0%	Cost of each Major Bridge (widening and repairs) shall be determined on pro-rata basis with respect to the total linear length (m) of the Major Bridges
(2) Sub-structure: On completion of abutments, piers up to	0%	

Stage of Payment	Weightage	Payment Procedure
abutment/pier cap		shall be made on completion of each stage of a Major Bridge as per the weightage given in this table.
(3) Super-structure: On completion of the super structure in all respects including hand rails/crash barriers, wing walls, return walls, guide bunds, if any, tests on completion etc., bridge complete in all respects and fit for use	0%	
B - Widening and repairs of		
(a) ROB	0%	Cost of each ROB/RUB (widening and repairs) shall be determined on pro-rata basis respect to the total linear (m) of the ROB/RUB (widening and repairs). Payment shall be made on completion of a ROB/RUB.
(b) RUB	0%	
C - New Major Bridges		
(1) Foundation: On completion of the foundation work including foundations for wing and return walls.	10.94%	Cost of each major bridge shall be determined on pro- rata basis with respect to the total linear length (m) of the major bridges. Payment shall be made on completion of each stage of a major bridge as per the weightage given in this table.
(2) Sub-structure: On completion of abutments/ piers up to the abutment/pier cap	56.18%	
(3) Super-structure: On completion of the super structure in all respects including hand rails/crash barriers, wing walls, return walls, guide bunds, if any, tests on completion etc., complete in all respects and fit for use	32.86%	
D - New Rail-road bridges (a) ROB (b) RUB	 0% 0%	Cost of each ROB/RUB shall be determined on pro-rata basis respect to the total linear (m) of the ROB/RUB. Payment shall be made on completion of a ROB/RUB.

Structures

Procedure for estimating the value of structure work shall be as stated in table 1.3.3:

Table 1.3.3

Stage of payment	Weightage	Payment procedure
(1) Foundation: On completion of the foundation works including foundations for wing and return walls	0%	Cost of each structure shall be determined on pro rata basis in respect to the total linear length (m) of all the structures. Payment shall be made on completion of each stage of a structure as per the weightage given in this table.
(2) Sub-structure: On completion of abutments, piers up to the abutment/pier cap	0%	
(3) Super-structure: On completion of the Structure along with super structure, including hand rails/crash barriers, wing walls, return walls, tests on completion etc., elevated structur e complete in all respects	0%	
(4) Reinforced Earth work	0%	Payment shall be made on pro rata basis on completion of 25 (twenty five) percent of total area.

Other works.

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

Table 1.3.4

Stage of Payment	**Weightage**	**Payment Procedure**
(i) Service Roads/Slip Roads	0%	Unit of measurement is linear length in km. Cost per km shall be determined on pro- rata basis with respect to the total length of the service roads. Payment shall be made for completed service road in a length of not less than 20 (twenty) percent of the total length of service roads
(ii) Toll plaza	0%	Unit of measurement is each completed toll plaza. Payment of each toll plaza shall be made on pro- rata basis with respect to

Stage of Payment	Weightage	Payment Procedure
		total of all toll plazas.
(iii) Road side drains	5.73%	Unit of measurement is linear length in km. Payment shall be made on pro-rata basis on completion of a stage in a length of not less than 10% (ten per cent) of the total length.
(iv) Road signs, markings, km stones, Boundary Stones, safety devices etc.	19.34%	
(v) Project Facilities a)Bus bays/Bus shelter b) Truck lay bye c)Others (Traffic Aid Post, Vehicle Rescue, Lighting etc.)	 3.20% 0.00% 0.00%	Payment shall be made on pro rata basis for completed facilities.
(vi) Repairs to existing bridges/structures		Payment shall be made for completed items.
a) Providing wearing coat	0.00%	
b) Replacement of bearing, joints	0.00%	
c) Providing crash barriers	0.00%	
d) Other items	0.10%	
(vii) Road side plantation	0.00%	Unit of measurement is linear length. Payment shall be made on pro-rata basis on completion of a stage in a length of not less than 10% (ten per cent) of the total length.
(viii) Protection works	0.00%	
(ix) Site Clearance	1.86%	
(x) Safety and traffic management during construction	10.27%	Payment shall be made on pro-rate basis on every six months.
(xi) Junctions	10.27%	Unit of measurement is Number. Payment shall be made on pro-rata basis on completion of a stage in a number of not less

Stage of Payment	Weightage	Payment Procedure
		10% (ten per cent) of the total number.
(xii) Retaining Wall/ Breast Wall	49.23%	Unit of measurement is linear length. Payment shall be made on pro-rata basis on completion of a stage in a length of not less than 10% (ten per cent) of the total length
(xiii) Miscellaneous items - Vehicle, Phone, Photographs, Lighting etc.	0.00%	Payment shall be made on pro-rata basis on every three months.

2. Procedure for payment for Maintenance

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

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

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. Additional Drawings

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

Annex-I

(Schedule-I)

List of Drawings

Note: The Authority shall describe in this Annex – I all the Drawings that the Contractor is required to furnish under Clause 10.2.

1. All the Drawings that the Contractor is required to furnish under Clause 10.2 Specifying the Drawings for Two-Laning with earthen shoulders are as under:

- Horizontal and Vertical Alignment with details of reference pillars. Horizontal Intersection Point, Vertical Intersection Points, elements of curves, and sight distances.
- Cross-section at 50m interval along the alignment within ROW
- Typical Cross-section with details of pavement structures
- Detailed drawings of individual Bridges/ Structures/ROB
- Detailed drawings for individual culverts
- Detailed layout drawings for intersections and interchanges
- Drawings for Road sign, Markings, Bus bays, Parking areas
- Street lighting
- Landscaping & Tree Plantation
- Vehicle rescue post
- Traffic Management drawings for safety in construction zones
- Detailed drawings of road side furniture and safety structures
- Detailed drawings of guide bunds and protection works
- Detailed drawings of Drainage including RCC covered drains and Chute drains.

SCHEDULE - J

(See Clause 10.3.2)

PROJECT COMPLETION SCHEDULE

1 **Project Completion Schedule**

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

2 **Project Milestone-I**

2.1 Project Milestone-I shall occur on the date falling on the 180th (one hundred and eightieth) day from the Appointed Date (the "Project Milestone-I").

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

3 **Project Milestone-II**

3.1 Project Milestone-II shall occur on the date falling on the 365th (Three hundred and Sixty fifth) day from the Appointed Date (the "Project Milestone-II").

3.2 Prior to the occurrence of Project Milestone-II, the Contractor shall have continued with construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 30% (Thirty per cent) of the Contract Price.

4 **Project Milestone-III**

4.1 Project Milestone-III shall occur on the date falling on the 650^{th} (Six hundred and fiftieth) day from the Appointed Date (the "Project Milestone- III").

4.2 Prior to the occurrence of Project Milestone-III, the Contractor shall have continued with construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 60% (Sixty per cent) of the Contract Price.

5 **Scheduled Completion Date**

5.1 The Scheduled Completion Date shall occur on the 910th (Nine Hundred and tenth) day from the Appointed Date.

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

6 **Extension of time**

Upon extension of any or all of the aforesaid Project Milestones or the Scheduled Completion Date, as the case may be, under and in accordance with the 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 for Tests**

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

1.2 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**

2.1 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 required for quality control or as decided in consultation with the Authority's Engineer at the time of physical tests as per relevant IRC code Manual .

2.2 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 2,000 (two thousand) mm for each kilometer.

2.3 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 Non destructive Testing Techniques, at two spots in every span, to be chosen at random by the Authority's Engineer. Bridges with a span of 15 (fifteen) metres or more shall also be subjected to load testing.

2.4 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.

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

2.6 Safety Audit: The Authority's Engineer shall carry out, or cause to be carried out, a

safety audit to determine conformity of the Project Highway with the safety requirements and Good Industry Practice.

3 **Agency for conducting Tests**

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

4 **Completion Certificate**

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

SCHEDULE - L

(See Clause 12.2 and 12.4)

PROVISIONAL CERTIFICATE

1 I, ……. (Name of the Authority's Engineer), acting as the Authority's Engineer, under and in accordance with the Agreement dated ……. (the "Agreement"), for **"Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section (Design chainage Km. 0.00 to Km. 43.060) in the state of Meghalaya under SARDP-NE"** on Engineering, Procurement and Construction (EPC) basis through …… (Name of Contractor), hereby certify that the Tests in accordance with Article 12 of the Agreement have been undertaken to determine compliance of the Project Highway with the provisions of the Agreement.

2 Works that are incomplete on account of Time Extension have been specified in the Punch List appended hereto, and the Contractor has agreed and accepted that it shall complete all such works in the time and manner set forth in the Agreement. In addition, certain minor works are incomplete and these are not likely to cause material inconvenience to the Users of the Project Highway or affect their safety. The Contractor has agreed and accepted that as a condition of this Provisional Certificate, it shall complete such minor works within 30 (thirty) days hereof. These minor works have also been specified in the aforesaid Punch List.

3 In view of the foregoing, I am satisfied that the **"Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section (Design chainage Km. 0.00 to Km. 43.060) in the state of Meghalaya under SARDP-NE"**, can be safely and reliably placed in service of the Users thereof, and in terms of the Agreement, the Project Highway is hereby provisionally declared fit for entry into operation on this the …… day of …….. 20…...

ACCEPTED, SIGNED, SEALED And DELIVERED For and on behalf of CONTRACTOR by: by:	SIGNED, SEALED and DELIVERED For and on behalf of AUTHORITY ENGINEER

COMPLETION CERTIFICATE

1 I, ……. (Name of the Authority's Engineer), acting as the Authority's Engineer, under and in accordance with the Agreement dated …… (the "Agreement"), for **"Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section (Design chainage Km. 0.00 to Km. 43.060) in the state of Meghalaya under SARDP-NE"** on Engineering, Procurement and Construction (EPC) basis through ……. (Name of Contractor), hereby certify that the Tests in accordance with Article 12 of the Agreement have been successfully undertaken to determine compliance of the Project Highway with the provisions of the Agreement, and I am satisfied that the Project Highway can be safely and reliably placed in service of the Users thereof.

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

SIGNED, SEALED AND
DELIVERED For and on behalf of the Authority's Engineer by:

(Signature)

(Name)

(Designation)

(Address)

SCHEDULE - M

(See Clauses 14.6, 15.2 and 19.7)

PAYMENT REDUCTION FOR NON-COMPLIANCE

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

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

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

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

2. Percentage reductions in lump sum payments

2.1 The following percentages shall govern the payment reduction:

Sl No	Item/Defect/Deficiency	Percentage (%)
a	**Carriageway/Pavement**	
I	Potholes, cracks, other surface defects	15
II	Repair 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

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

R=P/IOO x M x L1/L
Where P = Percentage of particular item/Defect/deficiency for deduction

M = Monthly lump-sum payment in accordance with the Bid
L1 = Non-complying Length
L = Total length of the road

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

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

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

SCHEDULE - N

(See Clause 18.1.1)

SELECTION OF AUTHORITY'S ENGINEER

1 **Selection of Authority's Engineer**

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

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

2 **Terms of Reference**

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

3 **Appointment of Government entity as Authority's Engineer**

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

Annex – I

(Schedule - N)

TERMS OF REFERENCE FOR AUTHORITY'S ENGINEER

1 **Scope**

1.1 These Terms of Reference (the "TOR") for the Authority's Engineer are being specified pursuant to the EPC Agreement dated ..... (the "Agreement), which has been entered into between the National Highways and Infrastructure Development Corporation Ltd. (the "Authority") and ..... (the "Contractor") for the **"Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section (Design chainage Km. 0.00 to Km. 43.060) in the state of Meghalaya under SARDP-NE"**, on Engineering, Procurement, Construction (EPC) basis, and a copy of which is annexed hereto and marked as Annex-A to form part of this TOR.

1.2 The TOR shall apply to construction and maintenance of the Project Highway.

2 **Definitions and interpretation**

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

2.2 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.

2.3 The rules of interpretation stated in Clauses 1.2, 1.3 and 1.4 of the Agreement shall apply, mutatis mutandis, to this TOR.

3. General

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

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

(a) any Time Extension;

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

(c) the Termination Payment; or

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

3.3 The Authority's Engineer shall submit regular periodic reports, at least once every month, to the Authority in respect of its duties and functions under this Agreement.

Such reports shall be submitted by the Authority's Engineer within 10 (ten) days of the beginning of every month.

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

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

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

4 Construction Period

4.1 During the Construction Period, the Authority's Engineer shall review 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 10.1.6. The Authority's Engineer shall complete such review 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.

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

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

4.4 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 the Contractor.

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

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

4.7 The Authority's Engineer shall inspect the Construction Works and the Project Highway and shall submit a monthly Inspection Report bringing out the results of

inspections and the remedial action taken by the Contractor in respect of Defects or deficiencies. In particular, the Authority's Engineer shall include in its Inspection Report, the compliance of the recommendations made by the Safety Consultant.

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

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

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

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

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

4.13 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.

4.14 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.

4.15 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 Clause 12.4.

4.16 Authority's Engineer may recommend to the Authority suspension of the whole or part of the Works if the work threatens the safety of the Users and pedestrians. After the Contractor has carried out remedial measure, the Authority's Engineer

shall inspect such remedial measures forthwith and make a report to the Authority recommending whether or not the suspension hereunder may be revoked.

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

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

5. Maintenance Period

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

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

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

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

5.5 The Authority's Engineer shall examine the request of the Contractor for closure of any lane(s) of the Project Highway for undertaking maintenance/repair thereof, and shall grant permission with such modifications, as it may deem necessary, within 5 (five) days of receiving a request from the Contractor. Upon expiry of the permitted period of closure, the Authority's Engineer shall monitor the reopening of such lane(s), and in case of delay, determine the Damages payable by the Contractor to the Authority under Clause 14.5.

6 **Determination of costs and time**

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

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

6.3 The Authority's Engineer shall consult each Party in every case of determination in

accordance with the provisions of Clause 18.5.

7. Payments

7.1 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).

7.2 Authority's Engineer shall -

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

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

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

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

8. Other duties and functions

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

9 **Miscellaneous**

9.1 A copy of all communications, comments, instructions, Drawings or Documents sent by the Authority's Engineer to the Contractor pursuant to this TOR, and a copy of all the test results with comments of the Authority's Engineer thereon, shall be furnished by the Authority's Engineer to the Authority forthwith.

9.2 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.

9.3 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.

9.4 The Authority's Engineer, if called upon by the Authority or the Contractor or both, shall mediate and assist the Parties in arriving at an amicable settlement of any

Dispute between the Parties.

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

SCHEDULE - O

(*See Clauses 19.4.1, 19.6.1, and 19.8.1***)**

Forms of Payment Statements

1. Stage Payment Statement for Works

The Stage Payment Statement for Works shall state:

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

(b) Amounts reflecting adjustments in price for the aforesaid claim;

(c) The estimated amount of each Change of Scope Order executed subsequent to the last claim

(d) Amounts reflecting adjustment in price, if any, for (c) above in accordance with the provisions of Clause 13.2.3 (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 up to the last claim:

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

(ii) For Change of Scope Orders, and

(iii) Taxes deducted

2. Monthly Maintenance Payment Statement

The monthly Statement for Maintenance Payment shall state:

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

(b) the deductions for maintenance work not done;

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

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

(e) amount towards deduction of taxes

3. Contractor's claim for Damages

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

SCHEDULE - P
(See Clause 20.1)

INSURANCE

1. Insurance during Construction Period

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

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

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

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

2. Insurance for Contractor's Defects Liability

The Contractor shall effect and maintain insurance cover for the Works from the date of issue of the Completion Certificate until the end of the Defects Liability Period for any loss or damage for which the Contractor is liable and which arises from a cause occurring prior to the issue of the Completion Certificate. The Contractor shall also maintain other insurances for maximum sums as may be required under the Applicable Laws and in accordance with Good Industry Practice.

3. Insurance against injury to persons and damage to property

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

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

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

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

4. Insurance to be in joint names

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