NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.
(Ministry of Road, Transport & Highways)
Government of India

Schedules

FOR

"Balance work for Construction of two-Lane with hard shoulders of Merangkong – Tamlu – Mon Road on EPC basis from existing Km 20.456 to Km 41.065 [Design Km. 20+000 to Km. 40+000] (Design Length – 20.000 Km) in the state of Nagaland under SARDP-NE Phase A"

Engineering, Procurement & Construction (EPC) Mode

BID DOCUMENT

February-2023

National Highways & Infrastructure Development Corporation Ltd
(A Government of India Undertaking)

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(See Clause 2.1 and 8.1)

SITE OF THE PROJECT

1 The Site

1.1 Site of the Single / Two-Laning of Existing Merangkong – Tamlu – Mon Road on EPC basis from Existing km 20+456 to km 41+065 (Design km 20+000 to km 40+000) in the state of Nagaland under SARDP-NE, 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(i) of this Agreement.

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

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

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Annex – I

(Schedule-A)

Site

1. Site

The site of the Single / Two-Laning of Existing Merangkong – Tamlu – Mon Road on EPC basis from Existing km 20+456 to km 41+065 (Design km 20+000 to km 40+000) in the state of Nagaland under SARDP-NE,.

The Land, carriageway and structures comprising the site are described below.

(i) Details of Earth work up to Sub_Grade

Sl. No.	Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor	As per Site Condition
	From	To				
1	**20+000**	**20+035**	35	Realignment	SG	
2	20+035	20+200	165	Widening & strengthening	SG	
3	**20+200**	**20+245**	45	Realignment	SG	
4	20+245	20+350	105	Widening & strengthening	SG	
5	**20+350**	**20+395**	45	Realignment	SG	
6	20+395	20+450	55	Widening & strengthening	SG	
7	20+450	20+550	100	Widening & strengthening	Earth Work in Progress	
8	20+550	20+650	100	Widening & strengthening	SG	
9	20+650	20+660	10	Widening & strengthening	SG	
10	20+660	20+715	55	Widening & strengthening	SG	
11	**20+715**	**20+790**	75	Realignment	SG	
12	**20+790**	**20+800**	10	Realignment	SG	
13	20+800	20+940	140	Widening & Strengthening	SG	
14	**20+940**	**21+030**	90	Realignment	SG	
15	21+030	21+050	20	Widening & Strengthening	SG	
16	21+050	21+350	300	Widening & Strengthening	SG	
17	**21+350**	**21+430**	80	Realignment	SG	
18	**21+430**	**21+450**	20	Realignment	SG	
19	21+450	21+630	180	Widening & Strengthening	SG	
20	21+630	21+650	20	Widening & Strengthening	SG	
21	21+650	21+740	90	Widening & Strengthening	SG	
22	**21+740**	**21+770**	30	Realignment	SG	
23	21+770	21+850	80	Widening & Strengthening	SG	
24	21+850	21+990	140	Widening & Strengthening	SG	
25	**21+990**	**22+120**	130	Realignment	SG	
26	22+120	22+130	10	Realignment	SG	
27	22+130	23+000	870	Widening & Strengthening	SG	
28	23+000	23+150	150	Widening & Strengthening	SG	

Sl. No.	Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor	As per Site Condition
	From	To				
29	23+150	23+280	130	Widening & Strengthening	SG	
30	**23+280**	**23+320**	**40**	**Widening & Strengthening**	**Earth work in progress**	
31	**23+320**	**23+335**	**15**	**Widening & Strengthening**	**Earth work in progress**	
32	**23+335**	**23+350**	15	Realignment	SG	
33	**23+350**	**23+400**	50	Realignment	SG	
34	23+400	23+450	50	Widening & Strengthening	SG	
35	23+450	23+840	390	Widening & Strengthening	SG	
36	**23+840**	**23+865**	25	Realignment	SG	
37	23+865	24+035	170	Widening & Strengthening	SG	
38	**24+035**	**24+065**	30	Realignment	SG	
39	24+065	24+110	45	Widening & Strengthening	SG	
40	24+110	24+200	90	Widening & Strengthening	SG	
41	24+200	24+260	60	Widening & Strengthening	SG	
42	**24+260**	**24+355**	95	Realignment	SG	
43	24+355	24+440	85	Widening & Strengthening	SG	
44	24+440	24+460	20	Widening & Strengthening	SG	
45	24+460	24+725	265	Widening & Strengthening	SG	
46	**24+725**	**24+970**	245	Realignment	SG	
47	**24+970**	**25+000**	30	Realignment	SG	
48	**25+000**	**25+100**	**100**	**Widening &strengthening**	**Earth work in progress**	
49	25+100	25+200	100	Widening & Strengthening	S G	
50	25+200	25+250	50	Widening & Strengthening	S G	
51	25+250	25+440	190	Widening & Strengthening	S G	
52	**25+440**	**25+465**	25	Realignment	S G	
53	25+465	25+530	65	Widening & Strengthening	S G	
54	25+530	25+540	10	Widening & Strengthening	S G	
55	25+540	25+560	20	Widening & Strengthening	S G	
56	**25+560**	**25+620**	60	Realignment	S G	
57	25+620	25+850	230	Widening & Strengthening	S G	
58	**25+850**	**25+980**	130	Realignment	S G	
59	**25+980**	**26+010**	30	Realignment	S G	
60	**26+010**	**26+070**	60	Realignment	S G	
61	**26+070**	**26+100**	30	Realignment	S G	
62	26+100	26+210	110	Widening & Strengthening	S G	
63	26+210	26+235	25	Widening & Strengthening	S G	
64	**26+235**	**26+320**	85	Realignment	S G	
65	**26+320**	**26+460**	140	Realignment	S G	
66	26+460	26+650	190	Widening & Strengthening	S G	
67	26+650	26+700	50	Widening & Strengthening	S G	
68	**26+700**	**26+730**	30	Realignment	S G	

Sl. No.	Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor	As per Site Condition
	From	To				
69	26+730	26+900	170	Widening & Strengthening	S G	
70	26+900	26+905	5	Widening & Strengthening	S G	
71	**26+905**	**26+950**	45	Realignment	S G	
72	**26+950**	**26+955**	5	Realignment	S G	
73	26+955	26+960	5	Widening & Strengthening	S G	
74	26+960	26+990	30	Widening & Strengthening	S G	
75	26+990	27+150	160	Widening & Strengthening	S G	
76	27+150	27+190	40	Widening & Strengthening	S G	
77	27+190	27+600	410	Widening & Strengthening	S G	
78	**27+600**	**27+750**	150	Realignment	S G	
79	27+750	27+850	100	Widening & Strengthening	S G	
80	**27+850**	**27+900**	50	Realignment	S G	
81	27+900	28+040	140	Widening & Strengthening	S G	
82	28+040	28+110	70	Widening & Strengthening	S G	
83	28+110	28+270	160	Widening & Strengthening	S G	
84	28+270	28+360	90	Widening & Strengthening	S G	
85	**28+360**	**28+410**	50	Realignment	S G	
86	28+410	28+490	80	Widening & Strengthening	S G	
87	**28+490**	**28+500**	10	Realignment	S G	
88	**28+500**	**28+700**	200	Realignment	S G	
89	28+700	28+750	50	Widening & Strengthening	S G	
90	28+750	28+790	40	Widening & Strengthening	S G	
91	28+790	28+940	150	Widening & Strengthening	S G	
92	28+940	29+030	90	Widening & Strengthening	S G	
93	29+030	29+090	60	Widening & Strengthening	S G	
94	29+090	29+150	60	Widening & Strengthening	S G	
95	29+150	29+170	20	Widening & Strengthening	S G	
96	29+170	29+220	50	Widening & Strengthening	S G	
97	29+220	29+230	10	Widening & Strengthening	S G	
98	29+230	29+320	90	Widening & Strengthening	S G	
99	29+320	29+390	70	Widening & Strengthening	S G	
100	29+390	29+490	100	Widening & Strengthening	S G	
101	**29+490**	**29+540**	50	Realignment	S G	
102	29+540	29+750	210	Widening & Strengthening	S G	
103	**29+750**	**30+110**	360	Realignment	S G	
104	30+110	30+160	50	Widening & Strengthening	S G	
105	30+160	30+205	45	Widening & Strengthening	S G	
106	**30+205**	**30+300**	95	Realignment	S G	
107	**30+300**	**30+470**	170	Realignment	S G	
108	30+470	31+300	830	Widening & Strengthening	S G	
109	**31+300**	**31+510**	210	Realignment	S G	
110	**31+510**	**31+620**	110	Realignment	S G	

Sl. No.	Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor	As per Site Condition
	From	To				
111	31+620	31+660	40	Widening & Strengthening	S G	
112	31+660	31+730	70	Widening & Strengthening	S G	
113	**31+730**	**31+810**	80	**Widening & Strengthening**	**Work not Done**	**MNB Portion**
114	31+810	31+850	40	Widening & Strengthening	S G	
115	31+850	31+950	100	Widening & Strengthening	SG	
116	31+950	31+960	10	Widening & Strengthening	SG	
117	**31+960**	**32+100**	140	Realignment	SG	
118	32+100	32+240	140	Widening & Strengthening	SG	
119	**32+240**	**32+310**	70	Realignment	SG	
120	32+310	32+400	90	Widening & Strengthening	SG	
121	**32+400**	**32+440**	40	Realignment	SG	
122	32+440	32+545	105	Widening & Strengthening	SG	
123	**32+545**	**32+600**	55	Realignment	SG	
124	**32+600**	**32+665**	65	Realignment	SG	
125	32+665	32+740	75	Widening & Strengthening	SG	
126	**32+740**	**32+790**	50	Realignment	SG	
127	32+790	32+900	110	Widening & Strengthening	SG	
128	**32+900**	**32+960**	60	Realignment	SG	
129	32+960	33+360	400	Widening & Strengthening	SG	
130	**33+360**	**33+500**	140	Realignment	SG	
131	33+500	33+550	50	Widening & Strengthening	SG	
132	33+550	33+650	100	Widening & Strengthening	SG	
133	33+650	33+720	70	Widening & Strengthening	SG	
134	33+720	33+870	150	Widening & Strengthening	SG	
135	33+870	33+910	40	Widening & Strengthening	SG	
136	33+910	34+120	210	Widening & Strengthening	SG	
137	34+120	34+150	30	Widening & Strengthening	SG	
138	34+150	34+280	130	Widening & Strengthening	SG	
139	34+280	34+320	40	Widening & Strengthening	SG	
140	34+320	34+450	130	Widening & Strengthening	SG	
141	**34+450**	**34+535**	85	Realignment	SG	
142	**34+535**	**34+640**	105	Realignment	SG	
143	34+640	34+650	10	Widening & Strengthening	SG	
144	34+650	34+670	20	Widening & Strengthening	SG	
145	**34+670**	**34+715**	45	Realignment	SG	
146	**34+715**	**34+752**	37	**Widening & Strengthening**	**Work not Done**	**MNB Portion**
147	34+752	34+780	28	Widening & Strengthening	S G	
148	34+780	34+810	30	Widening & Strengthening	S G	
149	**34+810**	**34+850**	40	Realignment	S G	
150	**34+850**	**34+855**	5	Realignment	S G	
151	34+855	35+235	380	Widening & Strengthening	S G	
152	**35+235**	**35+260**	25	Realignment	S G	

Sl. No.	Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor	As per Site Condition
	From	To				
153	35+260	35+400	140	Widening & Strengthening	S G	
154	**35+400**	**35+450**	50	Realignment	S G	
155	35+450	35+480	30	Widening & Strengthening	S G	
156	**35+480**	**35+505**	25	Realignment	S G	
157	35+505	35+590	85	Widening & Strengthening	S G	
158	**35+590**	**35+690**	100	Realignment	S G	
159	35+690	35+850	160	Widening & Strengthening	S G	
160	35+850	35+890	40	Widening & Strengthening	S G	
161	**35+890**	**35+920**	**30**	Realignment	S G	
162	**35+920**	**36+030**	**110**	Realignment	S G	
163	36+030	36+080	50	Widening & Strengthening	S G	
164	36+080	36+155	75	Widening & Strengthening	S G	
165	**36+155**	**36+280**	125	Realignment	S G	
166	36+280	36+300	20	Widening & Strengthening	S G	
167	36+300	36+320	20	Widening & Strengthening	S G	
168	**36+320**	**36+400**	80	Realignment	S G	
169	36+400	36+430	30	Widening & Strengthening	S G	
170	36+430	36+450	20	Widening & Strengthening	S G	
171	**36+450**	**36+490**	40	Realignment	S G	
172	36+490	36+595	105	Widening & Strengthening	S G	
173	**36+595**	**36+670**	75	Realignment	S G	
174	36+670	36+710	40	Widening & Strengthening	S G	
175	36+710	36+730	20	Widening & Strengthening	S G	
176	36+730	37+060	330	Widening & Strengthening	S G	
177	**37+060**	**37+100**	40	Realignment	S G	
178	37+100	37+110	10	Widening & Strengthening	S G	
179	37+110	37+130	20	Widening & Strengthening	S G	
180	37+130	37+230	100	Widening & Strengthening	S G	
181	37+230	37+250	20	Widening & Strengthening	S G	
182	37+250	37+515	265	Widening & Strengthening	S G	
183	37+515	37+550	35	Widening & Strengthening	S G	
184	37+550	37+620	70	Widening & Strengthening	S G	
185	37+620	37+640	20	Widening & Strengthening	S G	
186	37+640	37+725	85	Widening & Strengthening	S G	
187	37+725	37+750	25	Widening & Strengthening	S G	
188	37+750	37+850	100	Widening & Strengthening	S G	
189	37+850	38+000	150	Widening & Strengthening	S G	
190	38+000	38+080	80	Widening & Strengthening	S G	
191	38+080	38+120	40	Widening & Strengthening	S G	
192	38+120	38+215	95	Widening & Strengthening	S G	
193	**38+215**	**38+275**	60	Realignment	S G	
194	38+275	38+315	40	Widening & Strengthening	S G	

Sl. No.	Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor	As per Site Condition
	From	To				
195	**38+315**	**38+400**	85	Realignment	S G	
196	38+400	38+435	35	Widening & Strengthening	S G	
197	38+435	38+520	85	Widening & Strengthening	S G	
198	38+520	38+540	20	Widening & Strengthening	S G	
199	38+540	38+560	20	Widening & Strengthening	S G	
200	**38+560**	**38+640**	80	Realignment	S G	
201	**38+640**	**38+660**	20	Realignment	S G	
202	**38+660**	**38+730**	70	Realignment	S G	
203	**38+730**	**38+850**	120	Realignment	S G	
204	**38+850**	**38+940**	**90**	**Widening &strengthening**	**Earth work in progress**	
205	**38+940**	**38+990**	**50**	**Widening &strengthening**	**Work not Done**	**MNB Portion**
206	**38+990**	**39+040**	**50**	**Realignment**	**Earthwork in progress**	
207	**39+040**	**39+120**	80	Realignment	SG	
208	**39+120**	**39+360**	240	Realignment	SG	
209	**39+360**	**39+380**	20	Realignment	SG	
210	**39+380**	**39+480**	100	Realignment	SG	
211	**39+480**	**39+500**	20	Realignment	SG	
212	**39+500**	**39+570**	70	Realignment	SG	
213	**39+570**	**40+000**	**430**	**Realignment**	**Earthwork in progress**	

(ii) Details of GSB Work

Sl. No.	Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor	Remarks
	From	To				
1.	20+000	20+035	35	Realignment	GSB	
2.	20+035	20+200	165	Widening & Strengthening	GSB	
3.	20+200	20+245	45	Realignment	GSB	
4.	20+245	20+350	105	Widening & Strengthening	GSB	
5.	20+350	20+395	45	Realignment	GSB	
6.	20+395	20+450	55	Widening & Strengthening	GSB	
7.	20+550	20+650	100	Widening & Strengthening	GSB	
8.	20+650	20+660	10	Widening & Strengthening	GSB	
9.	20+660	20+715	55	Widening & Strengthening	GSB	
10.	20+715	20+790	75	Realignment	GSB	
11.	20+790	20+800	10	Realignment	GSB	
12.	20+800	20+940	140	Widening & Strengthening	GSB	
13.	20+940	21+030	90	Realignment	GSB	
14.	21+030	21+050	20	Widening & Strengthening	GSB	
15.	21+050	21+350	300	Widening & Strengthening	GSB	
16.	21+350	21+430	80	Realignment	GSB	

Sl. No.	Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor	Remarks
	From	To				
17.	21+430	21+450	20	Realignment	GSB	
18.	21+450	21+630	180	Widening & Strengthening	GSB	
19.	21+630	21+650	20	Widening & Strengthening	GSB	
20.	21+650	21+740	90	Widening & Strengthening	GSB	
21.	21+740	21+770	30	Realignment	GSB	
22.	21+770	21+850	80	Widening & Strengthening	GSB	
23.	21+850	21+990	140	Widening & Strengthening	GSB	
24.	21+990	22+120	130	Realignment	GSB	
25.	22+120	22+130	10	Realignment	GSB	
26.	22+130	23+000	870	Widening & Strengthening	GSB	
27.	23+000	23+150	150	Widening & Strengthening	GSB	
28.	23+150	23+280	130	Widening & Strengthening	GSB	
29.	23+335	23+350	15	Realignment	GSB	
30.	23+350	23+400	50	Realignment	GSB	
31.	23+400	23+450	50	Widening & Strengthening	GSB	
32.	23+450	23+840	390	Widening & Strengthening	GSB	
33.	23+840	23+865	25	Realignment	GSB	
34.	23+865	24+035	170	Widening & Strengthening	GSB	
35.	24+035	24+065	30	Realignment	GSB	
36.	24+065	24+110	45	Widening & Strengthening	GSB	
37.	24+110	24+200	90	Widening & Strengthening	GSB	
38.	24+200	24+260	60	Widening & Strengthening	GSB	
39.	24+260	24+355	95	Realignment	GSB	
40.	24+355	24+440	85	Widening & Strengthening	GSB	
41.	24+440	24+460	20	Widening & Strengthening	GSB	
42.	24+460	24+725	265	Widening & Strengthening	GSB	
43.	24+725	24+970	245	Realignment	GSB	
44.	24+970	25+000	30	Realignment	GSB	
45.	25+100	25+200	100	Widening & Strengthening	GSB	
46.	25+200	25+250	50	Widening & Strengthening	GSB	
47.	25+250	25+440	190	Widening & Strengthening	GSB	
48.	25+440	25+465	25	Realignment	GSB	
49.	25+465	25+530	65	Widening & Strengthening	GSB	
50.	25+530	25+540	10	Widening & Strengthening	GSB	
51.	25+540	25+560	20	Widening & Strengthening	GSB	
52.	25+560	25+620	60	Realignment	GSB	
53.	25+620	25+850	230	Widening & Strengthening	GSB	
54.	25+850	25+980	130	Realignment	GSB	
55.	25+980	26+010	30	Realignment	GSB	
56.	26+010	26+070	60	Realignment	GSB	
57.	26+070	26+100	30	Realignment	GSB	

Sl. No.	Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor	Remarks
	From	To				
58.	26+100	26+210	110	Widening & Strengthening	GSB	
59.	26+210	26+235	25	Widening & Strengthening	GSB	
60.	26+235	26+320	85	Realignment	GSB	
61.	26+320	26+460	140	Realignment	GSB	
62.	26+460	26+650	190	Widening & Strengthening	GSB	
63.	26+650	26+700	50	Widening & Strengthening	GSB	
64.	26+700	26+730	30	Realignment	GSB	
65.	26+730	26+900	170	Widening & Strengthening	GSB	
66.	26+900	26+905	5	Widening & Strengthening	GSB	
67.	26+905	26+950	45	Realignment	GSB	
68.	26+950	26+955	5	Realignment	GSB	
69.	26+955	26+960	5	Widening & Strengthening	GSB	
70.	26+960	26+990	30	Widening & Strengthening	GSB	
71.	26+990	27+150	160	Widening & Strengthening	GSB	
72.	27+150	27+190	40	Widening & Strengthening	GSB	
73.	27+190	27+600	410	Widening & Strengthening	GSB	
74.	27+600	27+750	150	Realignment	GSB	
75.	27+750	27+850	100	Widening & Strengthening	GSB	
76.	27+850	27+900	50	Realignment	GSB	
77.	27+900	28+040	140	Widening & Strengthening	GSB	
78.	28+040	28+110	70	Widening & Strengthening	GSB	
79.	28+110	28+270	160	Widening & Strengthening	GSB	
80.	28+270	28+360	90	Widening & Strengthening	GSB	
81.	28+360	28+410	50	Realignment	GSB	
82.	28+410	28+490	80	Widening & Strengthening	GSB	
83.	28+490	28+500	10	Realignment	GSB	
84.	28+500	28+700	200	Realignment	GSB	
85.	28+700	28+750	50	Widening & Strengthening	GSB	
86.	28+750	28+790	40	Widening & Strengthening	GSB	
87.	28+790	28+940	150	Widening & Strengthening	GSB	
88.	28+940	29+030	90	Widening & Strengthening	GSB	
89.	29+030	29+090	60	Widening & Strengthening	SG	
90.	29+090	29+150	60	Widening & Strengthening	GSB	
91.	29+150	29+170	20	Widening & Strengthening	GSB	
92.	29+170	29+220	50	Widening & Strengthening	GSB	
93.	29+220	29+230	10	Widening & Strengthening	GSB	
94.	29+230	29+320	90	Widening & Strengthening	GSB	
95.	29+320	29+390	70	Widening & Strengthening	GSB	
96.	29+390	29+490	100	Widening & Strengthening	GSB	
97.	29+490	29+540	50	Realignment	GSB	
98.	29+540	29+750	210	Widening & Strengthening	GSB	

Sl. No.	Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor	Remarks
	From	To				
99.	29+750	30+110	360	Realignment	GSB	
100.	30+110	30+160	50	Widening & Strengthening	GSB	
101.	30+160	30+205	45	Widening & Strengthening	GSB	
102.	30+205	30+300	95	Realignment	GSB	
103.	30+300	30+470	170	Realignment	GSB	
104.	30+470	31+300	830	Widening & Strengthening	GSB	
105.	31+300	31+510	210	Realignment	GSB	
106.	31+510	31+620	110	Realignment	GSB	
107.	31+620	31+660	40	Widening & Strengthening	GSB	
108.	31+950	31+960	10	Widening & Strengthening	GSB	
109.	31+960	32+100	140	Realignment	GSB	
110.	32+100	32+240	140	Widening & Strengthening	GSB	
111.	32+240	32+310	70	Realignment	GSB	
112.	32+310	32+400	90	Widening & Strengthening	GSB	
113.	32+400	32+440	40	Realignment	GSB	
114.	32+440	32+545	105	Widening & Strengthening	GSB	
115.	32+545	32+600	55	Realignment	GSB	
116.	32+600	32+665	65	Realignment	GSB	
117.	32+665	32+740	75	Widening & Strengthening	GSB	
118.	32+740	32+790	50	Realignment	GSB	
119.	32+790	32+900	110	Widening & Strengthening	GSB	
120.	32+900	32+960	60	Realignment	GSB	
121.	32+960	33+360	400	Widening & Strengthening	GSB	
122.	33+360	33+500	140	Realignment	GSB	
123.	33+500	33+550	50	Widening & Strengthening	GSB	
124.	33+550	33+650	100	Widening & Strengthening	GSB	
125.	33+650	33+720	70	Widening & Strengthening	GSB	
126.	33+720	33+870	150	Widening & Strengthening	GSB	
127.	33+870	33+910	40	Widening & Strengthening	GSB	
128.	33+910	34+120	210	Widening & Strengthening	GSB	
129.	34+120	34+150	30	Widening & Strengthening	GSB	
130.	34+150	34+280	130	Widening & Strengthening	GSB	
131.	34+280	34+320	40	Widening & Strengthening	GSB	
132.	34+320	34+450	130	Widening & Strengthening	GSB	
133.	34+450	34+535	85	Realignment	GSB	
134.	34+535	34+640	105	Realignment	GSB	
135.	34+640	34+650	10	Widening & Strengthening	GSB	
136.	34+650	34+670	20	Widening & Strengthening	GSB	
137.	34+780	34+810	30	Widening & Strengthening	GSB	
138.	34+810	34+850	40	Realignment	GSB	
139.	34+850	34+855	5	Realignment	GSB	

Sl. No.	Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor	Remarks
	From	To				
140.	34+855	35+235	380	Widening & Strengthening	GSB	
141.	35+235	35+260	25	Realignment	GSB	
142.	35+260	35+400	140	Widening & Strengthening	GSB	
143.	35+400	35+450	50	Realignment	GSB	
144.	35+450	35+480	30	Widening & Strengthening	GSB	
145.	35+480	35+505	25	Realignment	GSB	
146.	35+505	35+590	85	Widening & Strengthening	GSB	
147.	35+590	35+690	100	Realignment	GSB	
148.	35+690	35+850	160	Widening & Strengthening	GSB	
149.	35+850	35+890	40	Widening & Strengthening	GSB	
150.	35+890	35+920	30	Realignment	GSB	
151.	35+920	36+030	110	Realignment	GSB	
152.	36+030	36+080	50	Widening & Strengthening	GSB	
153.	36+080	36+155	75	Widening & Strengthening	GSB	
154.	36+155	36+280	125	Realignment	GSB	
155.	36+280	36+300	20	Widening & Strengthening	GSB	
156.	36+300	36+320	20	Widening & Strengthening	GSB	
157.	36+320	36+400	80	Realignment	GSB	
158.	36+400	36+430	30	Widening & Strengthening	GSB	
159.	36+430	36+450	20	Widening & Strengthening	GSB	
160.	36+450	36+490	40	Realignment	GSB	
161.	36+490	36+595	105	Widening & Strengthening	GSB	
162.	36+595	36+670	75	Realignment	GSB	
163.	36+670	36+710	40	Widening & Strengthening	GSB	
164.	36+710	36+730	20	Widening & Strengthening	GSB	
165.	36+730	37+060	330	Widening & Strengthening	GSB	
166.	37+060	37+100	40	Realignment	GSB	
167.	37+100	37+110	10	Widening & Strengthening	GSB	
168.	37+110	37+130	20	Widening & Strengthening	GSB	
169.	37+130	37+230	100	Widening & Strengthening	GSB	
170.	37+230	37+250	20	Widening & Strengthening	GSB	
171.	37+250	37+515	265	Widening & Strengthening	GSB	
172.	37+515	37+550	35	Widening & Strengthening	GSB	
173.	37+550	37+620	70	Widening & Strengthening	GSB	
174.	37+620	37+640	20	Widening & Strengthening	GSB	
175.	37+640	37+725	85	Widening & Strengthening	GSB	
176.	37+725	37+750	25	Widening & Strengthening	GSB	
177.	37+750	37+850	100	Widening & Strengthening	GSB	
178.	38+000	38+080	80	Widening & Strengthening	GSB	
179.	38+080	38+120	40	Widening & Strengthening	GSB	
180.	38+120	38+215	95	Widening & Strengthening	GSB	

Sl. No.	Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor	Remarks
	From	To				
181.	38+215	38+275	60	Realignment	GSB	
182.	38+275	38+315	40	Widening & Strengthening	GSB	
183.	38+315	38+400	85	Realignment	GSB	
184.	38+400	38+435	35	Widening & Strengthening	GSB	
185.	38+435	38+520	85	Widening & Strengthening	GSB	
186.	38+520	38+540	20	Widening & Strengthening	GSB	
187.	38+540	38+560	20	Widening & Strengthening	GSB	
188.	38+560	38+640	80	Realignment	GSB	
189.	38+640	38+660	20	Realignment	GSB	
190.	38+660	38+730	70	Realignment	GSB	
191.	38+730	38+850	120	Realignment	GSB	
192.	39+040	39+120	80	Realignment	GSB	
193.	39+120	39+360	240	Realignment	GSB	
194.	39+360	39+380	20	Realignment	GSB	
195.	39+380	39+480	100	Realignment	GSB	
196.	39+480	39+500	20	Realignment	GSB	

(iii) Details of WMM Work

Sl. No.	Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor	Remarks
	From	To				
1.	20+000	20+035	35	Realignment	WMM	
2.	20+035	20+200	165	Widening & Strengthening	WMM	
3.	20+200	20+245	45	Realignment	WMM	
4.	20+245	20+350	105	Widening & Strengthening	WMM	
5.	20+350	20+395	45	Realignment	WMM	
6.	20+395	20+450	55	Widening & Strengthening	WMM	
7.	20+550	20+650	100	Widening & Strengthening	WMM	
8.	20+650	20+660	10	Widening & Strengthening	WMM	
9.	20+660	20+715	55	Widening & Strengthening	WMM	
10.	20+715	20+790	75	Realignment	WMM	
11.	20+790	20+800	10	Realignment	WMM	
12.	20+800	20+940	140	Widening & Strengthening	WMM	
13.	20+940	21+030	90	Realignment	WMM	
14.	21+030	21+050	20	Widening & Strengthening	WMM	
15.	21+050	21+350	300	Widening & Strengthening	WMM	
16.	21+350	21+430	80	Realignment	WMM	
17.	21+430	21+450	20	Realignment	WMM	
18.	21+450	21+630	180	Widening & Strengthening	WMM	
19.	21+630	21+650	20	Widening & Strengthening	WMM	

Sl. No.	Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor	Remarks
	From	To				
20.	21+650	21+740	90	Widening & Strengthening	WMM	
21.	21+740	21+770	30	Realignment	WMM	
22.	21+770	21+850	80	Widening & Strengthening	WMM	
23.	21+850	21+990	140	Widening & Strengthening	WMM	
24.	21+990	22+120	130	Realignment	WMM	
25.	22+120	22+130	10	Realignment	WMM	
26.	22+130	23+000	870	Widening & Strengthening	WMM	
27.	23+000	23+150	150	Widening & Strengthening	WMM	
28.	23+150	23+280	130	Widening & Strengthening	WMM	
29.	23+335	23+350	15	Realignment	WMM	
30.	23+350	23+400	50	Realignment	WMM	
31.	23+400	23+450	50	Widening & Strengthening	WMM	
32.	23+450	23+840	390	Widening & Strengthening	WMM	
33.	23+840	23+865	25	Realignment	WMM	
34.	23+865	24+035	170	Widening & Strengthening	WMM	
35.	24+035	24+065	30	Realignment	WMM	
36.	24+065	24+110	45	Widening & Strengthening	WMM	
37.	24+110	24+200	90	Widening & Strengthening	WMM	
38.	24+200	24+260	60	Widening & Strengthening	WMM	
39.	24+260	24+355	95	Realignment	WMM	
40.	24+355	24+440	85	Widening & Strengthening	WMM	
41.	24+440	24+460	20	Widening & Strengthening	WMM	
42.	24+460	24+725	265	Widening & Strengthening	WMM	
43.	24+725	24+970	245	Realignment	WMM	
44.	25+200	25+250	50	Widening & Strengthening	WMM	
45.	25+250	25+440	190	Widening & Strengthening	WMM	
46.	25+440	25+465	25	Realignment	WMM	
47.	25+465	25+530	65	Widening & Strengthening	WMM	
48.	25+530	25+540	10	Widening & Strengthening	WMM	
49.	25+540	25+560	20	Widening & Strengthening	WMM	
50.	25+560	25+620	60	Realignment	WMM	
51.	25+620	25+850	230	Widening & Strengthening	WMM	
52.	25+850	25+980	130	Realignment	WMM	
53.	25+980	26+010	30	Realignment	WMM	
54.	26+010	26+070	60	Realignment	WMM	
55.	26+070	26+100	30	Realignment	WMM	
56.	26+100	26+210	110	Widening & Strengthening	WMM	
57.	26+210	26+235	25	Widening & Strengthening	WMM	
58.	26+235	26+320	85	Realignment	WMM	
59.	26+320	26+460	140	Realignment	WMM	

Sl. No.	Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor	Remarks
	From	To				
60.	26+460	26+650	190	Widening & Strengthening	WMM	
61.	26+650	26+700	50	Widening & Strengthening	WMM	
62.	26+700	26+730	30	Realignment	WMM	
63.	26+730	26+900	170	Widening & Strengthening	WMM	
64.	26+900	26+905	5	Widening & Strengthening	WMM	
65.	26+905	26+950	45	Realignment	WMM	
66.	26+950	26+955	5	Realignment	WMM	
67.	26+955	26+960	5	Widening & Strengthening	WMM	
68.	26+960	26+990	30	Widening & Strengthening	WMM	
69.	26+990	27+150	160	Widening & Strengthening	WMM	
70.	27+150	27+190	40	Widening & Strengthening	WMM	
71.	27+190	27+600	410	Widening & Strengthening	WMM	
72.	27+600	27+750	150	Realignment	WMM	
73.	27+750	27+850	100	Widening & Strengthening	WMM	
74.	27+850	27+900	50	Realignment	WMM	
75.	27+900	28+040	140	Widening & Strengthening	WMM	
76.	28+040	28+110	70	Widening & Strengthening	WMM	
77.	28+110	28+270	160	Widening & Strengthening	WMM	
78.	28+270	28+360	90	Widening & Strengthening	WMM	
79.	28+360	28+410	50	Realignment	WMM	
80.	28+410	28+490	80	Widening & Strengthening	WMM	
81.	28+490	28+500	10	Realignment	WMM	
82.	28+500	28+700	200	Realignment	WMM	
83.	28+700	28+750	50	Widening & Strengthening	WMM	
84.	28+750	28+790	40	Widening & Strengthening	WMM	
85.	28+790	28+940	150	Widening & Strengthening	WMM	
86.	28+940	29+030	90	Widening & Strengthening	WMM	
87.	29+090	29+150	60	Widening & Strengthening	WMM	
88.	29+150	29+170	20	Widening & Strengthening	WMM	
89.	29+170	29+220	50	Widening & Strengthening	WMM	
90.	29+220	29+230	10	Widening & Strengthening	WMM	
91.	29+230	29+320	90	Widening & Strengthening	WMM	
92.	29+320	29+390	70	Widening & Strengthening	WMM	
93.	29+390	29+490	100	Widening & Strengthening	WMM	
94.	29+490	29+540	50	Realignment	WMM	
95.	29+540	29+750	210	Widening & Strengthening	WMM	
96.	29+750	30+110	360	Realignment	WMM	
97.	30+110	30+160	50	Widening & Strengthening	WMM	
98.	30+160	30+205	45	Widening & Strengthening	WMM	
99.	30+205	30+300	95	Realignment	WMM	

Sl. No.	Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor	Remarks
	From	To				
100.	30+300	30+470	170	Realignment	WMM	
101.	30+470	31+300	830	Widening & Strengthening	WMM	
102.	31+300	31+510	210	Realignment	WMM	
103.	31+510	31+620	110	Realignment	WMM	
104.	31+620	31+660	40	Widening & Strengthening	WMM	
105.	31+950	31+960	10	Widening & Strengthening	WMM	
106.	31+960	32+100	140	Realignment	WMM	
107.	32+100	32+240	140	Widening & Strengthening	WMM	
108.	32+240	32+310	70	Realignment	WMM	
109.	32+310	32+400	90	Widening & Strengthening	WMM	
110.	32+400	32+440	40	Realignment	WMM	
111.	32+440	32+545	105	Widening & Strengthening	WMM	
112.	32+545	32+600	55	Realignment	WMM	
113.	32+600	32+665	65	Realignment	WMM	
114.	32+665	32+740	75	Widening & Strengthening	WMM	
115.	32+740	32+790	50	Realignment	WMM	
116.	32+790	32+900	110	Widening & Strengthening	WMM	
117.	32+900	32+960	60	Realignment	WMM	
118.	32+960	33+360	400	Widening & Strengthening	WMM	
119.	33+360	33+500	140	Realignment	WMM	
120.	33+500	33+550	50	Widening & Strengthening	WMM	
121.	33+550	33+650	100	Widening & Strengthening	WMM	
122.	33+650	33+720	70	Widening & Strengthening	WMM	
123.	33+720	33+870	150	Widening & Strengthening	WMM	
124.	33+870	33+910	40	Widening & Strengthening	WMM	
125.	33+910	34+120	210	Widening & Strengthening	WMM	
126.	34+120	34+150	30	Widening & Strengthening	WMM	
127.	34+150	34+280	130	Widening & Strengthening	WMM	
128.	34+280	34+320	40	Widening & Strengthening	WMM	
129.	34+320	34+450	130	Widening & Strengthening	WMM	
130.	34+450	34+535	85	Realignment	WMM	
131.	34+535	34+640	105	Realignment	WMM	
132.	34+640	34+650	10	Widening & Strengthening	WMM	
133.	34+780	34+810	30	Widening & Strengthening	WMM	
134.	34+810	34+850	40	Realignment	WMM	
135.	34+850	34+855	5	Realignment	WMM	
136.	34+855	35+235	380	Widening &strengthening	WMM	
137.	35+235	35+260	25	Realignment	WMM	
138.	35+260	35+400	140	Widening &strengthening	WMM	
139.	35+400	35+450	50	Realignment	WMM	

Sl. No.	Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor	Remarks
	From	To				
140.	35+450	35+480	30	Widening & Strengthening	WMM	
141.	35+480	35+505	25	Realignment	WMM	
142.	35+505	35+590	85	Widening & Strengthening	WMM	
143.	35+590	35+690	100	Realignment	WMM	
144.	35+690	35+850	160	Widening & Strengthening	WMM	
145.	35+850	35+890	40	Widening & Strengthening	WMM	
146.	35+890	35+920	30	Realignment	WMM	
147.	35+920	36+030	110	Realignment	WMM	
148.	36+030	36+080	50	Widening & Strengthening	WMM	
149.	36+080	36+155	75	Widening & Strengthening	WMM	
150.	36+155	36+280	125	Realignment	WMM	
151.	36+280	36+300	20	Widening & Strengthening	WMM	
152.	36+300	36+320	20	Widening & Strengthening	WMM	
153.	36+320	36+400	80	Realignment	WMM	
154.	36+400	36+430	30	Widening & Strengthening	WMM	
155.	36+430	36+450	20	Widening & Strengthening	WMM	
156.	36+450	36+490	40	Realignment	WMM	
157.	36+490	36+595	105	Widening & Strengthening	WMM	
158.	36+595	36+670	75	Realignment	WMM	
159.	36+670	36+710	40	Widening & Strengthening	WMM	
160.	36+710	36+730	20	Widening & Strengthening	WMM	
161.	36+730	37+060	330	Widening & Strengthening	WMM	
162.	37+060	37+100	40	Realignment	WMM	
163.	37+100	37+110	10	Widening & Strengthening	WMM	
164.	37+110	37+130	20	Widening & Strengthening	WMM	
165.	37+130	37+230	100	Widening & Strengthening	WMM	
166.	37+230	37+250	20	Widening & Strengthening	WMM	
167.	37+250	37+515	265	Widening & Strengthening	WMM	
168.	37+515	37+550	35	Widening & Strengthening	WMM	
169.	37+550	37+620	70	Widening & Strengthening	WMM	
170.	37+620	37+640	20	Widening & Strengthening	WMM	
171.	37+640	37+725	85	Widening & Strengthening	WMM	
172.	37+725	37+750	25	Widening & Strengthening	WMM	
173.	37+750	37+850	100	Widening & Strengthening	WMM	
174.	38+000	38+080	80	Widening & Strengthening	WMM	
175.	38+080	38+120	40	Widening & Strengthening	WMM	
176.	38+120	38+215	95	Widening & Strengthening	WMM	
177.	38+215	38+275	60	Realignment	WMM	
178.	38+275	38+315	40	Widening & Strengthening	WMM	
179.	38+315	38+400	85	Realignment	WMM	

Sl. No.	Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor	Remarks
	From	To				
180.	38+400	38+435	35	Widening & Strengthening	WMM	
181.	38+435	38+520	85	Widening & Strengthening	WMM	
182.	38+520	38+540	20	Widening & Strengthening	WMM	
183.	38+540	38+560	20	Widening & Strengthening	WMM	
184.	38+560	38+640	80	Realignment	WMM	
185.	38+640	38+660	20	Realignment	WMM	
186.	38+660	38+730	70	Realignment	WMM	
187.	38+730	38+850	120	Realignment	WMM	
188.	39+120	39+360	240	Realignment	WMM	
189.	39+360	39+380	20	Realignment	WMM	
190.	39+380	39+480	100	Realignment	WMM	
191.	39+480	39+500	20	Realignment	WMM	

(iv) Details of DBM Work

Sl.No.	Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor	Remarks
	From	To				
1.	20+550	20+650	100	Widening & Strengthening	DBM	
2.	20+660	20+715	55	Widening & Strengthening	DBM	
3.	20+715	20+790	75	Realignment	DBM	
4.	20+800	20+940	140	Widening & Strengthening	DBM	
5.	20+940	21+030	90	Realignment	DBM	
6.	21+050	21+350	300	Widening & Strengthening	DBM	
7.	21+350	21+430	80	Realignment	DBM	
8.	21+450	21+630	180	Widening & Strengthening	DBM	
9.	21+650	21+740	90	Widening & Strengthening	DBM	
10.	21+740	21+770	30	Realignment	DBM	
11.	21+850	21+990	140	Widening & Strengthening	DBM	
12.	21+990	22+120	130	Realignment	DBM	
13.	22+130	23+000	870	Widening & Strengthening	DBM	
14.	23+450	23+840	390	Widening & Strengthening	DBM	
15.	23+840	23+865	25	Realignment	DBM	
16.	23+865	24+035	170	Widening & Strengthening	DBM	
17.	24+035	24+065	30	Realignment	DBM	
18.	24+065	24+110	45	Widening & Strengthening	DBM	
19.	24+200	24+260	60	Widening & Strengthening	DBM	
20.	24+260	24+355	95	Realignment	DBM	
21.	24+355	24+440	85	Widening & Strengthening	DBM	
22.	24+460	24+725	265	Widening & Strengthening	DBM	
23.	24+725	24+970	245	Realignment	DBM	

Sl.No.	Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor	Remarks
	From	To				
24.	25+250	25+440	190	Widening & Strengthening	DBM	
25.	25+440	25+465	25	Realignment	DBM	
26.	25+465	25+530	65	Widening & Strengthening	DBM	
27.	25+540	25+560	20	Widening & Strengthening	DBM	
28.	25+560	25+620	60	Realignment	DBM	
29.	25+620	25+850	230	Widening & Strengthening	DBM	
30.	25+850	25+980	130	Realignment	DBM	
31.	26+070	26+100	30	Realignment	DBM	
32.	26+100	26+210	110	Widening & Strengthening	DBM	
33.	26+320	26+460	140	Realignment	DBM	
34.	26+650	26+700	50	Widening & Strengthening	DBM	
35.	26+700	26+730	30	Realignment	DBM	
36.	26+730	26+900	170	Widening & Strengthening	DBM	
37.	26+905	26+950	45	Realignment	DBM	
38.	26+960	26+990	30	Widening & Strengthening	DBM	
39.	27+190	27+600	410	Widening & Strengthening	DBM	
40.	27+600	27+750	150	Realignment	DBM	
41.	27+750	27+850	100	Widening & Strengthening	DBM	
42.	27+850	27+900	50	Realignment	DBM	
43.	27+900	28+040	140	Widening & Strengthening	DBM	
44.	28+110	28+270	160	Widening & Strengthening	DBM	
45.	28+790	28+940	150	Widening & Strengthening	DBM	
46.	29+090	29+150	60	Widening & Strengthening	**DBM**	
47.	29+170	29+220	50	Widening & Strengthening	**DBM**	
48.	29+230	29+320	90	Widening & Strengthening	DBM	
49.	29+320	29+390	70	Widening & Strengthening	DBM	
50.	29+390	29+490	100	Widening & Strengthening	DBM	
51.	29+490	29+540	50	Realignment	DBM	
52.	29+540	29+750	210	Widening & Strengthening	DBM	
53.	29+750	30+110	360	Realignment	DBM	
54.	30+110	30+160	50	Widening & Strengthening	DBM	
55.	30+300	30+470	170	Realignment	DBM	
56.	30+470	31+300	830	Widening & Strengthening	DBM	
57.	31+300	31+510	210	Realignment	DBM	
58.	32+600	32+665	65	Realignment	DBM	
59.	32+665	32+740	75	Widening & Strengthening	DBM	
60.	32+740	32+790	50	Realignment	DBM	
61.	32+790	32+900	110	Widening & Strengthening	DBM	
62.	32+900	32+960	60	Realignment	DBM	
63.	32+960	33+360	400	Widening & Strengthening	DBM	
64.	33+720	33+870	150	Widening & Strengthening	DBM	

Sl.No.	Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor	Remarks
	From	To				
65.	34+320	34+450	130	Widening & Strengthening	DBM	
66.	34+450	34+535	85	Realignment	DBM	
67.	34+850	34+855	5	Realignment	DBM	
68.	34+855	35+235	380	Widening & Strengthening	DBM	
69.	35+235	35+260	25	Realignment	DBM	
70.	35+260	35+400	140	Widening & Strengthening	DBM	
71.	35+400	35+450	50	Realignment	DBM	
72.	35+450	35+480	30	Widening & Strengthening	DBM	
73.	35+480	35+505	25	Realignment	DBM	
74.	35+505	35+590	85	Widening & Strengthening	DBM	
75.	35+590	35+690	100	Realignment	DBM	
76.	35+690	35+850	160	Widening & Strengthening	DBM	
77.	35+920	36+030	110	Realignment	DBM	
78.	36+030	36+080	50	Widening & Strengthening	DBM	
79.	36+300	36+320	20	Widening & Strengthening	DBM	
80.	36+320	36+400	80	Realignment	DBM	
81.	36+430	36+450	20	Widening & Strengthening	DBM	
82.	36+450	36+490	40	Realignment	DBM	
83.	36+490	36+595	105	Widening & Strengthening	DBM	
84.	36+595	36+670	75	Realignment	DBM	
85.	36+670	36+710	40	Widening & Strengthening	DBM	
86.	36+730	37+060	330	Widening & Strengthening	DBM	
87.	37+060	37+100	40	Realignment	DBM	
88.	37+100	37+110	10	Widening & Strengthening	DBM	
89.	37+130	37+230	100	Widening & Strengthening	DBM	
90.	37+250	37+515	265	Widening & Strengthening	DBM	
91.	37+550	37+620	70	Widening & Strengthening	DBM	
92.	37+640	37+725	85	Widening & Strengthening	DBM	
93.	37+725	37+750	25	Widening & Strengthening	DBM	
94.	37+750	37+850	100	Widening & Strengthening	DBM	
95.	38+000	38+080	80	Widening & Strengthening	DBM	
96.	38+120	38+215	95	Widening & Strengthening	DBM	
97.	38+215	38+275	60	Realignment	DBM	
98.	38+275	38+315	40	Widening & Strengthening	DBM	
99.	38+315	38+400	85	Realignment	DBM	
100.	38+400	38+435	35	Widening & Strengthening	DBM	
101.	38+435	38+520	85	Widening & Strengthening	DBM	
102.	38+540	38+560	20	Widening & Strengthening	DBM	
103.	38+560	38+640	80	Realignment	DBM	
104.	38+660	38+730	70	Realignment	DBM	
105.	39+120	39+360	240	Realignment	DBM	

Sl.No.	Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor	Remarks
	From	To				
106.	39+380	39+500	120	Realignment	DBM	

(v) Details of Hard Shoulder

Sl	Chainages		Length	Side	Improvement Proposal	Remarks
	From	To				
1.	28+110	28+270	160	BHS	Widening	
2.	32+540	32+720	180	BHS	Widening	
3.	33+100	33+330	230	BHS	Widening	
4.	32+720	32+870	150	BHS	Widening	
5.	34+840	35+090	250	BHS	Widening	
6.	32+870	33+100	230	BHS	Widening	
7.	31+100	31+300	200	BHS	Widening	
8.	31+300	31+520	220	BHS	Widening	
9.	30+740	31+100	360	BHS	Widening	
10.	35+090	35+300	210	BHS	Widening	
11.	29+490	29+500	10	BHS	Realignment	
12.	29+500	29+540	40	BHS	Realignment	
13.	29+820	30+110	290	BHS	Realignment	
14.	30+300	30+450	150	BHS	Realignment	

Note: - Bidders are requested to visit the site/stretch to understand the requirement of rectification as per their own assessment. The locations and length given above are tentative. The distressed locations should be identified with their exact chainages. The distresses should then be marked up in a grid pattern covering the distressed portion and beyond the distressed portion. Then the entire DBM/WMM/GSB/Sub-Grade layer (as the case may be) within the identified grid must be scrapped off thoroughly. After scrapping of DBM layer, the top WMM surface must be thoroughly checked with respect to degree of compaction and plasticity (within the grid) randomly by doing the test pits at few locations. Further it should be extended for GSB and subgrade layer with extraction of layer material to observe CBR value. If result does not comply in any of the layers, then in that grid all the material including subgrade should be excavated and reconstructed freshly. If subgrade soil is complying with the physical properties while GSB does not, then excavation should be made up to GSB layer and reconstruction should be done from GSB layer. The same should be done for WMM/GSB/Sub-Grade also.

2. Land

The Site of the Project Highway comprises the land described below:

Sl. No.	Existing Chainage		Design Chainage		Length (M)	Existing / Available Row (M)	Remark
	From	To	From	To			
1	20+456	41+065	20+000	40+000	20000	24 - 50	

3. Carriageway

The present carriageway of the Project Highway is substandard single/two lane configuration.

The type of the existing pavement is flexible.

Sl No.	Existing Chainage		Design Chainage		Length In M (Design)	Existing/ Lane Width	Remark
	From	To	From	To			
1	20+456	41+065	20+000	40+000	20000	3 to 7.0	Existing Carriageway as per above mentioned work done at site

4. Major Bridge

The Site includes the following Major Bridges:

S/no	Location in km	Type of Structures			Length of Bridge/ Span Arrangement (m)	Total width (m)
		Super Structure	Sub Structure	Foundation		
NIL						

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

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

Sl No	Chainage(km)	Type of structure		No of Span with Span length(m)	width (m)	ROB/RUB
		Foundation	Superstructure			
NIL						

6. Grade separators

The Site includes the following grade separators:

Sl No	Chainage(km)	Type of structure		No of Span with Span length(m)	width (m)
		Foundation	Superstructure		
NIL					

7. Railway level crossings

The Site includes the following railway level crossings:

Sl No	Location(km)	Remarks
NIL		

8. Underpasses (vehicular, Non-vehicular)

The Site includes the following underpasses:

Sl No	Chainage (km)	Type of structure	No of Span with Span length(m)	width (m)
NIL				

9. Truck Lay bays

The details of truck bays on the Site are as follows:

Sl. 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:

Sl. No.	Chainages		Length	Side	Remarks
	From	To			
1.	20000	20026	26	LHS	
2.	20030	20062	32	LHS	
3.	20110	20142	32	LHS	
4.	20142	20158	16	LHS	
5.	20158	20180	22	LHS	
6.	20290	20352	62	LHS	
7.	20550	20580	30	LHS	
8.	20580	20686	106	LHS	
9.	25630	25686	56	LHS	
10.	26020	26132	112	LHS	
11.	26320	26470	150	RHS	

Sl. No.	Chainages		Length	Side	Remarks
	From	To			
12.	27080	27098	18	RHS	
13.	27600	27608	8	RHS	
14.	27720	27755	35	RHS	
15.	28129	28270	141	LHS	
16.	28500	28580	80	LHS	
17.	28679	28709	30	LHS	
18.	28850	28900	50	RHS	
19.	29358	29593	235	RHS	
20.	30150	30180	30	RHS	
21.	30575	30643	68	LHS	
22.	32365	32395	30	LHS	
23.	32395	32435	40	LHS	
24.	32569	32600	31	LHS	
25.	32600	32675	75	LHS	
26.	32680	32786	106	LHS	
27.	33100	33230	130	LHS	
28.	33240	33350	110	LHS	
29.	33400	33450	50	LHS	
30.	34950	35088	138	LHS	
31.	35090	35115	25	LHS	
32.	35130	35142	12	LHS	
33.	35149	35177	28	LHS	
34.	35164	35222	58	LHS	
35.	35200	35220	20	LHS	
36.	35220	35242	22	LHS	
37.	35390	35410	20	LHS	
38.	35410	35440	30	LHS	
39.	35440	35480	40	LHS	
40.	35503	35559	56	LHS	
41.	35559	35589	30	LHS	
42.	35589	35610	22	LHS	
43.	35620	35670	50	LHS	

11. Minor Bridges

The Site includes the following Minor Bridges:

Sl. No.	Road Segment	Design Chainage	Type Of Structures			No. of Span with span length	Width (m)	Remark
			Foundation	Sub-structure	Super Structure			
1	Merangkong -Tamlu - Mon	31+770	Open Foundation	stone masonry	Steel Truss	1x31.7	5.40	Work in Progress in LHS for proposed Bridge
2	Merangkong -Tamlu - Mon	34+722	not visible	stone masonry	RCC Slab	1x6.10	6.9	Work in Progress in RHS for proposed Bridge
3	Merangkong -Tamlu-Mon	38+987	not visible	stone masonry	Steel Truss	1x16.5	3.9	Work in Progress in LHS for proposed Bridge

12. Culvert

Sl. No.	Chainages (As per Bill)	Span (m)	Side	Remarks
1	20+040	1.5	BHS	Slab & Parapet complete BHS, Return wall complete RHS, Return wall Incomplete LHS, catch pit/apron balance BHS
2	20+506	1.5	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
3	20+657	1.5	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
4	20+791	1.5	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
5	21+033	1.5	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
6	21+456	1.5	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
7	21+693	3X2	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
8	21+870	1.5	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
9	21+942	1.5	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
10	22+150	2.0	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
11	22+640	3X2	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS

Sl. No.	Chainages (As per Bill)	Span (m)	Side	Remarks
12	23+020	3.0	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
13	23+280	1.5	LHS	Slab complete LHS, no work RHS. Parapet, Return wall&catch pit/apron balance BHS
14	23+680	1.5	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
15	24+160	5.00	BHS	Slab completed BHS, parapet & Return wall complete RHS, Return wall, parapet wall balance in LHS, catch pit/apron balance BHS
16	24+445	3X2	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
17	25+170	1.5	BHS	Slab completed BHS, Parapet complete RHS, Return wall complete RHS, Return wall Incomplete LHS, catch pit/apron balance BHS
18	25+410	3X2	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
19	25+555	1.5	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
20	25+810	1.5	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
21	25+990	1.5	BHS	Slab & Parapet complete RHS, Return wall complete RHS, Return wall Incomplete LHS, catch pit/apron balance BHS
22	26+505	1.5	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
23	26+627	1.5	BHS	Slab complete BHS, Parapet complete LHS,Parapet balance RHS Return wall, catch pit/apron balance BHS
24	26+900	1.5	BHS	Slab complete BHS, Parapet complete LHS,Parapet balance RHS Return wall, catch pit/apron balance BHS
25	26+940	1.5	BHS	Slab complete BHS, Parapet complete LHS,Parapet balance RHS Return wall, catch pit/apron balance BHS
26	27+030	5.0	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
27	27+113	1.5	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
28	27+400	1.5	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
29	27+673	1.5	BHS	Slab complete BHS, Parapet complete LHS,Parapet balance RHS Return wall, catch pit/apron balance BHS
30	28+080	3X2	BHS	Slab & Parapet complete BHS, Return wall complete RHS, Return wall Incomplete LHS, catch pit/apron balance BHS
31	28+320	1.5	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS

Sl. No.	Chainages (As per Bill)	Span (m)	Side	Remarks
32	28+421	3X2	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
33	28+772	5	BHS	Slab complete BHS, Parapet & Return wall RHS Complete, catch pit/apron balance BHS
34	29+063	3.0	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
35	29+180	1.5	BHS	Slab complete BHS, Parapet complete LHS, Parapet balance RHS Return wall complete LHS Return wall balance RHS , catch pit/apron balance BHS
36	29+253	1.5	BHS	Slab complete BHS, Parapet complete LHS, Parapet balance RHS Return wall, catch pit/apron balance BHS
37	29+406	3X2	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
38	29+650	3X2	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
39	29+868	1.5	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
40	30+500	2.0	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
41	30+570	2.0	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
42	30+930	2.0	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
43	31+970	2.0	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
44	32+160	3.0	BHS	Slab & Parapet complete BHS, Return wall complete A1 side, Return wall Incomplete A2 side, catch pit/apron balance BHS
45	32+350	3.0	BHS	Slab, Parapet, Return wall, Approach slab complete BHS , catch pit/apron balance BHS
46	32+655	1.5	BHS	Slab, Parapet, Return wall, complete BHS , catch pit/apron balance BHS
47	32+690	1.5	BHS	Slab complete BHS, Parapet complete RHS, Parapet balance LHS, Return wall, catch pit/apron balance BHS
48	32+900	3.0	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
49	33+310	2.0	BHS	Slab complete BHS, Parapet complete RHS, Parapet balance LHS, Return wall complete RHS, parapet /Return wall balance LHS catch pit/apron balance BHS
50	33+587	5.0	BHS	Slab, Parapet, Return wall, complete BHS , catch pit/apron balance BHS

Sl. No.	Chainages (As per Bill)	Span (m)	Side	Remarks
51	33+975	2.0	BHS	Slab complete BHS, Parapet complete RHS, Parapet balance LHS, Return wall complete RHS, parapet /Return wall balance LHS, approach slab complete RHS, approach slab balance LHS, catch pit/apron balance BHS
52	34+280	1.5	BHS	Slab complete BHS, Parapet complete RHS, Parapet balance LHS, Return wall complete RHS, parapet /Return wall balance LHS, approach slab complete RHS, approach slab balance LHS, catch pit/apron balance BHS
53	34+350	2.0	BHS	Slab complete BHS, Parapet complete RHS, Parapet balance LHS, Return wall complete RHS, parapet /Return wall balance LHS, approach slab complete RHS, approach slab balance LHS, catch pit/apron balance BHS
54	34+380	2.0	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
55	34+920	2.0	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
56	35+200	2.0	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
57	35+320	2.0	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
58	35+335	1.5	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
59	35+600	2.0	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
60	35+790	1.5	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
61	35+955	1.5	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
62	36+065	2.0	BHS	Slab, Parapet, Return wall complete BHS, Approach slab complete BHS, catch pit/apron balance BHS
63	36+135	2.0	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
64	36+470	5.0	BHS	Slab complete BHS, Parapet complete RHS, Parapet balance LHS, Return wall complete RHS, parapet /Return wall balance LHS, approach slab complete RHS, approach slab balance LHS, catch pit/apron balance BHS
65	36+529	2.0	BHS	Slab, Parapet, Return wall complete BHS, Approach slab complete BHS, catch pit/apron balance BHS
66	36+556	2.0	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS

Sl. No.	Chainages (As per Bill)	Span (m)	Side	Remarks
67	36+967	2.0	BHS	Slab complete BHS, Parapet complete RHS, Parapet balance LHS, Return wall complete RHS, parapet /Return wall balance LHS, approach slab complete RHS, approach slab balance LHS, catch pit/apron balance BHS
68	37+030	2.0	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
69	37+190	2.0	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
70	37+265	2.0	BHS	Slab complete BHS, Parapet complete RHS, Parapet balance LHS, Return wall complete RHS, parapet /Return wall balance LHS, approach slab complete BHS, , catch pit/apron balance BHS
71	37+418	2.0	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
72	37+532	2.0	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
73	37+600	1.5	BHS	Slab complete BHS, Parapet complete RHS,Parapet balance LHS Return wall, catch pit/apron balance BHS
74	37+650	5.0	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
75	37+735	2.0	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
76	37+820	1.5	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
77	37+950	3.0	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
78	38+015	2.0	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
79	38+550	2.0	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
80	38+770	1.5	RHS	Slab complete RHS, Parapet & Return wall complete RHS, Parapet, Return wall & catch pit/apron balance BHS
81	38+983	2.0	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
82	39+153	1.5	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
83	39+420	1.5	BHS	Slab complete BHS, Parapet & Return wall complete RHS, catch pit/apron balance BHS
84	39+640	1.5	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
85	39+965	1.5	BHS	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS

13. Bus bays

.

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

Sl No	Chainage(km)	Length(m)	Left Hand side	Right Hand side
NIL				

14. Major Intersections along project:

The details of the minor junctions are as follows:

S. No.	Location		At grade	Separated	Category of Cross Road			
	From km	to km			NH	SH	MDR	Others
Nil								

15. Minor Intersections along project:

The details of the minor intersections are as follows:

Sl. No.	Design Ch.	Location		Type of intersection		Road Type	Towards
		From Km	To Km	T-Junction	Cross Road		
Nil							

16. Bypass

The details of Bypasses are as follows:

Sl No	Name of bypass (town)	Chainage (km)		Length (in km)	Carriageway	
		from (km)	To (km)		Width (m)	Type
NIL						

17. Other structures

The details of other structures are as follows.

.

(i) The details of Breast wall are as follows:

Sl.No.	Chainages		Length	Side	Remark
	From	To			
1	20300	20340	40	LHS	
2	20440	20468	28	LHS	
3	22326	22366	40	LHS	
4	23620	23632	12	LHS	
5	23632	23644	12	LHS	
6	23644	23656	12	LHS	
7	28328	28391	63	LHS	
8	28580	28600	20	LHS	
9	28780	28792	12	LHS	
10	28792	28804	12	LHS	
11	28804	28816	12	LHS	
12	29040	29105	65	RHS	
13	29067	29079	12	RHS	
14	29105	29115	10	RHS	
15	29115	29127	12	RHS	
16	29127	29142	15	RHS	
17	29142	29154	12	RHS	
18	29150	29170	20	RHS	
19	29186	29196	10	RHS	
20	29196	29223	27	RHS	
21	29230	29250	20	RHS	
22	29250	29275	25	RHS	
23	29275	29295	20	RHS	
24	29295	29319	24	RHS	
25	29319	29339	20	RHS	
26	29339	29355	16	RHS	
27	29355	29371	16	RHS	
28	30442	30505	63	LHS	
29	30505	30535	30	LHS	
30	30580	30610	30	LHS	
31	30610	30640	30	LHS	
32	30640	30650	10	LHS	
33	30650	30660	10	LHS	
34	33470	33482	12	LHS	
35	33662	33686	24	LHS	
36	33686	33710	24	LHS	
37	33710	33734	24	LHS	
38	36004	36016	12	LHS	
39	36016	36028	12	LHS	
40	36028	36040	12	LHS	

Sl.No.	Chainages		Length	Side	Remark
	From	To			
41	36040	36048	8	LHS	
42	36048	36060	12	LHS	
43	36060	36072	12	LHS	
44	36072	36084	12	LHS	
45	36084	36096	12	LHS	
46	36094	36106	12	LHS	
47	36106	36118	12	LHS	
48	38130	38165	35	LHS	

(ii) Thedetailsof Retaining wall areasfollows:

Sl. No.	Chainages		Length	Side	Remarks
	From	To			
1	20+010	20+022	12	RHS	
2	20+032	20+071	39	RHS	
3	20+071	20+080	9	RHS	
4	20+080	20+211	131	RHS	
5	20+260	20+270	10	RHS	
6	20+270	20+282	12	RHS	
7	20+440	20+468	28	RHS	
8	20+600	20+620	20	RHS	
9	21+200	21+220	20	RHS	
10	21+270	21+290	20	RHS	
11	21+300	21+330	30	RHS	
12	21+780	21+804	24	RHS	
13	21+870	21+890	20	RHS	
14	22+544	22+568	24	RHS	
15	22+568	22+580	12	RHS	
16	22+580	22+590	10	RHS	
17	23+023	23+033	10	RHS	
18	23+032	23+040	8	RHS	
19	23+150	23+180	30	RHS	
20	23+180	23+210	30	LHS	
21	23+210	23+222	12	RHS	
22	23+405	23+460	55	RHS	
23	23+500	23+519	19	RHS	
24	23+725	23+745	20	RHS	
25	23+745	23+747	2	RHS	
26	24+149	24+160	11	RHS	
27	24+260	24+284	24	RHS	
28	24+352	24+360	8	RHS	
29	24+360	24+372	12	RHS	

Sl. No.	Chainages		Length	Side	Remarks
	From	To			
30	24+936	24+984	48	RHS	
31	25+050	25+062	12	RHS	
32	25+243	25+260	17	RHS	
33	25+940	25+980	40	RHS	
34	25+980	25+985	5	RHS	
35	26+000	26+030	30	RHS	
36	26+280	26+291	11	LHS	
37	26+291	26+305	14	LHS	
38	26+575	26+580	5	LHS	
39	26+580	26+620	40	LHS	
40	26+626	26+630	4	LHS	
41	26+630	26+690	60	LHS	
42	26+690	26+710	20	LHS	
43	26+710	26+730	20	LHS	
44	26+730	26+790	60	LHS	
45	26+820	26+840	20	LHS	
46	26+840	26+860	20	RHS	
47	26+860	26+870	10	LHS	
48	26+880	26+890	10	LHS	
49	27+360	27+385	25	LHS	
50	27+420	27+430	10	LHS	
51	27+430	27+448	18	LHS	
52	27+448	27+458	10	LHS	
53	27+458	27+470	12	LHS	
54	27+470	27+482	12	LHS	
55	27+580	27+600	20	LHS	
56	27+600	27+612	12	LHS	
57	27+612	27+635	23	LHS	
58	27+710	27+720	10	LHS	
59	27+720	27+735	15	LHS	
60	27+775	27+810	35	LHS	
61	27+809	27+820	11	LHS	
62	27+820	27+832	12	LHS	
63	27+838	27+863	25	LHS	
64	28+080	28+085	5	RHS	
65	28+085	28+100	15	RHS	
66	28+375	28+390	15	RHS	
67	28+400	28+410	10	RHS	
68	28+520	28+530	10	RHS	
69	28+580	28+590	10	RHS	
70	28+615	28+625	10	RHS	
71	28+900	28+915	14.6	LHS	

Sl. No.	Chainages		Length	Side	Remarks
	From	To			
72	29+328	29+345	17	LHS	
73	30+235	30+248	13	RHS	
74	30+261	30+283	22	RHS	
75	30+283	30+354	71	RHS	
76	30+354	30+404	50	RHS	
77	30+404	30+428	24	RHS	
78	30+428	30+440	12	RHS	
79	30+460	30+470	10	RHS	
80	30+470	30+484	14	RHS	
81	32+438	32+487	49	RHS	
82	33+150	33+180	30	RHS	
83	33+318	33+330	12	RHS	
84	33+330	33+342	12	RHS	
85	33+450	33+498	48	RHS	
86	33+498	33+510	12	RHS	
87	34+150	34+162	12	RHS	
88	34+200	34+224	24	RHS	
89	34+300	34+318	18	RHS	
90	34+318	34+366	48	RHS	
91	34+400	34+443	43	RHS	
92	34+443	34+453	10	RHS	
93	35+630	35+650	20	RHS	
94	35+650	35+664	14	RHS	
95	35+770	35+785	15	RHS	
96	35+940	35+948	8	RHS	
97	35+955	35+979	24	RHS	
98	35+980	35+992	12	RHS	
99	35+992	36+004	12	RHS	
100	36+070	36+080	10	RHS	
101	36+080	36+100	20	RHS	
102	37+890	37+898	7.5	RHS	
103	37+900	37+919	19	RHS	
104	38+143	38+158	15	RHS	
105	38+190	38+202	12	RHS	
106	38+202	38+214	12	RHS	
107	38+730	38+742	12	RHS	
108	38+742	38+754	12	RHS	
109	38+754	38+766	12	RHS	
110	38+776	38+791	14.8	RHS	
111	39+215	39+227	12	RHS	

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Annex II

(As per clause 8.3 (i))

(Schedule-A)

Dates for providing Right of Way

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

Sl. No	Design Chainage		Length (Km)	Proposed ROW Width (m)	Date of Providing proposed ROW
	From	To			
90% OF Row (full width)	20+000	40+000	20000	24 - 50	At Appointed Date
Balance Row width	20+000	40+000	20000	24 - 50	At Appointed Date

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Annex – IIII

(Schedule-A)

Alignment Plans

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

ENCLOSED

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Annex – IV

(Schedule-A)

Environment Clearances

As per notification of MOEF F.O. 2559(E) dated 22/08/2013, the project will not attract Environmental Clearance.

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SCHEDULE – B

(See Clause 2.1)

DEVELOPMENT OF THE PROJECT HIGHWAY

1 Development of the Project Highway

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

2 Rehabilitation and augmentation

NA

3 Specifications and Standards

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

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Annex I
(Schedule-B)

Description of Two Lanning

1. Widening of the ExistingHighway

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

(ii) Width of Carriageway

Two-Lanning with hard shoulders shall be undertaken. The paved carriageway shall be 7(seven) mwide. The work and specifications shall be carried out in accordance with Clause 408 of MoRTH specification.

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

Sl. No.	Built-up stretch (Township)	Location(Design Chainage)		Length (m)	Typical cross section	Remark
		From (Km)	To (Km)			
1	Namsang	32+320	32+420	100	As per attached TCS Drawings	10m Carriageway

Except as otherwise provided in this Agreement the width of the paved carriageway and cross-sectional features shall conform to paragraph1(ii) above.

2. GEOMETRIC DESIGN AND GENERAL FEATURES

(i) General

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

(ii) Design speed

The design speed shall be as per IRC SP 73: 2018 however in exceptional cases the minimum design speed can be 30 km per hour for hilly and mountainous terrain and 20 km per hour for hair pin bend locations.

(iii) 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:

(iv) Probable location of Sharp Curves having speed below 40kmph:

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Sl. No.	DesignChainage(m)		Side	Typeof Deficiency	Remarks
	From	To			
1	20194.28	20269.06	Left	Radius<40	
2	21182.46	21241.40	Left	Radius<40	
3	21338.07	21397.79	Right	Radius<40	
4	21397.79	21469.36	Left	Radius<40	
5	22030.25	22089.35	Right	Radius<40	
6	23012.81	23086.99	Left	Radius<40	
7	23530.96	23591.45	Right	Radius<40	
8	23787.46	23896.79	Left	Radius<40	
9	24017.90	24089.36	Right	Radius<40	
10	24368.75	24428.12	Left	Radius<40	
11	24972.54	25031.77	Right	Radius<40	
12	25238.27	25275.33	Right	Radius<40	
13	25381.73	25420.53	Right	Radius<40	
14	25691.35	25755.40	Left	Radius<40	
15	25798.48	25881.27	Right	Radius<40	
16	26085.32	26123.30	Right	Radius<40	
17	27274.04	27329.58	Right	Radius<40	
18	27607.86	27667.05	Left	Radius<40	
19	27708.72	27785.38	Left	Radius<40	
20	27785.38	27865.41	Right	Radius<40	
21	28529.32	28575.24	Right	Radius<40	
22	28665.86	28729.24	Right	Radius<40	
23	29421.93	29492.58	Left	Radius<40	
24	29492.58	29555.88	Right	Radius<40	
25	29882.24	29951.80	Right	Radius<40	
26	30032.32	30104.78	Left	Radius<40	
27	30433.65	30486.75	Right	Radius<40	
28	32410.62	32451.79	Right	Radius<40	
29	32656.36	32721.10	Right	Radius<40	
30	32721.10	32795.65	Left	Radius<40	
31	33131.68	33159.74	Left	Radius<40	
32	33244.37	33270.27	Left	Radius<40	
33	33321.07	33381.67	Right	Radius<40	
34	33503.90	33551.20	Left	Radius<40	
35	34613.74	34657.94	Left	Radius<40	
36	37636.98	37703.49	Right	Radius<40	
37	37798.35	37820.41	Left	Radius<40	
38	38640.72	38703.38	Right	Radius<40	

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(v) Improvement due to Realignments:

Sl. No.	ExistingChainage(km)		Length (m)	DesignChainage(km)		Length (m)
	From	To		From	To	
1	20+456	20+485	20	20+000	20+035	35
2	20+660	20+725	65	20+200	20+245	45
3	20+825	20+880	55	20+350	20+395	45
4	21+240	21+360	120	20+715	20+800	85
5	21+500	21+600	100	20+940	21+030	90
6	21+920	22+050	130	21+350	21+450	100
7	22+350	22+390	40	21+740	21+770	30
8	22+590	22+740	150	21+990	22+130	140
9	23+910	23+980	70	23+335	23+400	65
10	24+440	24+470	30	23+840	23+865	25
11	24+640	24+680	40	24+035	24+065	30
12	24+900	25+020	120	24+260	24+355	95
13	25+400	25+700	300	24+725	25+000	275
14	26+140	26+170	30	25+440	25+465	25
15	26+270	26+340	70	25+560	25+620	60
16	26+565	26+800	235	25+850	26+100	250
17	26+940	27+230	290	26+235	26+460	225
18	27+475	27+510	35	26+700	26+730	30
19	27+690	27+750	60	26+905	26+955	50
20	28+410	28+520	110	27+600	27+750	150
21	28+625	28+680	55	27+850	27+900	50
22	29+150	29+210	60	28+360	28+410	50
23	29+290	29+515	225	28+490	28+700	210
24	30+390	30+450	60	29+490	29+540	50
25	30+661	30+930	269	29+750	30+110	360
26	31+040	31+320	280	30+205	30+470	265
27	32+160	32+500	340	31+300	31+620	320
28	32+840	32+980	140	31+960	32+100	140
29	33+120	33+195	75	32+240	32+310	70
30	33+285	33+330	45	32+400	32+440	40
31	33+450	33+615	165	32+545	32+665	120
32	33+690	33+750	60	32+740	32+790	50
33	33+880	33+950	70	32+900	32+960	60
34	34+360	34+500	140	33+360	33+500	140
35	35+535	35+755	220	34+450	34+640	190
36	35+795	35+845	50	34+670	34+715	45
37	35+940	35+995	55	34+810	34+855	45
38	36+360	36+390	30	35+235	35+260	25
39	36+530	36+590	60	35+400	35+450	50
40	36+620	36+645	25	35+480	35+505	25
41	36+725	36+835	110	35+590	35+690	100
42	37+035	37+185	150	35+890	36+030	140
43	37+305	37+445	140	36+155	36+280	125
44	37+485	37+570	85	36+320	36+400	80
45	37+620	37+675	55	36+450	36+490	40
46	37+780	37+870	90	36+595	36+670	75
47	38+250	38+300	50	37+060	37+100	40
48	39+430	39+500	70	38+215	38+275	60
49	39+540	39+630	90	38+315	38+400	85

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50	39+770	40+055	285	38+560	38+850	290
51	40+200	41+065	865	38+990	40+000	1010
					Total	**6200**

(vi) Proposed Right of Way

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

The Scheduled date on which the Authority shall provide ROW to the contractor is given in Annexure-II of Schedule A

(vii) Type of Shoulders

(a) Hard shoulders of 1.5 m width shall be provided with granular material except in built up areas given in paragraph 1(ii).
(b) Design and specifications of hardshoulders and granular material shall conform to the requirements specified in the section 408 of MoRTH specification

(viii) Lateral and vertical clearances at underpasses

i. Lateral and vertical clearances at underpasses and provision of guardrails/crash barriers shall be as per paragraph 2.10 of the IRC:SP: 73-2018.

ii. Lateral Clearance:

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

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

(ix) Lateral and vertical clearances at overpasses

i. Lateral and vertical clearances at overpasses shall be as per paragraph 2.11 of the IRC: SP: 73-2018.

ii. *Lateral clearance*: The width of the opening at the overpasses shall be as follows:

Sl No.	Location [Chainage(km)]		Span/Opening (m)	Remarks
	From	To		
Nil				

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(x) Service roads

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

Sl. No.	Location of Service Road (km)		Right Hand Side (RHS) / Left Hand Side (LHS) / Both Sides	Length (km) of Service Road
	From	To		
Nil				

(xi) Grade Separated Structures

i. Grade separated structures shall be provided as per paragraph 2.14 of the IRC: SP: 73-2018. The requisite particulars are given below:

Sl. No.	Location of Structure	Length (m)	Number and Length of Spans (m)	Approach Gradient	Remarks, if any
Nil					

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

Sl No.	Location	Type of Structure/Length (m)	Cross Road at			Remarks, if any
			Existing Level	Raised Level	Lowered Level	
Nil						

(xii) Cattle and pedestrian underpass / Overpass

Cattle and pedestrian underpass/overpass shall be constructed as follows: [Refer to paragraph 2.14.3 of IRC: SP: 73-2018 and specify the requirements of cattle and pedestrian underpass/overpass.

Sl. No.	Location	Type of Crossing
Nil		

(xiii) Typical cross-sections of the Project Highway

The cross-section schedule shall be as follows:

TCS Number	TCS Description
TCS-I (a)	Typical Cross Section for project road sections in Hill / Valley locations
TCS-I (b)	Typical Cross Section for Project Road Sections requiring Fill on Valley Side
TCS-II	Typical Cross Section for project road section on Ridge
TCS III	Typical Cross Section for Project Road Sections through Box Cut Locations
TCS IV	Typical Cross Section for Project Road Section through Town with Hill Valley Combination.
TCS V	Typical Cross Section for Project Road Section through Town on Ridge

.

The cross-section schedule shall be as follows:

Sl.No.	Chainage(Km)		Length (m)	Type	Remarks
	From	To			
1	20+000	20+215	215	I	
2	20+215	20+220	5	III	
3	20+220	24+780	4560	I	
4	24+780	24+785	5	III	
5	24+785	26+265	1480	I	
6	26+265	26+275	10	III	
7	26+275	27+645	1370	I	
8	27+645	27+725	80	III	
9	27+725	28+410	685	I	
10	28+410	28+470	60	III	
11	28+470	28+535	65	I	
12	28+535	28+545	10	III	
13	28+545	28+565	20	I	
14	28+565	28+630	65	III	
15	28+630	29+430	BOO	I	
16	29+430	29+550	120	II	
17	29+550	29+980	430	I	
18	29+980	30+110	130	III	
19	30+110	30+245	135	I	
20	30+245	30+260	15	III	
21	30+260	30+500	240	I	
22	30+500	31+990	1490	II	
23	31+990	32+630	640	I	
24	32+630	32+650	20	III	
25	32+650	33+505	855	I	
26	33+505	33+525	20	III	
27	33+525	36+375	2850	I	
28	36+375	36+445	70	III	
29	36+445	38+820	2375	I	
30	38+820	39+030	210	I	
31	39+030	39+060	30	III	
32	39+060	40+000	940	I	

.

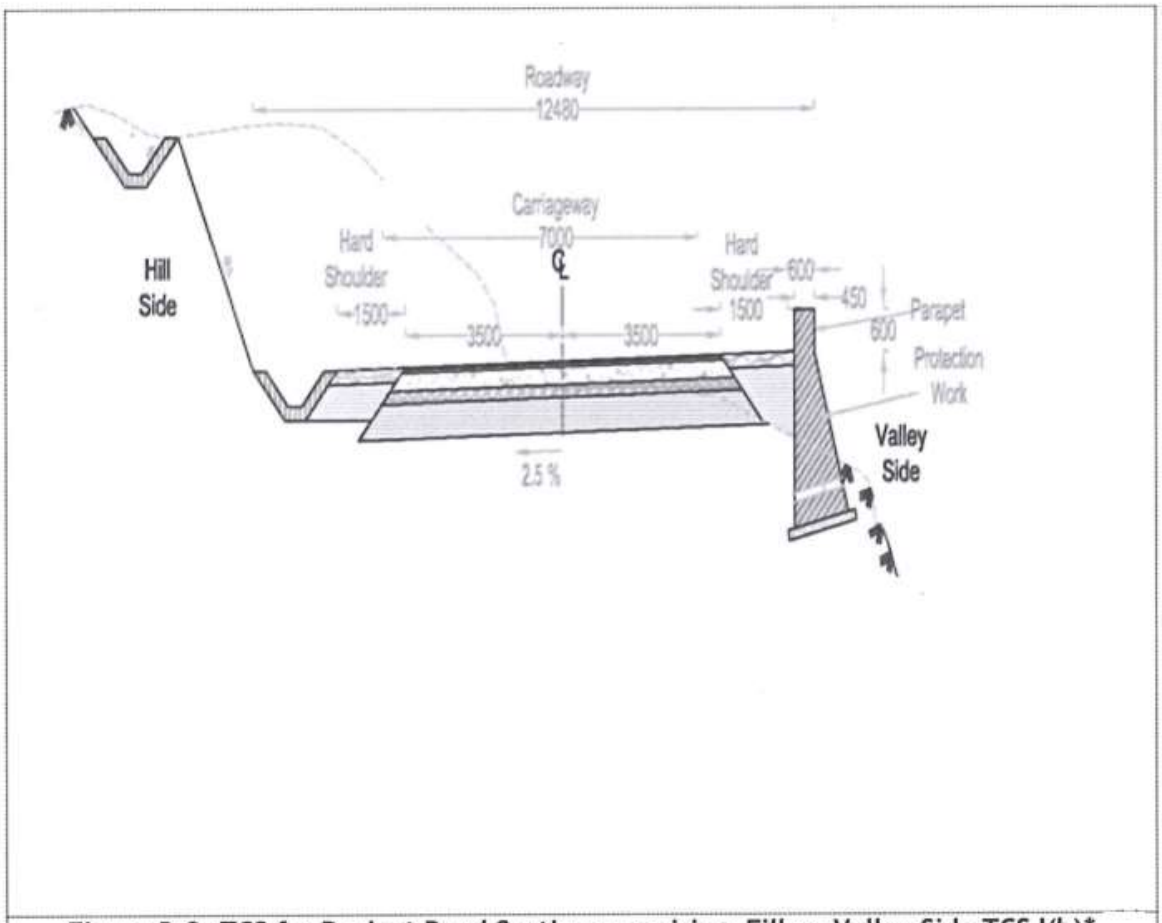

Figure B-2: TCS for Project Road Sections requiring Fill on Valley Side TCS I(b)*

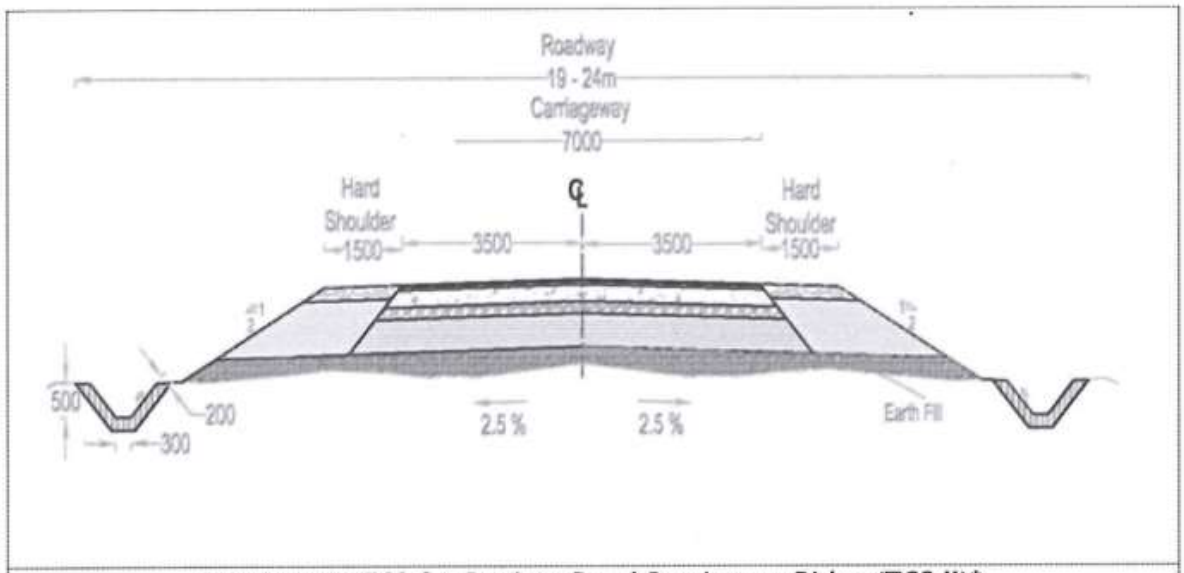

Figure B-3: TCS for Project Road Section on Ridge (TCS II)*

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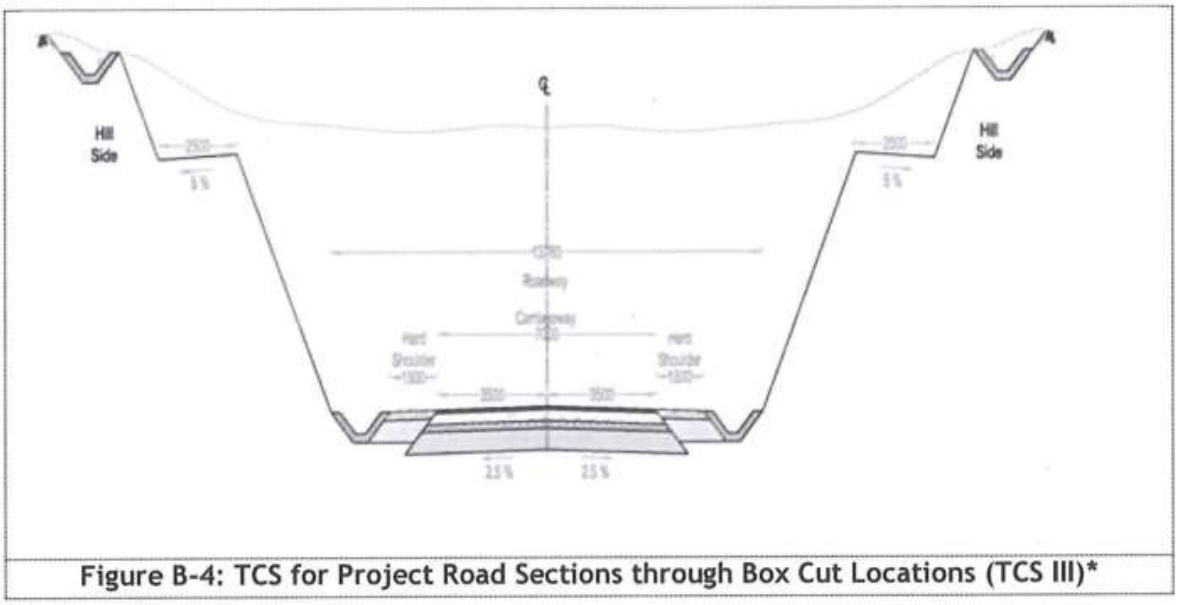

Figure B-4: TCS for Project Road Sections through Box Cut Locations (TCS III)*

3. INTERSECTIONS AND GRADE SEPARATORS

Introduction

All intersections shall be as per Section3 of the IRC: SP: 73-2018. 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:

(i) At-grade Intersections

Major Intersections

Sl. No.	Location of intersection (Km)	Type of intersection	Other features	Remarks
Nil				

Details of junction improvements shall be as per IRC SP: 73-2018.

Minor Intersections

Sl. No.	Location of intersection (Km)	Type of intersection	Other features
Nil			

Details of junction improvements shall be as per IRC SP: 73-2018.

(ii) Grade Separated Intersections with/without Ramps

Sl No.	Location (km)	Salient Features	Minimum Length of Viaduct to be Provided (m)	Road to be Carried Over/Under the Structures
Nil				

4. ROAD EMBANKMENT AND CUT SECTION

a. 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.

b. Rising of the existing road.

The existing road shall be raised in the following sections:

Sl No.	Section (km)		Length (km)	Extent of Raising*	Remarks
	From	To			
Nil					

* Difference between levels at proposed c/l and existing road/ground below proposed c/l

5. PAVEMENT DESIGN

(i) Pavement design shall be carried out in accordance with section5 of the Manual.

(ii) **Type of pavement**

Flexible pavement shall be adopted for Project Highway. Notwithstanding anything contrary contained in this Agreement or the Manual, the pavement shall be designed as given below

(iii) **Design requirements**

Notwithstanding anything to the contrary contained in this agreement or the manual, the contractor shall design the pavement of main carriageway for design traffic of 20 MSA with a minimum design period of 20 years. CBR value as obtained at site shall be taken for design if less than 10%. Maximum value of CBR to be taken for design shall not exceed 10%.

Bituminous Grade VG 30 or VG 40 shall be used for BC

6. ROAD SIDE DRAINAGE

Following measures shall be adopted:

i) Minimum length of Road Side Drains= 17279 m

Open side trapezoidal cross section drain shall be provided on hill sides or both sides at Box cutting location of the project highway in order to intercept surface water from the carriageway, shoulders, and hill slopes. RCC Lined drains have slopes also been proposed in urban/semi

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urban/intersection stretches. The concrete drains shall be covered in reaches along commercial establishments and intersections. The drains outfall into the natural water courses i.e., either in culverts or bridges. Locations of the drain to be constructed shall be finalized in consultation with the Authority's Engineer at the time of Execution. These are guidelines for minimum provisions. However, contractor must design as per requirement of road in accordance with manual.

Note:

1. The length of side drains given above are minimum and it may vary as per site condition. In case of increase of length, no positive change of scope will be payable.

2. Drainage system including surface and subsurface drains for the Project Highway shall be provided as per Section 6 of the Manual (IRC: SP: 73-2018).

3. Road side drain shall preferably be V-shaped having wetted area of 0.4sqm

4. The above locations shall be reviewed in consultation with the Authority Engineer at the time of constructionas per the site condition

7. Balance Work of 2 laning: Layer Wise: -

7.1 Minimum balance Earthwork up to Top of Sub-grade

Sl. No.	Chainage		Length (m)	Improvement Proposal
	From	To		
1.	20+450	20+550	100	Widening &strengthening
2.	23+280	23+320	40	Widening &strengthening
3.	23+320	23+335	15	Widening &strengthening
4.	25+000	25+100	100	Widening &strengthening
5.	31+730	31+810	80	Widening &strengthening
6.	34+715	34+752	37	Widening &strengthening
7.	38+850	38+940	90	Widening &strengthening
8.	38+940	38+990	50	Widening &strengthening
9.	38+990	39+040	50	Realignment
10.	39+570	40+000	430	Realignment
Total			**992**	

7.2 Minimum Balance Granular Sub Base Works: -

Sl.No.	Chainage		Length (m)	Improvement Proposal
	From	To		
1.	20+450	20+550	100	Widening & Strengthening
2.	23+280	23+320	40	Widening & Strengthening
3.	23+320	23+335	15	Widening & Strengthening
4.	25+000	25+100	100	Widening & Strengthening
5.	31+660	31+730	70	Widening & Strengthening
6.	31+730	31+810	80	Widening & Strengthening
7.	31+810	31+850	40	Widening & Strengthening

Sl.No.	Chainage		Length (m)	Improvement Proposal
	From	To		
8.	31+850	31+950	100	Widening & Strengthening
9.	34+670	34+715	45	Realignment
10.	34+715	34+752	37	Widening & Strengthening
11.	34+752	34+780	28	Widening & Strengthening
12.	37+850	38+000	150	Widening & Strengthening
13.	38+850	38+940	90	Widening & Strengthening
14.	38+940	38+990	50	Widening & Strengthening
15.	38+990	39+040	50	Realignment
16.	39+500	39+570	70	Realignment
17.	39+570	40+000	430	Realignment
Total			**1495**	

7.3 Minimum Balance WMM Works: -

Sl. No.	Chainage		Length (m)	Improvement Proposal
	From	To		
1.	20+450	20+550	100	Widening & Strengthening
2.	23+280	23+320	40	Widening & Strengthening
3.	23+320	23+335	15	Widening & Strengthening
4.	24+970	25+000	30	Realignment
5.	25+000	25+100	100	Widening & Strengthening
6.	25+100	25+200	100	Widening & Strengthening
7.	29+030	29+090	60	Widening & Strengthening
8.	31+660	31+730	70	Widening & Strengthening
9.	31+730	31+810	80	Widening & Strengthening
10.	31+810	31+850	40	Widening & Strengthening
11.	31+850	31+950	100	Widening & Strengthening
12.	34+650	34+670	20	Widening & Strengthening
13.	34+670	34+715	45	Realignment
14.	34+715	34+752	37	Widening & Strengthening
15.	34+752	34+780	28	Widening & Strengthening
16.	37+850	38+000	150	Widening & Strengthening
17.	38+850	38+940	90	Widening & Strengthening
18.	38+940	38+990	50	Widening & Strengthening
19.	38+990	39+040	50	Realignment
20.	39+040	39+120	80	Realignment
21.	39+500	39+570	70	Realignment
22.	39+570	40+000	430	Realignment
Total			**1785**	

7.4 Minimum Balance DBM Works: -

Sl. No.	Chainage		Length (m)	Improvement Proposal
	From	To		

Sl. No.	Chainage		Length (m)	Improvement Proposal
	From	To		
1.	20+000	20+035	35	Realignment
2.	20+035	20+200	165	Widening & Strengthening
3.	20+200	20+245	45	Realignment
4.	20+245	20+350	105	Widening & Strengthening
5.	20+350	20+395	45	Realignment
6.	20+395	20+450	55	Widening & Strengthening
7.	20+450	20+550	100	Widening & Strengthening
8.	20+650	20+660	10	Widening & Strengthening
9.	20+790	20+800	10	Realignment
10.	21+030	21+050	20	Widening & Strengthening
11.	21+430	21+450	20	Realignment
12.	21+630	21+650	20	Widening & Strengthening
13.	21+770	21+850	80	Widening & Strengthening
14.	22+120	22+130	10	Realignment
15.	23+000	23+150	150	Widening & Strengthening
16.	23+150	23+280	130	Widening & Strengthening
17.	23+280	23+320	40	Widening & Strengthening
18.	23+320	23+335	15	Widening & Strengthening
19.	23+335	23+350	15	Realignment
20.	23+350	23+400	50	Realignment
21.	23+400	23+450	50	Widening & Strengthening
22.	24+110	24+200	90	Widening & Strengthening
23.	24+440	24+460	20	Widening & Strengthening
24.	24+970	25+000	30	Realignment
25.	25+000	25+100	100	Widening & Strengthening
26.	25+100	25+200	100	Widening & Strengthening
27.	25+200	25+250	50	Widening & Strengthening
28.	25+530	25+540	10	Widening & Strengthening
29.	25+980	26+010	30	Realignment
30.	26+010	26+060	25	Realignment (RHS)
31.	26+060	26+070	10	Realignment
32.	26+210	26+235	25	Widening & Strengthening
33.	26+235	26+320	85	Realignment
34.	26+460	26+650	190	Widening & Strengthening
35.	26+900	26+905	5	Widening & Strengthening
36.	26+950	26+955	5	Realignment
37.	26+955	26+960	5	Widening & Strengthening
38.	26+990	27+150	160	Widening & Strengthening
39.	27+150	27+190	40	Widening & Strengthening
40.	28+040	28+110	70	Widening & Strengthening
41.	28+270	28+360	90	Widening & Strengthening
42.	28+360	28+410	50	Realignment

Sl. No.	Chainage		Length (m)	Improvement Proposal
	From	To		
43.	28+410	28+490	80	Widening & Strengthening
44.	28+490	28+500	10	Realignment
45.	28+500	28+700	200	Realignment
46.	28+700	28+750	50	Widening & Strengthening
47.	28+750	28+790	40	Widening & Strengthening
48.	28+940	29+030	90	Widening & Strengthening
49.	29+030	29+090	60	Widening & Strengthening
50.	29+150	29+170	20	Widening & Strengthening
51.	29+220	29+230	10	Widening & Strengthening
52.	30+160	30+205	45	Widening & Strengthening
53.	30+205	30+300	95	Realignment
54.	31+510	31+620	110	Realignment
55.	31+620	31+660	40	Widening & Strengthening
56.	31+660	31+730	70	Widening & Strengthening
57.	31+730	31+810	80	Widening & Strengthening
58.	31+810	31+850	40	Widening & Strengthening
59.	31+850	31+950	100	Widening & Strengthening
60.	31+950	31+960	10	Widening & Strengthening
61.	31+960	32+100	140	Realignment
62.	32+100	32+240	140	Widening & Strengthening
63.	32+240	32+310	70	Realignment
64.	32+310	32+400	90	Widening & Strengthening
65.	32+400	32+440	40	Realignment
66.	32+440	32+545	105	Widening & Strengthening
67.	32+545	32+600	55	Realignment
68.	33+360	33+500	140	Realignment
69.	33+500	33+550	50	Widening & Strengthening
70.	33+550	33+650	100	Widening & Strengthening
71.	33+650	33+720	70	Widening & Strengthening
72.	33+870	33+910	40	Widening & Strengthening
73.	33+910	34+120	210	Widening & Strengthening
74.	34+120	34+150	30	Widening & Strengthening
75.	34+150	34+280	130	Widening & Strengthening
76.	34+280	34+320	40	Widening & Strengthening
77.	34+535	34+640	105	Realignment
78.	34+640	34+650	10	Widening & Strengthening
79.	34+650	34+670	20	Widening & Strengthening
80.	34+670	34+715	45	Realignment
81.	34+715	34+752	37	Widening & Strengthening
82.	34+752	34+780	28	Widening & Strengthening
83.	34+780	34+810	30	Widening & Strengthening
84.	34+810	34+850	40	Realignment

Sl. No.	Chainage		Length (m)	Improvement Proposal
	From	To		
85.	35+850	35+890	40	Widening & Strengthening
86.	35+890	35+920	30	Realignment
87.	36+080	36+155	75	Widening & Strengthening
88.	36+155	36+280	125	Realignment
89.	36+280	36+300	20	Widening & Strengthening
90.	36+400	36+430	30	Widening & Strengthening
91.	36+710	36+730	20	Widening & Strengthening
92.	37+110	37+130	20	Widening & Strengthening
93.	37+230	37+250	20	Widening & Strengthening
94.	37+515	37+550	35	Widening & Strengthening
95.	37+620	37+640	20	Widening & Strengthening
96.	37+850	38+000	150	Widening & Strengthening
97.	38+080	38+120	40	Widening & Strengthening
98.	38+520	38+540	20	Widening & Strengthening
99.	38+640	38+660	20	Realignment
100.	38+730	38+850	120	Realignment
101.	38+850	38+940	90	Widening & Strengthening
102.	38+940	38+990	50	Widening & Strengthening
103.	38+990	39+040	50	Realignment
104.	39+040	39+120	80	Realignment
105.	39+360	39+380	20	Realignment
106.	39+500	39+570	70	Realignment
107.	39+570	40+000	430	Realignment
Total			**6850**	

7.5 Minimum Balance BC Works: -

Sl.No.	Chainage		Length (m)	Improvement Proposal
	From	To		
1.	20+000	40+000	20000	Widening & Strengthening / Realignment

8. DESIGN OF STRUCTURES

The details of culverts shall be provided by the EPC Contractor and locations are given in Clause 7(ii) of Schedule-B.

All the cross-drainage structures and other structures shall be designed in accordance with the design standards set out in **Schedule–D.**

(i) Bridges

i. General

a) All bridges, culverts and structures shall be designed and constructed in accordance with section 7 of IRC: SP: 73-2018and referred other codes therein and shallconformto the cross- sectional features and other details specified therein

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b) Width of the carriageway of new / reconstruction bridges and Structures shall be as per Clause 7. 3 of the Manual.

Sl. No	Bridge Location (km)	Salient Details of Existing Bridges					Adequacy or Otherwise of the Existing waterway, Vertical Clearance etc.	Proposal
		Span Arrangement (m)	Carriageway Width (m)	Total Width (m)	Type of Superstructure	Type Of Foundation		
1	32.467	1x31.7	3.35	5.4	Steel Truss	Open Foundation	Inadequate	Reconstruction
2	35.570	1 X 6.1	6.1	6.9	RCC Slab	Not Visible	Inadequate	Reconstruction
3	39.912	1 X 16.5	3.3	3.9	Steel Truss	Not Visible	Inadequate	Reconstruction

c) Following structures shall be provided with footpaths:

Sl. No.	Bridge/Structure at km	Width of carriageway and cross-sectional features
Nil		

d) All bridges shall be high-level bridges.

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

Sl. No.	Bridge/Structure at km	Width of carriageway and cross-sectional features
Nil		

f) Cross-section of the new culverts and bridges at deck level for the Project Highway shall conform to the typical cross-sections of IRC: SP: 73-2018.

(ii) Culverts

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

Minimum no. of box culverts with Span arrangement are given herein under:

Sr. No.	Span (M)	No. of Culverts (New / Reconstruction)	No. of Culverts (Widening &Balance work)	No. of Culvert (remaining work in Constructed Culvert	Total
1.	**1.5**	**03**	**02**	**37**	**42**
2.	**2.0**	**00**	**00**	**28**	**28**
3.	**3.0**	**00**	**00**	**13**	**13**

4.	**4.0**	**00**	**00**	**00**	**00**
5.	**5.0**	**00**	**00**	**05**	**05**

(b) Reconstruction of existing culverts

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

Sr. No.	Design Chainage (Km)	Proposed Span (M)	Remark
Nil			

* All culverts (excluding the box culverts in cushion) shall be provided with approach slabs on both sides. Moreover upstream and downstream protection works, including chute drains connecting stream with the culvert, catch pits; baffle piers/blocks etc. shall be provided which must be ascertained as per the site conditions and details given in drawings of culvert.

(c) New culverts to be constructed

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

Sr. No.	Design Chainage (Km)	Proposed Span (M)	Proposal	Remark
1.	24+920	1.5 x 1.50	RCC BOX	
2.	25+030	1.5 x 1.50	RCC BOX	
3.	39+900	1.5 x 1.50	RCC BOX	

(d) Widening and Balance work construction

Widening and Construction of balance work of Return walls, Parapet Walls, Catch Pit / Repairs/replacements of railing/parapets, flooring and protection works in the existing constructed half culvert shall be undertaken as follows:

Sr. No.	Design Chainage (Km)	Proposal	Proposed Span
1.	23+280	Widening in RHS & construction of Balance work Parapet wall, return wall and catch pit / apron work BHS	1.5x1.5
2.	38+770	Widening in LHS & construction of Balance work Parapet wall & Return wall LHS and catch pit / apron work BHS	1.5x1.5

(e) Construction of balance work of Return walls, Parapet Walls, Catch Pit / apron, construction of flooring and protection works in the existing constructed

.

culverts shall be undertaken as follows:

Sl. No.	Chainages (As per Bill)	Span (m)	Balance Work
1.	20+040	1.5	Return wall balance LHS, catch pit/apron balance BHS
2.	20+506	1.5	Parapet, return wall, catch pit/apron balance BHS
3.	20+657	1.5	Parapet, Return wall, catch pit/apron balance BHS
4.	20+791	1.5	Parapet, Return wall, catch pit/apron balance BHS
5.	21+033	1.5	Parapet, Return wall, catch pit/apron balance BHS
6.	21+456	1.5	Parapet, Return wall, catch pit/apron balance BHS
7.	21+693	3X2	Parapet, Return wall, catch pit/apron balance BHS
8.	21+870	1.5	Parapet, Return wall, catch pit/apron balance BHS
9.	21+942	1.5	Parapet, Return wall, catch pit/apron balance BHS
10.	22+150	2.0	Parapet, Return wall, catch pit/apron balance BHS
11.	22+640	3X2	Parapet, Return wall, catch pit/apron balance BHS
12.	23+020	3.0	Parapet, Return wall, catch pit/apron balance BHS
13.	23+680	1.5	Parapet, Return wall, catch pit/apron balance BHS
14.	24+160	5.00	Return wall, parapet wall balance in LHS, catch pit/apron balance BHS
15.	24+445	3X2	Slab complete BHS, Parapet, Return wall, catch pit/apron balance BHS
16.	25+170	1.5	Return wall balance LHS, catch pit/apron balance BHS
17.	25+410	3X2	Parapet, Return wall, catch pit/apron balance BHS
18.	25+555	1.5	Parapet, Return wall, catch pit/apron balance BHS
19.	25+810	1.5	Parapet, Return wall, catch pit/apron balance BHS
20.	25+990	1.5	Return wall balance LHS, catch pit/apron balance BHS
21.	26+505	1.5	Parapet, Return wall, catch pit/apron balance BHS

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Sl. No.	Chainages (As per Bill)	Span (m)	Balance Work
22.	26+627	1.5	Parapet balance RHS, Return wall& catch pit/apron balance BHS
23.	26+900	1.5	Parapet balance RHS and Return wall, catch pit/apron balance BHS
24.	26+940	1.5	Parapet balance RHS and Return wall, catch pit/apron balance BHS
25.	27+030	5.0	Parapet, Return wall, catch pit/apron balance BHS
26.	27+113	1.5	Parapet, Return wall, catch pit/apron balance BHS
27.	27+400	1.5	Parapet, Return wall, catch pit/apron balance BHS
28.	27+673	1.5	Parapet balance RHS and Return wall, catch pit/apron balance BHS
29.	28+080	3X2	Return wall balance LHS, catch pit/apron balance BHS
30.	28+320	1.5	Parapet, Return wall, catch pit/apron balance BHS
31.	28+421	3X2	Parapet, Return wall, catch pit/apron balance BHS
32.	28+772	5	Parapet & Return wall balance LHS and catch pit/apron balance BHS
33.	29+063	3.0	Parapet, Return wall, catch pit/apron balance BHS
34.	29+180	1.5	Parapet and Return wall balance RHS , catch pit/apron balance BHS
35.	29+253	1.5	Parapet balance RHS and Return wall, catch pit/apron balance BHS
36.	29+406	3X2	Parapet, Return wall, catch pit/apron balance BHS
37.	29+650	3X2	Parapet, Return wall, catch pit/apron balance BHS
38.	29+868	1.5	Parapet, Return wall, catch pit/apron balance BHS
39.	30+500	2.0	Parapet, Return wall, catch pit/apron balance BHS
40.	30+570	2.0	Parapet, Return wall, catch pit/apron balance BHS
41.	30+930	2.0	Parapet, Return wall, catch pit/apron balance BHS
42.	31+970	2.0	Parapet, Return wall, catch pit/apron balance BHS
43.	32+160	3.0	Return wall Incomplete A2 side, catch pit/apron balance BHS

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Sl. No.	Chainages (As per Bill)	Span (m)	Balance Work
44.	32+350	3.0	Catch pit/apron balance BHS
45.	32+655	1.5	Catch pit/apron balance BHS
46.	32+690	1.5	Parapet balance LHS and Return wall, catch pit/apron balance BHS
47.	32+900	3.0	Parapet, Return wall, catch pit/apron balance BHS
48.	33+310	2.0	Parapet, Return wall balance LHS and catch pit/apron balance BHS
49.	33+587	5.0	Catch pit/apron balance BHS
50.	33+975	2.0	Parapet, Return wall balance LHS, approach slab balance LHS, catch pit/apron balance BHS
51.	34+280	1.5	Parapet, Return wall balance LHS, approach slab approach slab balance LHS, catch pit/apron balance BHS
52.	34+350	2.0	Parapet, Return wall balance LHS, approach slab balance LHS, catch pit/apron balance BHS
53.	34+380	2.0	Parapet, Return wall, catch pit/apron balance BHS
54.	34+920	2.0	Parapet, Return wall, catch pit/apron balance BHS
55.	35+200	2.0	Parapet, Return wall, catch pit/apron balance BHS
56.	35+320	2.0	Parapet, Return wall, catch pit/apron balance BHS
57.	35+335	1.5	Parapet, Return wall, catch pit/apron balance BHS
58.	35+600	2.0	Parapet, Return wall, catch pit/apron balance BHS
59.	35+790	1.5	Parapet, Return wall, catch pit/apron balance BHS
60.	35+955	1.5	Parapet, Return wall, catch pit/apron balance BHS
61.	36+065	2.0	Catch pit/apron balance BHS
62.	36+135	2.0	Parapet, Return wall, catch pit/apron balance BHS

.

Sl. No.	Chainages (As per Bill)	Span (m)	Balance Work
63.	36+470	5.0	Parapet, Return wall balance LHS, approach slab, approach slab balance LHS, catch pit/apron balance BHS
64.	36+529	2.0	catch pit/apron balance BHS
65.	36+556	2.0	Parapet, Return wall, catch pit/apron balance BHS
66.	36+967	2.0	Parapet, Return wall balance LHS, approach slab balance LHS, catch pit/apron balance BHS
67.	37+030	2.0	Parapet, Return wall, catch pit/apron balance BHS
68.	37+190	2.0	Parapet, Return wall, catch pit/apron balance BHS
69.	37+265	2.0	Parapet, Return wall balance LHS, catch pit/apron balance BHS
70.	37+418	2.0	Parapet, Return wall, catch pit/apron balance BHS
71.	37+532	2.0	Parapet, Return wall, catch pit/apron balance BHS
72.	37+600	1.5	Parapet balance LHS and Return wall, catch pit/apron balance BHS
73.	37+650	5.0	Parapet, Return wall, catch pit/apron balance BHS
74.	37+735	2.0	Parapet, Return wall, catch pit/apron balance BHS
75.	37+820	1.5	Parapet, Return wall, catch pit/apron balance BHS
76.	37+950	3.0	Parapet, Return wall, catch pit/apron balance BHS
77.	38+015	2.0	Parapet, Return wall, catch pit/apron balance BHS
78.	38+550	2.0	Parapet, Return wall, catch pit/apron balance BHS
79.	38+983	2.0	Parapet, Return wall, catch pit/apron balance BHS
80.	39+153	1.5	Parapet, Return wall, catch pit/apron balance BHS
81.	39+420	1.5	Parapet & Return wall complete RHS, catch pit/apron balance BHS
82.	39+640	1.5	Parapet, Return wall, catch pit/apron balance BHS

.

Sl. No.	Chainages (As per Bill)	Span (m)	Balance Work
83.	39+965	1.5	Parapet, Return wall, catch pit/apron balance BHS

(f) Floor protection works shall be as specified in the relevant IRC Codes and Specifications.

(iii) Bridges

i. The existing bridges to be reconstructed/widened

Sl. No.	Existing Chainage	Design Chainage	Proposed Span (m)	Proposed width (m)	Remark
1	32.467	31+770	2 x 23.0	12.00	
2	35.570	34+722	1 x 14.0	13.50	
2	39.912	38+987	1 x 23.0	12.00	

ii. The following structures shall be provided with footpaths:

Sl. No.	Location (km)	Remarks
NIL		

iii. Additional New Minor Bridges

New minor bridges at the following locations on the project highways shall be constructed in Package as per manual

Sl. No.	Location (km)	Total Length (m)	Remarks. If any
Nil			

iv. Additional New Major bridges

Sl. No.	Location Designed (km)	Total Length (m)	Remarks
NIL			

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

Sl. No.	Location (km)	Remarks
Nil		

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

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Sl. No.	Location (km)	Remarks
Nil		

v. Drainage system for bridge decks

An effective drainage system for bridge decks shall be provided as specified in paragraph 7.20 of the Manual

vi. Structures in marine environment

NIL

(iv) Rail-road Bridges

(a) Design, construction and detailing of ROB/RUB shall be as specified in section 7 of the Manual

(b) Road over-bridges

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

Sl No.	Location of Level Crossing (km)	Length of Bridge (m)
Nil		

(c) Road under-bridges

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

Sl. No.	Location (km)	Total Length (m)	Remarks. If any
Nil			

(v) 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.

Underpasses/Overpasses

There is no Underpass/Overpass proposed on the Project Highway.

(vi) 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

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Sl No.	Location of Bridge (km)	Nature and Extent of Repairs/Strengthening to be Carried out
Nil		

B. ROB / RUB

Sl No.	Location of Bridge (km)	Nature and Extent of Repairs/Strengthening to be Carried out
Nil		

C. Overpasses / Underpasses and Other Structures

Sl No.	Location of Bridge (km)	Nature and Extent of Repairs/Strengthening to be Carried out
Nil		

(vii) List of Major Bridges and Structures

The following is the list of Major Bridges on Package

Sl No.	Location Design (km)	Total Length (m)	Remarks
NIL			

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 IRC: SP:73-2018.

Traffic Signs: Traffic signs include roadside signs, overhead signs and curb mounted signs along the entire Project Highway shall be provided conforming to IRC 67 and section 800 of MoRTH specification.

Pavement Marking: Pavement markings shall cover road marking for the entire Project Highway and shall be provided conforming to IRC 35-2015.

Safety Barrier: W-beam crash barrier along the project highway at all locations shall be provided as specified in section 9 of IRC: SP: 73-2018.

8.2 Specifications of the reflective sheeting.

Retro reflective sheeting should be of high intensity grade with encapsulated lens or with micro prismatic retro reflective element in accordance with ASTM Standard D 4956-04 shall be provided conforming to section 800 of MoRTH specification

The minimum quantity of Traffic signages and pavement marking are tabulated here for Package

.

Sl. No	Traffic Signages, Road Marking and other appurtenances	unit	Quantity
1	Road Marking on Centre line & Edge	sqm	6,850
2	Direction & Place Identification up to 0.9 sqm	sqm	8
3	Direction & Place Identification more than 0.9 sqm	sqm	NIL
4	60 cm Equilateral Triangle	Number	156
5	60 cm Circular	Number	36
6	60 cm High Octagon	Number	7
7	60 cm X 45 cm Rectangular	Number	8
8	60 cm X 50 cm Chevron Sign	Number	643
9	Hectometer Stone	Number	80
10	Km stone	Number	16
11	5th km stone	Number	4
12	Boundary Stone (as per clause 13 herein under)	Number	200
13	Road Delineators	Number	1,235
14	Road Marker/ Road Stud	Number	10,000
15	Hazard Marker	Number	176

9. Roadside Furniture

(i) Roadside furniture shall be provided in accordance with the provisions of Section 11 of the Manual IRC: SP: 73-2018.

(ii) Overhead traffic signs: location and size

The overhead signs shall be the reflectorized type with high intensity retro-reflective sheeting conforming to ASTM D 4956-01, type VIII and /or type IX of micro prismatic type. The retro reflected sheets of Engineering Grade and high intensity grade (ordinary) shall not be used. The height, lateral clearance, location the overhead signs shall be the reflectorized type with high intensity retro-reflective sheeting conforming to ASTM D 4956-01, type VIII and / or type IX of micro prismatic type. The retro reflected sheets of Engineering Grade and high intensity grade (ordinary) shall not be used. The height, lateral clearance, location and instillation shall be as per relevant clauses of MoRTH specifications. Overhead sign shall be installed ahead of major intersections and urban areas as per detailed design requirements.

10. COMPULSORY AFFORESTATION

Minimum 2000 nos. trees are required to be planted.

11. HAZARDOUS LOCATIONS

11.1 Metal Beam crash barrier of minimum length of 2287 m (single runner, heavy duty and W-shape) shall be provided at the locations of bridge approaches and high embankments (3.0m and more), at sharp curves.Heavy duty metal beam crash barriers

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shall be provided on this project by the Construction Contractor at the locations finalized in consultation with NHIDCL. Typical details of metal crash barrier are given in as per manual. Location of sharp curves are tabulated below.

SlNo.	DesignChainage(m)		Length(m)	Remarks
	From	To		
1	20194.28	20269.06	75	Radius<40
2	21182.46	21241.40	59	Radius<40
3	21338.07	21397.79	60	Radius<40
4	21397.79	21469.36	72	Radius<40
5	22030.25	22089.35	60	Radius<40
6	23012.81	23086.99	75	Radius<40
7	23530.96	23591.45	61	Radius<40
8	23787.46	23896.79	110	Radius<40
9	24017.90	24089.36	72	Radius<40
10	24368.75	24428.12	60	Radius<40
11	24972.54	25031.77	60	Radius<40
12	25238.27	25275.33	38	Radius<40
13	25381.73	25420.53	39	Radius<40
14	25691.35	25755.40	65	Radius<40
15	25798.48	25881.27	83	Radius<40
16	26085.32	26123.30	38	Radius<40
17	27274.04	27329.58	56	Radius<40
18	27607.86	27667.05	60	Radius<40
19	27708.72	27785.38	77	Radius<40
20	27785.38	27865.41	81	Radius<40
21	28529.32	28575.24	46	Radius<40
22	28665.86	28729.24	64	Radius<40
23	29421.93	29492.58	71	Radius<40
24	29492.58	29555.88	64	Radius<40
25	29882.24	29951.80	70	Radius<40
26	30032.32	30104.78	73	Radius<40
27	30433.65	30486.75	54	Radius<40
28	32410.62	32451.79	42	Radius<40
29	32656.36	32721.10	65	Radius<40
30	32721.10	32795.65	75	Radius<40
31	33131.68	33159.74	29	Radius<40
32	33244.37	33270.27	26	Radius<40
33	33321.07	33381.67	61	Radius<40
34	33503.90	33551.20	48	Radius<40
35	34613.74	34657.94	45	Radius<40
36	37636.98	3no3.49	67	Radius<40
37	37798.35	37820.41	23	Radius<40
38	38640.72	38703.38	63	Radius<40

12. SPECIAL REQUIREMENT FOR HILL ROADS

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In accordance with section 13 of the manual, IRC: SP: 48-1998 and Recommended practices for Treatment of Embankment and Roadside slopes for erosion control (First Revision), IRC: 56-2011 and relevant IRC codes

(i) The **minimum quantity** of protection work may be taken as below:

Type of Protection Work		
Protection Work	**Unit**	**Minimum Quantity**
Parapet Wall having size 0.45mx0.7m with 0.7 m spacing between two parapets	Rm	5,780
Breast wall of PCC/RCC/Gabion/Cement masonry having minimum height of 3.0 m	Rm	1,434
Retaining Structure on valley side of PCC/RCC/Gabion/Cement masonry of varying height between 1 to 6 meter depending upon the slope with parapet walls	Rm	4188.10
RE wall in PCC	Rm	359
Subsurface drain with perforated pipe for collection of seepage water to avoid sinking of payment	Rm	865
Seeding and Mulching with Jute Net	Sqm	64,123
Hydro seeding	Sqm	17,634
Catch Water Drain (Unlined)	Rm	18,910

Note- ***(i)*** *The Contractor shall be responsible for accurate assessment of the actual requirement as per site situation & prepare designs for slope protection & stabilization as per the specifications & standards stipulated in schedule 'D' and submit the same to the AE for review through the proof consultant and implement it accordingly thereafter.*

(ii) *Any increase in quantity over and above the minimum qty. as mentioned in above table or through change in specifications will not be considered as change of scope**. Therefore contractor shall make thorough investigation at site and assess the requirement of slope protection and slide prone zone and other safety features at his own before submission of bid***

(iii) *The length of Retaining Wall shown above is minimum, to be constructed at site for proper geometrics and will not be converted to Breast Wall. Any reduction in the total length of Retaining Wall constructed at site shall constitute of negative change of scope.*

(iv) *Entire slope/formation which has been cut apart from the above tabulated lengths shall have to be stabilized by the Contractor using techniques approved by AE.*

13. CHANGE OF SCOPE

The size of Structures, bridges, culverts and slope protection works whatsoever in

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terms of retaining wall, breast wall, gabion wall, RE wall, chute drain, catch pit, baffle piers/blocks etc. under special requirement of hill slope specified hereinabove shall be treated as an approximate assessment. The actual lengths, heights and widths 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, heights and widths and specifications in this Schedule-B shall not constitute a Change of Scope, save and except any variations in the length, height and width arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.

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SCHEDULE – C

(See Clause 2.1)

PROJECT FACILITIES

Project Facilities

This schedule indicates the minimum spatial and functional requirements of the facilities to be provided on the **Project Highway (Total length of 20.00 km)**.

The Contractor shall construct the Project Facilities in accordance with the provisions of this Agreement. Such Project facilities for Package-II shall include:

(a) Roadside furniture
b) Pedestrian facilities
c) Tree Plantation
d) Bus shelters and Bus bays
e) Passing Places
f) Truck lay byes and
g) Others to be specified

Description of Project Facilities

Toll Plaza

NIL

Bus Shelters

To ensure orderly movement of the through traffic, bus shelters have been proposed outside the residential area, away from bridges, and high embankments and not too close to the road intersections.

Bus shelters shall be provided on the Project Highway at 2 locations as mentioned herein under. Bus shelters shall be constructed as per Manual on both sides of the Project Highway. These bus shelters will also have passenger shelter.

Details of Bus shelters

Sl. No.	Project Facility	Location (km)	Design Requirements
1	Bus shelter	32+380	Bus shelter have been placed on both side of proposed roadway

Pedestrian Facilities

Pedestrian facilities shall be provided at the locations of urban sections in order to ensure safety of pedestrians while crossing in consultation with NHIDCL. This should include (a) minimum Zebra Crossing with flashing Beacon or (b) Zebra Crossing with separate pedestrian path or (c) any other provision as approved by AE.

Landscaping

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Landscape treatment of the Project Highway shall be undertaken through planting of trees and ground cover of appropriate varieties and landscaping on surplus land in the ROW. The Construction Contractor should plant at least 2000 nos. of trees of minimum 6 ft. height with tree guard made up of MS sections.

Plantation scheme shall be prepared in consultation with the Forest Department of the Government of Nagaland, , and the Independent Consultant/NHIDCL

Environment

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

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SCHEDULE – D

(See Clause 2.1)

SPECIFICATIONS AND STANDARDS

1. Construction

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

2. Design Standards

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

Manual of specification and standards for two laning of Highways with paved shoulder (Second revision) IRC:SP:73-2018, Hill road manual IRC:SP:48-1998 and Specification of roads and bridges work (fifth revision), MoRTH.

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Annex – I
(Schedule – D)
Specifications and Standards for Construction

1. Specifications and Standards

All materials, works and construction operations shall confirm to the Manual of Specifications and Standards for Two Laning of Highways (IRC: SP: 73 – 2018), referred as the Manual, MORTH Specifications for Road and Bridge Works, and IRC: SP: 48-1998. Where the specification for a work is not given, Good Industry Practice shall be adopted to the satisfaction of the Authority's Engineer.

2. Deviations from the Specifications and Standards

i) The terms 'Concessionaire', 'Independent Engineer' and 'Concession Agreement' used in the Manual (IRC: SP 73- 2018) shall be deemed to be substituted by the terms 'Contractor', 'Authority's Engineer' and 'Agreement' respectively.

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

S. No.	Clause	Provision as per Manual (IRC: SP:73-2018)	Modified Provision
1	2.2	**Design Speed:** Ruling or minimum Design speed shall be followed	Design speed shall be 30 Km/h for project highway where the radius is less than 40m. The same is mentioned in the Plan & Profile drawings given in **Annexure-III of Schedule A**
2	2.7.2	**Roadway Width:** On horizontal curves with radius up to 300 m width of pavement and roadway shall be increased as per Table 2.4	On horizontal Curves with radius up to 300 m width of pavement and roadway shall be increased as per Plan & Profile drawings given in Annexure-III of Schedule A
3	2.9.4	**Radius of Horizontal Curves:**	Radius of Horizontal Curves shall be as per the alignment plan shown in Plan & Profile drawings given in **Annexure-III** of **Schedule A**.
4	2.6	**Type of Shoulder in Open Country**	As given in **Schedule B**
5	5.1	**Pavement Crust thickness**	As given in Schedule B

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6	7.3(ii)	**New Bridges:**	The minimum width of footpath clear of crash barrier and railings shall be 1.3 m as detailed in GAD drawings for Bridges as per **Annexure-III** of **Schedule A**

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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 ApplicablePermits.

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 beadopted.

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'sEngineer

4. Extension of TimeLimit

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

5. 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 theContractor

The Contractor shall, through its engineer, undertake a daily visual inspection of the Project

· Highway and maintain a record thereof in a register to be kept in such form and manner as the Authority's Engineer may specify. Such record shall be kept in safe custody of the Contractor and shall be open to inspection by the Authority and the Authority's Engineer at any time during office hours.

7. Pre-monsoon Inspection / Post-monsoonInspection

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

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 Defect or deficiency		Time limit for repair/rectification
ROADS		
(a)	**Carriageway and paved shoulders**	
(i)	Breach or blockade	Temporaryrestorationoftrafficwithin24hours;permanentrestoration within15(fifteen)days
(ii)	Roughnessvalueexceeding2,200mminastretch of 1km(as measured by a calibrated bump integrator)	120(one hundred and twenty)days
(iii)	Pot holes	24hours
(iv)	Any cracks in road surface	15(fifteen)days
(v)	Anydepressions,ruttingexceeding10mminroad surface	30 (thirty) days
(vi)	Bleeding/skidding	7 (seven) days
(vii)	Any other defect/distress on the road	15(fifteen)days
(viii)	Damage to pavement edges	15(fifteen)days
(ix)	Removal of debris, dead animals	6 hours
(b)	**Granular earth shoulders, side slopes, drains and culverts**	
(i)	Variationbymorethan1%intheprescribedslope of camber/crossfall(shallnotbelessthanthecamber onthemaincarriageway)	7 (seven) days
(ii)	Edge drop at shoulders exceeding 40 mm	7 (seven) days
(iii)	Variationbymorethan15%intheprescribedside (embankment)slopes	30 (thirty) days
(iv)	Rain cuts/gullies in slope	7 (seven) days
(v)	Damage to or silting of culverts and side drains	7 (seven) days
(vi)	Desilting of drains in urban/semi-urban areas	24hours
(vii)	Railing, parapets, crash barriers	7 (seven) days (Restore immediately if causing safety hazard)
(c)	**Road side furniture including road sign and**	

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Nature of Defect or deficiency		Time limit for repair/rectification
	pavement marking	
(i)	Damage to shape or position, poor visibility or loss of retro-reflectivity	48 hours
(ii)	Painting of km stone, railing, parapets, crash barriers	As and when required/Once every year
(iii)	Damaged/missing 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	24hours
(ii)	Faults and 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	24hours
(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	24hours
(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 (four) hours
(iii)	Malfunctioning of the mobile crane	4 (four) hours
	Bridges	
(a)	**Superstructure**	
(i)	Any damage, cracks, spalling/ scaling Temporarymeasures Permanentmeasures	within 48 hours within15(fifteen)daysorasspecified bytheAuthority'sEngineer
(b)	**Foundations**	
(i)	Scouring and/or cavitation	15(fifteen)days
(c)	**Piers, abutments, return walls and wing walls**	

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Nature of Defect or deficiency		Time limit for repair/rectification
(i)	Cracks and damages including settlement and tilting, spalling, scaling	30 (thirty) days
(d)	**Bearings (metallic) of bridges**	
(i)	Deformation, damages, tilting or shifting of bearings	15(fifteen)days Greasing of metallic bearings once in a year
(e)	**Joints**	
(i)	Malfunctioning of joints	15(fifteen)days
(f)	**Other items**	
(i)	Deforming of pads in elastomeric bearings	7 (seven) days
(ii)	Gathering of dirt in bearings and joints; or clogging of spouts, weep holes and vent-holes	3 (three) days
(iii)	Damage or deterioration in kerbs, parapets, handrails and crash barriers	3 (three) days (immediatelywithin24hoursifposing dangertosafety)
(iv)	Rain-cuts or erosion of banks of the side slopes of approaches	7 (seven) days
(v)	Damage to wearing coat	15(fifteen)days
(vi)	Damage or deterioration in approach slabs, pitching, apron, toes, floor or guide bunds	30 (thirty) days
(vii)	Growth of vegetation affecting the structure or obstructing the waterway	15(fifteen)days
(g)	**Hill Roads**	
(i)	Damage to retaining wall/breast wall	7 (seven) days
(ii)	Landslides requiring clearance	12(twelve)hours
(iii)	Snow requiring clearance	24(twentyfour)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.]

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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 ApplicablePermits:

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

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

c) License for use ofexplosives;

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

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

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

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

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

i) Any other permits or clearances required under 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.

1.3 The agency need to ensure compliance of AIP and FC stated in schedules 'A', Annexure – IV. The necessary certifications need to be obtained from competent local forest department.

1.4 Muck dumping locations in forest area to be freezed in consultation with the forest department ,the necessary certifications from local competent forest department is to be submitted.

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SCHEDULE - G
(See Clauses 7.1.1, 7.5.3 and 19.2)

FORM OF BANK GUARANTEE

Annex-I
(See Clause7.1.1)
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 Managing Director, NHIDCL, PTI Building, 3rd Floor, 4, Parliament Street, New Delhi- 110001(hereinafter called the **"Authority"**) have entered into an agreement (hereinafter called the "Agreement") for the **RFP for "Construction of two-Lane with hard shoulders of Merangkong – Tamlu – Mon Road on EPC basis from existing Km 20.456 to Km 41.065 [Design Km. 20+000 to Km. 40+000] (Design Length – 20.000 Km) in the state of Nagaland under SARDP-NE Phase A"** subject to and in accordance with the provisions of the Agreement

A. 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**").

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 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 theAgreement, 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.

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2. A letter from the Authority, under the hand of an officer not below the rank of General Manager in the National Highways & Infrastructural Development Corporation Ltd, 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 notinanywayormanneraffecttheliabilityorobligationoftheBankunderthisGuarantee.

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 ademandor claiminwritingismade

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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 theAgreement.

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

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

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 theAgreement.

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

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

Sr. No.	Particulars	Details
1	Name of Beneficiary	MD-NHIDCL
2	Beneficiary Bank Account No	90621010002610
3	Beneficiary Bank Branch Name and Address	Canara Bank (erstwhile Syndicate Bank), Transport Bhawan, 1st Parliament Street, New Delhi-110001
4	**Beneficiary Bank Branch IFSC**	**CNRB0019062**
5.	**Email ID:**	cb19062@canarabank.com

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.

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Annex – III (Schedule - G)

(See Clause 19.2)

Form for Guarantee for Advance Payment

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

WHEREAS:

(A) [name and address of contractor] (hereinafter called the "Contractor") has executed an agreement (hereinafter called the "Agreement") with the Managing Director, Head Office New Delhi (hereinafter called the "Authority") have entered into an agreement (hereinafter called the "Agreement") for Construction of two-Lane with hard shoulders of Merangkong – Tamlu – Mon Road on EPC basis from existing Km 20.456 to Km 41.065 [Design Km. 20+000 to Km. 40+000] (Design Length – 20.000 Km) in the state of Nagaland under SARDP-NE Phase A" subject to and in accordance with the provisions of the Agreement.

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

(C) We, …….. through ourbranchat.....(the "Bank") haveagreed to furnish this bank guarantee (hereinafter called the "Guarantee") for the GuaranteeAmount.

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

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

2. A letter from the Authority, under the hand of an officer not below the rank of [General Manager in the National Highways & Infrastructural Development Corporation Ltd], 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 thisGuarantee.

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

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 AdvancePayment.

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

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 here under.

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 beconclusive.

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. This guarantee shall also be operatable a tour 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 in vocation.

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

Sr. No.	Particulars	Details
1	Name of Beneficiary	MD-NHIDCL
2	Beneficiary Bank Account No	90621010002610
3	Beneficiary Bank Branch Name and Address	Canara Bank (erstwhile Syndicate Bank), Transport Bhawan, 1st Parliament Street, New Delhi-110001
4	**Beneficiary Bank Branch IFSC**	**CNRB0019062**
5.	**Email ID:**	cb19062@canarabank.com

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 issuingbranch.

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Schedule - H

(See Clauses 10.1 (iv) and 19.3)

Contract Price Weightages

1. The Contract Price for this Agreement is Rs_____ Crore rupees.

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

Item	Weightage in % of CP	Stage for Payment	Percentage
1	2	3	4
Road Works including Culverts, widening and repair ofculverts	29.200	**A- Widening and strengthening of existing road**	
		(1) Earthwork up to top of the sub- grade	0.090
		(2) Sub-base Course	0.686
		(3) Non bituminous Base course	1.418
		(4) Bituminous Basecourse	3.308
		(5) Wearing Coat	6.819
		(6) Widening andrepair of culverts	0.367
		(6) Hard Shoulder	4.009
		B.1-Reconstruction/New 2-Lane Realignment /Bypass(Flexible Pavement)	
		(1) Earthwork up to top of the sub- grade	0.162
		(2) Sub-base Course	0.450
		(3) Non bituminous Base course	0.920
		(4) Bituminous Basecourse	1.847
		(5) Wearing Coat	3.053
		(6) Hard Shoulder t	1.954
		B.2-Reconstruction/New 8-Lane Realignment/ Bypass (Rigid Pavement)	
		(1) Earthwork up to top of the sub- grade	[Nil]
		(2) Sub-base Course	[Nil]
		(3) DryLean Concrete (DLC) Course	[Nil]
		(4) Pavement Quality Control (PQC) Course	[Nil]
		C.1-Reconstruction/ NewService Road(Flexible Pavement)	
		(1) Earthwork up to top of the sub- grade	[Nil]
		(2) Sub-base Course	[Nil]
		(3) Non bituminous Base course	[Nil]
		(4) Bituminous Basecourse	[Nil]
		(5) Wearing Coat	[Nil]
		C.2- Reconstruction/New Service Road(Rigid Pavement)	
		(1) Earthwork up to top of the sub- grade	[Nil]
		(2) Sub-base Course	[Nil]
		(3) DryLean Concrete (DLC) Course	[Nil]
		(4) Pavement Quality Control (PQC) Course	[Nil]
		D- Reconstruction &New Culverts	1.144

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Item	Weightage in % of CP	Stage for Payment	Percentage
		onexisting road, realignments, bypasses Culverts (length <6m)	
		E- Construction of balance work in existing culvert existing road, realignments, bypasses Culverts (length <6m)	2.973
Minor bridge/ Underpasses/ Overpasses	10.707	**A.1-widening and repairing of Minor Bridges (length >6 m&<60m)**	
		Minor Bridges	[Nil]
		A.2- New Minor bridges (length >6 mand<60m)	
		(1) Foundation + Sub-Structure: On completion of the foundation work including foundations for wing and return walls, abutments, piers up to the abutment/pier cap.	6.284
		(2)Super-structure:On completion of the super-structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road,signs & markings, tests on completion etc. complete in all respect.	3.183
		(3)Approaches:On completionof approaches includingRetainingwalls, stonepitching, protection works complete in all and fit for use	1.240
		(4) GuideBundsand River Training Works:On completion of GuideBunds andriver training works complete in all respects	[Nil]
		(5) Diversion work	[Nil]
		B.1- Widening and repairs of underpasses/overpasses	
		Underpasses/ Overpasses	[Nil]
		B.2-NewUnderpasses/Overpasses	
		(1) Foundation + Sub-Structure: On completion of the foundation work including foundations for wing and return walls, abutments, piers upto the abutment/pier cap.	[Nil]
		(2) Super-structure:On completion of the super-structure in all respects including wearing coat, bearings, expansion joints, hand rails,crash barriers, road signs & markings, tests on completion etc. complete in all respect. Wearing Coat (a) in case of Overpass- wearing coat including expansion joints complete in all respects as specified and (b) in case of underpass- rigid pavement including drainage facility complete in all respects as specified.	[Nil]

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Item	Weightage in % of CP	Stage for Payment	Percentage
		(3) Approaches: On completion of approaches including Retaining walls/ Reinforced Earth walls, stone pitching, protection works complete in all respect and fit for use.	[Nil]
Major bridge(length>60 m)worksand ROB/RUB/elevated sections/flyovers including viaducts,ifany	0.00 %	**A.1- Wideningand repairs of Major Bridges**	
		(1)Foundation	[Nil]
		(2) Sub-structure	[Nil]
		(3) Super-structure(including bearings)	[Nil]
		(4)WearingCoatincludingexpansion joints	[Nil]
		(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]
		(6) Wing walls/return walls	[Nil]
		(7)Guidebunds,RiverTrainingworks etc.	[Nil]
		(8)Approaches(including Retaining walls, stone pitchingandprotection works)	[Nil]
		A.2-NewMajorBridges	
		(1)Foundation	[Nil]
		(2)Sub-structure	[Nil]
		(3)Super-structure(including bearings)	[Nil]
		(4)WearingCoatincludingexpansion joints	[Nil]
		(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]
		(6) Wing walls/return walls	[Nil]
		(7)Guidebunds,RiverTrainingworks etc.	[Nil]
		(8)Approaches(including Retaining walls, stone pitchingand protection works)	[Nil]
		B.1-Wideningandrepairsof (a) ROB (b) RUB	
		(1) Foundations	[Nil]
		(2) Sub-Structure	[Nil]
		(3) Super-Structure (Including bearings)	[Nil]
		(4)Wearing Coat(a)in case of ROB-wearing coat including expansion joints complete in all respectsas specified and (b) incase of RUB-rigid pavement under RUB including drainagefacility completein all respects as specified	[Nil]
		(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]
		(6) Wing walls/Return walls	[Nil]
		(7) Approaches (Including Retaining walls,Stone Pitching and protection works)	[Nil]
		B.2-NewROB/RUB	
		(1)Foundations	[Nil]
		(2) Sub-Structure	[Nil]
		(3) Super-Structure (Including bearings)	[Nil]
		(4)Wearing Coat (a) in case of ROB-wearing coat including expansion joints complete in all respectsas specified and	[Nil]

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Item	Weightage in % of CP	Stage for Payment	Percentage
		(b) incase of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified	
		(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]
		(6) Wing walls/Return walls	[Nil]
		(7)Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[Nil]
		C.1- Widening and repair of Elevated Section/Flyovers/Grade Separators	
		(1) Foundations	[Nil]
		(2) Sub-Structure	[Nil]
		(3)Super-Structure(Including bearings)	[Nil]
		(4)WearingCoatincludingexpansion joints	[Nil]
		(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]
		(6) Wing walls/Return walls	[Nil]
		(7)Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[Nil]
		C.2- New Elevated Section/Flyovers/GradeSeparators	
		(1) Foundations	[Nil]
		(2) Sub-Structure	[Nil]
		(3)Super-Structure(Including bearings)	[Nil]
		(4)WearingCoatincludingexpansion joints	[Nil]
		(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]
		(6) Wing walls/Return walls	[Nil]
		(7)Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[Nil]
Others Work	60.093	(i) Toll Plaza	[Nil]
		(ii) Road side drains	9.611
		(iii) Pavement Marking	0.702
		(iv) W Metal Crash barrier beam and Parapet wall	1.422
		(v) Traffic Sign	0.733
		(vi) Road boundary stone, KM stone, 5^{th} KM stone & Hectometer stone	0.047
		(vii) Traffic Blinker, LED Delineator, Studs, Reflective Pavement Marker, Tree reflector	1.053
		a) Bus Bays& Bus Shelter	0.144
		b) Truck Lay-byes	[Nil]
		d) Junction	[Nil]
		(vi) Road side Plantation	[Nil]
		(vii) Hydro seeding	0.067
		(viii) Seeding mulching through Jute net.	0.730
		(ix) Catch water Drain	0.167
		(x) Gabion Structure(pcc/rcc) on hill side/valley side of varying height between 1 to 6 meter depending upon the slope	29.594

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Item	Weightage in % of CP	Stage for Payment	Percentage
		(xi) Reinforced Earth Wall	10.728
		(ix) Breast Wall	4.755
		(xv) Sub Surface drain with perforated pipe for collection of seepage water to avoid sinking of pavement	0.321
		(xiv) Gabion Parapet wall	0.019

1.2 Procedure of estimating the value of workdone

1.1.1 Roadworks

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

Table 1.3.1

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
Table 1.3.1		
A-Widening and Strengthening of existing road		
(1) Earthwork up to top of the sub-grade including excavation in soil, soft rock and hard rock, removal of unserviceable soil etc.	0.090	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m. In case of Hill Cutting, the payment procedure will be as under: HillCutting: 40% of weightage of A (1) Preparation of Sub-Grade: 60% of weightage of A (1)
(2) Sub Base courses	0.686	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m.
(3) Non-Bituminous Base Course	1.418	
(4) Bituminous Base Course	3.308	
(5) Wearing coat	6.819	
(6) Widening and repair of culverts	0.367	Cost of completed culverts shall be determined on pro rata basis with respect to the total no. of culverts. The payment shall be made on the completion of at least two culverts.
(6) Hard Shoulder	4.009	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m.
B 1- Reconstruction / New two-lane alignment / bypass (Flexible pavement)		
(1) Earthwork up to top of the sub-grade including excavation in soil, soft rock and hard rock, removal of unserviceable soil etc.	0.162	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m. In case of Hill Cutting, the payment procedure will be as under: Hill Cutting: 40% of weightage of A (1) Preparation of Sub-Grade: 60% of weightage of A (1)

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
(2) Sub Base Course	0.450	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m.
(3) Non-Bituminous Base Course	0.920	
(4) Bituminous Base Course	1.847	
(5) Wearing coat	3.053	
(6) Hard Shoulder	1.954	
B 2- Reconstruction / New two lane alignment / bypass (Rigid pavement)		
(1) Earthwork up to top of the sub-grade	[Nil]	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m. In case of Hill Cutting, the payment procedure will be as under : Hill Cutting : 40% of weightage of A (1) Preparation of Sub-Grade: 60% of weightage of A (1)
(2) Earthwork in shoulders	[Nil]	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m.
(3) Sub Base Course	[Nil]	
(4) Dry Lean Concrete (DLC) Course	[Nil]	
(5) Pavement Quality Control (PQC) course	[Nil]	
C 1- Reconstruction / New Service road/ Slip Road (Flexible pavement)		
(1) Earthwork up to top of the sub-grade including shoulder	[Nil]	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m. In case of Hill Cutting, the payment procedure will be as under : Hill Cutting : 40% of weightage of A (1) Preparation of Sub-Grade: 60% of weightage of A (1)
(2) Sub Base Course	[Nil]	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m.
(3) Non Bituminous Base Course	[Nil]	
(4) Bituminous Base Course	[Nil]	
(5) Wearing coat	[Nil]	
C 2- Reconstruction / New Service road (Rigid pavement)		
(1) Earthwork up to top of the sub-grade	[Nil]	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m.

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
		In case of Hill Cutting, the payment procedure will be as under : Hill Cutting : 40% of weightage of A (1) Preparation of Sub-Grade: 60% of weightage of A (1)
(2) Sub Base Course	[Nil]	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m.
(3) Dry Lean Concrete (DLC) Course	[Nil]	
(4) Pavement Quality Control (PQC) course	[Nil]	
D - Reconstruction and New culverts on existing road, Realignments, bypasses:		
(1) Hume Pipe Culverts (length <6m)	[Nil]	Cost of each culvert shall be determined on pro rata basis with respect to the total no. of culverts. Payment shall be made on the completion of at least 01 (One) culvert.
(2) Box Culverts New / Reconstruction (length <6m)	1.144	
3) Box Culverts (Balance work in existing culvert (length <6m)	2.973	

@ 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)

Were,
P = Contract Price

L = Total length in km

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

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

1.1.2 Minor Bridges and Underpasses/Overpasses.

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

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Table 1.3.2

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
Table 1.3.2 Minor Bridges and Under Pass/Over Pass		
A 1- Widening and repairs of Minor Bridges (length >6m and<60m)	[Nil]	Cost of each minor bridge shall be determined on pro rata basis with respect to the total linear length of the minor bridges. Payment shall be made on completion of widening and repair works of a minor bridge.
A 2- New Minor Bridges (length >6m and<60m)		Cost of each minor bridge shall be determined on pro rata basis with respect to the total linear length of the minor bridges.
(1) Foundation : on completion of foundation work including foundation for wing and return wall	6.284	(1) Foundation: Payment against Foundation shall be made on pro rata basis on completion of atleast two foundations. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2) Sub-structure: on completion of abutments, piers upto the abutment/pier cap.		(2) Sub Structure: Payment against Sub Structure shall be made on pro rata basis on completion of atleast two sub structures upto abutment / pier cap level of each bridge.
(3) Superstructure: on completion of super-structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road signs & markings, tests on completion etc. complete in all respect.	3.183	(3) Super structure: Payment shall be made on pro rata basis on completion of a stage i.e. completion of super structure of atleast one span in all respect as specified in the column of " Stage of Payment" in this Sub-clause.
(4) Approaches: on completion of approaches including Retaining walls, stone pitching, protection works complete in all respect and fit for use.	1.240	(4) Approaches: Payment shall be made on pro rata basis on completion of a stage ie. completion of approaches in all respect as specified in the column of " Stage of Payment" in this Sub-clause.
(5) Guide bunds and river training works: on completion of guide bunds and repair training works complete in all respects.	[Nil]	(5) Guide bunds and river training works: Payment shall be made on pro rata basis on completion of a stage ie. completion of guide bunds and river training works in all respect as specified.
B 1 - Widening and repair of underpasses / overpasses	[Nil]	Cost of each underpass / overpass shall be determined on pro rata basis with respect to the total linear length of the underpass / overpass. Payment shall be made on completion of widening and repair works of a underpass / overpass.

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
B 2 - New Underpasses / Overpasses		Cost of each underpass / overpass shall be determined on pro rata basis with respect to the total linear length of the underpass / overpass.
(1) Foundation: on completion of foundation work including foundation for wing and return wall.	[Nil]	(1) Foundation: Payment against Foundation shall be made on pro rata basis on completion of atleast two foundations. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2) Sub-structure: on completion of abutments, piers upto the abutment/pier cap.	[Nil]	(2) Sub Structure: Payment against Sub Structure shall be made on pro rata basis on completion of atleast two sub structures upto abutment / pier cap level of each underpass / overpass.
(3) Superstructure: on completion of super-structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road signs & markings, tests on completion etc. complete in all respect.	[Nil]	(3) Super structure: Payment shall be made on pro rata basis on completion of a stage ie. completion of super structure of atleast one span in all respect as specified in the column of " Stage of Payment" in this Sub-clause.
(4) Approaches: on completion of approaches including Retaining walls, stone pitching, protection works complete in all respect and fit for use.	[Nil]	(4) Approaches: Payment shall be made on pro rata basis on completion of a stage ie. completion of approaches in all respect as specified in the column of " Stage of Payment" in this Sub-clause.

1.1.3 Major Bridge works, ROB/RUB andStructures.

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

Table 1.3.3

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
Table 1.3.3		
A.1 Widening and repair of Major Bridge		

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
(1) Foundation	[Nil]	(i) Foundation: Cost of each Major Bridge shall be determined on prorata basis with respect to the total linear length (m) of the Major Bridge. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the major Bridge subject to completion of atleast two foundations of the major bridge. In case where load testing is required for foundation, the trigger of first payment shall include load testing also were specified.
(2) Sub-structure	[Nil]	(ii) Sub-Structure: Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of the major bridge subject to completion of atleast two sub structures of abutment / pier cap level of the major bridge..
(3) Super-structure (including bearings)	[Nil]	Payment shall be made on pro rata basis on completion of a stage i.e. completion of super structure including bearings of atleast one span in all respects as specified.
(4) Wearing Coat including expansion joints	[Nil]	(iv)Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	[Nil]	(v) Miscellaneous: Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.
(6) Wing walls/return walls upto top	[Nil]	(vi) Wing walls/return walls: Payments shall be made on completion of all wing walls/returnwallscompletein all respects as specified.
(7) Guide bunds, River Training works etc.	[Nil]	(vii) Guide Bonds, River Training works: Payments shall be made on completion of all guide bunds/river training works etc. complete in all respects as specified.
(8) Approaches (including Retaining walls, stone pitching and protection works)	[Nil]	(viii) Approaches: Payment shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified.
A 2 - New Major bridges		Cost of each structure shall be determined on pro rata basis in respect to the total liner length (m) of all the structures. Payments shall be made on completion of each stage of structures as per weightage given in this table.
(1) Foundation: Foundation for abutment, piers	[Nil]	(1) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of a bridge as per weightage given in this table, subject to completion of at least two foundations in all respect.

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
		In case load testing is required for foundation, the trigger for first payment shall include load testing also where specified.
(2) Sub-Structure: Sub-Structure for abutment, piers up to abutment/pier cap level	[Nil]	(2) Sub-Structure: Payment against sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of a bridge as per weightage given in this table, subject to completion of atleast two sub-structure upto abutment/pier cap level of a bridge.
(3) Super-structure: including girder, deck slab, bearings (excluding wearing coat and expansion joints)		
a) Super Structure : casting of girder/fabrication of girders (Steel)	[Nil]	(a) Super – structure (casting of girder) : Unit of measurement is numbers. Payment against casting of girders shall be made on pro rata basis with respect to total numbers of girders required in the structure on completion of a stage i.e. not less than completion of casting of at least five girders of the structure.
(b) Super structure : Casting of segments	[Nil]	(b) Super structure (Casting of segments): Unit measurement is numbers. Payment against casting of segments shall be made on pro rata basis with respect of total numbers of segments required in the structure on completion of a stage i.e. not less than completion of casting at least 10 (ten) segments of the structure.
(c) Super structure : erection of girders, deck slab and bearings	[Nil]	(c) Super structure (Erection of girders, deck slab and bearing) : Payment shall be made on pro rata basis on completion of a stage i.e. completion of supers structure including bearings of at least one span in all respects as specified.
(4) Other Ancillary works : wearing coat, expansion joints hand rails, crash barriers, tests on completion etc. completion in all respect.	[Nil]	Payment shall be made on pro-rata basis on completion of the stage in all respect as specified, for each structure.
(5) Miscellaneous Works : stone pitching, protection works, excluding retaining walls/reinforced earth walls etc.	[Nil]	Payment shall be made on pro-rata basis on completion of the stage in all respect as specified, for each structure.
(6) Wing/Return wall up to full height	[Nil]	Wing/Return wall up to full height: Payment shall be made on completion of all wing wall/return walls for a bridges as per weightage given in this table, completion in all respect as specified.

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
(7) Guide bunds, River Trainings works etc.	[Nil]	Payment shall be made on pro rata basis on completion of the stage in all respect as specified, for each structure.
(8) Retaining walls/Reinforced earth walls etc.	[Nil]	
a) Panel Casting	[Nil]	a) Panel Casting : Unit of measurement is area in Sqm. Payment against casting of panels shall be made on pro rata basis with respect to total area panels required for the structure on completion of a stage i.e. not less than completion of casting of 25% of scope of the RE wall panel of each bridge.
b) Erection of panel / construction of retaining wall	[Nil]	b) Erection of Panel / Construction of Retaining wall : Unit of measurement is area in Sqm. Payment shall be made on pro rata basis on completion of stage i.e. completion of erection of panels/ Construction of retaining wall complete in all respect for atleast 25% scope of work for each structure.
B 1 - Widening and repair of		
a) ROB b) RUB		
1) Foundation	[Nil]	(i)Foundation:Cost of each RoB / RuB shall be determined on pro rata basis with respect to the total linear length (m) of the RoB / RuB. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the RoB / RuB subject to completion of atleast two foundations of the RuB/ROB. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
2) Sub Structure	[Nil]	(ii) Sub-Structure: Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e.not less than 25% of the scope of sub-structure of the RoB / RuB subject to completion of atleast two sub structure of abutments / pier cap level of the RuB/ROB.
3) Super Structure (Including bearings)	[Nil]	(iii) Super-structure: Payment shall be made on pro rata basis on completion of a stage i.e. completion of super structure including bearings of atleast one span in all respects as specified.

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
4) Wearing coat (a) in case of RoB - wearing coat including expansion joints complete in all respect as specified and (b) in case of RuB - rigid pavement under RuB including drainage facility complete in all respect as specified	[Nil]	(iv) Wearing Coat: Payment shall be made on completion of (a) in case of ROB- wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified.
5) miscellaneous items like hand rails, crash barrier, road markings etc	[Nil]	(v) Miscellaneous: Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.
6) wing walls / return walls	[Nil]	(vi) Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
7) Approaches (including Retaining walls, stone pitching and protection works)	[Nil]	(vii) Approaches: Payment shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified.
B 2 - New ROB / RUB		Cost of each structure shall be determined on pro rata basis in respect to the total liner length (m) of all the structures. Payments shall be made on completion of each stage of a structures as per weightage given in this table.
(1) Foundation: Foundation for abutment, piers	[Nil]	(1) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of a ROB/RUB as per weightage given in this table, subject to completion of at least two foundations in all respect. In case load testing is required for foundation, the trigger for first payment shall include load testing also where specified.
(2) Sub-Structure: Sub-Structure for abutment, piers up to abutment/pier cap level	[Nil]	(2) Sub-Structure: Payment against sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of a ROB/RUB as per weightage given in this table, subject to completion of atleast two sub-structure upto abutment/pier cap level of a ROB/RUB.
(3) Super-structure: including girder, deck slab, bearings (excluding wearing coat and expansion joints)		

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
a) Super Structure : casting of girder/fabrication of girders (Steel)	[Nil]	(a) Super – structure (casting of girder): Unit of measurement is numbers. Payment against casting of girders shall be made on pro rata basis with respect to total numbers of girders required in the structure on completion of a stage i.e. not less than completion of casting of at least five girders of the structure.
(b) Super structure : Casting of segments	[Nil]	(b) Super structure (Casting of segments): Unit measurement is numbers. Payment against casting of segments shall be made on pro rata basis with respect of total numbers of segments required in the structure on completion of a stage i.e. not less than completion of casting at least 10 (ten) segments of the structure.
(c) Super structure : erection of girders, deck slab and bearings	[Nil]	(c) Super structure (Erection of girders, deck slab and bearing): Payment shall be made on pro rata basis on completion of a stage i.e. completion of supers structure including bearings of at least one span in all respects as specified.
(4)Other Ancillary works : wearing coat, expansion joints hand rails, crash barriers, tests on completion etc. completion in all respect.	[Nil]	Payment shall be made on pro-rata basis on completion of the stage in all respect as specified, for each structure.
(5) Miscellaneous Works : stone pitching, protection works, excluding retaining walls/reinforced earth walls etc.	[Nil]	Payment shall be made on pro-rata basis on completion of the stage in all respect as specified, for each structure.
(6) Wing/Return wall up to full height	[Nil]	Wing/Return wall up to full height: Payment shall be made on completion of all wing wall/return walls for each ROB/RUB as per weightage given in this table, completion in all respect as specified.
(7) Retaining walls/Reinforced earth walls etc.	[Nil]	
a) Panel Casting	[Nil]	a) Panel Casting : Unit of measurement is area in Sqm. Payment against casting of panels shall be made on pro rata basis with respect to total area panels required for the structure on completion of a stage i.e. not less than completion of casting of 25% of scope of the RE wall panel of each ROB/RUB.
b) Erection of panel / construction of retaining wall	[Nil]	b) Erection of Panel / Construction of Retaining wall : Payment shall be made on pro rata basis on completion of stage i.e. completion of erection of panels/ Construction of retaining wall complete in all respect for atleast 25%

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
		scope of work for each ROB/RUB.
C 1 - Widening and repair of Elevated sections / Fly overs / Grade Separators		
1) Foundation	[Nil]	(i)Foundation:Cost of each structure shall be determined on pro rata basis with respect to the total linear length (m) of the structure. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the structure subject to completion of atleast two foundations of the structure. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
2) Sub Structure	[Nil]	(ii) Sub-Structure: Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e.not less than 25% of the scope of sub-structure of the structure subject to completion of atleast two sub structure of abutments / pier cap level of the structure.
3) Super Structure (Including bearings)	[Nil]	(iii) Super-structure: Payment shall be made on pro rata basis on completion of a stage i.e. completion of super structure including bearings of atleast one span in all respects as specified.
4) Wearing coat including expansion joints	[Nil]	(iv) Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
5) Miscellaneous items like hand rails, crash barrier, road markings etc	[Nil]	(v) Miscellaneous: Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.
6) wing walls / return walls	[Nil]	(vi) Wing walls/return walls: Payments shall be made on completion of all wing walls / return walls complete in all respects as specified.
7) Approaches (including Retaining walls, stone pitching and protection works)	[Nil]	(vii) Approaches: Payment shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified.
C 2 - New Elevated sections / Fly overs / Grade Separators		Cost of each structure shall be determined on pro rata basis in respect to the total liner length (m) of all the structures. Payments shall be made on completion of each stage of a structures as per weightage given in this table.

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
(1) Foundation: Foundation for abutment, piers	[Nil]	(1) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of each structure as per weightage given in this table, subject to completion of at least two foundations in all respect. In case load testing is required for foundation, the trigger for first payment shall include load testing also where specified.
(2) Sub-Structure: Sub-Structure for abutment, piers up to abutment/pier cap level	[Nil]	(2) Sub-Structure: Payment against sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of each structure as per weightage given in this table, subject to completion of atleast two sub-structure upto abutment/pier cap level of each structure.
(3) Super-structure: including girder, deck slab, bearings (excluding wearing coat and expansion joints)		
a) Super Structure : casting of girder/fabrication of girders (Steel)	[Nil]	(a) Super – structure (casting of girder) : Unit of measurement is numbers. Payment against casting of girders shall be made on pro rata basis with respect to total numbers of girders required in the structure on completion of a stage i.e. not less than completion of casting of at least five girders of the structure.
(b) Super structure : Casting of segments	[Nil]	(b) Super structure (Casting of segments): Unit measurement is numbers. Payment against casting of segments shall be made on pro rata basis with respect of total numbers of segments required in the structure on completion of a stage i.e. not less than completion of casting at least 10 (ten) segments of the structure.
(c) Super structure : erection of girders, deck slab and bearings	[Nil]	(c) Super structure (Erection of girders, deck slab and bearing) : Payment shall be made on pro rata basis on completion of a stage i.e. completion of supers structure including bearings of at least one span in all respects as specified.
(4)Other Ancillary works : wearing coat, expansion joints hand rails, crash barriers, tests on completion etc. completion in all respect.	[Nil]	Payment shall be made on pro-rata basis on completion of the stage in all respect as specified, for each structure.
(5) Miscellaneous Works : stone pitching, protection works, excluding retaining walls/reinforced earth walls etc.	[Nil]	Payment shall be made on pro-rata basis on completion of the stage in all respect as specified, for each structure.

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
(6) Wing/Return wall up to full height	[Nil]	Wing/Return wall up to full height: Payment shall be made on completion of all wing wall/return walls for each structure as per weightage given in this table, completion in all respect as specified.
(7) Retaining walls/Reinforced earth walls etc.	[Nil]	
a) Panel Casting	[Nil]	a) Panel Casting : Unit of measurement is area in Sqm. Payment against casting of panels shall be made on pro rata basis with respect to total area panels required for the structure on completion of a stage i.e. not less than completion of casting of 25% of scope of the RE wall panel of each structure.
b) Erection of panel / construction of retaining wall	[Nil]	b) Erection of Panel / Construction of Retaining wall : Unit of measurement is area in Sqm. Payment shall be made on pro rata basis on completion of stage i.e. completion of erection of panels/ Construction of retaining wall complete in all respect for atleast 25% scope of work for each structure.

Note: (1) In case of innovate Major Bridge projects like cable suspension/cable stayed/ Extra Dozed and exceptionally long span bridges, the schedule may be modified as per site requirements before bidding with due approval of Competent Authority.

(2) The Schedule for exclusive tunnel projects may be prepared as per site requirements before bidding with due approval of CompetentAuthority.

1.1.4 Otherworks.

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

Table 1.3.4

Table 1.3.4		
Other Works	**[**]**	
(i) Toll Plaza	[Nil]	Payment of Toll Plaza shall be made on Pro rata basis as per following completed stages:
		(i) Rigid pavement upto DLC (LHS) -12.5 %
		(ii) Rigid pavement upto DLC (RHS)- 12.5 %
		(iii) PQC (LHS)-25 %
		(iv) PQC (RHS)-25 %

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		(v) Admin Building, Maintenance Building & Misc. Works-10% %
		(vi) Canopy, Toll Booth, Safety Items & Miscellaneous Works-12.5 %
		(vii) Toll Plaza Tunnel-2.5 %
(ii) Road side drains	9.611	Unit of measurement is linear length in km. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 5% (five percent) of the total length.
(iii) Pavement Marking	0.702	
(iv) Crash Barrier/ W metal Crash barrier	1.422	
(v) Traffic Sign	0.733	
(vi) Road Boundary stone, KM stone, 5th Km Stone & Hectometer stone	0.047	
(vii) Traffic blinker LED delineator, stud, reflective payment marker, tree reflector	1.053	
(viii) Bus Bays&Bus Shelter	0.144	
(ix) Hydro seeding	0.067	
(x) Seeding and Mulching through Jute net	0.730	
(xi) Catch water Drain	0.167	
(xii) Gabion Structure/Retaining wall	29.594	
(Xiii) Reinforced earth wall	10.728	
(xiv) Breast Wall	4.755	
(xv) Sub Surface drain with perforated pipe for collection of seepage water to avoid sinking of pavement	0.321	
(xvi) Gabion Parapet wall	0.019	

2. Procedure for payment for Maintenance

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2.1 The cost for maintenance shall be as stated in Clause14.1.1.

2.2 Payment for Maintenance shall be made in quarterly instalments in accordance with the provisions of Clause19.7.

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SCHEDULE - I
(See Clause 10.2.4)

1 Drawings

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.

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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. A minimum list of the drawings of the various components/elements of the project highway and project facility required to be submitted by the Contractor is givenbelow:

(a) Drawing of plan, profile and crosssections

(b) Drawings of cross drainageworks

(c) Drawings of junctions

(d) Drawing of typical cross sections

(e) Drawings of bus-bay and bus shelters with furniture and drainagesystem

(f) Drawing of a truck parking lay bye with furniture and drainage system

(g) Drawings of road furniture items including traffic signage, marking, safety barriers, etc.

(h) Drawings of traffic diversions plans and traffic control measures

(i) Drawings of road drainage measures

(j) Drawings of typical details slope protection measures

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Schedule - J

(See Clause 10.3(ii))

Project CompletionSchedule

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 ofeach Project Milestone, the Contractor shall notify the Authority of such compliance along with necessary particulars thereof.

2. Project Milestone-I

(i) Project Milestone-I shall occur on the date falling on the **[255th]**day from the Appointed Date (the "**Project Milestone-I**").

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

3. Projec tMilestone-II

(i) Project Milestone-II shall occur on the date falling on the [**438th]** day from the Appointed Date (the "**Project Milestone-II**").

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

4. ProjectMilestone-III

(i) Project Milestone-III shall occur on the date falling on the**[621st]** day from the Appointed Date (the "**Project Milestone-III**").

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

5. Scheduled CompletionDate

(i) The Scheduled Completion Date shall occur on the [730th]day from the Appointed Date.

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

6. Extension of time

Upon extension of any or all of the aforesaid Project Milestones or the Scheduled Completion Date,

as the case may be, under and in accordance with the provisions of this Agreement, the Project Completion Schedule shall be deemed to have been amended accordingly.

SCHEDULE - K

(See Clause 12.1.2)

TESTS ON COMPLETION

1 Schedule 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 (to be decided in consultation with Authority's Engineer as per relevant IRC codes/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 eachkilometer.

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) meters 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 ApplicablePermits.

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 IndustryPractice.

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

I, ... (Name of the Authority's Engineer),acting as the Authority's Engineer, underand in accordance with the Agreement dated .....(the "Agreement"), for RFP for Construction of two-Lane with hard shoulders of Merangkong – Tamlu – Mon Road on EPC basis from existing Km 20.456 to Km 41.065 [Design Km. 20+000 to Km. 40+000] (Design Length – 20.000 Km) in the state of Nagaland under SARDP-NE Phase A

1 (the "Project Highway") on Engineering, Procurement and Construction (EPC) basisthrough …… (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 completeall suchworks 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 PunchList.

3. In view of the foregoing, I am satisfied that the Project Road ***of*** Construction of two-Lane with hard shoulders of Merangkong – Tamlu – Mon Road on EPC basis from existing Km 20.456 to Km 41.065 [Design Km. 20+000 to Km. 40+000] (Design Length – 20.000 Km) in the state of Nagaland on EPC mode 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 dayof …….. 20….....

ACCEPTED,SIGNED, SEALED	SIGNED, SEALEDAND
ANDDELIVERED	DELIVERED
For and on behalf of	for and on behalf
of CONTRACTOR by:	AUTHORITY's ENGINEER by:
(Signature)	(Signature)

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COMPLETION CERTIFICATE

1 I, ...(Name of the Authority's Engineer),actingasthe Authority'sEngineer,under and in accordance with the Agreement dated …… (the "Agreement"), for Construction of two-Lane with hard shoulders of Merangkong – Tamlu – Mon Road on EPC basis from existing Km 20.456 to Km 41.065 [Design Km. 20+000 to Km. 40+000] (Design Length – 20.000 Km) in the state of Nagaland under SARDP-NE Phase A (the "Project Highway") on Engineering, Procurement and Construction (EPC) basis through (Name of Contractor), hereby certify that the Tests in accordance withArticle
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)

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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 isdone.

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 Paragraph2.

2. Percentage reductions in lump sum payments

2.1 The following percentages shall govern the paymentreduction:

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

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

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

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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 TechnicalConsultants, 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.

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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, 3rd Floor, PTI Building, 4, Parliament Street, New Delhi – 110001the "Authority") and (the "Contractor")Construction of two-Lane with hard shoulders of Merangkong – Tamlu – Mon Road on EPC basis from existing Km 20.456 to Km 41.065 [Design Km. 20+000 to Km. 40+000] (Design Length – 20.000 Km) in the state of Nagaland under SARDP-NE Phase Aand 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 ProjectHighway.

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 theAgreement.

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 thisTOR.

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

3. General

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 theContractor;

(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. Fiftylakh).

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 everymonth.

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 Clause18.2.

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

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.

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4 ConstructionPeriod

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 up to 30 (thirty) days. In particular, such comments shall specify the conformity or otherwise of such Drawings with the Scope of the Project and Specifications and Standards.

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

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, requiredthereto.

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 theContractor.

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 Clause10.4.

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

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

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 mayrequire.

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 Contractorforthwith.

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 Clause12.4.

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 berevoked.

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 theAuthority.

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 andSchedule-K.

5. MaintenancePeriod

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 theContractor.

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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 theContractor.

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 Clause14.5.

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 Clause18.5.

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 Clause19.10.

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.

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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 upto the lastclaim:
    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 theAgreement;

(b) the deductions for maintenance work notdone;

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

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

(e) amount towards deduction oftaxes

3. Contractor's claim for Damages

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

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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 andterrorism:

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 commercialterms.

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 toproperty

3.1 The Contractor shall insure against its liability for any loss, damage, death or bodily injury, or damagetoanyproperty (exceptthingsinsuredunderParagraphs1and2ofthisScheduleorto

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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 value of the contract price.

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

a) the Authority's 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.

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Schedule-Q

(See Clause 14.10)

Tests on Completion of Maintenance Period

1. Riding Quality test:

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

2. Visual and physical test:

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

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Schedule-R

(See Clause 14.10)

Taking Over Certificate

I, …….. (Name and designation of the Authority's Representative) under and in accordance with the Agreement dated …… (the "**Agreement**"), for **"**Construction of two-Lane with hard shoulders of Merangkong – Tamlu – Mon Road on EPC basis from existing Km 20.456 to Km 41.065 [Design Km. 20+000 to Km. 40+000] (Design Length – 20.000 Km) in the state of Nagaland under SARDP-NE Phase A"the "**Project Highway**") on Engineering, Procurement and Construction (EPC) basis through (Name of Contractor), hereby certify that the Tests on completion of Maintenance Period in accordance with Article 14 of the Agreement have been successfully undertaken to determine compliance of the Project Highway with the provisions of the Agreement and I hereby certify that the Authority has taken over the Project highway from the Contractor on this day.....

SIGNED, SEALED ANDDELIVERED

(Signature)

(Name and designation

ofAuthority'sRepresentative)

(Address)