

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

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

Schedules

FOR

“Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)”

Engineering, Procurement & Construction (EPC) Mode

BID DOCUMENT

April 2023



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

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Schedule

(See Clause 2.1 and 8.1)

SITE OF THE PROJECT

1 The Site

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

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

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

Details of Sub grade: -

Sl. No	Chainage		Length	Alignment
	From	To		
1	63+820	63+950	130	Widening & strengthening
2	63+950	63+970	20	Widening & strengthening
3	63+970	64+040	70	Widening & strengthening
4	64+040	64+060	20	Widening & strengthening
5	64+060	64+330	270	Widening & strengthening
6	64+330	64+340	10	Realignment
7	64+340	64+360	20	Realignment
8	64+360	64+450	90	Widening & strengthening
9	64+450	64+480	30	Realignment
10	64+480	64+510	30	Realignment
11	64+510	64+520	10	Widening & strengthening
12	64+520	64+550	30	Widening & strengthening
13	64+550	64+570	20	Widening & strengthening
14	64+570	64+630	60	Widening & strengthening
15	64+630	64+660	30	Widening & strengthening
16	64+660	64+670	10	Realignment
17	64+670	64+750	80	Realignment
18	64+750	64+790	40	Widening & strengthening
19	64+790	64+810	20	Widening & strengthening
20	64+810	64+818	8	Widening & strengthening
21	64+818	64+850	32	Widening & strengthening
22	64+850	64+980	130	Widening & strengthening
23	64+980	65+100	120	Widening & strengthening
24	65+100	65+120	20	Widening & strengthening
25	65+120	65+130	10	Widening & strengthening
26	65+130	65+230	100	Widening & strengthening
27	65+230	65+245	15	Widening & strengthening

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

28	65+245	65+275	30	Realignment
29	65+275	65+400	125	Widening & strengthening
30	65+400	65+440	40	Widening & strengthening
31	65+440	65+580	140	Widening & strengthening
32	65+580	65+600	20	Widening & strengthening
33	65+600	65+710	110	Realignment
34	65+710	66+075	365	Widening & strengthening
35	66+075	66+300	225	Widening & strengthening
36	66+300	66+510	210	Widening & strengthening
37	66+510	66+530	20	Widening & strengthening
38	66+530	66+700	170	Widening & strengthening
39	66+700	66+750	50	Widening & strengthening
40	66+750	66+850	100	Realignment
41	66+850	66+930	80	Realignment
42	66+930	67+035	105	Widening & strengthening
43	67+035	67+040	5	Widening & strengthening
44	67+040	67+050	10	Widening & strengthening
45	67+050	67+190	140	Realignment
46	67+190	67+200	10	Realignment
47	67+200	67+300	100	Widening & strengthening
48	67+300	67+330	30	Widening & strengthening
49	67+330	67+390	60	Widening & strengthening
50	67+390	67+410	20	Realignment
51	67+410	67+420	10	Realignment
52	67+420	67+445	25	Realignment
53	67+445	67+470	25	Widening & strengthening
54	67+470	67+605	135	Widening & strengthening
55	67+605	67+670	65	Realignment
56	67+670	67+700	30	Realignment
57	67+700	67+810	110	Widening & strengthening
58	67+810	67+825	15	Realignment
59	67+825	67+880	55	Realignment
60	67+880	67+900	20	Widening & strengthening
61	67+900	67+960	60	Realignment
62	67+960	68+030	70	Widening & strengthening
63	68+030	68+046	16	Realignment
64	68+046	68+056	10	Realignment
65	68+056	68+060	4	Realignment
66	68+060	68+272	212	Widening & strengthening
67	68+272	68+283	11	Widening & strengthening
68	68+283	68+405	122	Widening & strengthening
69	68+405	68+450	45	Realignment
70	68+450	68+481	31	Widening & strengthening

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71	68+481	68+495	14	Widening & strengthening
72	68+495	68+557	62	Realignment
73	68+557	68+595	38	Realignment
74	68+595	68+630	35	Widening & strengthening
75	68+630	68+732	102	Widening & strengthening
76	68+732	68+740	8	Widening & strengthening
77	68+740	68+750	10	Widening & strengthening
78	68+750	68+780	30	Widening & strengthening
79	68+780	68+800	20	Widening & strengthening
80	68+800	68+812	12	Widening & strengthening
81	68+812	68+910	98	Widening & strengthening
82	68+910	68+930	20	Widening & strengthening
83	68+930	68+960	30	Widening & strengthening
84	68+960	68+989	29	Widening & strengthening
85	68+989	69+000	11	Widening & strengthening
86	69+000	69+030	30	Widening & strengthening
87	69+030	69+040	10	Widening & strengthening
88	69+040	69+075	35	Widening & strengthening
89	69+075	69+098	23	Widening & strengthening
90	69+098	69+130	32	Widening & strengthening
91	69+130	69+176	46	Realignment
92	69+176	69+180	4	Realignment
93	69+180	69+210	30	Realignment
94	69+210	69+220	10	Realignment
95	69+220	69+245	25	Realignment
96	69+245	69+280	35	Widening & strengthening
97	69+280	69+330	50	Widening & strengthening
98	69+330	69+375	45	Realignment
99	69+375	69+447	72	Widening & strengthening
100	69+447	69+480	33	Widening & strengthening
101	69+480	69+517	37	Widening & strengthening
102	69+517	69+550	33	Widening & strengthening
103	69+550	69+650	100	Realignment
104	69+650	69+660	10	Widening & strengthening
105	69+660	69+680	20	Widening & strengthening
106	69+680	69+733	53	Widening & strengthening
107	69+733	69+740	7	Widening & strengthening
108	69+740	69+898	158	Realignment
109	69+898	69+910	12	Realignment
110	69+910	69+920	10	Widening & strengthening
111	69+920	69+940	20	Widening & strengthening
112	69+940	69+950	10	Widening & strengthening
113	69+950	70+025	75	Widening & strengthening

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114	70+025	70+135	110	Widening & strengthening
115	70+135	70+186	51	Realignment
116	70+186	70+190	4	Realignment
117	70+190	70+240	50	Widening & strengthening
118	70+240	70+250	10	Widening & strengthening
119	70+250	70+269	19	Realignment
120	70+269	70+278	9	Realignment
121	70+278	70+310	32	Realignment
122	70+310	70+329	19	Widening & strengthening
123	70+329	70+342	13	Widening & strengthening
124	70+342	70+350	8	Widening & strengthening
125	70+350	70+450	100	Widening & strengthening
126	70+450	70+475	25	Widening & strengthening
127	70+475	70+496	21	Realignment
128	70+496	70+515	19	Realignment
129	70+515	70+564	49	Widening & strengthening
130	70+564	70+590	26	Widening & strengthening
131	70+590	70+663	73	Widening & strengthening
132	70+663	70+734	71	Widening & strengthening
133	70+734	70+750	16	Widening & strengthening
134	70+750	70+790	40	Widening & strengthening
135	70+790	70+795	5	Realignment
136	70+795	70+860	65	Realignment
137	70+860	71+020	160	Realignment
138	71+020	71+060	40	Realignment
139	71+060	71+160	100	Widening & strengthening
140	71+160	71+171	11	Widening & strengthening
141	71+171	71+267	96	Widening & strengthening
142	71+267	71+300	33	Widening & strengthening
143	71+300	71+360	60	Realignment
144	71+360	71+390	30	Realignment
145	71+390	71+400	10	Realignment
146	71+400	71+440	40	Widening & strengthening
147	71+440	71+457	17	Realignment
148	71+457	71+500	43	Realignment
149	71+500	71+545	45	Widening & strengthening
150	71+545	71+550	5	Widening & strengthening
151	71+550	71+640	90	Widening & strengthening
152	71+640	71+660	20	Widening & strengthening
153	71+660	71+760	100	Widening & strengthening
154	71+760	71+780	20	Widening & strengthening
155	71+780	71+830	50	Widening & strengthening
156	71+830	71+850	20	Widening & strengthening

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157	71+850	71+915	65	Widening & strengthening
158	71+915	71+920	5	Widening & strengthening
159	72+048	72+100	52	Realignment
160	72+100	72+150	50	Widening & strengthening
161	72+150	72+780	630	Widening & strengthening
162	72+780	72+800	20	Widening & strengthening
163	72+800	72+835	35	Realignment
164	72+835	72+865	30	Realignment
165	72+865	72+890	25	Widening & strengthening
166	72+890	72+965	75	Widening & strengthening
167	72+965	73+005	40	Realignment
168	73+005	73+255	250	Widening & strengthening
169	73+255	73+305	50	Realignment
170	73+305	73+510	205	Widening & strengthening
171	73+510	73+515	5	Widening & strengthening
172	73+515	73+650	135	Widening & strengthening
173	73+650	73+690	40	Realignment
174	73+690	73+760	70	Realignment
175	73+800	73+850	50	Widening & strengthening
176	73+850	73+880	30	Realignment
177	73+880	73+905	25	Realignment
178	73+905	74+000	95	Widening & strengthening
179	74+000	74+050	50	Widening & strengthening
180	75+000	75+226	226	Realignment
181	75+226	75+240	14	Realignment
182	75+240	75+260	20	Realignment
183	75+260	75+320	60	Widening & strengthening
184	75+320	75+380	60	Widening & strengthening
185	75+380	75+390	10	Widening & strengthening
186	75+390	75+400	10	Realignment
187	75+400	75+530	130	Realignment
188	75+530	75+555	25	Realignment
189	75+555	75+560	5	Widening & strengthening
190	75+560	75+600	40	Widening & strengthening
191	75+600	75+690	90	Realignment
192	75+690	75+800	110	Widening & strengthening
193	75+800	75+870	70	Realignment
194	75+870	76+050	180	Widening & strengthening
195	76+050	76+110	60	Realignment
196	76+110	76+300	190	Widening & strengthening
197	76+300	76+340	40	Widening & strengthening
198	76+340	76+400	60	Widening & strengthening
199	76+400	76+445	45	Realignment

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200	76+445	76+600	155	Widening & strengthening
201	76+600	76+640	40	Realignment
202	76+640	76+660	20	Realignment
203	76+660	76+730	70	Widening & strengthening
204	76+730	76+750	20	Widening & strengthening
205	76+750	76+950	200	Widening & strengthening
206	76+950	77+050	100	Widening & strengthening
207	77+050	77+110	60	Widening & strengthening
208	77+110	77+190	80	Widening & strengthening
209	77+190	77+300	110	Realignment
210	77+300	77+320	20	Realignment
211	77+320	77+420	100	Realignment
212	77+420	77+440	20	Realignment
213	77+440	77+500	60	Realignment
214	77+500	77+530	30	Widening & strengthening
215	77+530	77+560	30	Widening & strengthening
216	77+560	77+630	70	Realignment
217	77+630	77+670	40	Realignment
218	77+670	77+700	30	Realignment
219	77+700	77+780	80	Widening & strengthening
220	77+780	77+810	30	Widening & strengthening
221	77+810	77+850	40	Widening & strengthening
222	77+850	77+890	40	Realignment
223	77+890	77+940	50	Realignment
224	77+940	78+000	60	Realignment
225	78+000	78+200	200	Widening & strengthening
226	78+200	78+360	160	Widening & strengthening
227	78+360	78+500	140	Widening & strengthening
228	78+500	78+540	40	Realignment
229	78+540	78+550	10	Widening & strengthening
230	78+550	78+565	15	Widening & strengthening
231	78+565	78+590	25	Realignment
232	78+590	78+705	115	Realignment
233	78+705	78+710	5	Widening & strengthening
234	78+710	78+735	25	Widening & strengthening
235	78+735	78+750	15	Widening & strengthening
236	78+750	78+765	15	Realignment
237	78+765	78+790	25	Realignment
238	78+790	78+820	30	Widening & strengthening
239	78+820	78+830	10	Widening & strengthening
240	78+830	78+860	30	Widening & strengthening
241	78+860	78+945	85	Widening & strengthening
242	78+945	79+025	80	Realignment

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243	79+025	79+110	85	Realignment
244	79+250	79+590	340	Widening & strengthening
245	79+590	79+650	60	Widening & strengthening
246	79+650	79+700	50	Realignment
247	79+700	79+750	50	Widening & strengthening
248	79+750	79+790	40	Realignment
249	79+790	79+855	65	Realignment
250	79+855	79+870	15	Realignment
251	79+870	79+880	10	Widening & strengthening
252	79+880	79+960	80	Widening & strengthening
253	79+960	80+080	120	Widening & strengthening
254	80+080	80+100	20	Widening & strengthening
255	80+100	80+160	60	Realignment
256	80+160	80+180	20	Widening & strengthening
257	80+180	80+310	130	Widening & strengthening
258	81+140	81+200	60	Realignment
259	81+200	81+210	10	Widening & strengthening
260	81+210	81+240	30	Widening & strengthening
261	81+240	81+250	10	Widening & strengthening
262	81+250	81+290	40	Realignment
263	81+290	81+305	15	Realignment
264	81+305	81+385	80	Widening & strengthening
265	81+470	81+525	55	Widening & strengthening
266	81+525	81+540	15	Widening & strengthening
267	81+540	81+645	105	Realignment
268	81+645	81+760	115	Realignment
269	81+760	81+850	90	Widening & strengthening
270	81+850	81+870	20	Widening & strengthening
271	81+870	81+900	30	Realignment
272	81+900	81+965	65	Realignment
273	81+965	82+135	170	Widening & strengthening
274	82+630	83+300	670	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
275	83+300	83+809	509	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement

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276	83+871	84+116	245	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
277	84+187	84+429	242	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
278	84+435	84+550	115	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
279	84+550	84+758	208	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
280	84+758	84+800	42	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
281	84+800	84+850	50	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
282	84+850	85+420	570	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
283	85+420	85+672	252	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement

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Details of Granular Sub-Base: -

Sl. No	Chainage		Length	Alignment
	From	To		
1	63820	63950	130	Widening & strengthening
2	63950	63970	20	Widening & strengthening
3	63970	64040	70	Widening & strengthening
4	64040	64060	20	Widening & strengthening
5	64060	64330	270	Widening & strengthening
6	64330	64340	10	Realignment
7	64340	64360	20	Realignment
8	64360	64450	90	Widening & strengthening
9	64450	64480	30	Realignment
10	64480	64510	30	Realignment
11	64510	64520	10	Widening & strengthening
12	64520	64550	30	Widening & strengthening
13	64550	64570	20	Widening & strengthening
14	64570	64630	60	Widening & strengthening
15	64630	64660	30	Widening & strengthening
16	64660	64670	10	Realignment
17	64670	64750	80	Realignment
18	64750	64790	40	Widening & strengthening
19	64790	64810	20	Widening & strengthening
20	64810	64818	8	Widening & strengthening
21	64818	64850	32	Widening & strengthening
22	64850	64980	130	Widening & strengthening
23	64980	65100	120	Widening & strengthening
24	65100	65120	20	Widening & strengthening
25	65120	65130	10	Widening & strengthening
26	65130	65230	100	Widening & strengthening
27	65230	65245	15	Widening & strengthening
28	65245	65275	30	Realignment
29	65275	65400	125	Widening & strengthening
30	65400	65440	40	Widening & strengthening
31	65440	65580	140	Widening & strengthening
32	65580	65600	20	Widening & strengthening
33	65600	65710	110	Realignment
34	65710	66075	365	Widening & strengthening
35	66075	66300	225	Widening & strengthening
36	66300	66510	210	Widening & strengthening
37	66510	66530	20	Widening & strengthening
38	66530	66700	170	Widening & strengthening
39	66700	66750	50	Widening & strengthening
40	66750	66850	100	Realignment

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41	66850	66930	80	Realignment
42	66930	67035	105	Widening & strengthening
43	67035	67040	5	Widening & strengthening
44	67040	67050	10	Widening & strengthening
45	67050	67190	140	Realignment
46	67190	67200	10	Realignment
47	67200	67300	100	Widening & strengthening
48	67300	67330	30	Widening & strengthening
49	67330	67390	60	Widening & strengthening
50	67390	67410	20	Realignment
51	67410	67420	10	Realignment
52	67420	67445	25	Realignment
53	67445	67470	25	Widening & strengthening
54	67470	67605	135	Widening & strengthening
55	67605	67670	65	Realignment
56	67670	67700	30	Realignment
57	67700	67810	110	Widening & strengthening
58	67810	67825	15	Realignment
59	67825	67880	55	Realignment
60	67880	67900	20	Widening & strengthening
61	67900	67960	60	Realignment
62	67960	68030	70	Widening & strengthening
63	68030	68046	16	Realignment
64	68046	68056	10	Realignment
65	68056	68060	4	Realignment
66	68060	68272	212	Widening & strengthening
67	68272	68283	11	Widening & strengthening
68	68283	68405	122	Widening & strengthening
69	68405	68450	45	Realignment
70	68450	68481	31	Widening & strengthening
71	68481	68495	14	Widening & strengthening
72	68495	68557	62	Realignment
73	68557	68595	38	Realignment
74	68595	68630	35	Widening & strengthening
75	68630	68732	102	Widening & strengthening
76	68732	68740	8	Widening & strengthening
77	68740	68750	10	Widening & strengthening
78	68750	68780	30	Widening & strengthening
79	68780	68800	20	Widening & strengthening
80	68800	68812	12	Widening & strengthening
81	68812	68910	98	Widening & strengthening
82	68910	68930	20	Widening & strengthening
83	68930	68960	30	Widening & strengthening

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

84	68960	68989	29	Widening & strengthening
85	68989	69000	11	Widening & strengthening
86	69000	69030	30	Widening & strengthening
87	69030	69040	10	Widening & strengthening
88	69040	69075	35	Widening & strengthening
89	69075	69098	23	Widening & strengthening
90	69098	69130	32	Widening & strengthening
91	69130	69176	46	Realignment
92	69176	69180	4	Realignment
93	69180	69210	30	Realignment
94	69210	69220	10	Realignment
95	69220	69245	25	Realignment
96	69245	69280	35	Widening & strengthening
97	69447	69480	33	Widening & strengthening
98	69480	69517	37	Widening & strengthening
99	69517	69550	33	Widening & strengthening
100	69550	69650	100	Realignment
101	69650	69660	10	Widening & strengthening
102	69660	69680	20	Widening & strengthening
103	69680	69733	53	Widening & strengthening
104	69733	69740	7	Widening & strengthening
105	69740	69898	158	Realignment
106	69898	69910	12	Realignment
107	69910	69920	10	Widening & strengthening
108	69920	69940	20	Widening & strengthening
109	69940	69950	10	Widening & strengthening
110	69950	70025	75	Widening & strengthening
111	70025	70135	110	Widening & strengthening
112	70135	70186	51	Realignment
113	70186	70190	4	Realignment
114	70190	70240	50	Widening & strengthening
115	70240	70250	10	Widening & strengthening
116	70250	70269	19	Realignment
117	70269	70278	9	Realignment
118	70278	70310	32	Realignment
119	70310	70329	19	Widening & strengthening
120	70329	70342	13	Widening & strengthening
121	70342	70350	8	Widening & strengthening
122	70350	70450	100	Widening & strengthening
123	70450	70475	25	Widening & strengthening
124	70475	70496	21	Realignment
125	70496	70515	19	Realignment
126	70515	70564	49	Widening & strengthening

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

127	70564	70590	26	Widening & strengthening
128	70590	70663	73	Widening & strengthening
129	70663	70734	71	Widening & strengthening
130	70734	70750	16	Widening & strengthening
131	70750	70790	40	Widening & strengthening
132	70790	70795	5	Realignment
133	70795	70860	65	Realignment
134	70860	71020	160	Realignment
135	71020	71060	40	Realignment
136	71060	71160	100	Widening & strengthening
137	71160	71171	11	Widening & strengthening
138	71171	71267	96	Widening & strengthening
139	71267	71300	33	Widening & strengthening
140	71300	71360	60	Realignment
141	71360	71390	30	Realignment
142	71390	71400	10	Realignment
143	71400	71440	40	Widening & strengthening
144	71440	71457	17	Realignment
145	71545	71550	5	Widening & strengthening
146	71550	71640	90	Widening & strengthening
147	71640	71660	20	Widening & strengthening
148	71660	71760	100	Widening & strengthening
149	71760	71780	20	Widening & strengthening
150	71780	71830	50	Widening & strengthening
151	71830	71850	20	Widening & strengthening
152	71850	71915	65	Widening & strengthening
153	71915	71920	5	Widening & strengthening
154	72048	72100	52	Realignment
155	72100	72150	50	Widening & strengthening
156	72150	72780	630	Widening & strengthening
157	72835	72865	30	Realignment
158	72865	72890	25	Widening & strengthening
159	72890	72965	75	Widening & strengthening
160	72965	73005	40	Realignment
161	73005	73255	250	Widening & strengthening
162	73255	73305	50	Realignment
163	73305	73510	205	Widening & strengthening
164	73510	73515	5	Widening & strengthening
165	73515	73650	135	Widening & strengthening
166	73880	73905	25	Realignment
167	73905	74000	95	Widening & strengthening
168	74000	74050	50	Widening & strengthening
169	75000	75226	226	Realignment

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

170	75380	75390	10	Widening & strengthening
171	75390	75400	10	Realignment
172	75400	75530	130	Realignment
173	75530	75555	25	Realignment
174	75555	75560	5	Widening & strengthening
175	75560	75600	40	Widening & strengthening
176	75600	75690	90	Realignment
177	75690	75800	110	Widening & strengthening
178	75800	75870	70	Realignment
179	75870	76050	180	Widening & strengthening
180	76050	76110	60	Realignment
181	76110	76300	190	Widening & strengthening
182	76300	76340	40	Widening & strengthening
183	76340	76400	60	Widening & strengthening
184	76400	76445	45	Realignment
185	76445	76600	155	Widening & strengthening
186	76600	76640	40	Realignment
187	76640	76660	20	Realignment
188	76660	76730	70	Widening & strengthening
189	76730	76750	20	Widening & strengthening
190	76750	76950	200	Widening & strengthening
191	76950	77050	100	Widening & strengthening
192	77050	77110	60	Widening & strengthening
193	77110	77190	80	Widening & strengthening
194	77190	77300	110	Realignment
195	77300	77320	20	Realignment
196	77320	77420	100	Realignment
197	77420	77440	20	Realignment
198	77440	77500	60	Realignment
199	77500	77530	30	Widening & strengthening
200	77530	77560	30	Widening & strengthening
201	77560	77630	70	Realignment
202	77630	77670	40	Realignment
203	77670	77700	30	Realignment
204	77700	77780	80	Widening & strengthening
205	77780	77810	30	Widening & strengthening
206	77810	77850	40	Widening & strengthening
207	77850	77890	40	Realignment
208	77890	77940	50	Realignment
209	77940	78000	60	Realignment
210	78000	78200	200	Widening & strengthening
211	78200	78360	160	Widening & strengthening

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

212	78360	78500	140	Widening & strengthening
213	78500	78540	40	Realignment
214	78590	78705	115	Realignment
215	78705	78710	5	Widening & strengthening
216	78710	78735	25	Widening & strengthening
217	78735	78750	15	Widening & strengthening
218	78750	78765	15	Realignment
219	78765	78790	25	Realignment
220	78790	78820	30	Widening & strengthening
221	78820	78830	10	Widening & strengthening
222	78830	78860	30	Widening & strengthening
223	79590	79650	60	Widening & strengthening
224	79650	79700	50	Realignment
225	79700	79750	50	Widening & strengthening
226	79790	79855	65	Realignment
227	79880	79960	80	Widening & strengthening
228	79960	80080	120	Widening & strengthening
229	80160	80180	20	Widening & strengthening
230	80180	80310	130	Widening & strengthening
231	81140	81200	60	Realignment
232	81250	81290	40	Realignment
233	81290	81305	15	Realignment
234	81305	81385	80	Widening & strengthening
235	81470	81525	55	Widening & strengthening
236	81525	81540	15	Widening & strengthening
237	81540	81645	105	Realignment
238	81850	81870	20	Widening & strengthening
239	81870	81900	30	Realignment
240	81900	81965	65	Realignment
241	81965	82135	170	Widening & strengthening
242	82630	83300	670	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
243	83300	83809	509	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

244	83871	84116	245	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
245	84187	84429	242	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
246	84435	84550	115	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
247	84550	84758	208	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
248	84758	84800	42	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
249	84800	84850	50	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
250	84850	85420	570	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
251	85420	85672	252	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

Details of WMM Layer: -

Sl. No	Chainage		Length	Alignment
	From	To		
1	63+820	63+950	130	Widening & strengthening
2	63+950	63+970	20	Widening & strengthening
3	63+970	64+040	70	Widening & strengthening
4	64+040	64+060	20	Widening & strengthening
5	64+060	64+330	270	Widening & strengthening
6	64+330	64+340	10	Realignment
7	64+340	64+360	20	Realignment
8	64+360	64+450	90	Widening & strengthening
9	64+450	64+480	30	Realignment
10	64+480	64+510	30	Realignment
11	64+510	64+520	10	Widening & strengthening
12	64+520	64+550	30	Widening & strengthening
13	64+550	64+570	20	Widening & strengthening
14	64+570	64+630	60	Widening & strengthening
15	64+630	64+660	30	Widening & strengthening
16	64+850	64+980	130	Widening & strengthening
17	64+980	65+100	120	Widening & strengthening
18	65+100	65+120	20	Widening & strengthening
19	65+120	65+130	10	Widening & strengthening
20	65+130	65+230	100	Widening & strengthening
21	65+230	65+245	15	Widening & strengthening
22	65+245	65+275	30	Realignment
23	65+275	65+400	125	Widening & strengthening
24	65+400	65+440	40	Widening & strengthening
25	65+440	65+580	140	Widening & strengthening
26	65+580	65+600	20	Widening & strengthening
27	65+600	65+710	110	Realignment
28	65+710	66+075	365	Widening & strengthening
29	66+075	66+300	225	Widening & strengthening
30	66+300	66+510	210	Widening & strengthening
31	66+510	66+530	20	Widening & strengthening
32	66+530	66+700	170	Widening & strengthening
33	66+700	66+750	50	Widening & strengthening
34	66+750	66+854	104	Realignment
35	67+200	67+300	100	Widening & strengthening
36	67+312	67+330	18	Widening & strengthening
37	67+330	67+390	60	Widening & strengthening
38	67+390	67+410	20	Realignment
39	67+410	67+420	10	Realignment
40	67+420	67+445	25	Realignment

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

41	67+445	67+470	25	Widening & strengthening
42	67+470	67+605	135	Widening & strengthening
43	67+605	67+670	65	Realignment
44	67+670	67+700	30	Realignment
45	67+700	67+810	110	Widening & strengthening
46	67+810	67+825	15	Realignment
47	68+046	68+056	10	Realignment
48	68+056	68+060	4	Realignment
49	68+060	68+272	212	Widening & strengthening
50	68+272	68+283	11	Widening & strengthening
51	68+283	68+405	122	Widening & strengthening
52	68+405	68+450	45	Realignment
53	68+450	68+481	31	Widening & strengthening
54	68+481	68+495	14	Widening & strengthening
55	68+557	68+595	38	Realignment
56	68+595	68+630	35	Widening & strengthening
57	68+630	68+732	102	Widening & strengthening
58	68+732	68+740	8	Widening & strengthening
59	68+740	68+750	10	Widening & strengthening
60	68+750	68+780	30	Widening & strengthening
61	68+780	68+800	20	Widening & strengthening
62	68+800	68+812	12	Widening & strengthening
63	68+812	68+910	98	Widening & strengthening
64	68+910	68+930	20	Widening & strengthening
65	68+930	68+960	30	Widening & strengthening
66	68+960	68+989	29	Widening & strengthening
67	68+989	69+000	11	Widening & strengthening
68	69+000	69+030	30	Widening & strengthening
69	69+030	69+040	10	Widening & strengthening
70	69+065	69+075	10	Widening & strengthening
71	69+075	69+098	23	Widening & strengthening
72	69+176	69+180	4	Realignment
73	69+180	69+210	30	Realignment
74	69+210	69+220	10	Realignment
75	69+220	69+245	25	Realignment
76	69+447	69+480	33	Widening & strengthening
77	69+480	69+517	37	Widening & strengthening
78	69+630	69+650	20	Realignment
79	69+650	69+660	10	Widening & strengthening
80	69+660	69+680	20	Widening & strengthening
81	69+680	69+733	53	Widening & strengthening
82	69+898	69+910	12	Realignment
83	69+910	69+920	10	Widening & strengthening

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

84	69+920	69+940	20	Widening & strengthening
85	69+940	69+950	10	Widening & strengthening
86	69+950	70+025	75	Widening & strengthening
87	70+025	70+135	110	Widening & strengthening
88	70+135	70+186	51	Realignment
89	70+186	70+190	4	Realignment
90	70+190	70+240	50	Widening & strengthening
91	70+240	70+250	10	Widening & strengthening
92	70+250	70+269	19	Realignment
93	70+269	70+278	9	Realignment
94	70+310	70+329	19	Widening & strengthening
95	70+329	70+342	13	Widening & strengthening
96	70+342	70+350	8	Widening & strengthening
97	70+350	70+450	100	Widening & strengthening
98	70+450	70+475	25	Widening & strengthening
99	70+475	70+496	21	Realignment
100	70+496	70+515	19	Realignment
101	70+515	70+564	49	Widening & strengthening
102	70+564	70+590	26	Widening & strengthening
103	70+590	70+663	73	Widening & strengthening
104	70+663	70+734	71	Widening & strengthening
105	70+734	70+750	16	Widening & strengthening
106	70+750	70+790	40	Widening & strengthening
107	70+790	70+795	5	Realignment
108	70+795	70+860	65	Realignment
109	70+860	71+020	160	Realignment
110	71+020	71+060	40	Realignment
111	71+060	71+160	100	Widening & strengthening
112	71+160	71+171	11	Widening & strengthening
113	71+171	71+267	96	Widening & strengthening
114	71+267	71+300	33	Widening & strengthening
115	71+300	71+360	60	Realignment
116	71+360	71+390	30	Realignment
117	71+390	71+400	10	Realignment
118	71+400	71+440	40	Widening & strengthening
119	71+440	71+457	17	Realignment
120	71+550	71+640	90	Widening & strengthening
121	71+640	71+660	20	Widening & strengthening
122	71+660	71+760	100	Widening & strengthening
123	71+760	71+780	20	Widening & strengthening
124	71+780	71+830	50	Widening & strengthening
125	71+830	71+850	20	Widening & strengthening
126	71+850	71+915	65	Widening & strengthening

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

127	72+225	72+570	345	Widening & strengthening
128	72+835	72+865	30	Realignment
129	72+865	72+890	25	Widening & strengthening
130	72+890	72+965	75	Widening & strengthening
131	72+965	73+005	40	Realignment
132	73+005	73+255	250	Widening & strengthening
133	73+255	73+305	50	Realignment
134	77+780	77+850	70	Widening & strengthening
135	83+300	83+809	509	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
136	83+871	84+116	245	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
137	84+187	84+429	242	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
138	84+435	84+550	115	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
139	84+550	84+758	208	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
140	84+758	84+800	42	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
141	84+800	84+850	50	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

142	84+850	85+420	570	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
143	85+420	85+672	252	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement

Details of DBM Layer: -

Sl. No	Chainage		Length	Alignment	Remarks
	From	To			
1	63+820	63+938	118	Widening & strengthening	
2	63+938	63+988	50	Widening & strengthening	(DBM Damage)
3	63+988	64+040	52	Widening & strengthening	
4	64+040	64+060	20	Widening & strengthening	
5	64+060	64+131	71	Widening & strengthening	
6	64+286	64+330	44	Widening & strengthening	
7	64+330	64+340	10	Realignment	
8	64+340	64+360	20	Realignment	
9	64+360	64+376	16	Widening & strengthening	
10	64+442	64+450	8	Widening & strengthening	
11	64+450	64+480	30	Realignment	
12	64+480	64+510	30	Realignment	
13	64+510	64+520	10	Widening & strengthening	
14	64+520	64+550	30	Widening & strengthening	
15	64+550	64+570	20	Widening & strengthening	
16	64+570	64+630	60	Widening & strengthening	
17	64+630	64+660	30	Widening & strengthening	
18	65+297	65+364	67	Widening & strengthening	
19	65+364	65+400	36	Widening & strengthening	
20	65+400	65+440	40	Widening & strengthening	
21	65+440	65+580	140	Widening & strengthening	
22	65+580	65+600	20	Widening & strengthening	
23	65+600	65+710	110	Realignment	
24	65+710	66+075	365	Widening & strengthening	
25	66+075	66+300	225	Widening & strengthening	
26	66+300	66+510	210	Widening & strengthening	
27	66+510	66+530	20	Widening & strengthening	

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

28	66+530	66+700	170	Widening & strengthening	
29	68+557	68+595	38	Realignment	
30	68+595	68+630	35	Widening & strengthening	
31	68+732	68+740	8	Widening & strengthening	
32	68+740	68+750	10	Widening & strengthening	
33	68+750	68+780	30	Widening & strengthening	
34	68+780	68+800	20	Widening & strengthening	
35	68+800	68+812	12	Widening & strengthening	
36	68+906	68+927	21	Widening & strengthening	
37	68+989	69+000	11	Widening & strengthening	
38	69+000	69+030	30	Widening & strengthening	
39	69+030	69+040	10	Widening & strengthening	
40	69+075	69+098	23	Widening & strengthening	
41	69+176	69+180	4	Realignment	
42	69+180	69+210	30	Realignment	
43	69+210	69+220	10	Realignment	
44	69+220	69+245	25	Realignment	
45	69+447	69+480	33	Widening & strengthening	
46	69+480	69+517	37	Widening & strengthening	
47	69+650	69+660	10	Widening & strengthening	
48	69+660	69+680	20	Widening & strengthening	
49	69+680	69+733	53	Widening & strengthening	
50	69+898	69+910	12	Realignment	
51	69+910	69+920	10	Widening & strengthening	
52	69+920	69+940	20	Widening & strengthening	
53	69+940	69+950	10	Widening & strengthening	
54	69+950	70+025	75	Widening & strengthening	
55	70+186	70+190	4	Realignment	
56	70+190	70+240	50	Widening & strengthening	
57	70+240	70+250	10	Widening & strengthening	
58	70+250	70+269	19	Realignment	
59	70+342	70+350	8	Widening & strengthening	
60	70+350	70+450	100	Widening & strengthening	
61	70+450	70+475	25	Widening & strengthening	
62	70+475	70+496	21	Realignment	
63	70+564	70+590	26	Widening & strengthening	
64	70+590	70+663	73	Widening & strengthening	
65	70+663	70+734	71	Widening & strengthening	
66	70+734	70+750	16	Widening & strengthening	
67	70+750	70+790	40	Widening & strengthening	
68	70+790	70+795	5	Realignment	
69	70+795	70+860	65	Realignment	
70	71+171	71+267	96	Widening & strengthening	

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

71	83+871	84+116	245	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
72	84+187	84+429	242	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
73	84+435	84+550	115	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
74	84+550	84+758	208	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
75	85+390	85+420	30	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
76	85+420	85+672	252	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement

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.

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

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	Location (km)	PROW (m)	Remarks
1	63+800 To 66+075	45	
2	66+075 To 68+335	24	
3	68+335 To 78+210	45	
4	78+210 To 78+410	24	
5	78+410 To 82+465	45	
6	82+650 To 86+835	24	No Geometric Improvement/Strengthening of Existing Surface

3. Carriageway

The present carriageway of the Project Road is Single Lane / Two lane with average formation width of 12 m and carriage way width of 3.5 -4.0 m with earthen / hard shoulders of width 1.5 m on either side. The actual width of existing c/w may be change in executed length work done by previous contractor and it shall be as per above mentioned table. The type of the existing pavement is flexible otherwise mentioned above in section 1.

4. Major Bridge

The Site includes the following Major Bridges:

S/no	Location	Type of Structures	Length of Bridge/ Span	Total
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Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

	in km	Super Structure	Sub Structure	Foundation	Arrangement (m)	width (m)
			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):

SI 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:

SI 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:

SI No	Location(km)	Remarks
NIL		

8. Underpasses (vehicular, Non-vehicular)

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

The Site includes the following underpasses:

SI 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:

SI 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.	Design Chainage (km)			Side	Type	
	from	To			CC / Masonry	Earthen(katcha)
1	64+052	64+332	280	RHS	PCC Trapezoidal	
2	64+348	64+494	146	RHS	PCC Trapezoidal	
3	64+503	64+605	102	RHS	PCC Trapezoidal	
4	64+620	64+745	125	RHS	PCC Trapezoidal	
5	64+766	64+926	160	RHS	PCC Trapezoidal	
6	64+966	65+040	74	RHS	PCC Trapezoidal	
7	68+330	68+447	117	LHS	PCC Trapezoidal	
8	68+510	68+640	130	LHS	PCC Trapezoidal	
9	68+683	68+832	149	LHS	PCC Trapezoidal	
10	68+849	68+942	93	LHS	PCC Trapezoidal	
11	68+957	69+036	79	LHS	PCC Trapezoidal	
12	69+046	69+111	65	LHS	PCC Trapezoidal	

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

13	69+129	69+145	16	LHS	PCC Trapezoidal	
14	69+405	69+450	45	LHS	PCC Trapezoidal	
15	69+458	69+469	11	LHS	PCC Trapezoidal	
16	69+469	69+505	36	LHS	PCC Trapezoidal	
17	69+614	69+695	81	LHS	PCC Trapezoidal	
18	69+719	69+789	70	LHS	PCC Trapezoidal	
19	69+807	69+909	102	LHS	PCC Trapezoidal	
20	69+963	70+044	81	LHS	PCC Trapezoidal	
21	70+110	70+242	132	LHS	PCC Trapezoidal	
22	70+255	70+351	96	LHS	PCC Trapezoidal	
23	70+393	70+504	111	LHS	PCC Trapezoidal	
24	70+515	70+610	95	LHS	PCC Trapezoidal	
25	70+619	70+675	56	LHS	PCC Trapezoidal	
26	70+700	70+848	148	LHS	PCC Trapezoidal	
27	71+075	71+182	107	LHS	PCC Trapezoidal	
28	71+205	71+330	125	LHS	PCC Trapezoidal	
29	71+551	71+677	126	LHS	PCC Trapezoidal	
30	71+780	71+914	134	LHS	PCC Trapezoidal	
31	72+210	72+528	318	LHS	PCC Trapezoidal	
32	72+570	72+600	30	LHS	PCC Trapezoidal	
33	77+950	78+000	50	LHS	PCC Trapezoidal	
34	78+040	78+150	110	LHS	PCC Trapezoidal	
35	83+650	83+790	140	LHS	CC / Masonry	
36	83+900	84+200	300	RHS	CC / Masonry	
37	84+400	84+600	200	LHS	CC / Masonry	
38	84+900	85+500	600	LHS	CC / Masonry	
39	85+540	85+600	60	LHS	CC / Masonry	
40	85+900	86+400	500	RHS	CC / Masonry	
41	86+500	86+700	200	RHS	CC / Masonry	

11. Minor Bridges

The Site includes the following Minor Bridges:

Minor Bridge			
Existing Chainage (Km)	Type of Structure	No of span	Width
89+900	Steel truss	1*15.25	4 m
98+024	RCC Slab	1*6	7.2 m

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

12. Culverts

Sl. No.	Design Chainage (km)	Type of structure	Span/Dia	Width of Structure	Remarks
			(m)		
1	64+051	Box Culvert	1.5x1.5	12	Catch pit & apron balance
2	64+335	Box Culvert	1.5x1.5	12	Catch pit & apron balance
3	64+490	Box Culvert	1.5x1.5	12	Catch pit & apron balance
4	64+615	Box Culvert	1.5x1.5	12	Catch pit, apron & Return wall RHS balance
5	64+750	Box Culvert	3.0x3.0	12	Catch pit, & Return wall BHS balance
6	65+371	Box Culvert	1.5x1.5	12	Catch pit & apron balance
7	65+555	Box Culvert	1.5x1.5	12	Catch pit & apron balance
8	65+658	Box Culvert	1.5x1.5	12	Catch pit & apron balance
9	66+505	Box Culvert	1.5x1.5	12	Parapet wall BHS, Catch pit & apron balance
10	66+725	Box Culvert	3.0x3.0	12	Catch pit, apron & Return wall BHS balance
11	66+900	Box Culvert	2.0x2.0	12	Catch pit ,apron & Return wall BHS balance
12	67+275	Box Culvert	1.5x1.5	12	Catch pit & apron balance
13	67+336	Box Culvert	2.0x2.0	12	Catch pit, apron & Return wall BHS balance
14	67+590	Box Culvert	1.5x1.5	12	Parapet wall BHS, Catch pit, apron & Return wall BHS balance
15	67+850	Box Culvert	2.0x2.0	12	Catch pit & apron balance
16	67+922	Box Culvert	2.0x2.0	12	Parapet wall BHS, Catch pit, apron & Return wall BHS balance
17	68+000	Box Culvert	1.5x1.5	12	Parapet wall BHS, Catch pit, apron & Return wall BHS balance
18	68+135	Box Culvert	1.5x1.5	12	Parapet wall BHS, Catch pit, apron & Return wall BHS balance
19	68+520	Box Culvert	2.0x2.0	12	Parapet wall BHS, Catch pit, apron & Return wall BHS balance
20	68+655	Box Culvert	1.5x1.5	12	Parapet wall BHS, Catch pit, apron & Return wall BHS balance
21	68+855	Box Culvert	2.0x2.0	12	Catch pit & apron balance
22	68+966	Box Culvert	2.0x2.0	12	Parapet wall BHS, Catch pit, apron & Return wall BHS balance

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

23	69+056	Box Culvert	1.5x1.5	12	Parapet wall BHS, Catch pit ,apron& Return wall BHS balance
24	69+128	Box Culvert	2.0x2.0	12	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance
25	69+336	Box Culvert	2.0x2.0	6	RHS Completed (Widening & Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance)
26	69+508	Box Culvert	2.0x2.0	12	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance
27	69+540	Box Culvert	2.0x2.0	12	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance
28	69+715	Box Culvert	3.0x3.0	12	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance
29	69+805	Box Culvert	2.0x2.0	12	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance
30	70+095	Box Culvert	2.0x2.0	12	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance
31	70+250	Box Culvert	2.0x2.0	12	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance
32	70+505	Box Culvert	1.5x1.5	12	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance
33	70+680	Box Culvert	2.0x2.0	12	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance
34	70+830	Box Culvert	1.5x1.5	12	,Catch pit& apron balance
35	70+942	Box Culvert	2.0x2.0	12	Catch pit ,apron& Return wall BHS balance
36	71+070	Box Culvert	2.0x2.0	12	Parapet wall BHS, Catch pit, apron& Return wall BHS balance
37	71+355	Box Culvert	2.0x2.0	12	Parapet wall BHS, Catch pit, apron& Return wall BHS balance
38	71+493	Box Culvert	2.0x2.0	12	Parapet wall BHS, Catch pit, apron& Return wall LHS balance
39	71+580	Box Culvert	2.0x2.0	12	Parapet wall BHS, Catch pit, apron& Return wall BHS balance
40	71+980	Box Culvert	2.0x2.0	12	Parapet wall BHS, Catch pit, apron& Return wall BHS balance
41	72+060	Box Culvert	2.0x2.0	12	Parapet wall BHS, Catch pit, apron& Return wall BHS balance
42	72+165	Box Culvert	2.0x2.0	12	Catch pit, apron& Return wall BHS balance
43	72+560	Box Culvert	2.0x2.0	12	Parapet wall BHS, Catch pit, apron& Return wall BHS balance

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

44	72+600	Box Culvert	2.0x2.0	12	Parapet wall BHS, Catch pit, apron & Return wall BHS balance
45	72+810	Box Culvert	1.5x1.5	12	Parapet wall BHS, Catch pit, apron & Return wall BHS balance
46	72+955	Box Culvert	2.0x2.0	12	Parapet wall BHS, Catch pit & apron balance
47	73+390	Box Culvert	2.0x2.0	12	Parapet wall BHS, Catch pit, apron & Return wall BHS balance
48	75+125	Box Culvert	2.0x2.0	6	LHS Completed (Widening &, Catch pit, apron & Return wall BHS balance)
49	75+225	Box Culvert	2.0x2.0	12	Parapet wall BHS, Catch pit, apron & Return wall BHS balance
50	75+370	Box Culvert	2.0x2.0	12	Parapet wall BHS, Catch pit, apron & Return wall BHS balance
51	75+475	Box Culvert	2.0x2.0	12	Parapet wall RHS, Catch pit, apron & Return wall BHS balance
52	75+642	Box Culvert	1.5x1.5	12	Parapet wall BHS, Catch pit, apron & Return wall BHS balance
53	75+760	Box Culvert	2.0x2.0	12	Parapet wall BHS, Catch pit, apron & Return wall BHS balance
54	76+055	Box Culvert	2.0x2.0	12	Catch pit & Apron balance
55	76+168	Box Culvert	1.5x1.5	12	Parapet wall BHS, Catch pit, apron & Return wall BHS balance
56	76+528	Box Culvert	2.0x2.0	12	Parapet wall BHS, Catch pit, apron & Return wall BHS balance
57	76+665	Box Culvert	2.0x2.0	12	Parapet wall BHS, Catch pit, apron & Return wall BHS balance
58	76+802	Box Culvert	2.0x2.0	12	Parapet wall BHS, Catch pit & Apron balance
59	76+960	Box Culvert	3.0x3.0	12	Parapet wall BHS, Catch pit & Apron balance
60	77+256	Box Culvert	1.5x1.5	12	Parapet wall BHS, Catch pit & Apron balance
61	77+420	Box Culvert	1.5x1.5	12	Parapet wall BHS, Catch pit, apron & Return wall BHS balance
62	77+570	Box Culvert	1.5x1.5	12	Parapet wall BHS, Catch pit, apron & Return wall BHS balance
63	77+640	Box Culvert	2.0x2.0	12	Parapet wall BHS, Catch pit, apron & Return wall BHS balance
64	77+870	Box Culvert	1.5x1.5	12	Parapet wall BHS, Catch pit, apron & Return wall BHS balance
65	78+140	Box Culvert	1.5x1.5	12	Parapet wall BHS, Catch pit, apron & Return wall BHS balance

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

66	78+210	Box Culvert	1.5x1.5	12	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance
67	78+490	Box Culvert	2.0x2.0	12	Parapet wall BHS ,Catch pit ,apron & Return wall LHS balance
68	78+840	Box Culvert	3.0x3.0	12	Parapet wall BHS ,Catch pit ,apron & Return wall RHS balance
69	79+004	Box Culvert	3.0x3.0	6	Half Culvert LHS(Widening & Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance)
70	79+402	Box Culvert	2.0x2.0	12	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance
71	79+570	Box Culvert	3.0x3.0	6	Half Culvert LHS Complete (Widening & Parapet wall RHS, Catch pit, apron& Return wall BHS balance)
72	79+605	Box Culvert	1.5x1.5	12	Parapet wall BHS, Catch pit, apron& Return wall BHS balance
73	79+722	Box Culvert	2.0x2.0	12	Parapet wall BHS, Catch pit, apron& Return wall BHS balance
74	79+810	Box Culvert	1.5x1.5	12	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance
75	79+910	Box Culvert	3.0x3.0	12	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance
76	80+020	Box Culvert	2.0x2.0	12	Parapet wall BHS, Catch pit, apron& Return wall BHS balance
77	80+070	Box Culvert	2.0x2.0	6	LHS Completed (Widening & Catch pit, Apron, Parapet, return wall BHS Balance)
78	80+963	Box Culvert	3.0x3.0	12	Parapet wall BHS, Catch pit, apron& Return wall BHS balance
79	81+128	Box Culvert	2.0x2.0	12	Catch pit, apron& Return wall, Parapet wall BHS balance
80	81+320	Box Culvert	2.0x2.0	12	Catch pit ,apron, Balance, return, Parapet balance LHS
82	81+710	Box Culvert	2.0x2.0	12	Catch pit, apron& Return wall BHS balance)
83	82+040	Box Culvert	2.0x2.0	6	LHS Complete (Widening & Parapet wall ,Catch pit ,apron & Return wall BHS balance)
84	82+165	Slab Culvert	1.0x1.0	7.2	Existing Culvert
85	82+610	Slab Culvert	1x1.0	6.2	Existing Culvert
86	82+840	Slab Culvert	1x1.0	6.3	Existing Culvert
87	83+500	Slab Culvert	1x1.5	6.9	Existing Culvert
88	83+605	Slab	1x1.0	7.1	Existing Culvert

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

		Culvert			
89	83+670	Slab Culvert	1x1.0	8	Existing Culvert
90	83+780	Pipe Culvert	1x0.9	10.8	Existing Culvert
91	84+115	Pipe Culvert	1x1.0	9.7	Existing Culvert
92	85+620	Pipe Culvert	1x0.9	10.6	Existing Culvert
93	85+950	Slab Culvert	1x1.0	7	Existing Culvert
94	86+415	Pipe Culvert	1x1.5	6.9	Existing Culvert
95	86+505	Slab Culvert	1x1.5	7.1	Existing Culvert
96	86+630	Slab Culvert	1x1.0	6.2	Existing Culvert

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

15. Minor Intersections along project:

The details of the minor intersections are as follows:

Sl. No.	Existing Chainage (km)	Design Chainage (km)	Type	
			T / Y Junction	Cross road
1.	84+450	74+240	Y- Junction	
2.	94+520	83+650	Y- Junction	
3.	94+670	83+800	X- Junction	

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Sl. No.	Existing Chainage (km)	Design Chainage (km)	Type	
			T / Y Junction	Cross road
4.	94+675	84+100	Y- Junction	
5.	95+125	84+330	Y- Junction	
6.	95+190	84+380	T- junction	
7.	95+192	84+640	Y- Junction	
8.	95+195	84+760	Y- junction	
9.	95+245	84+800	T- junction	
10.	95+450	85+120	T- junction	
11.	95+595	85+220	Y- Junction	
12.	95+630	85+500	Y- Junction	
13.	95+965	85+620	Y- Junction	
14.	96+060	85+730	X- Junction	
15.	96+340	85+800	Y- Junction	
16.	96+650	86+000	T- Junction	
17.	97+075	86+400	T- junction	

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

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

Sl.no	Chainages		Length (m)	Side	Height (m)	Remarks
	From	To				
1.	66+160	66+202	42.00	LHS		
2.	66+510	66+527	17.00	LHS	2.50	In Progress (2 lift Pending)
3.	66+544	66+558	14.00	LHS		
4.	66+658	66+678	20.00	LHS		
5.	67+210	67+232	22.00	RHS		
6.	67+300	67+338	37.70	RHS		

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

Sl.no	Chainages		Length (m)	Side	Height (m)	Remarks
	From	To				
7.	68+040	68+080	40.00	RHS		
8.	68+285	68+305	20.00	LHS		
9.	68+320	68+340	20.00	LHS		
10.	68+680	68+700	20.00	LHS		
11.	71+338	71+358	20.00	LHS	2.20	In Progress(2 lift Pending)
12.	71+410	71+429	19.00	LHS		
13.	71+429	71+455	26.00	LHS	2.00	In Progress (2 lift Pending)

(ii) The details of Retaining wall are as follows:

Sl.no	Chainages		Length (m)	Side	Height (m)	Remarks
	From	To				
1.	63+914	63+928	14.00	LHS		
2.	63+935	63+951	16.00	RHS		
3.	64+590	64+610	20.00	LHS		
4.	64+610	64+617	7.00	LHS		
5.	65+028	65+050	22.00	LHS	2.5	Parapet wall balance
6.	65+050	65+070	20.00	LHS		
7.	65+070	65+089	19.50	LHS	3.0	Parapet wall balance
8.	65+105	65+140	35.00	RHS		
9.	65+140	65+145	5.00	RHS		
10.	66+030	66+045	15.00	RHS		
11.	66+127	66+152	25.00	RHS		
12.	66+340	66+372	32.00	LHS		

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

Sl.no	Chainages		Length (m)	Side	Height (m)	Remarks
	From	To				
13.	66+810	66+830	20.00	LHS		
14.	66+910	66+950	40.00	LHS		
15.	66+980	66+997	17.00	LHS	2.7	Parapet wall balance
16.	67+035	67+070	35.00	LHS	2.9	Parapet wall balance
17.	67+070	67+110	40.00	LHS		
18.	68+240	68+275	35.00	RHS		
19.	68+370	68+387	17.00	RHS		
20.	68+960	68+970	10.00	RHS		
21.	68+975	68+985	10.00	RHS		
22.	69+380	69+400	20.00	RHS		
23.	70+050	70+072	22.00	RHS		
24.	70+072	70+076	4.00	RHS		
25.	70+152	70+191	39.00	RHS	2.9	Final lift to Parapet wall pending
26.	70+720	70+730	9.60	RHS	2.8	Parapet wall balance
27.	70+730	70+739	9.40	RHS	1.1	2 lift to Parapet wall pending
28.	72+170	72+190	20.00	RHS		
29.	72+212	72+230	18.00	RHS	2.5	Final lift to Parapet wall pending
30.	75+050	75+065	15.00	RHS		
31.	75+160	75+185	25.00	RHS		
32.	77+180	77+199	19.00	RHS		

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

Sl.no	Chainages		Length (m)	Side	Height (m)	Remarks
	From	To				
33.	77+665	77+685	20.00	RHS		
34.	77+690	77+708	18.00	RHS		
35.	78+170	78+182	12.00	RHS		
36.	78+310	78+319	9.00	RHS		
37.	78+440	78+450	10.00	RHS		

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

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			
i) 90% of ROW (full width)	63+800	86+835	23.035	Varying ROW from minimum 24m to maximum 45m at different locations as per Cross section in DPR	At Appointed Date
ii) Balance Right of way (width)	63+800	86+835	23.035	Varying ROW from minimum 24m to maximum 45m at different locations as per Cross section in DPR	At Appointed Date

Annex - III

(Schedule-A)

Alignment Plans

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

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

ii) Traffic Signage plan of the Project Highway showing numbers & location of traffic signs is enclosed. The contractor shall, however, improve/upgrade upon the traffic signage plan as indicated in Annex-III based on site/design requirement as per the relevant specifications/IRC Codes/Manual.

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

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.

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

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.

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon Road** on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

Annex I
(Schedule-B)

Description of Two Lanning

(A) Widening of the Existing Highway

- (i) The Project Highway shall follow the existing alignment unless otherwise specified by the Authority and shown in the alignment plans specified in Annex-III of Schedule-A. Geometric deficiencies, if any, in the existing horizontal and vertical profiles shall be corrected as per the prescribed standards for hilly terrain to the extent land is available.
- (ii) Width of Carriageway: Two-Lanning with hard shoulders shall be undertaken. The paved carriageway shall be 7(seven) m wide. The work and specifications shall be carried out in accordance with Clause 408 of MoRTH specification.

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

Sl. No.	Built-up stretch(Township)	Location (km)	PRO W (m)	Typical Cross Section(Refer to Manual)	Remarks	Remarks
1.	Tanhai	66+075 To 68+335	24	As per attached TCS Drawing	10m Carriageway	
2.	Lengnyu	78+210 To 78+410	24	As per attached TCS Drawing	10m Carriageway	
3.	Mon Town	82+650 To 86+835	24	As per attached TCS Drawing	10m Carriageway	No Geometric Improvement/Strengthening of Existing Surface

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

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

(i) General

Geometric design and general features of the Project Highway shall be in accordance with Section 2 of the IRC: SP: 73-2018

(ii) Design speed

The design speed shall be as per section 2.2 of IRC 73: 2018 for Mountainous and Steep terrain. However in exceptional cases the minimum design speed of 30 km per hour for hilly and mountainous terrain and 20 km per hour for hair pin bend locations shall be adopted in accordance with IRC SP 48:1998.

(B) 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:

Improvement due to Realignment:

Sl. No	Chainage		Length	Alignments
	From	To		
1.	64+330	64+340	10	Realignment
2.	64+340	64+360	20	Realignment
3.	64+450	64+480	30	Realignment
4.	64+480	64+510	30	Realignment
5.	64+660	64+670	10	Realignment
6.	64+670	64+750	80	Realignment
7.	65+245	65+275	30	Realignment
8.	65+600	65+710	110	Realignment
9.	66+750	66+850	100	Realignment
10.	66+850	66+930	80	Realignment
11.	67+050	67+190	140	Realignment
12.	67+190	67+200	10	Realignment
13.	67+390	67+410	20	Realignment
14.	67+410	67+420	10	Realignment
15.	67+420	67+445	25	Realignment
16.	67+605	67+670	65	Realignment
17.	67+670	67+700	30	Realignment
18.	67+810	67+825	15	Realignment
19.	67+825	67+880	55	Realignment

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

20.	67+900	67+960	60	Realignment
21.	68+030	68+046	16	Realignment
22.	68+046	68+056	10	Realignment
23.	68+056	68+060	4	Realignment
24.	68+405	68+450	45	Realignment
25.	68+495	68+557	62	Realignment
26.	68+557	68+595	38	Realignment
27.	69+130	69+176	46	Realignment
28.	69+176	69+180	4	Realignment
29.	69+180	69+210	30	Realignment
30.	69+210	69+220	10	Realignment
31.	69+220	69+245	25	Realignment
32.	69+330	69+375	45	Realignment
33.	69+550	69+650	100	Realignment
34.	69+740	69+898	158	Realignment
35.	69+898	69+910	12	Realignment
36.	70+135	70+186	51	Realignment
37.	70+186	70+190	4	Realignment
38.	70+250	70+269	19	Realignment
39.	70+269	70+278	9	Realignment
40.	70+278	70+310	32	Realignment
41.	70+475	70+496	21	Realignment
42.	70+496	70+515	19	Realignment
43.	70+790	70+795	5	Realignment
44.	70+795	70+860	65	Realignment
45.	70+860	71+020	160	Realignment
46.	71+020	71+060	40	Realignment
47.	71+300	71+360	60	Realignment
48.	71+360	71+390	30	Realignment
49.	71+390	71+400	10	Realignment
50.	71+440	71+457	17	Realignment
51.	71+457	71+500	43	Realignment
52.	71+950	72+048	98	Realignment
53.	72+048	72+100	52	Realignment
54.	72+800	72+835	35	Realignment
55.	72+835	72+865	30	Realignment
56.	72+965	73+005	40	Realignment
57.	73+255	73+305	50	Realignment
58.	73+650	73+690	40	Realignment
59.	73+690	73+760	70	Realignment
60.	73+850	73+880	30	Realignment
61.	73+880	73+905	25	Realignment
62.	74+255	74+295	40	Realignment

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

63.	74+735	74+920	185	Realignment
64.	74+970	75+000	30	Realignment
65.	75+000	75+226	226	Realignment
66.	75+226	75+240	14	Realignment
67.	75+240	75+260	20	Realignment
68.	75+390	75+400	10	Realignment
69.	75+400	75+530	130	Realignment
70.	75+530	75+555	25	Realignment
71.	75+600	75+690	90	Realignment
72.	75+800	75+870	70	Realignment
73.	76+050	76+110	60	Realignment
74.	76+400	76+445	45	Realignment
75.	76+600	76+640	40	Realignment
76.	76+640	76+660	20	Realignment
77.	77+190	77+300	110	Realignment
78.	77+300	77+320	20	Realignment
79.	77+320	77+420	100	Realignment
80.	77+420	77+440	20	Realignment
81.	77+440	77+500	60	Realignment
82.	77+560	77+630	70	Realignment
83.	77+630	77+670	40	Realignment
84.	77+670	77+700	30	Realignment
85.	77+850	77+890	40	Realignment
86.	77+890	77+940	50	Realignment
87.	77+940	78+000	60	Realignment
88.	78+500	78+540	40	Realignment
89.	78+565	78+590	25	Realignment
90.	78+590	78+705	115	Realignment
91.	78+750	78+765	15	Realignment
92.	78+765	78+790	25	Realignment
93.	78+945	79+025	80	Realignment
94.	79+025	79+110	85	Realignment
95.	79+650	79+700	50	Realignment
96.	79+750	79+790	40	Realignment
97.	79+790	79+855	65	Realignment
98.	79+855	79+870	15	Realignment
99.	80+100	80+160	60	Realignment
100.	80+340	80+420	80	Realignment
101.	80+600	80+640	40	Realignment
102.	80+750	80+800	50	Realignment
103.	81+095	81+140	45	Realignment
104.	81+140	81+200	60	Realignment
105.	81+250	81+290	40	Realignment

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

106.	81+290	81+305	15	Realignment
107.	81+540	81+645	105	Realignment
108.	81+645	81+760	115	Realignment
109.	81+870	81+900	30	Realignment
110.	81+900	81+965	65	Realignment
111.	82+440	82+465	25	Realignment

Probable location of Sharp Curves having radius less than 40 m:

Sr. No.	Design Chainage (M)		Side	Type of Deficiency	Remarks
	From	To			
1.	64322.56	64381.89	Left	Radius<40	
2.	64381.89	64441.87	Right	Radius<40	
3.	64482.91	64518.23	Left	Radius<40	
4.	64616.96	64695.26	Left	Radius<40	
5.	66360.13	66435.07	Left	Radius<40	
6.	66435.07	66506.46	Right	Radius<40	
7.	66546.96	66577.84	Left	Radius<40	
8.	69940.31	70003.85	Left	Radius<40	
9.	70313.88	70379.81	Left	Radius<40	
10.	70893.14	70953.05	Right	Radius<40	
11.	71429.76	71474.51	Right	Radius<40	
12.	72066.87	72127.27	Right	Radius<40	
13.	72824.77	72886.36	Right	Radius<40	
14.	72960.88	73024.56	Left	Radius<40	
15.	73684.59	73739.82	Right	Radius<40	
16.	76258.75	76330.76	Right	Radius<40	
17.	76391.33	76453.13	Right	Radius<40	

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

Sr. No.	Design Chainage (M)		Side	Type of Deficiency	Remarks
	From	To			
18.	76611.30	76710.85	Left	Radius<40	
19.	77072.18	77137.61	Left	Radius<40	
20.	77557.61	77617.19	Left	Radius<40	
21.	78431.95	78509.08	Left	Radius<40	
22.	78614.42	78673.22	Right	Radius<40	
23.	78956.46	79113.28	Right	Radius<40	
24.	79113.28	79181.23	Left	Radius<40	
25.	80046.15	80105.41	Right	Radius<40	
26.	80288.09	80343.62	Left	Radius<40	
27.	80582.27	80642.63	Left	Radius<40	
28.	80642.63	80706.11	Right	Radius<40	
29.	81129.14	81197.08	Left	Radius<40	
30.	81251.19	81332.47	Right	Radius<40	
31.	81640.96	81684.00	Right	Radius<40	
32.	82419.46	82477.28	Right	Radius<40	
33.	82562.32	82609.26	Left	Radius<40	
34.	82798.79	82842.93	Left	Radius<40	
35.	82893.21	82913.01	Left	Radius<40	
36.	82913.01	82933.70	Right	Radius<40	
37.	83141.80	83155.95	Left	Radius<40	
38.	83175.25	83196.29	Left	Radius<40	
39.	83238.02	83251.59	Right	Radius<40	
40.	83292.06	83339.02	Right	Radius<40	

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

Sr. No.	Design Chainage (M)		Side	Type of Deficiency	Remarks
	From	To			
41.	83355.01	83372.09	Left	Radius<40	
42.	83380.20	83392.52	Right	Radius<40	
43.	83411.39	83425.47	Left	Radius<40	
44.	83439.66	83463.38	Right	Radius<40	
45.	83490.14	83518.43	Left	Radius<40	
46.	83634.60	83687.90	Right	Radius<40	
47.	83733.72	83768.20	Left	Radius<40	
48.	84046.00	84078.96	Left	Radius<40	
49.	84373.77	84392.69	Left	Radius<40	
50.	84406.88	84431.19	Right	Radius<40	
51.	84517.84	84548.64	Right	Radius<40	
52.	84587.00	84613.77	Left	Radius<40	
53.	84634.89	84670.54	Right	Radius<40	
54.	85164.04	85191.81	Left	Radius<40	
55.	85216.43	85238.74	Right	Radius<40	
56.	85451.62	85471.19	Left	Radius<40	
57.	85518.42	85530.41	Left	Radius<40	
58.	85570.04	85604.21	Left	Radius<40	
59.	85633.64	85658.38	Right	Radius<40	
60.	85839.27	85860.74	Right	Radius<40	
61.	85904.02	85948.45	Right	Radius<40	
62.	86049.86	86067.20	Left	Radius<40	
63.	86259.75	86284.52	Left	Radius<40	

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

Sr. No.	Design Chainage (M)		Side	Type of Deficiency	Remarks
	From	To			
64.	86340.48	86382.37	Left	Radius<40	
65.	86398.19	86426.10	Right	Radius<40	
66.	86551.42	86573.10	Right	Radius<40	
67.	86662.29	86703.67	Right	Radius<40	
68.	86703.67	86769.81	Left	Radius<40	
69.	86769.81	86788.81	Left	Radius<40	

(v) Proposed Right of Way

Details of the proposed Right of Way are tabulated below.

SINo	From	To	ProW Width (M)	Remarks
1.	63+800	66+075	45	
2.	66+075	68+335	24	
3	68+335	78+210	45	
4	78+210	78+410	24	
5	78+410	82+465	45	
6	82+465	86+835	No Geometric improvement/S trengthening of Existing Surface	No Geometric improvement/S trengthening of Existing Surface

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

(v) 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 hard shoulders and granular material shall conform to the requirements specified in the section 408 of MoRTH specification

(vi) Lateral and vertical clearances at underpasses

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

- 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			

(vii) 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				

(viii) 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				

(ix) 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:

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

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

(x) 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		

(xi) Typical cross-sections of the Project Highway

The cross section schedule shall be as follows:

TCS I : Typical Cross Section for project road sections in Hill / Valley locations

TCS II : Typical Cross Section for Project Road Sections through Box Cut Locations

Type III : Typical Cross Section for Project Road Section through Town on Ridge

The cross-section schedule shall be as follows:

Sr. No.	Chainage (Km)		Length(M)	Type	Remarks
	From	To			
1.	63+800	63+865	65	I	
2.	63+865	63+910	45	II	
3.	63+910	63+940	30	I	
4.	63+940	64+040	100	II	
5.	64+040	66+045	2005	I	
6.	66+045	66+120	75	II	
7.	66+120	66+380	260	I	
8.	66+380	66+400	20	II	
9.	66+400	68+200	1800	I	
10.	68+200	68+260	60	II	

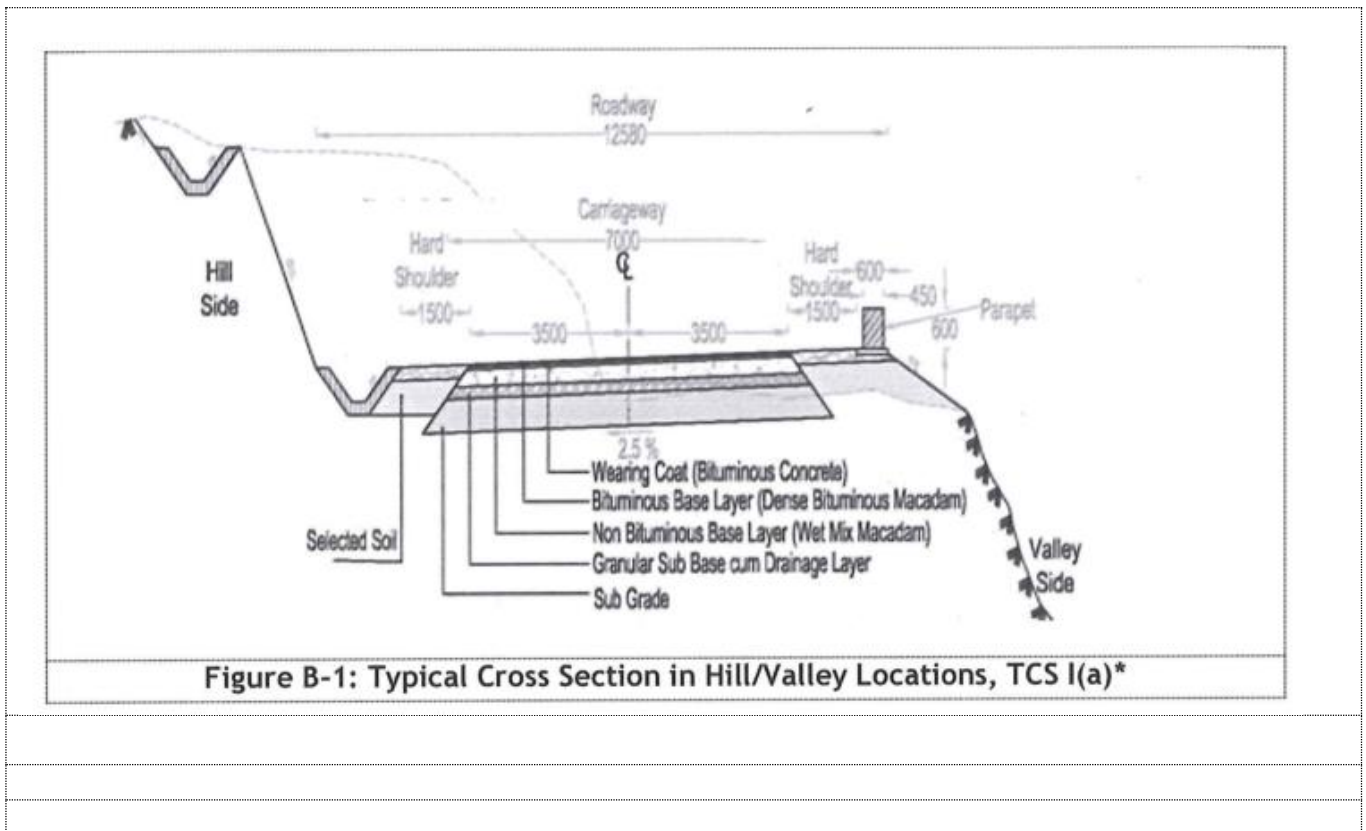
Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

Sr. No.	Chainage (Km)		Length(M)	Type	Remarks
	From	To			
11.	68+260	69+350	1090	I	
12.	69+350	69+370	20	III	
13.	69+370	70+030	660	I	
14.	70+030	74+200	4170	I	
15.	74+200	74+210	10	III	
16.	74+210	74+300	90	I	
17.	74+300	74+315	15	III	
18.	74+315	74+505	190	I	
19.	74+505	74+525	20	III	
20.	74+525	74+710	185	I	
21.	74+710	75+070	360	III	
22.	75+070	75+100	30	I	
23.	75+100	75+350	250	III	
24.	75+350	75+370	20	I	
25.	75+370	75+480	110	III	
26.	75+480	75+510	30	I	
27.	75+510	75+520	10	II	
28.	75+520	78+650	3130	I	
29.	78+650	78+680	30	I	
30.	78+680	80+340	1660	I	
31.	80+340	81+665	1325	I	
32.	81+664	81+760	96	III	

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon Road** on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

Sr. No.	Chainage (Km)		Length(M)	Type	Remarks
	From	To			
33.	81+760	81+950	190	I	
34.	81+950	81+965	15	III	
35.	81+965	82+760	795	I	
36.	82+760	86+834	4074	V	

The alternative cross section of the Project Highway at the cross-drainage structures shall follow the typical cross section in consultation with the Authority Engineer at the time of construction.



Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon Road** on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

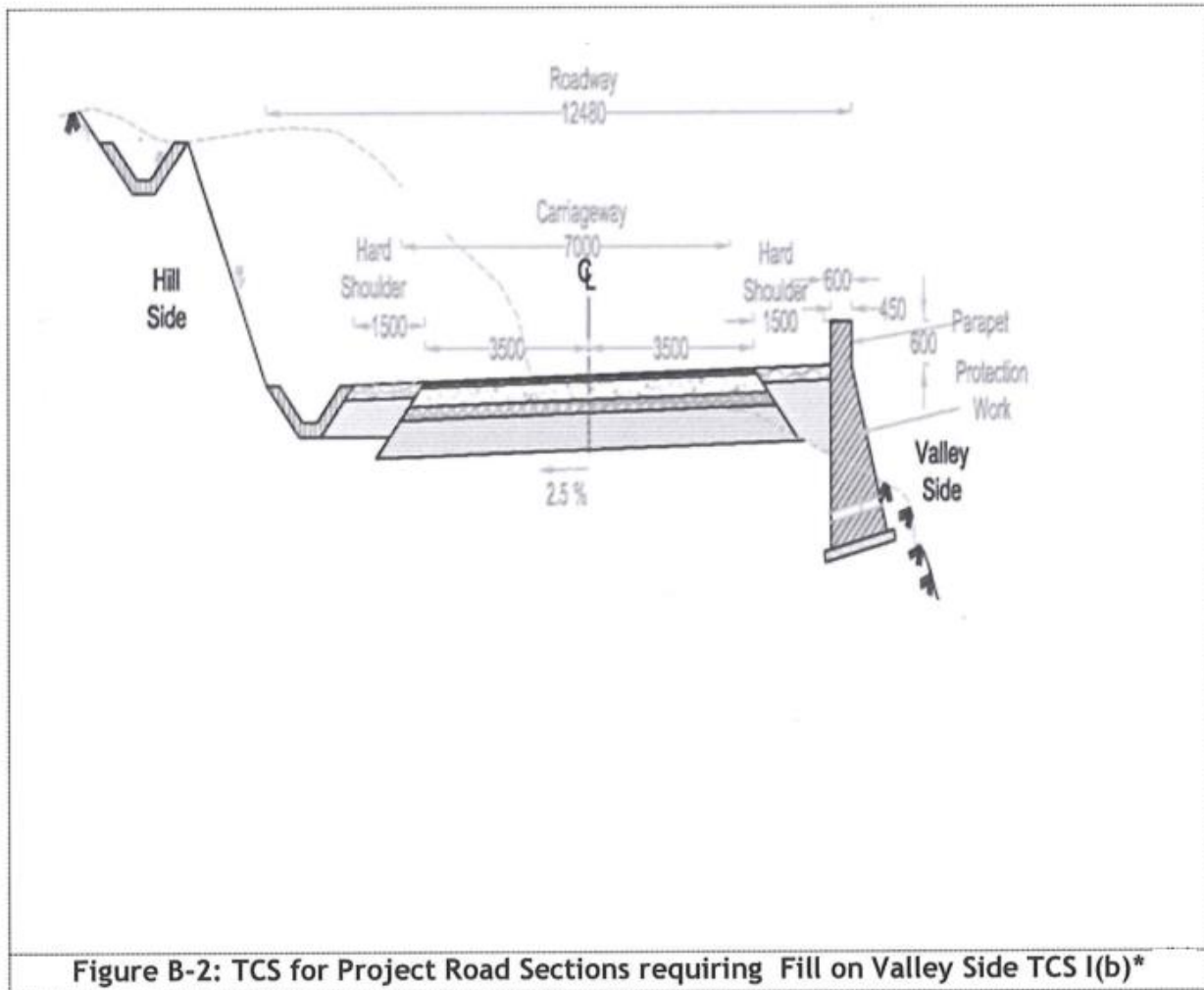
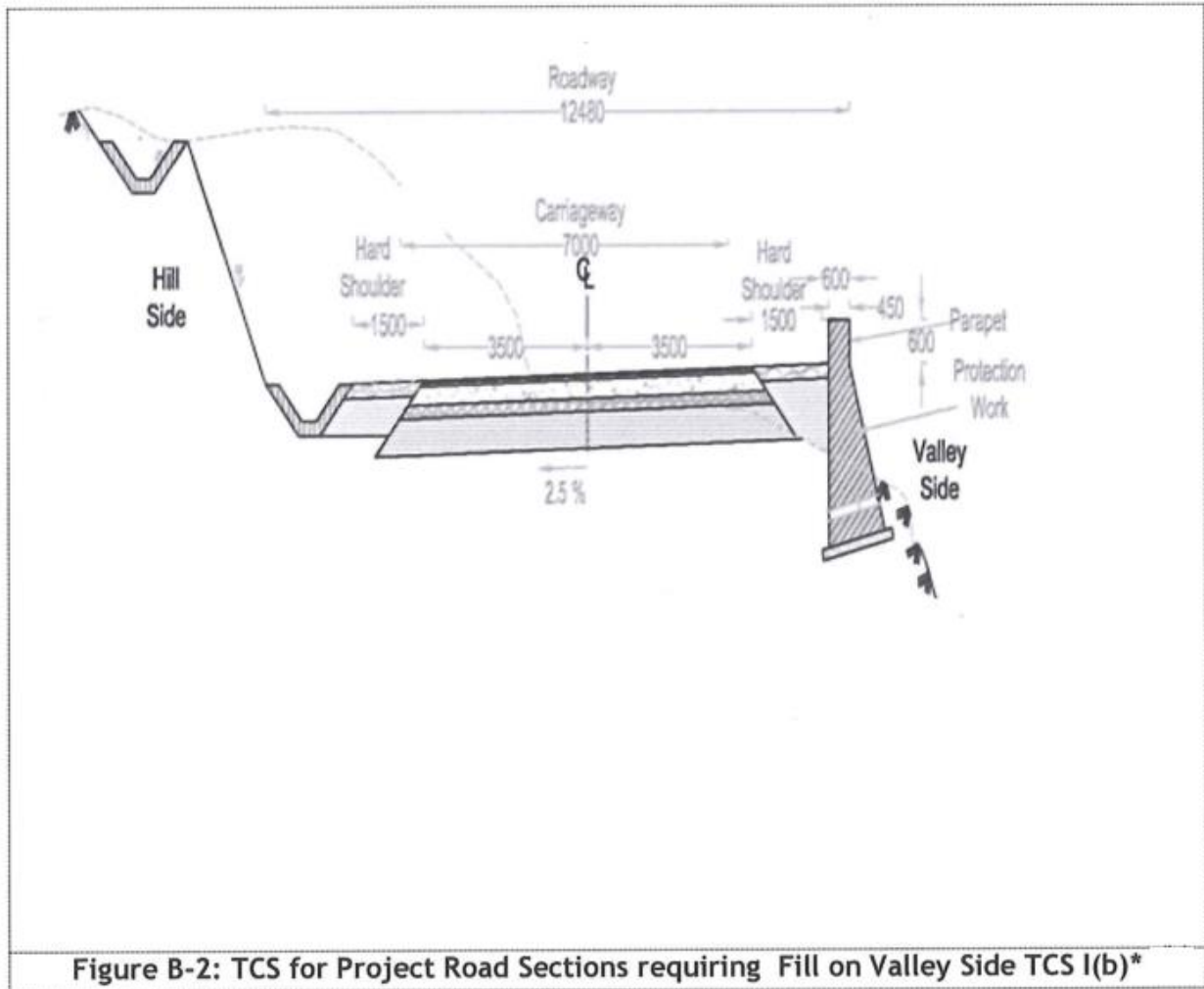
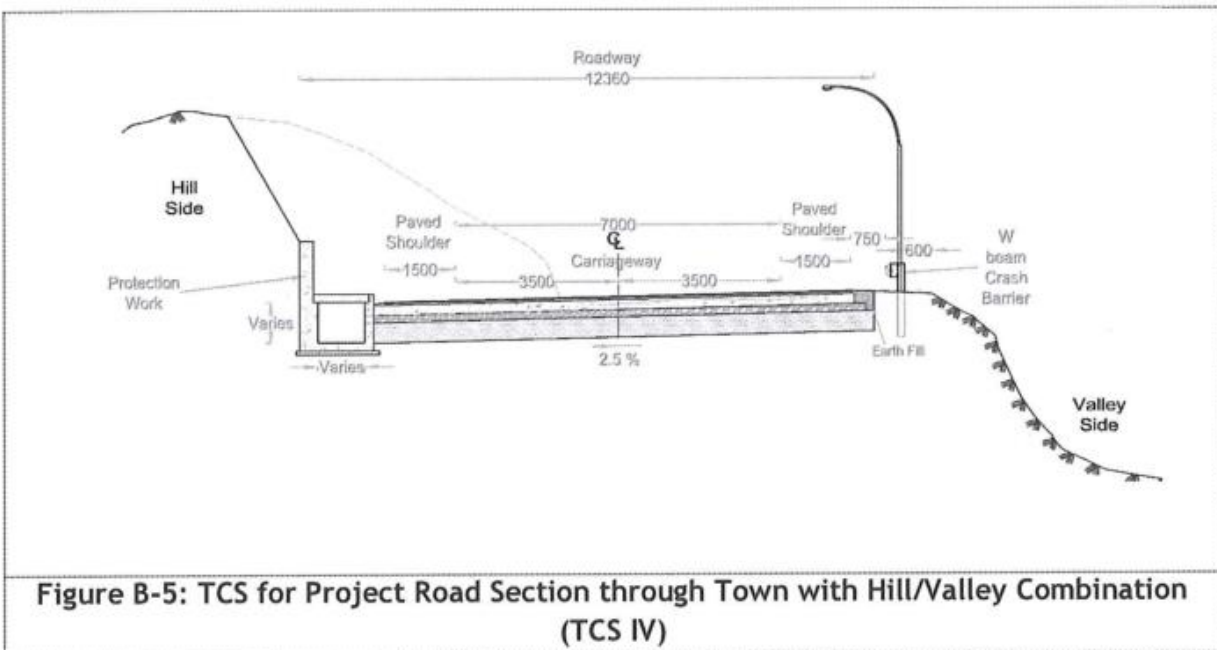
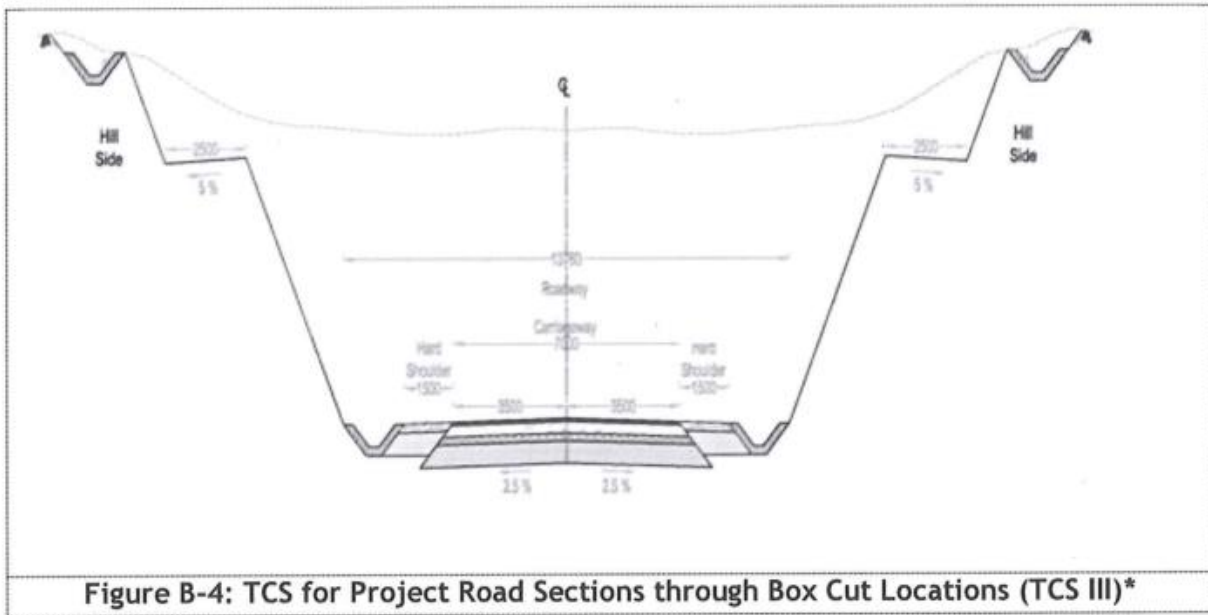


Figure B-2: TCS for Project Road Sections requiring Fill on Valley Side TCS I(b)*

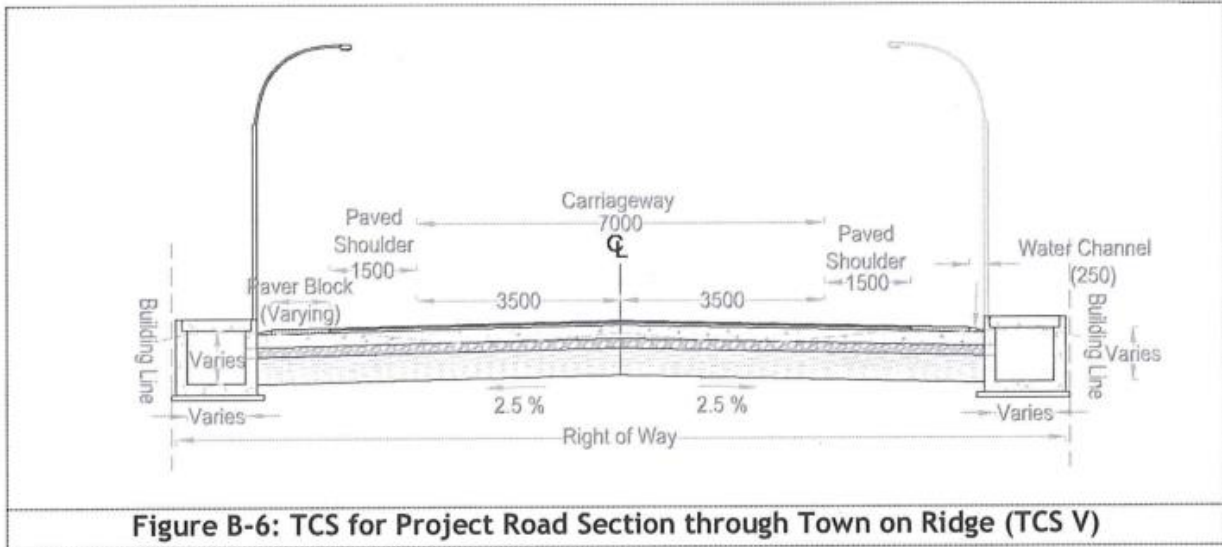
Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon Road** on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)



Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon Road** on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)



Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon Road** on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)



3. INTERSECTIONS AND GRADE SEPARATORS

Introduction

All intersections shall be as per Section 3 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

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

Minor Intersections

Sr. No.	Location of Intersection (Design Chainage, Km)	Type of Intersection	Side
1.	74+240	Y- Junction	Left
2.	83+650	Y- Junction	Left
3.	83+800	X- Junction	-
4.	84+100	Y- Junction	Left
5.	84+330	Y- Junction	Left
6.	84+380	T- junction	Right

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

Sr. No.	Location of Intersection (Design Chainage, Km)	Type of Intersection	Side
7.	84+640	Y- Junction	Right
8.	84+760	Y- junction	Right
9.	84+800	T- junction	Left
10.	85+120	T- junction	Right
11.	85+220	Y- Junction	Right
12.	85+500	Y- Junction	Left
13.	85+620	Y- Junction	Right
14.	85+730	X- Junction	Right
15.	85+800	Y- Junction	Left
16.	86+000	T- Junction	Left
17.	86+400	T- junction	Right

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

(ii) Grade Separated Intersections with/without Ramps

SI 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:

SI 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

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

(i) Pavement design shall be carried out in accordance with section 5 of the IRC: SP: 73-2018.

(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

(C) 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).

Lined drain of following length shall be provided:

6.1 Drainage Measures

Following measures shall be adopted:

i) Minimum length of Road Side Drain 11876 m

(D) Minimum length of lined covered RCC drain with Kerb Channel on Hill Side 8149m

Open side trapezoidal cross section drain shall be provided on hill sides 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 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: 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.

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

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

7.1 Minimum balance Earthwork up to Top of Sub-grade

Sl. No	Chainage		Length (M)	Alignments
	From	To		
1	63+800	63+820	20	Widening & strengthening
2	71+920	71+950	30	Widening & strengthening
3	71+950	72+048	98	Realignment
4	73+760	73+800	40	Widening & strengthening
5	74+050	74+100	50	Widening & strengthening
6	74+100	74+160	60	Widening & strengthening
7	74+160	74+180	20	Widening & strengthening
8	74+180	74+230	50	Widening & strengthening
9	74+230	74+250	20	Widening & strengthening
10	74+250	74+255	5	Widening & strengthening
11	74+255	74+295	40	Realignment
12	74+295	74+410	115	Widening & strengthening
13	74+410	74+430	20	Widening & strengthening
14	74+430	74+610	180	Widening & strengthening
15	74+610	74+640	30	Widening & strengthening
16	74+640	74+735	95	Widening & strengthening
17	74+735	74+920	185	Realignment
18	74+920	74+970	50	Widening & strengthening
19	74+970	75+000	30	Realignment
20	79+110	79+250	140	Widening & strengthening
21	80+310	80+340	30	Widening & strengthening
22	80+340	80+420	80	Realignment
23	80+420	80+600	180	Widening & strengthening
24	80+600	80+640	40	Realignment
25	80+640	80+750	110	Widening & strengthening
26	80+750	80+800	50	Realignment
27	80+800	80+810	10	Widening & strengthening
28	80+810	80+955	145	Widening & strengthening
29	80+955	80+975	20	Widening & strengthening
30	80+975	81+095	120	Widening & strengthening
31	81+095	81+140	45	Realignment
32	81+385	81+410	25	Widening & strengthening
33	81+410	81+430	20	Widening & strengthening
34	81+430	81+470	40	Widening & strengthening
35	82+135	82+160	25	Widening & strengthening

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

36	82+160	82+440	280	Widening & strengthening
37	82+440	82+465	25	Realignment
38	82+465	82+630	165	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
39	83+809	83+871	62	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
40	84+116	84+187	71	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
41	84+429	84+435	6	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
42	85+672	86+835	1163	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
Total			3990	Meter

7.2 Minimum Balance Granular Sub Base Works: -

SL. No	Chainage		Length (M)	Alignments
	From	To		
1	63+800	63+820	20	Widening & strengthening
2	69+280	69+330	50	Widening & strengthening
3	69+330	69+375	45	Realignment
4	69+375	69+447	72	Widening & strengthening
5	71+457	71+500	43	Realignment
6	71+500	71+545	45	Widening & strengthening
7	71+920	71+950	30	Widening & strengthening
8	71+950	72+048	98	Realignment
9	72+780	72+800	20	Widening & strengthening
10	72+800	72+835	35	Realignment
11	73+650	73+690	40	Realignment
12	73+690	73+760	70	Realignment
13	73+760	73+850	90	Widening & strengthening

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

14	73+850	73+880	30	Realignment
15	74+050	74+100	50	Widening & strengthening
16	74+100	74+160	60	Widening & strengthening
17	74+160	74+180	20	Widening & strengthening
18	74+180	74+230	50	Widening & strengthening
19	74+230	74+250	20	Widening & strengthening
20	74+250	74+255	5	Widening & strengthening
21	74+255	74+295	40	Realignment
22	74+295	74+410	115	Widening & strengthening
23	74+410	74+430	20	Widening & strengthening
24	74+430	74+610	180	Widening & strengthening
25	74+610	74+640	30	Widening & strengthening
26	74+640	74+735	95	Widening & strengthening
27	74+735	74+920	185	Realignment
28	74+920	74+970	50	Widening & strengthening
29	74+970	75+000	30	Realignment
30	75+226	75+240	14	Realignment
31	75+240	75+260	20	Realignment
32	75+260	75+320	60	Widening & strengthening
33	75+320	75+380	60	Widening & strengthening
34	78+540	78+550	10	Widening & strengthening
35	78+550	78+565	15	Widening & strengthening
36	78+565	78+590	25	Realignment
37	78+860	78+945	85	Widening & strengthening
38	78+945	79+025	80	Realignment
39	79+025	79+110	85	Realignment
40	79+110	79+250	140	Widening & strengthening
41	79+250	79+590	340	Widening & strengthening
42	79+750	79+790	40	Realignment
43	79+855	79+870	15	Realignment
44	79+870	79+880	10	Widening & strengthening
45	80+080	80+100	20	Widening & strengthening
46	80+100	80+160	60	Realignment
47	80+310	80+340	30	Widening & strengthening
48	80+340	80+420	80	Realignment
49	80+420	80+600	180	Widening & strengthening
50	80+600	80+640	40	Realignment
51	80+640	80+750	110	Widening & strengthening
52	80+750	80+800	50	Realignment
53	80+800	80+810	10	Widening & strengthening
54	80+810	80+955	145	Widening & strengthening
55	80+955	80+975	20	Widening & strengthening
56	80+975	81+095	120	Widening & strengthening

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

57	81+095	81+140	45	Realignment
58	81+200	81+210	10	Widening & strengthening
59	81+210	81+240	30	Widening & strengthening
60	81+240	81+250	10	Widening & strengthening
61	81+385	81+410	25	Widening & strengthening
62	81+410	81+430	20	Widening & strengthening
63	81+430	81+470	40	Widening & strengthening
64	81+645	81+760	115	Realignment
65	81+760	81+850	90	Widening & strengthening
66	82+135	82+160	25	Widening & strengthening
67	82+160	82+440	280	Widening & strengthening
68	82+440	82+465	25	Realignment
69	82+465	82+630	165	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
70	83+809	83+871	62	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
71	84+116	84+187	71	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
72	84+429	84+435	6	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
73	85+672	86+835	1163	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
Total			5684	Meter

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

7.3 Minimum Balance Work of WMM

SL. No	Chainage		Length (M)	Alignments
	From	To		
1	63+800	63+820	20	Widening & strengthening
2	64+660	64+750	90	Realignment
3	64+750	64+850	100	Widening & strengthening
4	66+854	66+930	76	Realignment
5	66+930	67+035	105	Widening & strengthening
6	67+035	67+040	5	Widening & strengthening
7	67+040	67+050	10	Widening & strengthening
8	67+050	67+190	140	Realignment
9	67+190	67+200	10	Realignment
10	67+300	67+312	12	Widening & strengthening
11	67+825	67+880	55	Realignment
12	67+880	67+900	20	Widening & strengthening
13	67+900	67+960	60	Realignment
14	67+960	68+030	70	Widening & strengthening
15	68+030	68+046	16	Realignment
16	68+495	68+557	62	Realignment
17	69+040	69+065	25	Widening & strengthening
18	69+098	69+130	32	Widening & strengthening
19	69+130	69+176	46	Realignment
20	69+245	69+280	35	Widening & strengthening
21	69+280	69+330	50	Widening & strengthening
22	69+330	69+375	45	Realignment
23	69+375	69+447	72	Widening & strengthening
24	69+517	69+550	33	Widening & strengthening
25	69+550	69+630	80	Realignment
26	69+733	69+740	7	Widening & strengthening
27	69+740	69+898	158	Realignment
28	70+278	70+310	32	Realignment
29	71+457	71+500	43	Realignment
30	71+500	71+545	45	Widening & strengthening
31	71+545	71+550	5	Widening & strengthening
32	71+915	71+920	5	Widening & strengthening
33	71+920	71+950	30	Widening & strengthening
34	71+950	72+048	98	Realignment
35	72+048	72+100	52	Realignment
36	72+100	72+150	50	Widening & strengthening
37	72+150	72+225	75	Widening & strengthening

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

38	72+570	72+780	210	Widening & strengthening
39	72+780	72+800	20	Widening & strengthening
40	72+800	72+835	35	Realignment
41	73+305	73+650	345	Widening & strengthening
42	73+650	73+690	40	Realignment
43	73+690	73+760	70	Realignment
44	73+760	73+850	90	Widening & strengthening
45	73+850	73+880	30	Realignment
46	73+880	73+905	25	Realignment
47	73+905	74+000	95	Widening & strengthening
48	74+000	74+050	50	Widening & strengthening
49	74+050	74+100	50	Widening & strengthening
50	74+100	74+160	60	Widening & strengthening
51	74+160	74+180	20	Widening & strengthening
52	74+180	74+230	50	Widening & strengthening
53	74+230	74+250	20	Widening & strengthening
54	74+250	74+255	5	Widening & strengthening
55	74+255	74+295	40	Realignment
56	74+295	74+410	115	Widening & strengthening
57	74+410	74+430	20	Widening & strengthening
58	74+430	74+610	180	Widening & strengthening
59	74+610	74+640	30	Widening & strengthening
60	74+640	74+735	95	Widening & strengthening
61	74+735	74+920	185	Realignment
62	74+920	74+970	50	Widening & strengthening
63	74+970	75+000	30	Realignment
64	75+000	75+226	226	Realignment
65	75+226	75+240	14	Realignment
66	75+240	75+260	20	Realignment
67	75+260	75+320	60	Widening & strengthening
68	75+320	75+380	60	Widening & strengthening
69	75+380	75+390	10	Widening & strengthening
70	75+390	75+400	10	Realignment
71	75+400	75+530	130	Realignment
72	75+530	75+555	25	Realignment
73	75+555	75+560	5	Widening & strengthening
74	75+560	75+600	40	Widening & strengthening
75	75+600	75+690	90	Realignment
76	75+690	75+800	110	Widening & strengthening
77	75+800	75+870	70	Realignment
78	75+870	76+050	180	Widening & strengthening
79	76+050	76+110	60	Realignment
80	76+110	76+300	190	Widening & strengthening

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

81	76+300	76+340	40	Widening & strengthening
82	76+340	76+400	60	Widening & strengthening
83	76+400	76+445	45	Realignment
84	76+445	76+600	155	Widening & strengthening
85	76+600	76+640	40	Realignment
86	76+640	76+660	20	Realignment
87	76+660	76+730	70	Widening & strengthening
88	76+730	76+750	20	Widening & strengthening
89	76+750	76+950	200	Widening & strengthening
90	76+950	77+050	100	Widening & strengthening
91	77+050	77+110	60	Widening & strengthening
92	77+110	77+190	80	Widening & strengthening
93	77+190	77+300	110	Realignment
94	77+300	77+320	20	Realignment
95	77+320	77+420	100	Realignment
96	77+420	77+440	20	Realignment
97	77+440	77+500	60	Realignment
98	77+500	77+530	30	Widening & strengthening
99	77+530	77+560	30	Widening & strengthening
100	77+560	77+630	70	Realignment
101	77+630	77+670	40	Realignment
102	77+670	77+700	30	Realignment
103	77+700	77+780	80	Widening & strengthening
104	77+850	77+890	40	Realignment
105	77+890	77+940	50	Realignment
106	77+940	78+000	60	Realignment
107	78+000	78+200	200	Widening & strengthening
108	78+200	78+360	160	Widening & strengthening
109	78+360	78+500	140	Widening & strengthening
110	78+500	78+540	40	Realignment
111	78+540	78+550	10	Widening & strengthening
112	78+550	78+565	15	Widening & strengthening
113	78+565	78+590	25	Realignment
114	78+590	78+705	115	Realignment
115	78+705	78+710	5	Widening & strengthening
116	78+710	78+735	25	Widening & strengthening
117	78+735	78+750	15	Widening & strengthening
118	78+750	78+765	15	Realignment
119	78+765	78+790	25	Realignment
120	78+790	78+820	30	Widening & strengthening
121	78+820	78+830	10	Widening & strengthening
122	78+830	78+860	30	Widening & strengthening
123	78+860	78+945	85	Widening & strengthening

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

124	78+945	79+025	80	Realignment
125	79+025	79+110	85	Realignment
126	79+110	79+250	140	Widening & strengthening
127	79+250	79+590	340	Widening & strengthening
128	79+590	79+650	60	Widening & strengthening
129	79+650	79+700	50	Realignment
130	79+700	79+750	50	Widening & strengthening
131	79+750	79+790	40	Realignment
132	79+790	79+855	65	Realignment
133	79+855	79+870	15	Realignment
134	79+870	79+880	10	Widening & strengthening
135	79+880	79+960	80	Widening & strengthening
136	79+960	80+080	120	Widening & strengthening
137	80+080	80+100	20	Widening & strengthening
138	80+100	80+160	60	Realignment
139	80+160	80+180	20	Widening & strengthening
140	80+180	80+310	130	Widening & strengthening
141	80+310	80+340	30	Widening & strengthening
142	80+340	80+420	80	Realignment
143	80+420	80+600	180	Widening & strengthening
144	80+600	80+640	40	Realignment
145	80+640	80+750	110	Widening & strengthening
146	80+750	80+800	50	Realignment
147	80+800	80+810	10	Widening & strengthening
148	80+810	80+955	145	Widening & strengthening
149	80+955	80+975	20	Widening & strengthening
150	80+975	81+095	120	Widening & strengthening
151	81+095	81+140	45	Realignment
152	81+140	81+200	60	Realignment
153	81+200	81+210	10	Widening & strengthening
154	81+210	81+240	30	Widening & strengthening
155	81+240	81+250	10	Widening & strengthening
156	81+250	81+290	40	Realignment
157	81+290	81+305	15	Realignment
158	81+305	81+385	80	Widening & strengthening
159	81+385	81+410	25	Widening & strengthening
160	81+410	81+430	20	Widening & strengthening
161	81+430	81+470	40	Widening & strengthening
162	81+470	81+525	55	Widening & strengthening
163	81+525	81+540	15	Widening & strengthening
164	81+540	81+645	105	Realignment
165	81+645	81+760	115	Realignment
166	81+760	81+850	90	Widening & strengthening

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

167	81+850	81+870	20	Widening & strengthening
168	81+870	81+900	30	Realignment
169	81+900	81+965	65	Realignment
170	81+965	82+135	170	Widening & strengthening
171	82+135	82+160	25	Widening & strengthening
172	82+160	82+440	280	Widening & strengthening
173	82+440	82+465	25	Realignment
174	82+465	82+630	165	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
175	82+630	83+300	670	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
176	83+809	83+871	62	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
177	84+116	84+187	71	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
178	84+429	84+435	6	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
179	85+672	86+835	1163	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
		Total	13361	

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

7.4 Minimum Balance Work of DBM

SL. No	Chainage		Length (M)	Alignments
	From	To		
1	63800	63820	20	Widening & strengthening
2	63938	63988	50	Widening & strengthening
3	64131	64198	67	Widening & strengthening
4	64198	64286	88	Widening & strengthening
5	64376	64442	66	Widening & strengthening
6	64660	64670	10	Realignment
7	64670	64750	80	Realignment
8	64750	64790	40	Widening & strengthening
9	64790	64810	20	Widening & strengthening
10	64810	64850	40	Widening & strengthening
11	64850	64980	130	Widening & strengthening
12	64980	65100	120	Widening & strengthening
13	65100	65120	20	Widening & strengthening
14	65120	65130	10	Widening & strengthening
15	65130	65230	100	Widening & strengthening
16	65230	65245	15	Widening & strengthening
17	65245	65275	30	Realignment
18	65275	65297	22	Widening & strengthening
19	66700	66750	50	Widening & strengthening
20	66750	66850	100	Realignment
21	66850	66930	80	Realignment
22	66930	67035	105	Widening & strengthening
23	67035	67040	5	Widening & strengthening
24	67040	67050	10	Widening & strengthening
25	67050	67190	140	Realignment
26	67190	67200	10	Realignment
27	67200	67300	100	Widening & strengthening
28	67300	67330	30	Widening & strengthening
29	67330	67390	60	Widening & strengthening
30	67390	67410	20	Realignment
31	67410	67420	10	Realignment
32	67420	67445	25	Realignment
33	67445	67470	25	Widening & strengthening
34	67470	67605	135	Widening & strengthening
35	67605	67670	65	Realignment
36	67670	67700	30	Realignment
37	67700	67810	110	Widening & strengthening
38	67810	67825	15	Realignment

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

39	67825	67880	55	Realignment
40	67880	67900	20	Widening & strengthening
41	67900	67960	60	Realignment
42	67960	68030	70	Widening & strengthening
43	68030	68046	16	Realignment
44	68046	68056	10	Realignment
45	68056	68060	4	Realignment
46	68060	68272	212	Widening & strengthening
47	68272	68481	209	Widening & strengthening
48	68481	68495	14	Widening & strengthening
49	68495	68557	62	Realignment
50	68630	68732	102	Widening & strengthening
51	68812	68906	94	Widening & strengthening
52	68927	68989	62	Widening & strengthening
53	69040	69075	35	Widening & strengthening
54	69098	69130	32	Widening & strengthening
55	69130	69176	46	Realignment
56	69245	69280	35	Widening & strengthening
57	69280	69330	50	Widening & strengthening
58	69330	69375	45	Realignment
59	69375	69447	72	Widening & strengthening
60	69517	69550	33	Widening & strengthening
61	69550	69650	100	Realignment
62	69733	69740	7	Widening & strengthening
63	69740	69898	158	Realignment
64	70025	70135	110	Widening & strengthening
65	70135	70186	51	Realignment
66	70269	70278	9	Realignment
67	70278	70310	32	Realignment
68	70310	70329	19	Widening & strengthening
69	70329	70342	13	Widening & strengthening
70	70496	70515	19	Realignment
71	70515	70564	49	Widening & strengthening
72	70860	71020	160	Realignment
73	71020	71060	40	Realignment
74	71060	71160	100	Widening & strengthening
75	71160	71171	11	Widening & strengthening
76	71267	71300	33	Widening & strengthening
77	71300	71360	60	Realignment
78	71360	71390	30	Realignment
79	71390	71400	10	Realignment
80	71400	71440	40	Widening & strengthening
81	71440	71457	17	Realignment

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

82	71457	71500	43	Realignment
83	71500	71545	45	Widening & strengthening
84	71545	71550	5	Widening & strengthening
85	71550	71640	90	Widening & strengthening
86	71640	71660	20	Widening & strengthening
87	71660	71760	100	Widening & strengthening
88	71760	71780	20	Widening & strengthening
89	71780	71830	50	Widening & strengthening
90	71830	71850	20	Widening & strengthening
91	71850	71915	65	Widening & strengthening
92	71915	71920	5	Widening & strengthening
93	71920	71950	30	Widening & strengthening
94	71950	72048	98	Realignment
95	72048	72100	52	Realignment
96	72100	72150	50	Widening & strengthening
97	72150	72780	630	Widening & strengthening
98	72780	72800	20	Widening & strengthening
99	72800	72835	35	Realignment
100	72835	72865	30	Realignment
101	72865	72890	25	Widening & strengthening
102	72890	72965	75	Widening & strengthening
103	72965	73005	40	Realignment
104	73005	73255	250	Widening & strengthening
105	73255	73305	50	Realignment
106	73305	73510	205	Widening & strengthening
107	73510	73515	5	Widening & strengthening
108	73515	73650	135	Widening & strengthening
109	73650	73690	40	Realignment
110	73690	73760	70	Realignment
111	73760	73850	90	Widening & strengthening
112	73850	73880	30	Realignment
113	73880	73905	25	Realignment
114	73905	74000	95	Widening & strengthening
115	74000	74050	50	Widening & strengthening
116	74050	74100	50	Widening & strengthening
117	74100	74160	60	Widening & strengthening
118	74160	74180	20	Widening & strengthening
119	74180	74230	50	Widening & strengthening
120	74230	74250	20	Widening & strengthening
121	74250	74255	5	Widening & strengthening
122	74255	74295	40	Realignment
123	74295	74410	115	Widening & strengthening
124	74410	74430	20	Widening & strengthening

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

125	74430	74610	180	Widening & strengthening
126	74610	74640	30	Widening & strengthening
127	74640	74735	95	Widening & strengthening
128	74735	74920	185	Realignment
129	74920	74970	50	Widening & strengthening
130	74970	75000	30	Realignment
131	75000	75226	226	Realignment
132	75226	75240	14	Realignment
133	75240	75260	20	Realignment
134	75260	75320	60	Widening & strengthening
135	75320	75380	60	Widening & strengthening
136	75380	75390	10	Widening & strengthening
137	75390	75400	10	Realignment
138	75400	75530	130	Realignment
139	75530	75555	25	Realignment
140	75555	75560	5	Widening & strengthening
141	75560	75600	40	Widening & strengthening
142	75600	75690	90	Realignment
143	75690	75800	110	Widening & strengthening
144	75800	75870	70	Realignment
145	75870	76050	180	Widening & strengthening
146	76050	76110	60	Realignment
147	76110	76300	190	Widening & strengthening
148	76300	76340	40	Widening & strengthening
149	76340	76400	60	Widening & strengthening
150	76400	76445	45	Realignment
151	76445	76600	155	Widening & strengthening
152	76600	76640	40	Realignment
153	76640	76660	20	Realignment
154	76660	76730	70	Widening & strengthening
155	76730	76750	20	Widening & strengthening
156	76750	76950	200	Widening & strengthening
157	76950	77050	100	Widening & strengthening
158	77050	77110	60	Widening & strengthening
159	77110	77190	80	Widening & strengthening
160	77190	77300	110	Realignment
161	77300	77320	20	Realignment
162	77320	77420	100	Realignment
163	77420	77440	20	Realignment
164	77440	77500	60	Realignment
165	77500	77530	30	Widening & strengthening
166	77530	77560	30	Widening & strengthening
167	77560	77630	70	Realignment

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

168	77630	77670	40	Realignment
169	77670	77700	30	Realignment
170	77700	77780	80	Widening & strengthening
171	77780	77810	30	Widening & strengthening
172	77810	77850	40	Widening & strengthening
173	77850	77890	40	Realignment
174	77890	77940	50	Realignment
175	77940	78000	60	Realignment
176	78000	78200	200	Widening & strengthening
177	78200	78360	160	Widening & strengthening
178	78360	78500	140	Widening & strengthening
179	78500	78540	40	Realignment
180	78540	78550	10	Widening & strengthening
181	78550	78565	15	Widening & strengthening
182	78565	78590	25	Realignment
183	78590	78705	115	Realignment
184	78705	78710	5	Widening & strengthening
185	78710	78735	25	Widening & strengthening
186	78735	78750	15	Widening & strengthening
187	78750	78765	15	Realignment
188	78765	78790	25	Realignment
189	78790	78820	30	Widening & strengthening
190	78820	78830	10	Widening & strengthening
191	78830	78860	30	Widening & strengthening
192	78860	78945	85	Widening & strengthening
193	78945	79025	80	Realignment
194	79025	79110	85	Realignment
195	79110	79250	140	Widening & strengthening
196	79250	79590	340	Widening & strengthening
197	79590	79650	60	Widening & strengthening
198	79650	79700	50	Realignment
199	79700	79750	50	Widening & strengthening
200	79750	79790	40	Realignment
201	79790	79855	65	Realignment
202	79855	79870	15	Realignment
203	79870	79880	10	Widening & strengthening
204	79880	79960	80	Widening & strengthening
205	79960	80080	120	Widening & strengthening
206	80080	80100	20	Widening & strengthening
207	80100	80160	60	Realignment
208	80160	80180	20	Widening & strengthening
209	80180	80310	130	Widening & strengthening
210	80310	80340	30	Widening & strengthening

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211	80340	80420	80	Realignment
212	80420	80600	180	Widening & strengthening
213	80600	80640	40	Realignment
214	80640	80750	110	Widening & strengthening
215	80750	80800	50	Realignment
216	80800	80810	10	Widening & strengthening
217	80810	80955	145	Widening & strengthening
218	80955	80975	20	Widening & strengthening
219	80975	81095	120	Widening & strengthening
220	81095	81140	45	Realignment
221	81140	81200	60	Realignment
222	81200	81210	10	Widening & strengthening
223	81210	81240	30	Widening & strengthening
224	81240	81250	10	Widening & strengthening
225	81250	81290	40	Realignment
226	81290	81305	15	Realignment
227	81305	81385	80	Widening & strengthening
228	81385	81410	25	Widening & strengthening
229	81410	81430	20	Widening & strengthening
230	81430	81470	40	Widening & strengthening
231	81470	81525	55	Widening & strengthening
232	81525	81540	15	Widening & strengthening
233	81540	81645	105	Realignment
234	81645	81760	115	Realignment
235	81760	81850	90	Widening & strengthening
236	81850	81870	20	Widening & strengthening
237	81870	81900	30	Realignment
238	81900	81965	65	Realignment
239	81965	82135	170	Widening & strengthening
240	82135	82160	25	Widening & strengthening
241	82160	82440	280	Widening & strengthening
242	82440	82465	25	Realignment
243	82465	82630	165	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
244	82630	83300	670	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

245	83300	83809	509	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
246	83809	83871	62	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
247	84116	84187	71	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
248	84429	84435	6	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
249	84758	84800	42	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
250	84800	84850	50	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
251	84850	85390	540	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
252	85672	86835	1163	The Section of the Road from Design Chainage Km. 82+800 to Km. 86+835 (Design Length 4.035 Km.) is a region of no geometric improvement
Total			18745	Meter

(E) Balance Work of BC

Sl. No.	Activity	Chainages			Alignments	Remarks
		From	TO	Length		
1	BC Balance	63+800	86+835	23.035	Realignment/Widening/No geometric Improvement	

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 distressed locations should be identified with their exact chainages. The distresses should then be marked

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up in a grid pattern covering the distressed portion and also 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.

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**.

(F) Bridges

i. General

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

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

Sr. No.	Bridge Location (Km)	Salient Details of Existing Bridges					Adequacy or Otherwise of the Existing Waterway, Vertical Clearance etc.	Remarks
		Span Arrangement (M)	Carriage way width (M)	Total width (M)	Type of Superstructure	Type of Foundation		
1.	89.900	1 x 15.25	3.5	4.0	Steel Truss	Not Visible	Inadequate	Reconstruction
2.	98.024	1 x 6.0	4.3	7.2	RCC Slab	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		

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- 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.

(G) Culverts

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

i) Reconstruction of existing culverts

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

[Refer to paragraph 8.2.3 (i) of the Manual and provide details]. These are guidelines for minimum provisions. However, contractor has to design as per requirement of road in accordance with manual.

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

Sr. No.	Design Chainage (Km)	Proposed Span (M)	Remark
1	68+700	2.0 x 2.0	
2	72+660	3.0 x 3.0	
3	72+735	3.0 x 3.0	
4	73+160	2.0 x 2.0	
5	73+710	1.5 x 1.5	
6	74+190	3.0 x 3.0	
7	74+260	1.5 x 1.5	
8	74+350	3.0 x 3.0	
9	74+600	1.5 x 1.5	
10	74+835	3.0 x 3.0	
11	76+020	3.0 x 3.0	
12	80+222	3.0 x 3.0	
13	80+775	3.0 x 3.0	
14	80+870	5.0 x 3.0	
15	81+220	2.0 x 2.0	

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

16	82+165	1.5 x 1.5	
17	82+530	3.0 x 3.0	
18	82+735	1.5 x 1.5	
19	83+605	3.0 x 3.0	
20	83+780	1.5 x 1.5	
21	85+950	2.0 x 2.0	
22	86+415	2.0 x 2.0	
23	86+505	2.0 x 2.0	
24	86+630	2.0 x 2.0	
25	86+765	2.0 x 2.0	

* All box 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.

ii) 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.	66+000	1.5 x 1.50	RCC BOX	
2.	82+840	3.0 x 3.0	RCC BOX	
3.	82+975	2.0 x 2.0	RCC BOX	
4.	83+500	2.0 x 2.0	RCC BOX	
5.	83+670	2.0 x 2.0	RCC BOX	
6.	84+115	1.5 x 1.5	RCC BOX	
7.	85+620	1.5 x 1.50	RCC BOX	

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

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	Side
1	69+336	RHS Completed (Widening & Parapet wall BHS, Catch pit, apron& Return wall BHS balance)	2.0x2.0	LHS
2	75+125	LHS Completed (Widening & Catch pit, Apron& Return wall BHS balance)	2.0x2.0	RHS
3	79+004	Half Culvert LHS (Widening & Parapet wall BHS, Catch pit, apron& Return wall BHS balance)	3.0x3.0	RHS
4	79+570	Half Culvert LHS Complete (Widening & Parapet wall RHS, Catch pit, apron& Return wall BHS balance)	3.0x3.0	RHS
5	82+040	Half Culvert LHS Complete (Widening & Parapet wall RHS, Catch pit, apron& Return wall BHS balance)	2.0x2.0	RHS
6	80+070	Half Culvert LHS complete (Widening & Parapet wall BHS, Catch pit, apron& Return wall BHS balance)	2.0x2.0	RHS

Construction of balance work of Return walls, Parapet Walls, Catch Pit & Repairs/replacements of railing/parapets and construction of flooring and protection works in the existing constructed culverts shall be undertaken as follows: Balance work in constructed Culverts works shall be as specified in the relevant IRC Codes and Specifications.

Sl. No.	Design Chainage (km)	Proposal	Span (m)
1.	64+051	Catch pit & apron balance	1.5x1.5
2.	64+335	Catch pit & apron balance	1.5x1.5
3.	64+490	Catch pit & apron balance	1.5x1.5
4.	64+615	Catch pit ,apron & Return wall RHS balance	1.5x1.5
5.	64+750	Catch pit ,& Return wall BHS balance	3.0x3.0
6.	65+371	Catch pit & apron balance	1.5x1.5
7.	65+555	Catch pit & apron balance	1.5x1.5
8.	65+658	Catch pit & apron balance	1.5x1.5
9.	66+505	Parapet wall BHS ,Catch pit & apron balance	1.5x1.5
10.	66+725	Catch pit ,apron & Return wall BHS	3.0x3.0

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

Sl. No.	Design Chainage (km)	Proposal	Span (m)
		balance	
11.	66+900	Catch pit ,apron & Return wall BHS balance	2.0x2.0
12.	67+275	Catch pit & apron balance	1.5x1.5
13.	67+336	Catch pit ,apron & Return wall BHS balance	2.0x2.0
14.	67+590	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	1.5x1.5
15.	67+850	Catch pit & apron balance	2.0x2.0
16.	67+922	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	2.0x2.0
17.	68+000	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	1.5x1.5
18.	68+135	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	1.5x1.5
19.	68+520	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	2.0x2.0
20.	68+655	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	1.5x1.5
21.	68+855	Catch pit & apron balance	2.0x2.0
22.	68+966	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	2.0x2.0
23.	69+056	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	1.5x1.5
24.	69+128	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	2.0x2.0
25.	69+508	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	2.0x2.0
26.	69+540	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	2.0x2.0
27.	69+715	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	3.0x3.0
28.	69+805	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	2.0x2.0
29.	70+095	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	2.0x2.0
30.	70+250	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	2.0x2.0
31.	70+505	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	1.5x1.5
32.	70+680	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	2.0x2.0
33.	70+830	,Catch pit & apron balance	1.5x1.5
34.	70+942	Catch pit ,apron & Return wall BHS balance	2.0x2.0
35.	71+070	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	2.0x2.0
36.	71+355	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	2.0x2.0
37.	71+493	Parapet wall BHS ,Catch pit ,apron	2.0x2.0

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

Sl. No.	Design Chainage (km)	Proposal	Span (m)
		& Return wall LHS balance	
38.	72+060	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	2.0x2.0
39.	72+165	Catch pit ,apron & Return wall BHS balance	2.0x2.0
40.	72+560	Parapet wall BHS , Catch pit ,apron & Return wall BHS balance	2.0x2.0
41.	72+600	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	2.0x2.0
42.	72+810	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	1.5x1.5
43.	72+955	Parapet wall BHS ,Catch pit & apron balance	2.0x2.0
44.	73+390	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	2.0x2.0
45.	75+225	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	2.0x2.0
46.	75+370	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	2.0x2.0
47.	75+475	Parapet wall RHS ,Catch pit ,apron & Return wall BHS balance	2.0x2.0
48.	75+642	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	2.0x2.0
49.	75+760	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	1.5x1.5
50.	76+055	Catch pit & Apron balance	3.0x3.0
51.	76+168	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	1.5x1.5
52.	76+528	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	2.0x2.0
53.	76+665	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	2.0x2.0
54.	76+802	Parapet wall BHS ,Catch pit & Apron balance	2.0x2.0
55.	76+960	Parapet wall BHS ,Catch pit & Apron balance	3.0x3.0
56.	77+256	Parapet wall BHS ,Catch pit & Apron balance	1.5x1.5
57.	77+420	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	1.5x1.5
58.	77+570	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	1.5x1.5
59.	77+640	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	2.0x2.0
60.	77+870	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	1.5x1.5
61.	78+140	Parapet wall BHS ,Catch pit , apron & Return wall BHS balance	1.5x1.5
62.	78+210	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	1.5x1.5

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

Sl. No.	Design Chainage (km)	Proposal	Span (m)
63.	78+490	Parapet wall BHS ,Catch pit ,apron & Return wall LHS balance	2.0x2.0
64.	78+840	Parapet wall BHS ,Catch pit ,apron & Return wall RHS balance	3.0x3.0
65.	79+402	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	2.0x2.0
66.	79+605	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	1.5x1.5
67.	79+722	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	2.0x2.0
68.	79+810	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	1.5x1.5
69.	79+910	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	3.0x3.0
70.	80+020	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	2.0x2.0
71.	82+040	Parapet wall BHS ,Catch pit ,apron & Return wall BHS balance	2.0x2.0

Note: - Protection work to be constructed for balance culverts and other pending culverts already constructed earlier contractor as per site condition. The new Contractor shall be fully responsible for the rectification of defects and maintenance for such works including the portion or part of the work done earlier contractor.

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

(I) Bridges

i. The existing bridges to be reconstructed/widened

Sr. No.	Bridge Location (Km)	Salient Details of Existing Bridges					Adequacy or Otherwise of the Existing Waterway, Vertical Clearance etc.	Remarks
		Span Arrangement (M)	Carriageway width (M)	Total width (M)	Type of Superstructure	Type of Foundation		
1.	89.900	1 x 15.25	3.5	4.0	Steel Truss	Not Visible	Inadequate	Reconstruction
2.	98.024	1 x 6.0	4.3	7.2	RCC Slab	Not Visible	Inadequate	Reconstruction

ii. The following structures shall be provided with footpaths:

Sl. No.	Location (km)	Remarks
NIL		

iii. Additional New Minor Bridges

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

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			

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

Sl. No.	Location (km)	Remarks
Nil		

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

Sl. No.	Location (km)	Remarks
Nil		

vii. Drainage system for bridge decks

An effective drainage system for bridge decks shall be provided as specified in paragraph 8.21 of the Manual

viii. Structures in marine environment

NIL

(J) Rail-road Bridges

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

(L) 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		

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

(M) 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			

(N) 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

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

(O) ROB / RUB

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

(P) 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

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

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

(Q) TRAFFIC CONTROL DEVICES AND ROAD SAFETY WORKS

- i. Traffic control devices and road safety works shall be provided in accordance with Section 9 of IRC: SP: 73-2018.
 - (R) Traffic Signs: Traffic signs include road side signs, over head signs and curb mounted signs along the entire Project Highway shall be provided conforming to IRC 67 and section 800 of MoRTH specification.
 - (S) Pavement Marking: Pavement markings shall cover road marking for the entire Project Highway and shall be provided conforming to IRC 35-2015.
 - (T) Safety Barrier: W-beam crash barrier along the project highway at allocations shall be provided as specified in section 9 of IRC: SP: 73-2018.
- ii. Specifications of the reflecting 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 D4956-04 shall be provided conforming to section 800 of MoRTH specification.

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

Traffic Signage's Road Marking and other appurtenances	Unit	Quantity
Road Marking on Centre line & Edge	Sqm	7191
Direction & Place Identification up to 0.9 sqm	Sqm	58
Direction & Place Identification more than 0.9 sqm	Sqm	Nil
60 cm Equilateral Triangle	Number	253
60 cm Circular	Number	40
60 cm High Octagon	Number	39
60 cm x 45 cm Rectangular	Number	49
60 cm x 50 cm Chevron Sign	Number	902

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

Hectometer Stone	Number	92
Km stone	Number	20
5 th Km stone	Number	4
Boundary Stone (as per clause 13 herein under)	Number	230
Road Delineators	Number	1492
Road Marker / Road Stud	Number	11520
Hazard Marker	Number	278
PCC Krebs (duly painted) in bus bays and islands	Rm	8149
Metal Beam Crash Barrier	Rm	3170

9.0 ROAD SIDE FURNITURE

9.1 Roadside furniture shall be provided in accordance with the provisions of Section 11 of the Manual IRC: SP: 73-2007 and corresponding updates as per IRC: SP 73 -2018

9.2 Overhead traffic signs: location and size

[Refer to paragraph 9.2.5 of the Manual and provide details]

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 installation 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. The minimum number of overhead signs shall be 02 (01 No. of gantry and 01 No. of Cantilever) as per this manual. Location shall be given by the AE.

10.0 COMPULSORY AFFORESTATION

[Refer to Section 11 of the Manual and specify the number of trees which are required to be planted by the Contractor as compensatory afforestation.]

Minimum 3000 nos. trees with deep and broad roots are required to be planted for soil conservation, in consultation with the Forest Department and AE for type and location.

11.0 HAZARDOUS LOCATIONS

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

Metal Beam crash barrier length of minimum 3170 (single runner, heavy duty and W-shape) or equivalent shall be provided at the locations of bridge approaches built up sections, high embankments (3.0m and more) and at sharp curves. Heavy duty metal beam crash barriers 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.

Sr. No.	Design Chainage (M)		Side	Type of Deficiency	Remarks
	From	To			
1.	64322.56	64381.89	Left	Radius<40	
2.	64381.89	64441.87	Right	Radius<40	
3.	64482.91	64518.23	Left	Radius<40	
4.	64616.96	64695.26	Left	Radius<40	
5.	66360.13	66435.07	Left	Radius<40	
6.	66435.07	66506.46	Right	Radius<40	
7.	66546.96	66577.84	Left	Radius<40	
8.	69940.31	70003.85	Left	Radius<40	
9.	70313.88	70379.81	Left	Radius<40	
10.	70893.14	70953.05	Right	Radius<40	
11.	71429.76	71474.51	Right	Radius<40	
12.	72066.87	72127.27	Right	Radius<40	
13.	72824.77	72886.36	Right	Radius<40	
14.	72960.88	73024.56	Left	Radius<40	
15.	73684.59	73739.82	Right	Radius<40	
16.	76258.75	76330.76	Right	Radius<40	
17.	76391.33	76453.13	Right	Radius<40	
18.	76611.30	76710.85	Left	Radius<40	

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

Sr. No.	Design Chainage (M)		Side	Type of Deficiency	Remarks
	From	To			
19.	77072.18	77137.61	Left	Radius<40	
20.	77557.61	77617.19	Left	Radius<40	
21.	78431.95	78509.08	Left	Radius<40	
22.	78614.42	78673.22	Right	Radius<40	
23.	78956.46	79113.28	Right	Radius<40	
24.	79113.28	79181.23	Left	Radius<40	
25.	80046.15	80105.41	Right	Radius<40	
26.	80288.09	80343.62	Left	Radius<40	
27.	80582.27	80642.63	Left	Radius<40	
28.	80642.63	80706.11	Right	Radius<40	
29.	81129.14	81197.08	Left	Radius<40	
30.	81251.19	81332.47	Right	Radius<40	
31.	81640.96	81684.00	Right	Radius<40	
32.	82419.46	82477.28	Right	Radius<40	
33.	82562.32	82609.26	Left	Radius<40	
34.	82798.79	82842.93	Left	Radius<40	
35.	82893.21	82913.01	Left	Radius<40	
36.	82913.01	82933.70	Right	Radius<40	
37.	83141.80	83155.95	Left	Radius<40	
38.	83175.25	83196.29	Left	Radius<40	
39.	83238.02	83251.59	Right	Radius<40	
40.	83292.06	83339.02	Right	Radius<40	
41.	83355.01	83372.09	Left	Radius<40	

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

Sr. No.	Design Chainage (M)		Side	Type of Deficiency	Remarks
	From	To			
42.	83380.20	83392.52	Right	Radius<40	
43.	83411.39	83425.47	Left	Radius<40	
44.	83439.66	83463.38	Right	Radius<40	
45.	83490.14	83518.43	Left	Radius<40	
46.	83634.60	83687.90	Right	Radius<40	
47.	83733.72	83768.20	Left	Radius<40	
48.	84046.00	84078.96	Left	Radius<40	
49.	84373.77	84392.69	Left	Radius<40	
50.	84406.88	84431.19	Right	Radius<40	
51.	84517.84	84548.64	Right	Radius<40	
52.	84587.00	84613.77	Left	Radius<40	
53.	84634.89	84670.54	Right	Radius<40	
54.	85164.04	85191.81	Left	Radius<40	
55.	85216.43	85238.74	Right	Radius<40	
56.	85451.62	85471.19	Left	Radius<40	
57.	85518.42	85530.41	Left	Radius<40	
58.	85570.04	85604.21	Left	Radius<40	
59.	85633.64	85658.38	Right	Radius<40	
60.	85839.27	85860.74	Right	Radius<40	
61.	85904.02	85948.45	Right	Radius<40	
62.	86049.86	86067.20	Left	Radius<40	
63.	86259.75	86284.52	Left	Radius<40	
64.	86340.48	86382.37	Left	Radius<40	

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

Sr. No.	Design Chainage (M)		Side	Type of Deficiency	Remarks
	From	To			
65.	86398.19	86426.10	Right	Radius<40	
66.	86551.42	86573.10	Right	Radius<40	
67.	86662.29	86703.67	Right	Radius<40	
68.	86703.67	86769.81	Left	Radius<40	
69.	86769.81	86788.81	Left	Radius<40	

(U) SPECIAL REQUIREMENTS FOR HILL ROADS

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.

(V) 1 Slope Protection

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

The minimum quantity of protection works to 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	2,765
Breast wall of PCC/RCC/Gabion/Cement masonry having minimum height of 3.0 m	Rm	3,489
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	5,605
RE wall in PCC	Rm	289
Subsurface drain with perforated pipe for collection of seepage water to avoid sinking of payment	Rm	1,098
Seeding and Mulching with Jute Net	Sqm	78,323
Hydro seeding	Sqm	16,195
Catch Water Drain (Unlined)	Rm	19,545

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

Note- The Contractor shall be responsible for accurate assessment of the actual requirement as per site situation Et 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.

Any increase in quantity (length, breadth and height) over and above the tentative quantity as mentioned in above table or 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.

(W) Summary of Retaining Structure on valley side of varying height between 1 to 6metre depending upon the slope

Sr. No.	Height of Retaining Structure	Aggregate Length
1	Upto 2 m	2149.6
2	2 m to 4 m	2691.4
3	4 m to 6 m	764

(X) 2 Tentative Locations and Length

Sr. No.	From Design Chainage (in M)	To Design Chainage (in M)	Length (M)
1.	64+425	64+437	12
2.	64+563	64+568	5
3.	64+595	64+613	18
4.	64+755	64+765	10
5.	64+975	64+985	10
6.	65+285	65+375	90
7.	65+485	65+495	10
8.	65+532	65+545	13
9.	65+605	65+625	20
10.	65+695	65+707	12

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

Sr. No.	From Design Chainage (in M)	To Design Chainage (in M)	Length (M)
11.	65+782	65+815	33
12.	65+916	65+965	49
13.	66+050	66+060	10
14.	66+096	66+115	19
15.	67+045	67+055	10
16.	67+095	67+145	50
17.	67+252	67+335	83
18.	67+365	67+386	21
19.	67+455	67+475	20
20.	67+555	67+565	10
21.	68+876	68+883	7
22.	69+015	69+025	10
23.	69+865	69+876	11
24.	70+045	70+075	30
25.	70+285	70+325	40
26.	70+355	70+415	60
27.	70+615	70+625	10
28.	70+659	70+685	26
29.	70+745	70+807	62
30.	70+904	70+935	31
31.	71+000	71+165	165
32.	71+415	71+424	9
33.	71+575	71+605	30

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

Sr. No.	From Design Chainage (in M)	To Design Chainage (in M)	Length (M)
34.	71+701	71+725	24
35.	71+755	71+763	8
36.	71+768	71+795	27
37.	71+824	71+855	31
38.	71+884	71+925	41
39.	71+935	71+945	10
40.	71+985	71+995	10
41.	72+006	72+015	9
42.	72+065	72+165	100
43.	72+175	72+265	90
44.	72+315	72+365	50
45.	72+555	72+575	20
46.	72+616	72+644	28
47.	72+695	72+715	20
48.	73+015	73+075	60
49.	73+105	73+145	40
50.	73+275	73+315	40
51.	73+345	73+435	90
52.	73+455	73+565	110
53.	73+578	73+645	67
54.	73+775	73+855	80
55.	73+905	73+965	60
56.	73+994	74+035	41

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

Sr. No.	From Design Chainage (in M)	To Design Chainage (in M)	Length (M)
57.	74+325	74+355	30
58.	74+415	74+445	30
59.	74+455	74+495	40
60.	75+515	75+525	10
61.	75+565	75+605	40
62.	75+645	75+685	40
63.	75+829	75+874	45
64.	75+943	76+025	82
65.	76+045	76+105	60
66.	76+147	76+225	78
67.	76+265	76+295	30
68.	76+335	76+345	10
69.	76+375	76+405	30
70.	76+535	76+575	40
71.	76+605	76+665	60
72.	76+725	76+735	10
73.	76+740	76+755	15
74.	76+813	76+905	92
75.	76+965	77+046	81
76.	77+083	77+115	32
77.	77+255	77+275	20
78.	77+405	77+455	50
79.	77+525	77+538	13

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

Sr. No.	From Design Chainage (in M)	To Design Chainage (in M)	Length (M)
80.	77+807	77+836	29
81.	77+855	77+863	8
82.	77+904	77+915	11
83.	77+955	77+995	40
84.	78+155	78+206	51
85.	78+245	78+255	10
86.	78+315	78+428	113
87.	78+485	78+513	28
88.	78+535	78+596	61
89.	78+698	78+808	110
90.	78+815	78+825	10
91.	78+855	78+865	10
92.	78+878	78+956	79
93.	78+956	78+958	2
94.	79+516	79+545	29
95.	79+575	79+605	30
96.	79+635	79+665	30
97.	79+684	79+705	21
98.	79+735	79+795	60
99.	79+855	79+885	30
100.	79+955	80+015	60
101.	80+069	80+085	16
102.	80+105	80+175	70

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

Sr. No.	From Design Chainage (in M)	To Design Chainage (in M)	Length (M)
103.	80+215	80+305	90
104.	80+465	80+578	113
105.	80+595	80+635	40
106.	80+667	80+745	78
107.	80+805	80+815	10
108.	80+865	81+015	150
109.	81+055	81+085	30
110.	81+125	81+130	5
111.	81+135	81+185	50
112.	81+195	81+254	59
113.	81+265	81+545	280
114.	81+565	81+585	20
115.	81+595	81+615	20
116.	81+625	81+635	10
117.	81+775	81+845	70
118.	81+855	81+915	60
119.	81+985	82+075	90
120.	82+095	82+175	80
121.	82+205	82+325	120
122.	82+335	82+453	118
123.	82+475	82+485	10
124.	82+496	82+525	29
125.	82+545	82+566	21

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

Sr. No.	From Design Chainage (in M)	To Design Chainage (in M)	Length (M)
126.	82+595	82+675	80
127.	82+685	82+695	10
128.	82+735	82+800	65
Total			5605

Note: -Location of Retaining wall may be vary, so any variations in the location, lengths, heights and widths specifications in this Schedule- B shall not constitute a Change of Scope.

(Y) Reinforced Earth Wall

The locations for providing RE wall are listed in the table below.

Improvement Proposals: Reinforced Earth Wall Length

Sr. No.	From Chainage (in M)	To Chainage (in M)	Length (M)
1.	63+875	63+915	40
2.	73+565	73+573	8
3.	75+525	75+565	40
4.	75+605	75+645	40
5.	75+685	75+723	38
6.	75+735	75+795	60
7.	75+805	75+815	10
8.	78+513	78+535	23
9.	79+665	79+675	10
10.	82+525	82+545	20
Total			289

(Z) Subsurface Drains: Location of Subsurface drain with perforated pipe are provided at water seepage locations for collection of seepage water to avoid sinking of pavement

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Water Seepage Locations

Sr. No.	Existing Location From	New Design Chainage From
1.	68+740	Realignment
2.	82+960	72+720
3.	85+580	75+200

Note: - Location and length of water seepage may be varied, so specifications in this Schedule- B shall not constitute a Change of Scope.

(AA) ROAD LAND BOUNDARY (Clause 12.2 IRC SP: 73-2018)

Road land (ROW) boundary shall be demarcated by putting RCC boundary pillars of size 60cm x 15cm x 15 cm embedded in concrete (as per IRC:25) along the Project Highway at 50 m interval on both sides. All the components used in delineating road land boundary shall be aesthetically pleasing, sturdy and vandal proof. The road land boundary shall be demarcated in consultation with NHIDCL.

13.0 CHANGE OF SCOPE

The size of Structures, bridges, culverts and slope protection works whatsoever in 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 17.384 km)**.

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

- (A) Toll Plaza - Nil
- (B) Pedestrian facilities - As described
- (C) Tree plantation - As described
- (D) Bus shelters - As described
- (E) 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 4 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 (in pair)	Design Chainage (km)
1	Bus Shelter	67+500
2	Bus Shelter	78+300
3	Bus Shelter	84+500

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

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separate pedestrian path or (c) any other provision as approved by AE.

Landscaping

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 Arunachal Pradesh, and AE.

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 in Annex- I of this Schedule - D for construction of the Project Highway.

2. Design Standards

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

Manual of 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.

“Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

Annex - I

(Schedule - D)

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

2.1 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.

2.2 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 excepting hair pin bend locations where in design speed shall be 20 km/h. The same is mentioned in the Plan & Profile drawings given in Annexure-III of Schedule A.

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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 and Profile drawings given in 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 Applicable Permits.
- 1.2 The Contractor shall repair or rectify any Defect or deficiency set forth in Paragraph 2 of this Schedule-E within the time limit specified therein and any failure in this behalf shall constitute non-fulfilment of the Maintenance obligations by the Contractor. Upon occurrence of any breach hereunder, the Authority shall be entitled to effect reduction in monthly lump sum payment as set forth in Clause 14.6 of this Agreement, without prejudice to the rights of the Authority under this Agreement, including Termination thereof.
- 1.3 All Materials, works and construction operations shall conform to the MORTH Specifications for Road and Bridge Works, and the relevant IRC publications. Where the specifications for a work are not given, Good Industry Practice shall be adopted.

2.Repair/Rectification of Defects and Deficiencies

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

3. Other Defects and Deficiencies

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

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4. Extension of Time Limit

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

5. Emergency Repairs/Restoration

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

6. Daily inspection by the Contractor

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

7. Pre-monsoon Inspection / Post-monsoon Inspection

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

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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.

“Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

Annex - I

(Schedule-E)

Repair/rectification of Defects and Deficiencies

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

Nature of Defect or deficiency		Time limit for repair/rectification
ROADS		
(a)	Carriageway and paved shoulders	
(i)	Breach or blockade	Temporary restoration of traffic within 24hours; permanent restoration within 15 (fifteen) days
(ii)	Roughness value exceeding 2,200mm in a stretch of 1km (as measured by a calibrated bump integrator)	120 (one hundred and twenty) days
(iii)	Pot holes	24 hours
(iv)	Any cracks in road surface	15 (fifteen) days
(v)	Any depressions, rutting exceeding 10mm in road 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)	Variation by more than 1% in the prescribed slope of camber/cross fall (shall not be less than the camber on the main carriage-way)	7 (seven) days
(ii)	Edge drop at shoulders exceeding 40 mm	7 (seven) days
(iii)	Variation by more than 15% in the prescribed side (embankment) slopes	30 (thirty) days
(iv)	Rain cuts/gullies in slope	7 (seven) days

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(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	

“Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

(i)	Any damage, cracks, spalling/ scaling Temporary measures Permanent measures	within 48 hours within 15(fifteen)days or as specified by the Authority’s Engineer
(b)	Foundations	
(i)	Scouring and/or cavitations	15(fifteen)days
(c)	Piers, abutments, return walls and wing walls	

“Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

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 danger to safety)
(iv)	Rain-cuts or erosion of banks of the side slopes of approaches	7 (seven) days
(v)	Damage to wearing coat	15(fifteen)days
(vi)	Damage or deterioration in approach slabs, pitching, apron, toes, floor or 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(twenty four)hours

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

“Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

SCHEDULE - F
(See Clause 3.1.7(a))

APPLICABLE PERMITS

1 Applicable Permits

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

- a) Permission of the State Government for extraction of boulders from quarry;
- b) Permission of Village Panchayats and Pollution Control Board for installation of crushers;
- c) License for use of explosives;
- d) Permission of the State Government for drawing water from river/reservoir;
- e) License from inspector of factories or other competent Authority for setting up batching plant;
- f) Clearance of Pollution Control Board for setting up batching plant;
- g) Clearance of Village Panchayats and Pollution Control Board for setting up asphalt plant;
- h) Permission of Village Panchayats and State Government for borrow earth; and
- i) Any other permits or clearances required under Applicable Laws.

1.2 Applicable Permits, as required, relating to environmental protection and conservation

shall have been procured by the Authority in accordance with the provisions of this Agreement.

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.

“Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

SCHEDULE - G

(See Clauses 7.1.1, 7.5.3 and 19.2)

FORM OF BANK GUARANTEE

Annex-I

(See Clause 7.1.1)

Performance Security

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

WHEREAS:

_____ [name and address of contractor] (hereinafter called the “**Contractor**”) and 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 **Balance work of Construction of two -Lane with hard shoulders of Merangkong-Tamlu-Mon Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (Package-IV),** 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

“Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

affirms as follows:

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful performance of the Contractor’s obligations during the {Construction Period/ Defects Liability Period and Maintenance Period} under and in accordance with the Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.
2. A letter from the Authority, under the hand of an officer not below the rank of [General Manager in the National Highways & Infrastructural Development Corporation Ltd], that the Contractor has committed default in the due and faithful performance of all or any of its obligations under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.
3. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.
4. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.
5. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Agreement or to extend the time or period for the compliance with, fulfilment and/ or performance of all or any of the obligations of the Contractor contained in the Agreement or to postpone for any time, and from time to time, any of the rights and powers exercisable by

“Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.

6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Agreement or for the fulfilment, compliance and/or performance of all or any of the obligations of the Contractor under the Agreement.
7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.
8. The Guarantee shall cease to be in force and effect on ****\$. Unless a demand or claim under this Guarantee is made in writing before expiry of the Guarantee, the Bank shall be discharged from its liabilities 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.

“Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

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

“Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorised to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.
11. This Guarantee shall come into force with immediate effect and shall remain in force and effect for up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.
12. This guarantee shall also be operable at our Branch at New Delhi, from whom, confirmation regarding the issue of this guarantee or extension / renewal thereof shall be made available on demand. In the contingency of this guarantee being invoked and payment thereunder claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation.
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

“Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

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.

“Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

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

Form for Guarantee for Withdrawal of Retention Money

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

WHEREAS:

(A) [name and address of contractor] (hereinafter called the “**Contractor**”) has executed an agreement (hereinafter called the “**Agreement**”) with the and The Managing Director , NHIDCL, PTI Building, New Delhi (hereinafter called the “**Authority**”) have entered into an agreement (hereinafter called the “**Agreement**”) for the RFP of “**Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road (Wakching Town portion) on EPC basis from existing Km 59+000 to Km 73+640 [Design Km. 59+000 to Km. 72+450] (Design Length - 13.450 Km) (Package V) in the state of Nagaland under SARDP-NE Phase A on EPC Mode**”, , subject to and in accordance with the provisions of the Agreement.

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

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

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

1. The Bank hereby unconditionally and irrevocably undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse,

“Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

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.

“Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

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

“Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

security now or which may hereafter be held by the Authority in respect of or relating to the Retention Money.

7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made

“Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.

8. The Guarantee shall cease to be in force and effect 90 (ninety) days after the date of the Completion Certificate specified in Clause 12.4 of the Agreement.
9. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.
10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorized to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.
11. This Guarantee shall come into force with immediate effect and shall remain in force and effect up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.
12. This guarantee shall also be operable at our Branch at New Delhi, from whom, confirmation regarding the issue of this guarantee or extension / renewal thereof shall be made available on demand. In the contingency of this guarantee being invoked and payment there under claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation.
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

“Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

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.

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

Annex - III
(Schedule - G)
(See Clause
19.2)

Form for Guarantee for Advance Payment

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

WHEREAS:

(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 “Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)” subject to and in accordance with the provisions of the Agreement.

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

§The Guarantee Amount should be equivalent to 110% of the value of the applicable instalment.

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

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

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful repayment on time of the aforesaid installment of the Advance Payment under and in accordance with the Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.
 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 installment 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
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Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length- 23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

manner affect the liability or obligation of the Bank under this Guarantee.

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

5. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Advance Payment or to extend the time or period of its repayment or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.
 6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Advance Payment.
 7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.
 8. The Guarantee shall cease to be in force and effect on ****. Unless a demand or claim under this Guarantee is made in writing on or before the aforesaid date, the Bank shall be discharged from its liabilities hereunder.
 9. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.
-

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length- 23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

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

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon Road** on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length- 23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorised to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.
11. This Guarantee shall come into force with immediate effect and shall remain in force and effect up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.
12. This guarantee shall also be operatable at ourBranch 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

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length- 23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

by: (Signature)

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length- 23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

(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.

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon Road** on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length- 23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

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:

Bill No	Weightage in percentage to the contract price	Description of Items	Amount (in Rs.)	Percentage weightage		
1	44.9%	WIDENING AND STRENGTHENING OF EXISTING ROAD				
		A1.1	Earthwork up to top of the sub-grade including excavation in soil, soft rock and hard rock including Cleaning & grubbing with required site clearance etc.	50,71,607.17	0.416%	
		A1.2	Sub-Base Course	4,06,00,317.81	3.329%	
		A1.3	Non - Bituminous Base Course	7,40,81,237.50	6.075%	
		A1.4	Bituminous Base Course	6,70,44,366.56	5.498%	
		A1.5	Wearing Coat	7,90,28,660.13	6.481%	
		A1.6	Widening with construction of balance work in existing culvert	83,53,110.47	0.685%	
		A1.7	Hard Shoulder	4,38,86,544.38	3.599%	
		RECONSTRUCTION/NEW 2-LANE ALIGNMENT/BYPASS (FLEXIBLE PAVEMENT)				
		A2.1	Earthwork up to top of the sub-grade including excavation in soil, soft rock and hard rock including Cleaning & grubbing with required site clearance etc.	30,62,219.58	0.251%	
		A2.2	Sub-Base Course	1,21,59,674.51	0.997%	
		A2.3	Non - Bituminous Base Course	3,34,12,182.81	2.740%	
		A2.4	Bituminous Base Course	2,44,02,413.31	2.001%	
		A2.5	Wearing Coat	2,28,40,777.00	1.873%	
		A2.6	Hard Shoulder	2,18,39,648.77	1.791%	
		2		RECONSTRUCTION AND NEW CULVERTS ON EXISTING ROAD, & BALANCE WORK IN EXISTING CULVERT, BYPASS AND REALIGNMENT		

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon Road** on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length- 23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

		A6.1	Reconstruction / New Construction of Culverts and associated Protection Works (Length< 6m)	8,94,35,407.97	7.334%
		A6.2	Balance work of existing Culverts and associated Protection Works (Length< 6m)	2,22,85,245.94	1.827%
3		WIDENING AND REPAIR OF MINOR BRIDGES (Length > 6 m and < 60 m)			
		A7.1	Minor Bridges		
		NEW MINOR BRIDGES (Length > 6 m and < 60 m)			
4	6.75%	A8.1	Foundation + Sub Structures: On completion of the foundation work including foundations for wing wall and return walls, abutments, piers upto the abutment/pier cap.	5,80,28,185.09	4.758%
		A8.2	Super-structure: On completion of the super structure in all respect including wearing coat, bearings, expansion joints, hand rails, crash barriers, road signs & markings, tests on completion etc. complete in all respect.	1,31,99,510.63	1.082%
		A8.3	Approaches: On completion of approaches including retaining wall, stone pitching, protection works complete in all respect and fit for use.	1,10,92,198.66	0.910%
		OTHER WORKS			
		A17.1	Toll Plaza	-	0.000%
		A17.2	Road side drain	5,99,14,236.15	4.913%
		A17.3	Road signs, marking, Km stones, Safety devices etc.		
		(a)	Pavement Marking	47,92,929.91	0.393%
		(b)	Crash barrier/W metal crash barrier	1,33,76,550.89	1.097%
		(c)	Traffic Sign	76,30,609.91	0.626%
		(d)	Road Boundary stone, km Stone,5th km stone and hectometer stone	3,77,800.36	0.031%
		(e)	Traffic blinker LED delineator, stud, reflective payment marker, tree reflector	89,24,978.39	0.732%
		(g)	Road furniture (overhead signboard etc.)	6,18,699.04	0.051%
		(h)	Others including construction of median& median kerb with channel & paint and rumble strip	40,29,657.23	0.330%
	48.35%	A17.4	Project facilities		0.000%
		(a)	Truck lay-byes	-	0.000%
5		()	Bus bays and Bus Shelter		0.124%

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon Road** on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length- 23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

		b)		15,15,457.29	
		(c)	Junctions (Major & Minor)	4,65,53,924.82	3.818%
		(d)	Others including Cable duct & Lighting on Bridges, etc.	-	0.000%
		(e)	Rest areas (viewpoint/recreational areas)	-	0.000%
	A17 .5		Road Side Plantation, Median plantation & Turfing of the embankment slope		0.000%
	A17 .8		Slope Protection Works as special requirement for hill road		0.000%
		(a)	Hydro Seeding of Cut Slopes in Soil	4,33,794.64	0.036%
		(b)	Seeding and Mulching with Jute net all along the perpetual slide locations	58,81,218.13	0.482%
		(c)	Catch water Drain	34,65,747.32	0.284%
		(d)	Gabion Structure on hill side/valley side of varying height between 1 to 6 metre depending upon the slope	30,95,94,064.29	25.387%
		(e)	Reinforced earth wall	4,65,65,143.04	3.818%
		(f)	Breast wall	6,97,67,519.43	5.721%
		(g)	Sub Surface drain with perforated pipe for collection of seepage water to avoid sinking of pavement	26,90,688.21	0.221%
		(h)	Parapet Wall	35,26,909.55	0.289%
	100.00 %				
Total Civil Cost Excluding 12% GST (In Rs.)				1,21,94,83,236 .88	100.00%

1.2 Procedure of estimating the value of work done

1.1.1 Road works

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

Table 1.3.1

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
Table 1.3.1		

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon Road** on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length- 23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
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.	0.416	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 courses	3.329	Unit of measurement is linear length.
(3) Non Bituminous Base Course	6.075	Payment of each stage shall be made
(4) Bituminous Base Course	5.498	on pro rata basis on completion of a stage in a length of not less than 500 m.
(5) Wearing coat	6.481	Cost of completed culverts shall be determined on pro rata basis with respect to the total no. of culverts. The payment shall be made on the completion of at least five culverts.
(6) Widening with construction of balance work in existing Culverts	0.685	
(7) Hard Shoulder	3.599	Unit measurement is linear length. Payment of each stage shall be made on prorated basis on completion of a stage in a length of not less than

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon Road** on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length- 23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
		5(five)percentoft hetotal length.
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.	0.251	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	0.997	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m.
(3) Non Bituminous Base Course	2.740	
(4) Bituminous Base Course	2.001	
(5) Wearing coat	1.873	
(6) Hard Shoulder	1.791	
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

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STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	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)		

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STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
(1) Earthwork up to top of the sub-grade	[Nil]	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m. In case of Hill Cutting, the payment procedure will be as under: Hill Cutting: 40% of weightage of A (1) Preparation of Sub-Grade: 60% of weightage of A (1)
(2) Sub Base Course	[Nil]	Unit of measurement is linear length.
(3) Dry Lean Concrete (DLC) Course	[Nil]	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.
(4) Pavement Quality Control (PQC) course	[Nil]	
D - Reconstruction and New culverts on existing road, Realignment, bypasses:		
(1) Reconstruction & New Culverts on existing road, realignments, bypasses Culverts (length < 6m)	7.334	Cost of each culvert shall be determined on pro rata basis with respect to the total no. of culverts.
(2) Construction of balance work & associated Protection Works in existing culverts on existing road, realignments, bypasses Culverts (length < 6m)	1.827	Payment shall be made on the completion of at least 01 (One) culvert.

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

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$$\text{Cost per km} = P \times \text{weightage for road work} \times \text{weightage for bituminous work} \times (1/L)$$

Where,

P = Contract Price

L = Total length in km

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

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

1.1.2 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:

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	4.758	(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.	1.082	(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.

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STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
complete in all respect.		
(4) Approaches: on completion of approaches including Retaining walls, stone pitching, protection works complete in all respect and fit for use.	0.910	(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.
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.

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1.1.3 Major Bridge works, ROB/RUB and Structures.

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

Table 1.3.3

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
Table 1.3.3		
A.1 Widening and repair of Major Bridge		
(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 at least 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 at least 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 at least 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/return walls complete in all respects as specified.

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STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
(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. 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.

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STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
(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.
(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.

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STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
		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.
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.

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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 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)		
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 :	[Nil]	Payment shall be made on pro-rata basis on

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STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
stone pitching, protection works, excluding retaining walls/reinforced earth walls etc.		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% 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.

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon Road** on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length- 23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
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.
(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)		
	[Nil]	(a) Super - structure (casting of girder) : Unit

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STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
a) Super Structure : casting of girder/fabrication of girders (Steel)		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 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.

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STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
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 Competent Authority.

1.1.4 Other works.

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 %
		(v) Admin Building, Maintenance Building & Misc. Works-10% %
		(vi) Canopy, Toll Booth, Safety Items & Miscellaneous Works-12.5 %
(vii) Toll Plaza Tunnel-2.5 %		

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(ii) Road side drains	4.913	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	0.393	
Crash barrier/W metal crash barrier	1.097	
Traffic Sign	0.626	
Road Boundary stone, km Stone, 5th km stone and hectometer stone	0.031	
Traffic blinker LED delineator, stud, reflective payment marker, tree reflector	0.732	
Road furniture (overhead signboard etc.)	0.051	
Others including construction of median & median curb with channel & paint and rumble strip	0.330	
(v) Project facilities		Payment shall be made on pro rata basis for Completed facilities
(a) Bus Bays & Passenger Shelter	0.124	
(b) Truck lay byes	[Nil]	
(c) Junction	3.181	
(d) Others	[Nil]	
(vi) Road side Plantation	(Nil)	
(vii) Protection works other than approaches to the bridges, elevated sections / flyovers / grade separators and RoBs/RuBs	[Nil]	Unit of measurement is linear length. Payment shall be made on pro-rata basis on completion of a stage in a length of not less than 5% (five percent) of the total length.
(a) Parapet wall	0.289	
(b) Retaining wall	25.387	
(c) Breast Wall	5.721	
(d) Re-wall	3.818	

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(ix) Safety and traffic management during construction	[Nil]	Payment shall be made on pro-rata basis every six months.
(x) Hydro seeding	0.036	Unit of measurement is linear length. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 5% (Five Percent) of the total length and 10% of the area for Hydro seeding and seeding and mulching.
(xi) Seeding and Mulching through Jute net	0.482	
Catch water Drain	0.284	
Sub Surface drain with perforated pipe for collection of seepage water to avoid sinking of pavement	0.221	

2. Procedure for payment for Maintenance

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

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

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.

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 given below:
 - (a) Drawing of plan, profile and cross sections
 - (b) Drawings of cross drainage works
 - (c) Drawings of junctions
 - (d) Drawing of typical cross sections
 - (e) Drawings of bus-bay and bus shelters with furniture and drainage system
 - (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 Completion Schedule

1. Project Completion Schedule

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

2. Project Milestone-I

- (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 an amount not less than 10% (ten per cent) of the Contract Price.

3. Project Milestone-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 all bridges

4. Project Milestone-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 project facilities.
-

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5. Scheduled Completion Date

- (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

- 11 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.
- 12 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

- 21 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).
 - 22 Riding quality test: Riding quality of each lane of the carriageway shall be checked with the help of a calibrated bump integrator and the maximum permissible roughness for purposes of this Test shall be 2,000 (two thousand) mm for each kilometre.
 - 23 Tests for bridges: All major and minor bridges shall be subjected to the rebound hammer and ultrasonic pulse velocity tests, to be conducted in accordance with the procedure described in Special Report No. 17: 1996 of the IRC Highway Research Board on Non-destructive Testing Techniques, at two spots in every span, to be chosen at random by the Authority's Engineer. Bridges with a span of 15 (fifteen) metres or more shall also be subjected to load testing.
 - 24 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.
 - 25 Environmental audit: The Authority's Engineer shall carry out a check to determine
-

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length- 23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)
conformity of the Project Highway with the environmental requirements set forth
in Applicable Laws and Applicable Permits.

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

3 Agency for conducting Tests

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

4 Completion Certificate

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

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon Road** on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length- 23.035 Km) in the state of Nagaland under SARDP-NE (Package-IV)

SCHEDULE - L

(See Clause 12.2 and 12.4)

PROVISIONAL CERTIFICATE

I, (Name of the Authority’s Engineer), acting as the Authority’s Engineer, under and in accordance with the Agreement dated.....(the “Agreement”), for RFP for “**Balance work of Construction of two -Lane with hard shoulders of Merangkong-Tamlu-Mon Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length- 23.035 Km) in the state of Nagaland under SARDP-NE (Package-IV),**

- 1 (the “Project Highway”) on Engineering, Procurement and Construction (EPC) basis through (Name of Contractor), hereby certify that the Tests in accordance with Article 12 of the Agreement have been undertaken to determine compliance of the Project Highway with the provisions of the Agreement.
- 2 Works that are incomplete on account of Time Extension have been specified in the Punch List appended hereto, and the Contractor has agreed and accepted that it shall complete all such works in the time and manner set forth in the Agreement. In addition, certain minor works are incomplete and these are not likely to cause material inconvenience to the Users of the Project Highway or affect their safety. The Contractor has agreed and accepted that as a condition of this Provisional Certificate, it shall complete such minor works within 30 (thirty) days hereof. These minor works have also been specified in the aforesaid PunchList.
3. In view of the foregoing, I am satisfied that the Project Road *of* Construction of 2 Laning with Hard Shoulder of Peren - Dimapur section on NH - 129A from Design Km 146.208 to Km 163.592 (Length - 17.384 Km) in the state of Nagaland on EPC mode (Pkg - III) under NH(O) - TSP can be safely and reliably placed in service of the Users thereof, and in terms of the Agreement, the Project Highway is hereby provisionally declared fit for entry into operation on this the day of 20.....

ACCEPTED, SIGNED, SEALED

SIGNED, SEALED AND

AND DELIVERED

DELIVERED

For and on behalf of

for and on behalf of CONTRACTOR by: AUTHORITY’S ENGINEER

by:

(Signature)

(Signature)

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon Road** on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

COMPLETION CERTIFICATE

1 I,..... (Name of the Authority’s Engineer), acting as the Authority’s Engineer, under and in accordance with the Agreement dated (the “Agreement”), for **“Balance work of Construction of two -Lane with hard shoulders of Merangkong-Tamlu-Mon Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (Package-IV)** (the “Project Highway”) on Engineering, Procurement and Construction (EPC) basis through (Name of Contractor), hereby certify that the Tests in accordance with Article 12 of the Agreement have been successfully undertaken to determine compliance of the Project Highway with the provisions of the Agreement, and I am satisfied that the Project Highway can be safely and reliably placed in service of the Users thereof.

2 It is certified that, in terms of the aforesaid Agreement, all works forming part of Project Highway have been completed, and the Project Highway is hereby declared fit for entry into operation on this the day of20....

SIGNED, SEALED AND DELIVERED

For and on behalf of

The Authority’s Engineer by:

(Signature)

(Name)

(Designation)

(Address)

Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon Road** on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length- 23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**)

SCHEDULE - M
(See Clauses 14.6, 15.2 and 19.7)

PAYMENT REDUCTION FOR NON-COMPLIANCE

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

- 1.1 Monthly lump sum payments for maintenance shall be reduced in the case of non-compliance with the Maintenance Requirements set forth in Schedule-E.
- 1.2 Any deduction made on account of non-compliance with the Maintenance Requirements shall not be paid even after compliance subsequently. The deductions shall continue to be made every month until compliance is done.
- 1.3 The Authority's Engineer shall calculate the amount of payment reduction on the basis of weightage in percentage assigned to non-conforming items as given in Paragraph2.

2. Percentage reductions in lump sum payments

- 2.1 The following percentages shall govern the payment reduction:

S. No.	Item/Defect/Deficiency	Percentage
(a)	Carriageway/Pavement	
(i)	Potholes, cracks, other surface defects	15%
(ii)	Repairs of Edges, Rutting	5%
(b)	Road, Embankment, Cuttings, Shoulders	
(i)	Edge drop, inadequate 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%

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(e)	Road Furniture	
(i)	Cleaning, painting, replacement of road signs, delineators, road markings, 200 m/km/5 th km 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:

$$R = P / 100 \times M \times L1 / L$$

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.

SCHEDULE - N
(See Clause 18.1.1)

SELECTION OF AUTHORITY'S ENGINEER

1 Selection of Authority's Engineer

- 1.1 The provisions of the Model Request for Proposal for Selection of Technical Consultants, issued by the Ministry of Finance in May 2009, or any substitute thereof shall apply for selection of an experienced firm to discharge the functions and duties of an Authority's Engineer.
- 1.2 In the event of termination of the Technical Consultants appointed in accordance with the provisions of Paragraph 1.1, the Authority shall appoint another firm of Technical Consultants forthwith and may engage a government-owned entity in accordance with the provisions of Paragraph 3 of this Schedule-N.

2 Terms of Reference

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

3 Appointment of Government entity as Authority's Engineer

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

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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") "Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (**Package-IV**) and a copy of which is annexed hereto and marked as Annex-A to form part of this TOR.

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

2 Definitions and interpretation

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

2.2 References to Articles, Clauses and Schedules in this TOR shall, except where the context otherwise requires, be deemed to be references to the Articles, Clauses and Schedules of the Agreement, and references to Paragraphs shall be deemed to be references to Paragraphs of this TOR.

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

3. General

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

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- 3.2 The Authority's Engineer shall perform the duties and exercise the authority in accordance with the provisions of this Agreement, but subject to obtaining prior written approval of the Authority before determining:
- (a) any Time Extension;
 - (b) any additional cost to be paid by the Authority to the Contractor;
 - (c) the Termination Payment; or
 - (d) any other matter which is not specified in (a), (b) or (c) above and which creates an obligation or liability on either Party for a sum exceeding Rs. 5,000,000 (Rs. Fifty lakh).
- 3.3 The Authority's Engineer shall submit regular periodic reports, at least once every month, to the Authority in respect of its duties and functions under this Agreement. Such reports shall be submitted by the Authority's Engineer within 10 (ten) days of the beginning of every month.
- 3.4 The Authority's Engineer shall inform the Contractor of any delegation of its duties and responsibilities to its suitably qualified and experienced personnel; provided, however, that it shall not delegate the authority to refer any matter for the Authority's prior approval in accordance with the provisions of Clause 18.2.
- 3.5 The Authority's Engineer shall aid and advise the Authority on any proposal for Change of Scope under Article 13.
- 3.6 In the event of any disagreement between the Parties regarding the meaning, scope and nature of Good Industry Practice, as set forth in any provision of the Agreement, the Authority's Engineer shall specify such meaning, scope and nature by issuing a reasoned written statement relying on good industry practice and authentic literature.
-

4 Construction Period

- 4.1 During the Construction Period, the Authority's Engineer shall review the Drawings furnished by the Contractor along with supporting data, including the geo-technical and hydrological investigations, characteristics of materials from borrow areas and quarry sites, topographical surveys, and the recommendations of the Safety Consultant in accordance with the provisions of Clause 10.1.6. The Authority's Engineer shall complete such review and send its observations to the Authority and the Contractor within 15 (fifteen) days of receipt of such Drawings; provided, however that in case of a Major Bridge or Structure, the aforesaid period of 15 (fifteen) days may be extended 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's Engineer shall review any revised Drawings sent to it by the Contractor and furnish its comments within 10 (ten) days of receiving such Drawings.
 - 4.3 The Authority's Engineer shall review the Quality Assurance Plan submitted by the Contractor and shall convey its comments to the Contractor within a period of 21 (twenty-one) days stating the modifications, if any, required thereto.
 - 4.4 The Authority's Engineer shall complete the review of the methodology proposed to be adopted by the Contractor for executing the Works, and convey its comments to the Contractor within a period of 10 (ten) days from the date of receipt of the proposed methodology from the Contractor.
 - 4.5 The Authority's Engineer shall grant written approval to the Contractor, where necessary, for interruption and diversion of the flow of traffic in the existing lane(s) of the Project Highway for purposes of maintenance during the Construction Period in accordance with the provisions of Clause 10.4.
 - 4.6 The Authority's Engineer shall review the monthly progress report furnished by the Contractor and send its comments thereon to the Authority and the Contractor within 7 (seven) days of receipt of such report.
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- 4.7 The Authority's Engineer shall inspect the Construction Works and the Project Highway and shall submit a monthly Inspection Report bringing out the results of inspections and the remedial action taken by the Contractor in respect of Defects or deficiencies. In particular, the Authority's Engineer shall include in its Inspection Report, the compliance of the recommendations made by the Safety Consultant.
 - 4.8 The Authority's Engineer shall conduct the pre-construction review of manufacturer's test reports and standard samples of manufactured Materials, and such other Materials as the Authority's Engineer may require.
 - 4.9 For determining that the Works conform to Specifications and Standards, the Authority's Engineer shall require the Contractor to carry out, or cause to be carried out, tests at such time and frequency and in such manner as specified in the Agreement and in accordance with Good Industry Practice for quality assurance. For purposes of this Paragraph 4.9, the tests specified in the IRC Special Publication-11 (Handbook of Quality Control for Construction of Roads and Runways) and the Specifications for Road and Bridge Works issued by MORTH (the "Quality Control Manuals") or any modification/substitution thereof shall be deemed to be tests conforming to Good Industry Practice for quality assurance.
 - 4.10 The Authority's Engineer shall test check at least 20 (twenty) percent of the quantity or number of tests prescribed for each category or type of test for quality control by the Contractor.
 - 4.11 The timing of tests referred to in Paragraph 4.9, and the criteria for acceptance/rejection of their results shall be determined by the Authority's Engineer in accordance with the Quality Control Manuals. The tests shall be undertaken on a random sample basis and shall be in addition to, and independent of, the tests that may be carried out by the Contractor for its own quality assurance in accordance with Good Industry Practice.
 - 4.12 In the event that results of any tests conducted under Clause 11.10 establish any Defects or deficiencies in the Works, the Authority's Engineer shall require the Contractor to carry out remedial measures.
 - 4.13 The Authority's Engineer may instruct the Contractor to execute any work which is urgently required for the safety of the Project Highway, whether because of an accident, unforeseeable event or otherwise; provided that in case of any work
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Balance work of Construction of two -Lane with hard shoulders of **Merangkong-Tamlu-Mon** Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length- 23.035 Km) in the state of Nagaland under SARDP-NE: **(Package-IV)** required on account of a Force Majeure Event, the provisions of Clause 21.6 shall

apply.

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- 4.14 In the event that the Contractor fails to achieve any of the Project Milestones, the Authority's Engineer shall undertake a review of the progress of construction and identify potential delays, if any. If the Authority's Engineer shall determine that completion of the Project Highway is not feasible within the time specified in the Agreement, it shall require the Contractor to indicate within 15 (fifteen) days the steps proposed to be taken to expedite progress, and the period within which the Project Completion Date shall be achieved. Upon receipt of a report from the Contractor, the Authority's Engineer shall review the same and send its comments to the Authority and the Contractor forth with.
- 4.15 The Authority's Engineer shall obtain from the Contractor a copy of all the Contractor's quality control records and documents before the Completion Certificate is issued pursuant to Clause 12.4.
- 4.16 Authority's Engineer may recommend to the Authority suspension of the whole or part of the Works if the work threatens the safety of the Users and pedestrians. After the Contractor has carried out remedial measure, the Authority's Engineer shall inspect such remedial measures forthwith and make a report to the Authority recommending whether or not the suspension hereunder may be revoked.
- 4.17 In the event that the Contractor carries out any remedial measures to secure the safety of suspended works and Users, and requires the Authority's Engineer to inspect such works, the Authority's Engineer shall inspect the suspended works within 3 (three) days of receiving such notice, and make a report to the Authority forthwith, recommending whether or not such suspension may be revoked by the Authority.
- 4.18 The Authority's Engineer shall carry out, or cause to be carried out, all the Tests specified in Schedule-K and issue a Completion Certificate or Provisional Certificate, as the case may be. For carrying out its functions under this Paragraph 4.18 and all matters incidental thereto, the Authority's Engineer shall act under and in accordance with the provisions of Article 12 and Schedule-K.

5. Maintenance Period

- 5.1 The Authority's Engineer shall aid and advise the Contractor in the preparation of its monthly Maintenance Programme and for this purpose carry out a joint monthly inspection with the Contractor.
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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 the Contractor.
- 5.3 The Authority's Engineer shall specify the tests, if any, that the Contractor shall carry out, or cause to be carried out, for the purpose of determining that the Project Highway is in conformity with the Maintenance Requirements. It shall monitor and review the results of such tests and the remedial measures, if any, taken by the Contractor in this behalf.
- 5.4 In respect of any defect or deficiency referred to in Paragraph 3 of Schedule-E, the Authority's Engineer shall, in conformity with Good Industry Practice, specify the permissible limit of deviation or deterioration with reference to the Specifications and Standards and shall also specify the time limit for repair or rectification of any deviation or deterioration beyond the permissible limit.
- 5.5 The Authority's Engineer shall examine the request of the Contractor for closure of any lane(s) of the Project Highway for undertaking maintenance/repair thereof, and shall grant permission with such modifications, as it may deem necessary, within 5 (five) days of receiving a request from the Contractor. Upon expiry of the permitted period of closure, the Authority's Engineer shall monitor the reopening of such lane(s), and in case of delay, determine the Damages payable by the Contractor to the Authority under 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).
-

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7.2 Authority's Engineer shall-

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- (a) within 10 (ten) days of receipt of the Stage Payment Statement from the Contractor pursuant to Clause 19.4, determine the amount due to the Contractor and recommend the release of 90 (ninety) percent of the amount so determined as part payment, pending issue of the Interim Payment Certificate; and
 - (b) within 15 (fifteen) days of the receipt of the Stage Payment Statement referred to in Clause 19.4, deliver to the Authority and the Contractor an Interim Payment Certificate certifying the amount due and payable to the Contractor, after adjustments in accordance with the provisions of Clause 19.10.
- 7.3 The Authority's Engineer shall, within 15 (fifteen) days of receipt of the Monthly Maintenance Statement from the Contractor pursuant to Clause 19.6, verify the Contractor's monthly statement and certify the amount to be paid to the Contractor in accordance with the provisions of the Agreement.
- 7.4 The Authority's Engineer shall certify final payment within 30 (thirty) days of the receipt of the final payment statement of Maintenance in accordance with the provisions of Clause 19.16.

8. Other duties and functions

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

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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 forth with.
 - 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 last claim:
 - i. For the Works executed (excluding Change of Scope orders);
 - ii. For Change of Scope Orders, and
 - iii. Taxes deducted

2. Monthly Maintenance Payment Statement

The monthly Statement for Maintenance Payment shall state:

- (a) the monthly payment admissible in accordance with the provisions of the Agreement;
 - (b) the deductions for maintenance work not done;
 - (c) net payment for maintenance due, (a) minus(b);
 - (d) amounts reflecting adjustments in price under Clause 19.12;and
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(e) amount towards deduction of taxes

3. Contractor's claim for Damages

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

SCHEDULE - P
(See Clause 20.1)

INSURANCE

1. Insurance during Construction Period

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

- a) insurance of Works, Plant and Materials and an additional sum of [15 (fifteen)] per cent of such replacement cost to cover any additional costs of and incidental to the rectification of loss or damage including professional fees and the cost of demolishing and removing any part of the Works and of removing debris of whatsoever nature; and
- b) Insurance for the Contractor's equipment and Documents brought onto the Site by the Contractor, for a sum sufficient to provide for their replacement at the Site.

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

2. Insurance for Contractor's Defects Liability

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

3. Insurance against injury to persons and damage to property

3.1 The Contractor shall insure against its liability for any loss, damage, death or bodily injury, or damage to any property (except things insured under Paragraphs 1 and 2 of this Schedule or to

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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 “**Balance work of Construction of two -Lane with hard shoulders of Merangkong-Tamlu-Mon Road on EPC basis from existing Km 76.640 to Km 98.065 (Design Km. 63.800 to Km. 86.835) (Design Length-23.035 Km) in the state of Nagaland under SARDP-NE (Package-IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode**”, 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 AND DELIVERED

(Signature)

(Name and designation of
Authority’s

Representative)

(Address)

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