

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

**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–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

Engineering, Procurement & Construction (EPC) Mode

BID DOCUMENT

February 2023



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

Schedule

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

(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.

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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 Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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

Details of Subgrade: -

Sl. No	Chainage		Length	Alignment
	From	To		
1	63820	63950	130	Widening &Strengthening
1.	63950	63970	20	Widening &Strengthening
2.	63970	64040	70	Widening &Strengthening
3.	64040	64060	20	Widening &Strengthening
4.	64060	64330	270	Widening &Strengthening
5.	64330	64340	10	Realignment
6.	64340	64360	20	Realignment
7.	64360	64450	90	Widening &Strengthening
8.	64450	64480	30	Realignment
9.	64480	64510	30	Realignment
10.	64510	64520	10	Widening &Strengthening
11.	64520	64550	30	Widening &Strengthening
12.	64550	64570	20	Widening &Strengthening
13.	64570	64630	60	Widening &Strengthening
14.	64630	64660	30	Widening &Strengthening
15.	64660	64670	10	Realignment
16.	64670	64750	80	Realignment
17.	64750	64790	40	Widening &Strengthening
18.	64790	64810	20	Widening &Strengthening
19.	64810	64818	8	Widening &Strengthening
20.	64818	64850	32	Widening &Strengthening
21.	64850	64980	130	Widening &Strengthening
22.	64980	65100	120	Widening &Strengthening
23.	65100	65120	20	Widening &Strengthening
24.	65120	65130	10	Widening &Strengthening

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

25.	65130	65230	100	Widening &Strengthening
26.	65230	65245	15	Widening &Strengthening
27.	65245	65275	30	Realignment
28.	65275	65400	125	Widening &Strengthening
29.	65400	65440	40	Widening &Strengthening
30.	65440	65580	140	Widening &Strengthening
31.	65580	65600	20	Widening &Strengthening
32.	65600	65710	110	Realignment
33.	65710	66075	365	Widening &Strengthening
34.	66075	66300	225	Widening &Strengthening
35.	66300	66510	210	Widening &Strengthening
36.	66510	66530	20	Widening &Strengthening
37.	66530	66700	170	Widening &Strengthening
38.	66700	66750	50	Widening &Strengthening
39.	66750	66850	100	Realignment
40.	66850	66930	80	Realignment
41.	66930	67035	105	Widening &Strengthening
42.	67035	67040	5	Widening &Strengthening
43.	67040	67050	10	Widening &Strengthening
44.	67050	67190	140	Realignment
45.	67190	67200	10	Realignment
46.	67200	67300	100	Widening &Strengthening
47.	67300	67330	30	Widening &Strengthening
48.	67330	67390	60	Widening &Strengthening
49.	67390	67410	20	Realignment
50.	67410	67420	10	Realignment
51.	67420	67445	25	Realignment
52.	67445	67470	25	Widening &Strengthening
53.	67470	67605	135	Widening &Strengthening
54.	67605	67670	65	Realignment
55.	67670	67700	30	Realignment
56.	67700	67810	110	Widening &Strengthening
57.	67810	67825	15	Realignment
58.	67825	67880	55	Realignment
59.	67880	67900	20	Widening &Strengthening
60.	67900	67960	60	Realignment
61.	67960	68030	70	Widening &Strengthening
62.	68030	68046	16	Realignment
63.	68046	68056	10	Realignment
64.	68056	68060	4	Realignment
65.	68060	68272	212	Widening &Strengthening
66.	68272	68283	11	Widening &Strengthening
67.	68283	68405	122	Widening &Strengthening

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

68.	68405	68450	45	Realignment
69.	68450	68481	31	Widening &Strengthening
70.	68481	68495	14	Widening &Strengthening
71.	68495	68557	62	Realignment
72.	68557	68595	38	Realignment
73.	68595	68630	35	Widening &Strengthening
74.	68630	68732	102	Widening &Strengthening
75.	68732	68740	8	Widening &Strengthening
76.	68740	68750	10	Widening &Strengthening
77.	68750	68780	30	Widening &Strengthening
78.	68780	68800	20	Widening &Strengthening
79.	68800	68812	12	Widening &Strengthening
80.	68812	68910	98	Widening &Strengthening
81.	68910	68930	20	Widening &Strengthening
82.	68930	68960	30	Widening &Strengthening
83.	68960	68989	29	Widening &Strengthening
84.	68989	69000	11	Widening &Strengthening
85.	69000	69030	30	Widening &Strengthening
86.	69030	69040	10	Widening &Strengthening
87.	69040	69075	35	Widening &Strengthening
88.	69075	69098	23	Widening &Strengthening
89.	69098	69130	32	Widening &Strengthening
90.	69130	69176	46	Realignment
91.	69176	69180	4	Realignment
92.	69180	69210	30	Realignment
93.	69210	69220	10	Realignment
94.	69220	69245	25	Realignment
95.	69245	69280	35	Widening &Strengthening
96.	69280	69330	50	Widening &Strengthening
97.	69330	69375	45	Realignment
98.	69375	69447	72	Widening &Strengthening
99.	69447	69480	33	Widening &Strengthening
100.	69480	69517	37	Widening &Strengthening
101.	69517	69550	33	Widening &Strengthening
102.	69550	69650	100	Realignment
103.	69650	69660	10	Widening &Strengthening
104.	69660	69680	20	Widening &Strengthening
105.	69680	69733	53	Widening &Strengthening
106.	69733	69740	7	Widening &Strengthening
107.	69740	69898	158	Realignment
108.	69898	69910	12	Realignment
109.	69910	69920	10	Widening &Strengthening
110.	69920	69940	20	Widening &Strengthening

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111.	69940	69950	10	Widening &Strengthening
112.	69950	70025	75	Widening &Strengthening
113.	70025	70135	110	Widening &Strengthening
114.	70135	70186	51	Realignment
115.	70186	70190	4	Realignment
116.	70190	70240	50	Widening &Strengthening
117.	70240	70250	10	Widening &Strengthening
118.	70250	70269	19	Realignment
119.	70269	70278	9	Realignment
120.	70278	70310	32	Realignment
121.	70310	70329	19	Widening &Strengthening
122.	70329	70342	13	Widening &Strengthening
123.	70342	70350	8	Widening &Strengthening
124.	70350	70450	100	Widening &Strengthening
125.	70450	70475	25	Widening &Strengthening
126.	70475	70496	21	Realignment
127.	70496	70515	19	Realignment
128.	70515	70564	49	Widening &Strengthening
129.	70564	70590	26	Widening &Strengthening
130.	70590	70663	73	Widening &Strengthening
131.	70663	70734	71	Widening &Strengthening
132.	70734	70750	16	Widening &Strengthening
133.	70750	70790	40	Widening &Strengthening
134.	70790	70795	5	Realignment
135.	70795	70860	65	Realignment
136.	70860	71020	160	Realignment
137.	71020	71060	40	Realignment
138.	71060	71160	100	Widening &Strengthening
139.	71160	71171	11	Widening &Strengthening
140.	71171	71267	96	Widening &Strengthening
141.	71267	71300	33	widening &Strengthening
142.	71300	71360	60	Realignment
143.	71360	71390	30	Realignment
144.	71390	71400	10	Realignment
145.	71400	71440	40	Widening &Strengthening
146.	71440	71457	17	Realignment
147.	71457	71500	43	Realignment
148.	71500	71545	45	Widening &Strengthening
149.	71545	71550	5	Widening &Strengthening
150.	71550	71640	90	Widening &Strengthening
151.	71640	71660	20	Widening &Strengthening
152.	71660	71760	100	Widening &Strengthening
153.	71760	71780	20	Widening &Strengthening

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154.	71780	71830	50	Widening &Strengthening
155.	71830	71850	20	Widening &Strengthening
156.	71850	71915	65	Widening &Strengthening
157.	71915	71920	5	Widening &Strengthening
158.	72048	72100	52	Realignment
159.	72100	72150	50	Widening &Strengthening
160.	72150	72780	630	Widening &Strengthening
161.	72780	72800	20	Widening &Strengthening
162.	72800	72835	35	Realignment
163.	72835	72865	30	Realignment
164.	72865	72890	25	Widening &Strengthening
165.	72890	72965	75	Widening &Strengthening
166.	72965	73005	40	Realignment
167.	73005	73255	250	Widening &Strengthening
168.	73255	73305	50	Realignment
169.	73305	73510	205	Widening &Strengthening
170.	73510	73515	5	Widening &Strengthening
171.	73515	73650	135	Widening &Strengthening
172.	73650	73690	40	Realignment
173.	73690	73760	70	Realignment
174.	73850	73880	30	Realignment
175.	73880	73905	25	Realignment
176.	73905	74000	95	Widening &Strengthening
177.	74000	74050	50	Widening &Strengthening
178.	75000	75226	226	Realignment
179.	75226	75240	14	Realignment
180.	75240	75260	20	Realignment
181.	75260	75320	60	Widening &Strengthening
182.	75320	75380	60	Widening &Strengthening
183.	75380	75390	10	Widening &Strengthening
184.	75390	75400	10	Realignment
185.	75400	75530	130	Realignment
186.	75530	75555	25	Realignment
187.	75555	75560	5	Widening &Strengthening
188.	75560	75600	40	Widening &Strengthening
189.	75600	75690	90	Realignment
190.	75690	75800	110	Widening &Strengthening
191.	75800	75870	70	Realignment
192.	75870	76050	180	Widening &Strengthening
193.	76050	76110	60	Realignment
194.	76110	76300	190	Widening &Strengthening
195.	76300	76340	40	Widening &Strengthening
196.	76340	76400	60	Widening &strengthening

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197.	76400	76445	45	Realignment
198.	76445	76600	155	Widening &strengthening
199.	76600	76640	40	Realignment
200.	76640	76660	20	Realignment
201.	76660	76730	70	Widening &Strengthening
202.	76730	76750	20	Widening &Strengthening
203.	76750	76950	200	Widening &Strengthening
204.	76950	77050	100	Widening &Strengthening
205.	77050	77110	60	Widening &Strengthening
206.	77110	77190	80	Widening &Strengthening
207.	77190	77300	110	Realignment
208.	77300	77320	20	Realignment
209.	77320	77420	100	Realignment
210.	77420	77440	20	Realignment
211.	77440	77500	60	Realignment
212.	77500	77530	30	Widening &Strengthening
213.	77530	77560	30	Widening &Strengthening
214.	77560	77630	70	Realignment
215.	77630	77670	40	Realignment
216.	77670	77700	30	Realignment
217.	77700	77780	80	Widening &Strengthening
218.	77780	77810	30	Widening &Strengthening
219.	77810	77850	40	Widening &Strengthening
220.	77850	77890	40	Realignment
221.	77890	77940	50	Realignment
222.	77940	78000	60	Realignment
223.	78000	78200	200	Widening &Strengthening
224.	78200	78360	160	Widening &Strengthening
225.	78360	78500	140	Widening &Strengthening
226.	78500	78540	40	Realignment
227.	78540	78550	10	Widening &Strengthening
228.	78550	78565	15	Widening &Strengthening
229.	78565	78590	25	Realignment
230.	78590	78705	115	Realignment
231.	78705	78710	5	Widening &Strengthening
232.	78710	78735	25	Widening &Strengthening
233.	78735	78750	15	Widening &Strengthening
234.	78750	78765	15	Realignment
235.	78765	78790	25	Realignment
236.	78790	78820	30	Widening &Strengthening
237.	78820	78830	10	Widening &Strengthening
238.	78830	78860	30	Widening &Strengthening
239.	78860	78945	85	Widening &Strengthening

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240.	78945	79025	80	Realignment
241.	79025	79110	85	Realignment
242.	79250	79590	340	Widening &Strengthening
243.	79590	79650	60	Widening &Strengthening
244.	79650	79700	50	Realignment
245.	79700	79750	50	Widening &Strengthening
246.	79750	79790	40	Realignment
247.	79790	79855	65	Realignment
248.	79855	79870	15	Realignment
249.	79870	79880	10	Widening &Strengthening
250.	79880	79960	80	Widening &Strengthening
251.	79960	80080	120	Widening &Strengthening
252.	80080	80100	20	Widening &Strengthening
253.	80100	80160	60	Realignment
254.	80160	80180	20	Widening &Strengthening
255.	80180	80310	130	Widening &Strengthening
256.	81140	81200	60	Realignment
257.	81200	81210	10	Widening &Strengthening
258.	81210	81240	30	Widening &Strengthening
259.	81240	81250	10	Widening &Strengthening
260.	81250	81290	40	Realignment
261.	81290	81305	15	Realignment
262.	81305	81385	80	Widening &Strengthening
263.	81470	81525	55	Widening &Strengthening
264.	81525	81540	15	Widening &Strengthening
265.	81540	81645	105	Realignment
266.	81645	81760	115	Realignment
267.	81760	81850	90	Widening &Strengthening
268.	81850	81870	20	Widening &Strengthening
269.	81870	81900	30	Realignment
270.	81900	81965	65	Realignment
271.	81965	82135	170	Widening &Strengthening
272.	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
273.	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

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274.	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
275.	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
276.	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
277.	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
278.	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
279.	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
280.	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
281.	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

Details of Granular Sub-Base: -

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

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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
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

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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
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

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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+447	69+480	33	Widening &Strengthening
98.	69+480	69+517	37	Widening &Strengthening
99.	69+517	69+550	33	Widening &Strengthening
100.	69+550	69+650	100	Realignment
101.	69+650	69+660	10	Widening &Strengthening
102.	69+660	69+680	20	Widening &Strengthening
103.	69+680	69+733	53	Widening &Strengthening
104.	69+733	69+740	7	Widening &Strengthening
105.	69+740	69+898	158	Realignment
106.	69+898	69+910	12	Realignment
107.	69+910	69+920	10	Widening &Strengthening
108.	69+920	69+940	20	Widening &Strengthening
109.	69+940	69+950	10	Widening &Strengthening
110.	69+950	70+025	75	Widening &Strengthening
111.	70+025	70+135	110	Widening &Strengthening
112.	70+135	70+186	51	Realignment
113.	70+186	70+190	4	Realignment
114.	70+190	70+240	50	Widening &Strengthening
115.	70+240	70+250	10	Widening &Strengthening
116.	70+250	70+269	19	Realignment
117.	70+269	70+278	9	Realignment
118.	70+278	70+310	32	Realignment
119.	70+310	70+329	19	Widening &Strengthening
120.	70+329	70+342	13	Widening &Strengthening
121.	70+342	70+350	8	Widening &Strengthening
122.	70+350	70+450	100	Widening &Strengthening
123.	70+450	70+475	25	Widening &Strengthening
124.	70+475	70+496	21	Realignment
125.	70+496	70+515	19	Realignment
126.	70+515	70+564	49	Widening &Strengthening
127.	70+564	70+590	26	Widening &Strengthening
128.	70+590	70+663	73	Widening &Strengthening
129.	70+663	70+734	71	Widening &Strengthening
130.	70+734	70+750	16	Widening &Strengthening
131.	70+750	70+790	40	Widening &Strengthening
132.	70+790	70+795	5	Realignment
133.	70+795	70+860	65	Realignment
134.	70+860	71+020	160	Realignment
135.	71+020	71+060	40	Realignment

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

136.	71+060	71+160	100	Widening &Strengthening
137.	71+160	71+171	11	Widening &Strengthening
138.	71+171	71+267	96	Widening &Strengthening
139.	71+267	71+300	33	widening &Strengthening
140.	71+300	71+360	60	Realignment
141.	71+360	71+390	30	Realignment
142.	71+390	71+400	10	Realignment
143.	71+400	71+440	40	Widening &Strengthening
144.	71+440	71+457	17	Realignment
145.	71+545	71+550	5	Widening &Strengthening
146.	71+550	71+640	90	Widening &Strengthening
147.	71+640	71+660	20	Widening &Strengthening
148.	71+660	71+760	100	Widening &Strengthening
149.	71+760	71+780	20	Widening &Strengthening
150.	71+780	71+830	50	Widening &Strengthening
151.	71+830	71+850	20	Widening &Strengthening
152.	71+850	71+915	65	Widening &Strengthening
153.	71+915	71+920	5	Widening &Strengthening
154.	72+048	72+100	52	Realignment
155.	72+100	72+150	50	Widening &Strengthening
156.	72+150	72+780	630	Widening &Strengthening
157.	72+835	72+865	30	Realignment
158.	72+865	72+890	25	Widening &Strengthening
159.	72+890	72+965	75	Widening &Strengthening
160.	72+965	73+005	40	Realignment
161.	73+005	73+255	250	Widening &Strengthening
162.	73+255	73+305	50	Realignment
163.	73+305	73+510	205	Widening &Strengthening
164.	73+510	73+515	5	Widening &Strengthening
165.	73+515	73+650	135	Widening &Strengthening
166.	73+880	73+905	25	Realignment
167.	73+905	74+000	95	Widening &Strengthening
168.	74+000	74+050	50	Widening &Strengthening
169.	75+000	75+226	226	Realignment
170.	75+380	75+390	10	Widening &Strengthening
171.	75+390	75+400	10	Realignment
172.	75+400	75+530	130	Realignment
173.	75+530	75+555	25	Realignment
174.	75+555	75+560	5	Widening &Strengthening
175.	75+560	75+600	40	Widening &Strengthening
176.	75+600	75+690	90	Realignment
177.	75+690	75+800	110	Widening &Strengthening
178.	75+800	75+870	70	Realignment

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

179.	75+870	76+050	180	Widening &Strengthening
180.	76+050	76+110	60	Realignment
181.	76+110	76+300	190	Widening &Strengthening
182.	76+300	76+340	40	Widening &Strengthening
183.	76+340	76+400	60	Widening &Strengthening
184.	76+400	76+445	45	Realignment
185.	76+445	76+600	155	Widening &Strengthening
186.	76+600	76+640	40	Realignment
187.	76+640	76+660	20	Realignment
188.	76+660	76+730	70	Widening &Strengthening
189.	76+730	76+750	20	Widening &Strengthening
190.	76+750	76+950	200	Widening &Strengthening
191.	76+950	77+050	100	Widening &Strengthening
192.	77+050	77+110	60	Widening &Strengthening
193.	77+110	77+190	80	Widening &Strengthening
194.	77+190	77+300	110	Realignment
195.	77+300	77+320	20	Realignment
196.	77+320	77+420	100	Realignment
197.	77+420	77+440	20	Realignment
198.	77+440	77+500	60	Realignment
199.	77+500	77+530	30	Widening &Strengthening
200.	77+530	77+560	30	Widening &Strengthening
201.	77+560	77+630	70	Realignment
202.	77+630	77+670	40	Realignment
203.	77+670	77+700	30	Realignment
204.	77+700	77+780	80	Widening &Strengthening
205.	77+780	77+810	30	Widening &Strengthening
206.	77+810	77+850	40	Widening &Strengthening
207.	77+850	77+890	40	Realignment
208.	77+890	77+940	50	Realignment
209.	77+940	78+000	60	Realignment
210.	78+000	78+200	200	Widening &Strengthening
211.	78+360	78+500	140	Widening &Strengthening
212.	78+500	78+540	40	Realignment
213.	78+590	78+705	115	Realignment
214.	78+705	78+710	5	Widening &Strengthening
215.	78+710	78+735	25	Widening &Strengthening
216.	78+735	78+750	15	Widening &Strengthening
217.	78+750	78+765	15	Realignment
218.	78+765	78+790	25	Realignment
219.	78+790	78+820	30	Widening &Strengthening
220.	78+820	78+830	10	Widening &Strengthening
221.	78+830	78+860	30	Widening &Strengthening

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

222.	79+590	79+650	60	Widening &Strengthening
223.	79+650	79+700	50	Realignment
224.	79+700	79+750	50	Widening &Strengthening
225.	79+790	79+855	65	Realignment
226.	79+880	79+960	80	Widening &Strengthening
227.	79+960	80+080	120	Widening &Strengthening
228.	80+160	80+180	20	Widening &Strengthening
229.	80+180	80+310	130	Widening &Strengthening
230.	81+140	81+200	60	Realignment
231.	81+250	81+290	40	Realignment
232.	81+290	81+305	15	Realignment
233.	81+305	81+385	80	Widening &Strengthening
234.	81+470	81+525	55	Widening &Strengthening
235.	81+525	81+540	15	Widening &Strengthening
236.	81+540	81+645	105	Realignment
237.	81+850	81+870	20	Widening &Strengthening
238.	81+870	81+900	30	Realignment
239.	81+900	81+965	65	Realignment
240.	81+965	82+135	170	Widening &Strengthening
241.	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
242.	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
243.	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
244.	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
245.	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
246.	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

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

247.	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
248.	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
249.	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
250.	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 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+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

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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
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+200	67+300	100	Widening &Strengthening
44.	67+312	67+330	18	Widening &Strengthening
45.	67+330	67+390	60	Widening &Strengthening
46.	67+390	67+410	20	Realignment
47.	67+410	67+420	10	Realignment
48.	67+420	67+445	25	Realignment
49.	67+445	67+470	25	Widening &Strengthening
50.	67+470	67+605	135	Widening &Strengthening
51.	67+605	67+670	65	Realignment
52.	67+670	67+700	30	Realignment
53.	67+700	67+810	110	Widening &Strengthening
54.	67+810	67+825	15	Realignment
55.	68+046	68+056	10	Realignment
56.	68+056	68+060	4	Realignment
57.	68+060	68+272	212	Widening &Strengthening
58.	68+272	68+283	11	Widening &Strengthening
59.	68+283	68+405	122	Widening &Strengthening
60.	68+405	68+450	45	Realignment
61.	68+450	68+481	31	Widening &Strengthening
62.	68+557	68+595	38	Realignment
63.	68+595	68+630	35	Widening &Strengthening
64.	68+630	68+732	102	Widening &Strengthening
65.	68+732	68+740	8	Widening &Strengthening
66.	68+740	68+750	10	Widening &Strengthening

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

67.	68+750	68+780	30	Widening &Strengthening
68.	68+780	68+800	20	Widening &Strengthening
69.	68+800	68+812	12	Widening &Strengthening
70.	68+812	68+910	98	Widening &Strengthening
71.	68+910	68+930	20	Widening &Strengthening
72.	68+930	68+960	30	Widening &Strengthening
73.	68+960	68+989	29	Widening &Strengthening
74.	68+989	69+000	11	Widening &Strengthening
75.	69+000	69+030	30	Widening &Strengthening
76.	69+030	69+040	10	Widening &Strengthening
77.	69+065	69+075	10	Widening &Strengthening
78.	69+075	69+098	23	Widening &Strengthening
79.	69+176	69+180	4	Realignment
80.	69+180	69+210	30	Realignment
81.	69+210	69+220	10	Realignment
82.	69+220	69+245	25	Realignment
83.	69+447	69+480	33	Widening &Strengthening
84.	69+480	69+517	37	Widening &Strengthening
85.	69+650	69+660	10	Widening &Strengthening
86.	69+660	69+680	20	Widening &Strengthening
87.	69+680	69+733	53	Widening &Strengthening
88.	69+898	69+910	12	Realignment
89.	69+910	69+920	10	Widening &Strengthening
90.	69+920	69+940	20	Widening &Strengthening
91.	69+940	69+950	10	Widening &Strengthening
92.	69+950	70+025	75	Widening &Strengthening
93.	70+025	70+135	110	Widening &Strengthening
94.	70+135	70+186	51	Realignment
95.	70+186	70+190	4	Realignment
96.	70+190	70+240	50	Widening &Strengthening
97.	70+240	70+250	10	Widening &Strengthening
98.	70+250	70+269	19	Realignment
99.	70+269	70+278	9	Realignment
100.	70+329	70+342	13	Widening &Strengthening
101.	70+342	70+350	8	Widening &Strengthening
102.	70+350	70+450	100	Widening &Strengthening
103.	70+450	70+475	25	Widening &Strengthening
104.	70+475	70+496	21	Realignment
105.	70+496	70+515	19	Realignment
106.	70+515	70+564	49	Widening &Strengthening
107.	70+564	70+590	26	Widening &Strengthening
108.	70+590	70+663	73	Widening &Strengthening
109.	70+663	70+734	71	Widening &Strengthening

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

110.	70+734	70+750	16	Widening &Strengthening
111.	70+750	70+790	40	Widening &Strengthening
112.	70+790	70+795	5	Realignment
113.	70+795	70+860	65	Realignment
114.	70+860	71+020	160	Realignment
115.	71+020	71+060	40	Realignment
116.	71+060	71+160	100	Widening &Strengthening
117.	71+160	71+171	11	Widening &Strengthening
118.	71+171	71+267	96	Widening &Strengthening
119.	71+267	71+300	33	widening &Strengthening
120.	71+300	71+360	60	Realignment
121.	71+360	71+390	30	Realignment
122.	71+390	71+400	10	Realignment
123.	71+550	71+640	90	Widening &Strengthening
124.	71+640	71+660	20	Widening &Strengthening
125.	71+660	71+760	100	Widening &Strengthening
126.	71+760	71+780	20	Widening &Strengthening
127.	71+780	71+830	50	Widening &Strengthening
128.	71+830	71+850	20	Widening &Strengthening
129.	71+850	71+915	65	Widening &Strengthening
130.	72+835	72+865	30	Realignment
131.	72+865	72+890	25	Widening &Strengthening
132.	72+890	72+965	75	Widening &Strengthening
133.	72+965	73+005	40	Realignment
134.	73+005	73+255	250	Widening &Strengthening
135.	73+255	73+305	50	Realignment
136.	73+305	73+510	205	Widening &Strengthening
137.	73+510	73+515	5	Widening &Strengthening
138.	73+515	73+650	135	Widening &Strengthening
139.	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
140.	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
141.	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

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

142.	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
143.	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
144.	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
145.	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
146.	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
147.	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
	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+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

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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.	64+810	64+818	8	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
28.	66+530	66+700	170	Widening &Strengthening
29.	68+283	68+405	122	Widening &Strengthening
30.	68+405	68+450	45	Realignment
31.	68+450	68+481	31	Widening &Strengthening
32.	68+557	68+595	38	Realignment
33.	68+595	68+630	35	Widening &Strengthening
34.	68+732	68+740	8	Widening &Strengthening
35.	68+740	68+750	10	Widening &Strengthening
36.	68+750	68+780	30	Widening &Strengthening
37.	68+780	68+800	20	Widening &Strengthening
38.	68+800	68+812	12	Widening &Strengthening
39.	68+812	68+910	98	Widening &Strengthening
40.	68+910	68+930	20	Widening &Strengthening
41.	68+930	68+960	30	Widening &Strengthening
42.	68+989	69+000	11	Widening &Strengthening
43.	69+000	69+030	30	Widening &Strengthening
44.	69+030	69+040	10	Widening &Strengthening
45.	69+075	69+098	23	Widening &Strengthening
46.	69+176	69+180	4	Realignment
47.	69+180	69+210	30	Realignment
48.	69+210	69+220	10	Realignment
49.	69+220	69+245	25	Realignment
50.	69+447	69+480	33	Widening &Strengthening
51.	69+480	69+517	37	Widening &Strengthening
52.	69+650	69+660	10	Widening &Strengthening
53.	69+660	69+680	20	Widening &Strengthening
54.	69+680	69+733	53	Widening &Strengthening
55.	69+898	69+910	12	Realignment
56.	69+910	69+920	10	Widening &Strengthening
57.	69+920	69+940	20	Widening &Strengthening

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

58.	69+940	69+950	10	Widening &Strengthening
59.	69+950	70+025	75	Widening &Strengthening
60.	70+186	70+190	4	Realignment
61.	70+190	70+240	50	Widening &Strengthening
62.	70+240	70+250	10	Widening &Strengthening
63.	70+250	70+269	19	Realignment
64.	70+342	70+350	8	Widening &Strengthening
65.	70+350	70+450	100	Widening &Strengthening
66.	70+450	70+475	25	Widening &Strengthening
67.	70+475	70+496	21	Realignment
68.	70+564	70+590	26	Widening &Strengthening
69.	70+590	70+663	73	Widening &Strengthening
70.	70+734	70+750	16	Widening &Strengthening
71.	70+750	70+790	40	Widening &Strengthening
72.	70+790	70+795	5	Realignment
73.	71+171	71+267	96	Widening &Strengthening
74.	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
75.	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
76.	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
77.	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
78.	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
79.	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

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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 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

TheSiteoftheProject 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 6m 12 m and carriageway 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.

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

4. Major Bridge

The Site includes the following Major Bridges:

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

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

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

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		

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

8. Underpasses (vehicular, Non-vehicular)

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	RHS	PCC Trapezoidal	
2.	64+348	64+494	RHS	PCC Trapezoidal	
3.	64+503	64+605	RHS	PCC Trapezoidal	
4.	64+620	64+745	RHS	PCC Trapezoidal	
5.	64+766	64+926	RHS	PCC Trapezoidal	
6.	64+966	65+040	RHS	PCC Trapezoidal	
7.	68+330	68+447	LHS	PCC Trapezoidal	
8.	68+510	68+640	LHS	PCC Trapezoidal	
9.	68+683	68+832	LHS	PCC Trapezoidal	
10.	68+849	68+942	LHS	PCC Trapezoidal	
11.	68+957	69+036	LHS	PCC Trapezoidal	
12.	69+046	69+111	LHS	PCC Trapezoidal	
13.	69+129	69+145	LHS	PCC Trapezoidal	
14.	69+405	69+450	LHS	PCC Trapezoidal	

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

Sl. No.	Design Chainage (km)		Side	Type	
	from	To		CC / Masonry	Earthen(katcha)
15.	69+458	69+469	LHS	PCC Trapezoidal	
16.	69+469	69+505	LHS	PCC Trapezoidal	
17.	69+614	69+695	LHS	PCC Trapezoidal	
18.	69+719	69+789	LHS	PCC Trapezoidal	
19.	69+807	69+909	LHS	PCC Trapezoidal	
20.	69+963	70+044	LHS	PCC Trapezoidal	
21.	70+110	70+242	LHS	PCC Trapezoidal	
22.	70+255	70+351	LHS	PCC Trapezoidal	
23.	70+393	70+504	LHS	PCC Trapezoidal	
24.	70+515	70+610	LHS	PCC Trapezoidal	
25.	70+619	70+675	LHS	PCC Trapezoidal	
26.	70+700	70+848	LHS	PCC Trapezoidal	
27.	71+075	71+182	LHS	PCC Trapezoidal	
28.	71+205	71+330	LHS	PCC Trapezoidal	
29.	71+551	71+677	LHS	PCC Trapezoidal	
30.	71+780	71+914	LHS	PCC Trapezoidal	
31.	72+210	72+528	LHS	PCC Trapezoidal	
32.	72+570	72+600	LHS	PCC Trapezoidal	
33.	83+650	83+790	LHS	CC / Masonry	
34.	83+900	84+200	RHS	CC / Masonry	
35.	84+400	84+600	LHS	CC / Masonry	
36.	84+900	85+500	LHS	CC / Masonry	
37.	85+540	85+600	LHS	CC / Masonry	
38.	85+900	86+400	RHS	CC / Masonry	
39.	86+500	86+700	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

12. Culverts

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

Sl. No.	Design Chainage (km)	Type of structure	Span/Dia (m)	Width of Structure	Remarks
1.	64+051	Box Culvert	1.5x1.5	12.00	Catchpit & apron balance
2.	64+335	Box Culvert	1.5x1.5	12.00	Catchpit & apron balance
3.	64+490	Box Culvert	1.5x1.5	12.00	Catchpit & apron balance
4.	64+615	Box Culvert	1.5x1.5	12.00	Catchpit ,apron & Return wall RHS balance
5.	64+750	Box Culvert	3.0x3.0	12.00	Catchpit ,& Return wall BHS balance
6.	65+371	Box Culvert	1.5x1.5	12.00	Catch pit & apron balance
7.	65+555	Box Culvert	1.5x1.5	12.00	Catch pit & apron balance
8.	65+658	Box Culvert	1.5x1.5	12.00	Catch pit & apron balance
9.	66+505	Box Culvert	1.5x1.5	12.00	Parapet wall BHS ,Catchpit & apron balance
10.	66+725	Box Culvert	3.0x3.0	12.00	Catch pit ,apron & Return wall BHS balance
11.	66+900	Box Culvert	2.0x2.0	12.00	Catchpit ,apron & Return wall BHS balance
12.	67+275	Box Culvert	1.5x1.5	12.00	Catch pit & apron balance
13.	67+336	Box Culvert	2.0x2.0	12.00	Catchpit ,apron & Return wall BHS balance
14.	67+590	Box Culvert	1.5x1.5	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
15.	67+850	Box Culvert	2.0x2.0	12.00	Catchpit & apron balance
16.	67+922	Box Culvert	2.0x2.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
17.	68+000	Box Culvert	1.5x1.5	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
18.	68+135	Box Culvert	1.5x1.5	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
19.	68+520	Box Culvert	2.0x2.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
20.	68+655	Box Culvert	1.5x1.5	12.00	Parapet wall BHS ,Catchpit ,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 Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

Sl. No.	Design Chainage (km)	Type of structure	Span/Dia (m)	Width of Structure	Remarks
21.	68+855	Box Culvert	2.0x2.0	12.00	Catchpit & apron balance
22.	68+966	Box Culvert	2.0x2.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
23.	69+056	Box Culvert	1.5x1.5	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
24.	69+128	Box Culvert	2.0x2.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
25.	69+336	Box Culvert	2.0x2.0	6.00	RHS Completed(Widening & Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance)
26.	69+508	Box Culvert	2.0x2.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
27.	69+540	Box Culvert	2.0x2.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
28.	69+715	Box Culvert	3.0x3.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
29.	69+805	Box Culvert	2.0x2.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
30.	70+095	Box Culvert	2.0x2.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
31.	70+250	Box Culvert	2.0x2.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
32.	70+505	Box Culvert	1.5x1.5	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
33.	70+680	Box Culvert	2.0x2.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
34.	70+830	Box Culvert	1.5x1.5	12.00	,Catchpit & apron balance
35.	70+942	Box Culvert	2.0x2.0	12.00	Catchpit ,apron & Return wall BHS balance
36.	71+070	Box Culvert	2.0x2.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
37.	71+355	Box Culvert	2.0x2.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
38.	71+493	Box Culvert	2.0x2.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall LHS balance
39.	71+580	Box Culvert	2.0x2.0	6.00	LHS Completed(Widening & Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance)
40.	71+980	Box	2.0x2.0	6.00	LHS Completed(Widening

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

Sl. No.	Design Chainage (km)	Type of structure	Span/Dia (m)	Width of Structure	Remarks
		Culvert			&Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance)
41.	72+060	Box Culvert	2.0x2.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
42.	72+165	Box Culvert	2.0x2.0	12.00	Catchpit ,apron & Return wall BHS balance
43.	72+560	Box Culvert	2.0x2.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
44.	72+600	Box Culvert	2.0x2.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
45.	72+810	Box Culvert	1.5x1.5	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
46.	72+955	Box Culvert	2.0x2.0	12.00	Parapet wall BHS ,Catchpit & apron balance
47.	73+390	Box Culvert	2.0x2.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
48.	75+125	Box Culvert	2.0x2.0	6.00	LHS Completed(Widening & ,Catchpit ,apron & Return wall BHS balance)
49.	75+225	Box Culvert	2.0x2.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
50.	75+370	Box Culvert	2.0x2.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
51.	75+475	Box Culvert	2.0x2.0	12.00	Parapet wall RHS ,Catchpit ,apron & Return wall BHS balance
52.	75+642	Box Culvert	1.5x1.5	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
53.	75+760	Box Culvert	2.0x2.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
54.	76+055	Box Culvert	2.0x2.0	12.00	Catchpit & Apron balance
55.	76+168	Box Culvert	1.5x1.5	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
56.	76+528	Box Culvert	2.0x2.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
57.	76+665	Box Culvert	2.0x2.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
58.	76+802	Box Culvert	2.0x2.0	12.00	Parapet wall BHS ,Catchpit & Apron balance
59.	76+960	Box Culvert	3.0x3.0	12.00	Parapet wall BHS ,Catchpit & Apron balance

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

Sl. No.	Design Chainage (km)	Type of structure	Span/Dia (m)	Width of Structure	Remarks
60.	77+256	Box Culvert	1.5x1.5	12.00	Parapet wall BHS ,Catchpit & Apron balance
61.	77+420	Box Culvert	1.5x1.5	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
62.	77+570	Box Culvert	1.5x1.5	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
63.	77+640	Box Culvert	2.0x2.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
64.	77+870	Box Culvert	1.5x1.5	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
65.	78+140	Box Culvert	1.5x1.5	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
66.	78+210	Box Culvert	1.5x1.5	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
67.	78+490	Box Culvert	2.0x2.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall LHS balance
68.	78+840	Box Culvert	3.0x3.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall RHS balance
69.	79+004	Box Culvert	3.0x3.0	6.00	Half Culvert LHS(Widening & Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance)
70.	79+402	Box Culvert	2.0x2.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
71.	79+605	Box Culvert	1.5x1.5	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
72.	79+722	Box Culvert	2.0x2.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
73.	79+810	Box Culvert	1.5x1.5	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
74.	79+910	Box Culvert	3.0x3.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
75.	80+020	Box Culvert	2.0x2.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
76.	80+963	Box Culvert	3.0x3.0	6.00	Half Culvert RHS (Widening & Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance)
77.	81+128	Box Culvert	2.0x2.0	6.00	Half Culvert LHS (Widening & Catchpit ,apron & Return wall BHS balance)
78.	81+320	Box Culvert	2.0x2.0	6.00	Half Culvert RHS (Widening & ,Catchpit ,apron balance)

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

Sl. No.	Design Chainage (km)	Type of structure	Span/Dia (m)	Width of Structure	Remarks
79.	81+570	Box Culvert	2.0x2.0	6.00	In completed only Excavation has been done.
80.	81+710	Box Culvert	2.0x2.0	6.00	Half Culvert RHS (Widening & Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance)
81.	82+040	Box Culvert	2.0x2.0	12.00	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance
82.	82+165	Slab Culvert	1.0x1.0	7.20	
83.	82+610	Slab Culvert	1x1.0	6.20	
84.	82+840	Slab Culvert	1x1.0	6.30	
85.	83+500	Slab Culvert	1x1.5	6.90	
86.	83+605	Slab Culvert	1x1.0	7.10	
87.	83+670	Slab Culvert	1x1.0	8.00	
88.	83+780	Pipe Culvert	1x0.9	10.80	
89.	84+115	Pipe Culvert	1x1.0	9.70	
90.	85+620	Pipe Culvert	1x0.9	10.60	
91.	85+950	Slab Culvert	1x1.0	7.00	
92.	86+415	Pipe Culvert	1x1.5	6.90	
93.	86+505	Slab Culvert	1x1.5	7.10	
94.	86+630	Slab Culvert	1x1.0	6.20	

13. Bus bays

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

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

SI 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	
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

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

The details of Bypasses are as follows:

SI 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 areas 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		
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	Side	Height	Remarks
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“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

	From	To	(m)		(m)	
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		
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		

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

Sl.no	Chainages		Length (m)	Side	Height (m)	Remarks
	From	To				
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		
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 Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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 Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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 Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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 Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

(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) mwide. 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)	PROW (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

(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. 1	64+330	64+340	10	Realignment
2. 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

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

19.	67+825	67+880	55	Realignment
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

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

62.	74+255	74+295	40	Realignment
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

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

105.	81+250	81+290	40	Realignment
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 Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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 Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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 Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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/Str engthening of Existing Surface	No Geometric improvement/Str engthening 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

- 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:

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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 Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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	

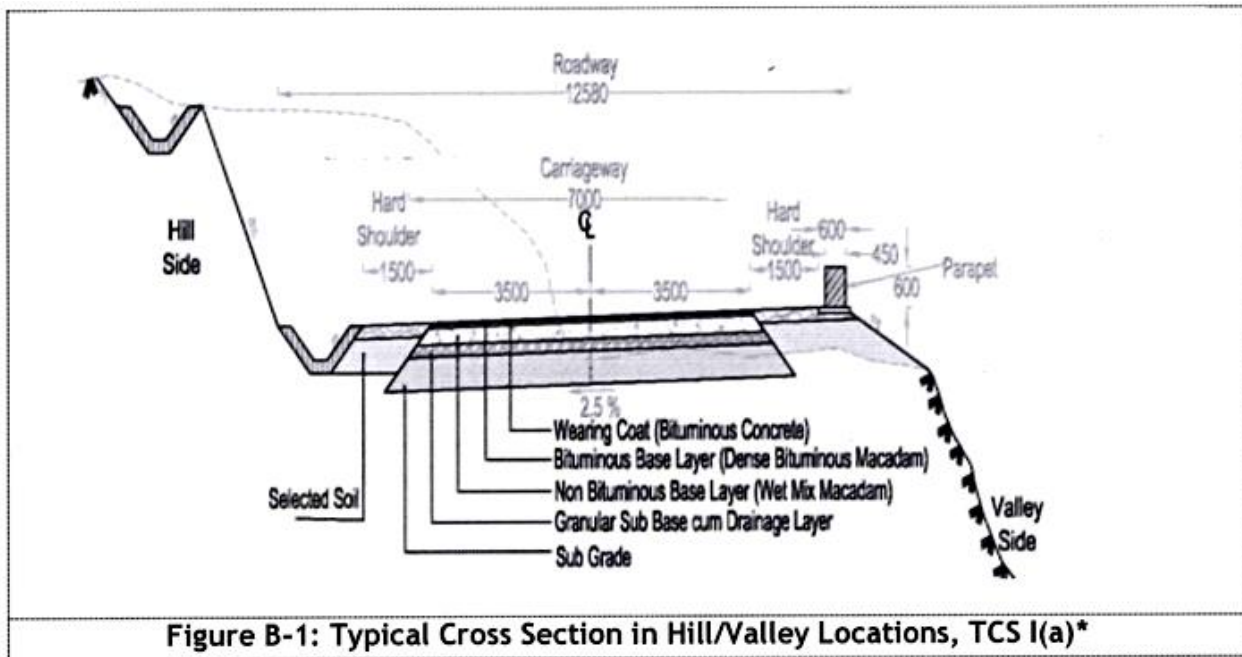
“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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 Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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 Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

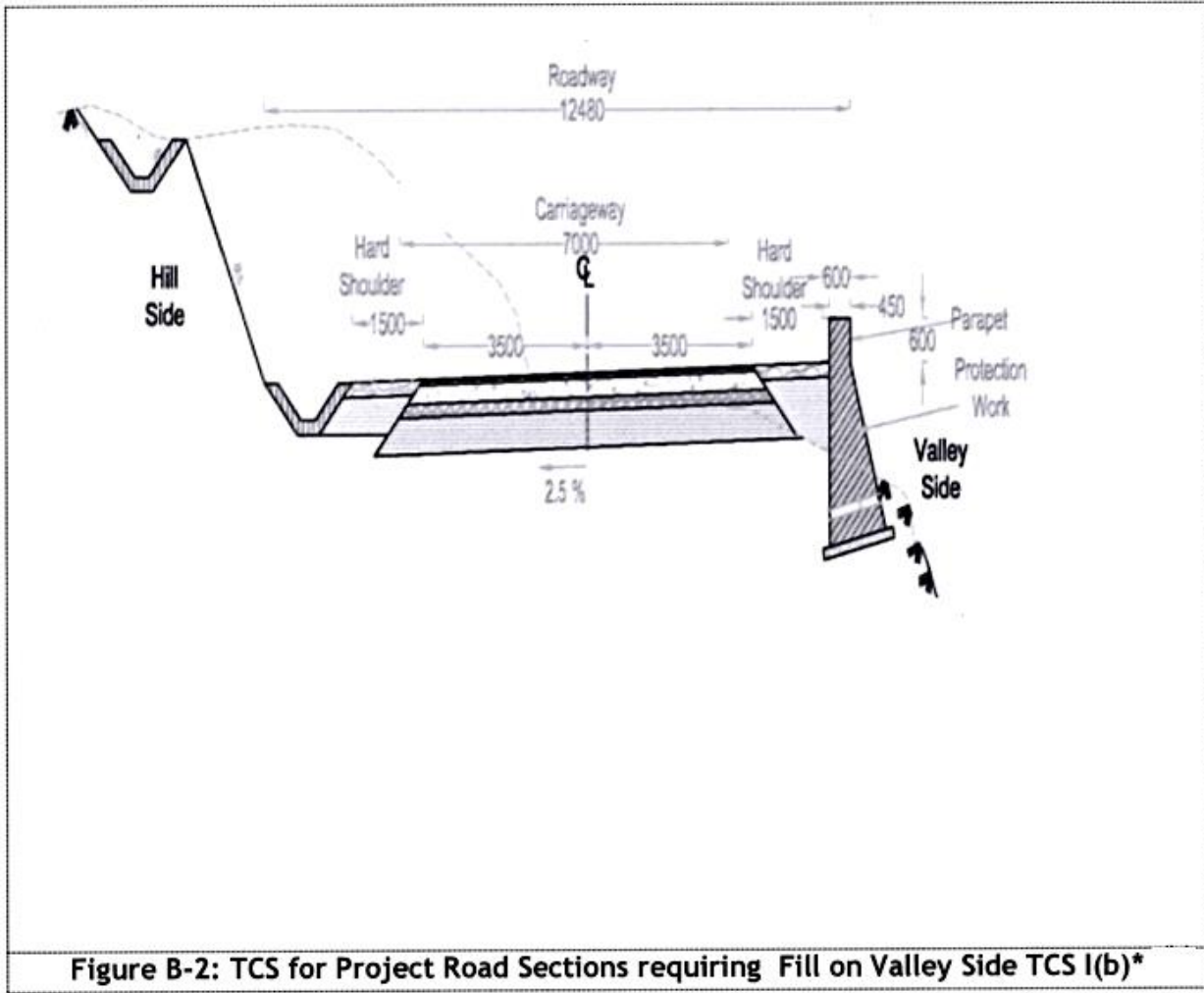
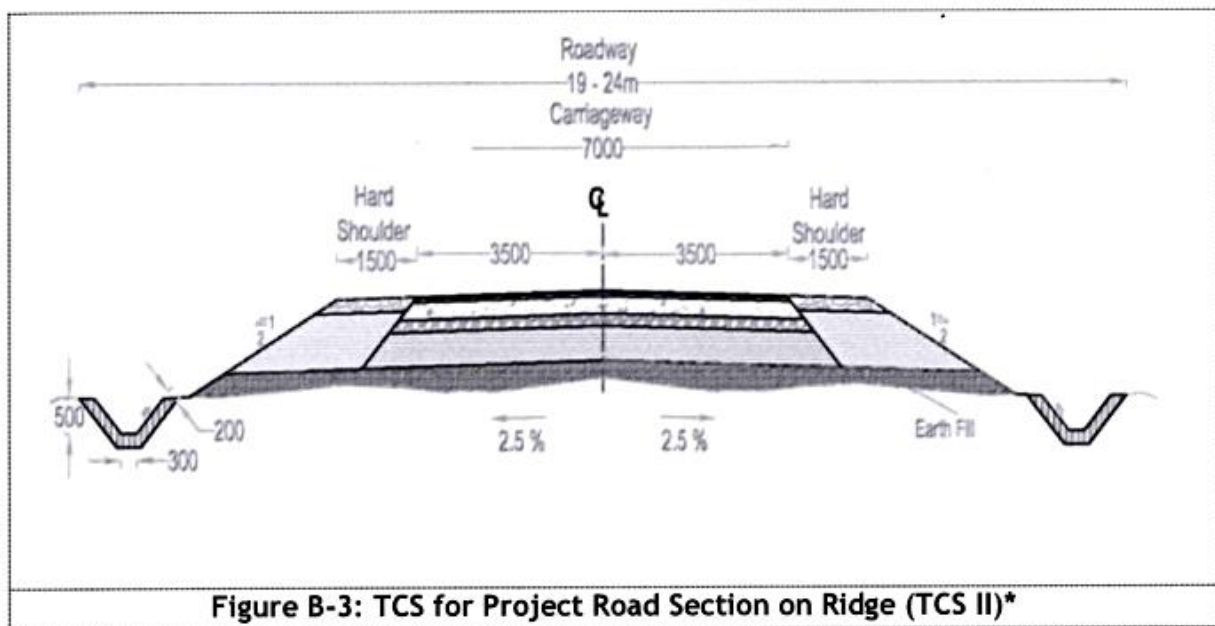
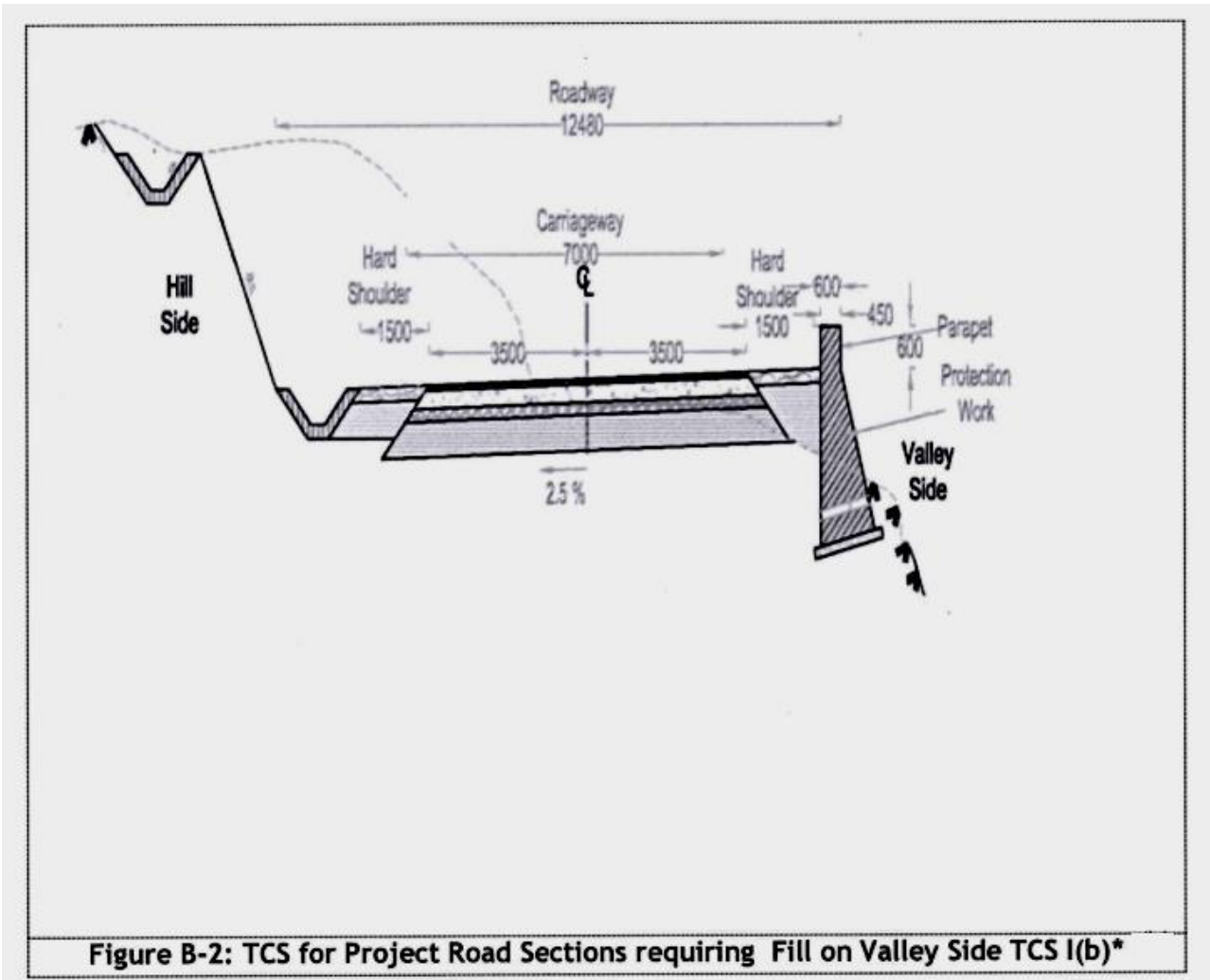


Figure B-2: TCS for Project Road Sections requiring Fill on Valley Side TCS I(b)*

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”



“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

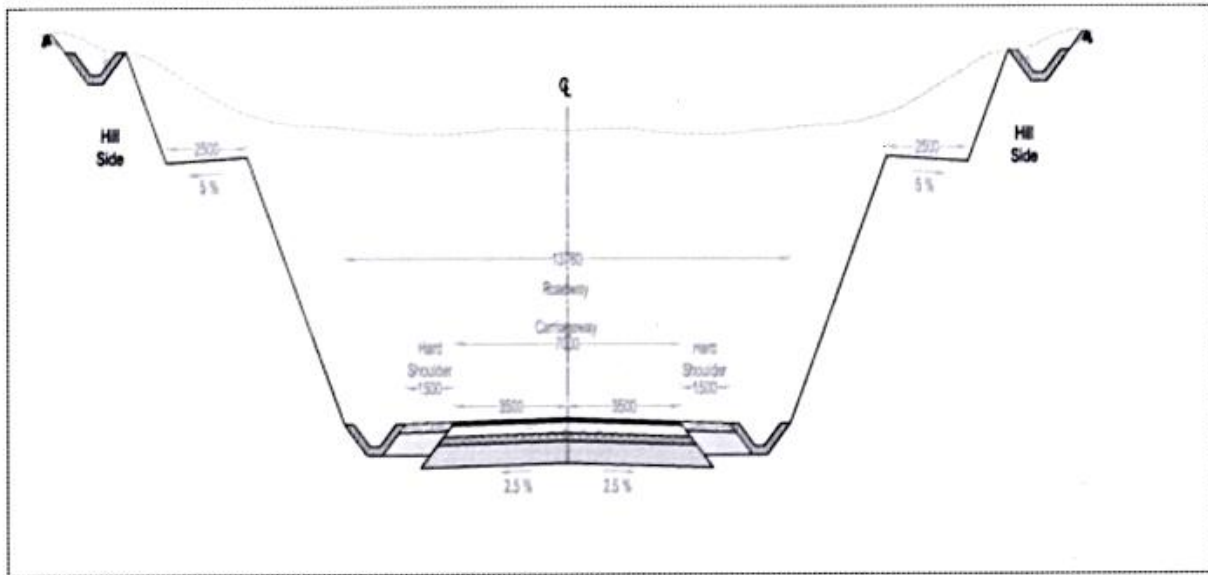


Figure B-4: TCS for Project Road Sections through Box Cut Locations (TCS III)*

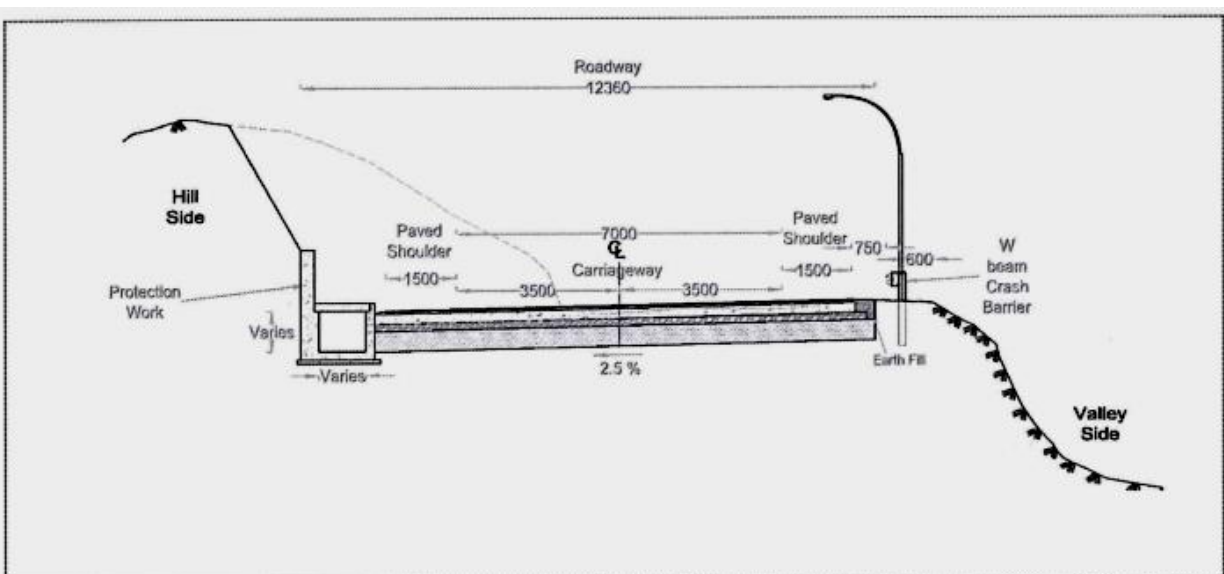
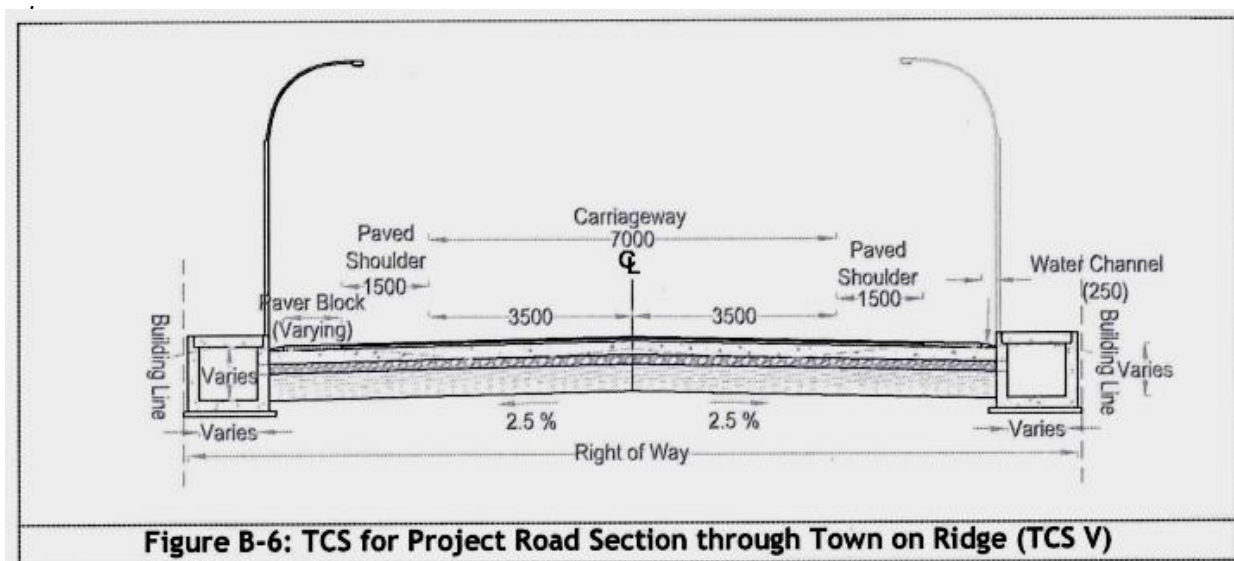


Figure B-5: TCS for Project Road Section through Town with Hill/Valley Combination (TCS IV)

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”



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 Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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

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

4. ROAD EMBANKMENT AND CUT SECTION

- a. Widening and improvement of the existing road embankment/cuttings and construction of new road embankment/ cuttings shall conform to the Specifications and Standards given in section 4 of the Manual and the specified cross sectional details. Deficiencies in the plan and profile of the existing road shall be corrected.
- b. Rising of the existing road.

The existing road shall be raised in the following sections:

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

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

5. PAVEMENT DESIGN

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

(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 12076 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 Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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+850	90	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
36.	82+160	82+440	280	Widening &Strengthening

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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	4040	

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
14.	73+850	73+880	30	Realignment
15.	74+050	74+100	50	Widening &Strengthening

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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+200	78+360	160	Widening &Strengthening
35.	78+540	78+550	10	Widening &Strengthening
36.	78+550	78+565	15	Widening &Strengthening
37.	78+565	78+590	25	Realignment
38.	78+860	78+945	85	Widening &Strengthening
39.	78+945	79+025	80	Realignment
40.	79+025	79+110	85	Realignment
41.	79+110	79+250	140	Widening &Strengthening
42.	79+250	79+590	340	Widening &Strengthening
43.	79+750	79+790	40	Realignment
44.	79+855	79+870	15	Realignment
45.	79+870	79+880	10	Widening &Strengthening
46.	80+080	80+100	20	Widening &Strengthening
47.	80+100	80+160	60	Realignment
48.	80+310	80+340	30	Widening &Strengthening
49.	80+340	80+420	80	Realignment
50.	80+420	80+600	180	Widening &Strengthening
51.	80+600	80+640	40	Realignment
52.	80+640	80+750	110	Widening &Strengthening
53.	80+750	80+800	50	Realignment
54.	80+800	80+810	10	Widening &Strengthening
55.	80+810	80+955	145	Widening &Strengthening
56.	80+955	80+975	20	Widening &Strengthening
57.	80+975	81+095	120	Widening &Strengthening
58.	81+095	81+140	45	Realignment

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

59.	81+200	81+210	10	Widening &Strengthening
60.	81+210	81+240	30	Widening &Strengthening
61.	81+240	81+250	10	Widening &Strengthening
62.	81+385	81+410	25	Widening &Strengthening
63.	81+410	81+430	20	Widening &Strengthening
64.	81+430	81+470	40	Widening &Strengthening
65.	81+645	81+760	115	Realignment
66.	81+760	81+850	90	Widening &Strengthening
67.	82+135	82+160	25	Widening &Strengthening
68.	82+160	82+440	280	Widening &Strengthening
69.	82+440	82+465	25	Realignment
70.	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
71.	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
72.	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
73.	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
74.	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	5844	

7.3 Minimum Balance Work of WMM

SL.No	Chainage	Length (M)	Alignments
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“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

	From	To		
1.	63+800	63+820	20	Widening &Strengthening
2.	67+035	67+040	5	Widening &Strengthening
3.	67+040	67+050	10	Widening &Strengthening
4.	67+050	67+190	140	Realignment
5.	67+190	67+200	10	Realignment
6.	67+300	67+312	12	Widening &Strengthening
7.	67+825	67+880	55	Realignment
8.	67+880	67+900	20	Widening &Strengthening
9.	67+900	67+960	60	Realignment
10.	67+960	68+030	70	Widening &Strengthening
11.	68+030	68+046	16	Realignment
12.	68+481	68+495	14	Widening &Strengthening
13.	68+495	68+557	62	Realignment
14.	69+040	69+065	25	Widening &Strengthening
15.	69+098	69+130	32	Widening &Strengthening
16.	69+130	69+176	46	Realignment
17.	69+245	69+280	35	Widening &Strengthening
18.	69+280	69+330	50	Widening &Strengthening
19.	69+330	69+375	45	Realignment
20.	69+375	69+447	72	Widening &Strengthening
21.	69+517	69+550	33	Widening &Strengthening
22.	69+550	69+650	100	Realignment
23.	69+733	69+740	7	Widening &Strengthening
24.	69+740	69+898	158	Realignment
25.	70+278	70+310	32	Realignment
26.	70+310	70+329	19	Widening &Strengthening
27.	71+400	71+440	40	Widening &Strengthening
28.	71+440	71+457	17	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+780	630	Widening &Strengthening
38.	72+780	72+800	20	Widening &Strengthening
39.	72+800	72+835	35	Realignment
40.	73+650	73+690	40	Realignment
41.	73+690	73+760	70	Realignment
42.	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 Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

43.	73+850	73+880	30	Realignment
44.	73+880	73+905	25	Realignment
45.	73+905	74+000	95	Widening &Strengthening
46.	74+000	74+050	50	Widening &Strengthening
47.	74+050	74+100	50	Widening &Strengthening
48.	74+100	74+160	60	Widening &Strengthening
49.	74+160	74+180	20	Widening &Strengthening
50.	74+180	74+230	50	Widening &Strengthening
51.	74+230	74+250	20	Widening &Strengthening
52.	74+250	74+255	5	Widening &Strengthening
53.	74+255	74+295	40	Realignment
54.	74+295	74+410	115	Widening &Strengthening
55.	74+410	74+430	20	Widening &Strengthening
56.	74+430	74+610	180	Widening &Strengthening
57.	74+610	74+640	30	Widening &Strengthening
58.	74+640	74+735	95	Widening &Strengthening
59.	74+735	74+920	185	Realignment
60.	74+920	74+970	50	Widening &Strengthening
61.	74+970	75+000	30	Realignment
62.	75+000	75+226	226	Realignment
63.	75+226	75+240	14	Realignment
64.	75+240	75+260	20	Realignment
65.	75+260	75+320	60	Widening &Strengthening
66.	75+320	75+380	60	Widening &Strengthening
67.	75+380	75+390	10	Widening &Strengthening
68.	75+390	75+400	10	Realignment
69.	75+400	75+530	130	Realignment
70.	75+530	75+555	25	Realignment
71.	75+555	75+560	5	Widening &Strengthening
72.	75+560	75+600	40	Widening &Strengthening
73.	75+600	75+690	90	Realignment
74.	75+690	75+800	110	Widening &Strengthening
75.	75+800	75+870	70	Realignment
76.	75+870	76+050	180	Widening &Strengthening
77.	76+050	76+110	60	Realignment
78.	76+110	76+300	190	Widening &Strengthening
79.	76+300	76+340	40	Widening &Strengthening
80.	76+340	76+400	60	Widening &Strengthening
81.	76+400	76+445	45	Realignment
82.	76+445	76+600	155	Widening &Strengthening
83.	76+600	76+640	40	Realignment
84.	76+640	76+660	20	Realignment
85.	76+660	76+730	70	Widening &Strengthening

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

86.	76+730	76+750	20	Widening &Strengthening
87.	76+750	76+950	200	Widening &Strengthening
88.	76+950	77+050	100	Widening &Strengthening
89.	77+050	77+110	60	Widening &Strengthening
90.	77+110	77+190	80	Widening &Strengthening
91.	77+190	77+300	110	Realignment
92.	77+300	77+320	20	Realignment
93.	77+320	77+420	100	Realignment
94.	77+420	77+440	20	Realignment
95.	77+440	77+500	60	Realignment
96.	77+500	77+530	30	Widening &Strengthening
97.	77+530	77+560	30	Widening &Strengthening
98.	77+560	77+630	70	Realignment
99.	77+630	77+670	40	Realignment
100	77+670	77+700	30	Realignment
101	77+700	77+780	80	Widening &Strengthening
102	77+780	77+810	30	Widening &Strengthening
103	77+810	77+850	40	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
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

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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
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

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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	13170	

7.4 Minimum Balance Work of DBM

SL.No	Chainage		Length (M)	Alignments
	From	To		
	63+800	63+820	20	Widening &Strengthening
	64+131	64+198	67	Widening &Strengthening
	64+198	64+286	88	Widening &Strengthening
	64+376	64+442	66	Widening &Strengthening
	64+660	64+670	10	Realignment
	64+670	64+750	80	Realignment
	64+750	64+790	40	Widening &Strengthening
	64+790	64+810	20	Widening &Strengthening

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

	64+818	64+850	32	Widening &Strengthening
	64+850	64+980	130	Widening &Strengthening
	64+980	65+100	120	Widening &Strengthening
	65+100	65+120	20	Widening &Strengthening
	65+120	65+130	10	Widening &Strengthening
	65+130	65+230	100	Widening &Strengthening
	65+230	65+245	15	Widening &Strengthening
	65+245	65+275	30	Realignment
	65+275	65+297	22	Widening &Strengthening
	65+297	65+364	67	Widening &Strengthening
	66+700	66+750	50	Widening &Strengthening
	66+750	66+850	100	Realignment
	66+850	66+930	80	Realignment
	66+930	67+035	105	Widening &Strengthening
	67+035	67+040	5	Widening &Strengthening
	67+040	67+050	10	Widening &Strengthening
	67+050	67+190	140	Realignment
	67+190	67+200	10	Realignment
	67+200	67+300	100	Widening &Strengthening
	67+300	67+330	30	Widening &Strengthening
	67+330	67+390	60	Widening &Strengthening
	67+390	67+410	20	Realignment
	67+410	67+420	10	Realignment
	67+420	67+445	25	Realignment
	67+445	67+470	25	Widening &Strengthening
	67+470	67+605	135	Widening &Strengthening
	67+605	67+670	65	Realignment
	67+670	67+700	30	Realignment
	67+700	67+810	110	Widening &Strengthening
	67+810	67+825	15	Realignment
	67+825	67+880	55	Realignment
	67+880	67+900	20	Widening &Strengthening
	67+900	67+960	60	Realignment
	67+960	68+030	70	Widening &Strengthening
	68+030	68+046	16	Realignment
	68+046	68+056	10	Realignment
	68+056	68+060	4	Realignment
	68+060	68+272	212	Widening &Strengthening
	68+272	68+283	11	Widening &Strengthening
	68+481	68+495	14	Widening &Strengthening
	68+495	68+557	62	Realignment
	68+630	68+732	102	Widening &Strengthening
	68+960	68+989	29	Widening &Strengthening

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

	69+040	69+075	35	Widening &Strengthening
	69+098	69+130	32	Widening &Strengthening
	69+130	69+176	46	Realignment
	69+245	69+280	35	Widening &Strengthening
	69+280	69+330	50	Widening &Strengthening
	69+330	69+375	45	Realignment
	69+375	69+447	72	Widening &Strengthening
	69+517	69+550	33	Widening &Strengthening
	69+550	69+650	100	Realignment
	69+733	69+740	7	Widening &Strengthening
	69+740	69+898	158	Realignment
	70+025	70+135	110	Widening &Strengthening
	70+135	70+186	51	Realignment
	70+269	70+278	9	Realignment
	70+278	70+310	32	Realignment
	70+310	70+329	19	Widening &Strengthening
	70+329	70+342	13	Widening &Strengthening
	70+496	70+515	19	Realignment
	70+515	70+564	49	Widening &Strengthening
	70+663	70+734	71	Widening &Strengthening
	70+795	70+860	65	Realignment
	70+860	71+020	160	Realignment
	71+020	71+060	40	Realignment
	71+060	71+160	100	Widening &Strengthening
	71+160	71+171	11	Widening &Strengthening
	71+267	71+300	33	widening &Strengthening
	71+300	71+360	60	Realignment
	71+360	71+390	30	Realignment
	71+390	71+400	10	Realignment
	71+400	71+440	40	Widening &Strengthening
	71+440	71+457	17	Realignment
	71+457	71+500	43	Realignment
	71+500	71+545	45	Widening &Strengthening
	71+545	71+550	5	Widening &Strengthening
	71+550	71+640	90	Widening &Strengthening
	71+640	71+660	20	Widening &Strengthening
	71+660	71+760	100	Widening &Strengthening
	71+760	71+780	20	Widening &Strengthening
	71+780	71+830	50	Widening &Strengthening
	71+830	71+850	20	Widening &Strengthening
	71+850	71+915	65	Widening &Strengthening
	71+915	71+920	5	Widening &Strengthening
	71+920	71+950	30	Widening &Strengthening

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

	71+950	72+048	98	Realignment
	72+048	72+100	52	Realignment
	72+100	72+150	50	Widening &Strengthening
	72+150	72+780	630	Widening &Strengthening
	72+780	72+800	20	Widening &Strengthening
	72+800	72+835	35	Realignment
	72+835	72+865	30	Realignment
	72+865	72+890	25	Widening &Strengthening
	72+890	72+965	75	Widening &Strengthening
	72+965	73+005	40	Realignment
	73+005	73+255	250	Widening &Strengthening
	73+255	73+305	50	Realignment
	73+305	73+510	205	Widening &Strengthening
	73+510	73+515	5	Widening &Strengthening
	73+515	73+650	135	Widening &Strengthening
	73+650	73+690	40	Realignment
	73+690	73+760	70	Realignment
	73+760	73+850	90	Widening &Strengthening
	73+850	73+880	30	Realignment
	73+880	73+905	25	Realignment
	73+905	74+000	95	Widening &Strengthening
	74+000	74+050	50	Widening &Strengthening
	74+050	74+100	50	Widening &Strengthening
	74+100	74+160	60	Widening &Strengthening
	74+160	74+180	20	Widening &Strengthening
	74+180	74+230	50	Widening &Strengthening
	74+230	74+250	20	Widening &Strengthening
	74+250	74+255	5	Widening &Strengthening
	74+255	74+295	40	Realignment
	74+295	74+410	115	Widening &Strengthening
	74+410	74+430	20	Widening &Strengthening
	74+430	74+610	180	Widening &Strengthening
	74+610	74+640	30	Widening &Strengthening
	74+640	74+735	95	Widening &Strengthening
	74+735	74+920	185	Realignment
	74+920	74+970	50	Widening &Strengthening
	74+970	75+000	30	Realignment
	75+000	75+226	226	Realignment
	75+226	75+240	14	Realignment
	75+240	75+260	20	Realignment
	75+260	75+320	60	Widening &Strengthening
	75+320	75+380	60	Widening &Strengthening
	75+380	75+390	10	Widening &Strengthening

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

	75+390	75+400	10	Realignment
	75+400	75+530	130	Realignment
	75+530	75+555	25	Realignment
	75+555	75+560	5	Widening &Strengthening
	75+560	75+600	40	Widening &Strengthening
	75+600	75+690	90	Realignment
	75+690	75+800	110	Widening &Strengthening
	75+800	75+870	70	Realignment
	75+870	76+050	180	Widening &Strengthening
	76+050	76+110	60	Realignment
	76+110	76+300	190	Widening &Strengthening
	76+300	76+340	40	Widening &Strengthening
	76+340	76+400	60	Widening &Strengthening
	76+400	76+445	45	Realignment
	76+445	76+600	155	Widening &Strengthening
	76+600	76+640	40	Realignment
	76+640	76+660	20	Realignment
	76+660	76+730	70	Widening &Strengthening
	76+730	76+750	20	Widening &Strengthening
	76+750	76+950	200	Widening &Strengthening
	76+950	77+050	100	Widening &Strengthening
	77+050	77+110	60	Widening &Strengthening
	77+110	77+190	80	Widening &Strengthening
	77+190	77+300	110	Realignment
	77+300	77+320	20	Realignment
	77+320	77+420	100	Realignment
	77+420	77+440	20	Realignment
	77+440	77+500	60	Realignment
	77+500	77+530	30	Widening &Strengthening
	77+530	77+560	30	Widening &Strengthening
	77+560	77+630	70	Realignment
	77+630	77+670	40	Realignment
	77+670	77+700	30	Realignment
	77+700	77+780	80	Widening &Strengthening
	77+780	77+810	30	Widening &Strengthening
	77+810	77+850	40	Widening &Strengthening
	77+850	77+890	40	Realignment
	77+890	77+940	50	Realignment
	77+940	78+000	60	Realignment
	78+000	78+200	200	Widening &Strengthening
	78+200	78+360	160	Widening &Strengthening
	78+360	78+500	140	Widening &Strengthening
	78+500	78+540	40	Realignment

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

	78+540	78+550	10	Widening &Strengthening
	78+550	78+565	15	Widening &Strengthening
	78+565	78+590	25	Realignment
	78+590	78+705	115	Realignment
	78+705	78+710	5	Widening &Strengthening
	78+710	78+735	25	Widening &Strengthening
	78+735	78+750	15	Widening &Strengthening
	78+750	78+765	15	Realignment
	78+765	78+790	25	Realignment
	78+790	78+820	30	Widening &Strengthening
	78+820	78+830	10	Widening &Strengthening
	78+830	78+860	30	Widening &Strengthening
	78+860	78+945	85	Widening &Strengthening
	78+945	79+025	80	Realignment
	79+025	79+110	85	Realignment
	79+110	79+250	140	Widening &Strengthening
	79+250	79+590	340	Widening &Strengthening
	79+590	79+650	60	Widening &Strengthening
	79+650	79+700	50	Realignment
	79+700	79+750	50	Widening &Strengthening
	79+750	79+790	40	Realignment
	79+790	79+855	65	Realignment
	79+855	79+870	15	Realignment
	79+870	79+880	10	Widening &Strengthening
	79+880	79+960	80	Widening &Strengthening
	79+960	80+080	120	Widening &Strengthening
	80+080	80+100	20	Widening &Strengthening
	80+100	80+160	60	Realignment
	80+160	80+180	20	Widening &Strengthening
	80+180	80+310	130	Widening &Strengthening
	80+310	80+340	30	Widening &Strengthening
	80+340	80+420	80	Realignment
	80+420	80+600	180	Widening &Strengthening
	80+600	80+640	40	Realignment
	80+640	80+750	110	Widening &Strengthening
	80+750	80+800	50	Realignment
	80+800	80+810	10	Widening &Strengthening
	80+810	80+955	145	Widening &Strengthening
	80+955	80+975	20	Widening &Strengthening
	80+975	81+095	120	Widening &Strengthening
	81+095	81+140	45	Realignment
	81+140	81+200	60	Realignment
	81+200	81+210	10	Widening &Strengthening

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

	81+210	81+240	30	Widening &Strengthening
	81+240	81+250	10	Widening &Strengthening
	81+250	81+290	40	Realignment
	81+290	81+305	15	Realignment
	81+305	81+385	80	Widening &Strengthening
	81+385	81+410	25	Widening &Strengthening
	81+410	81+430	20	Widening &Strengthening
	81+430	81+470	40	Widening &Strengthening
	81+470	81+525	55	Widening &Strengthening
	81+525	81+540	15	Widening &Strengthening
	81+540	81+645	105	Realignment
	81+645	81+760	115	Realignment
	81+760	81+850	90	Widening &Strengthening
	81+850	81+870	20	Widening &Strengthening
	81+870	81+900	30	Realignment
	81+900	81+965	65	Realignment
	81+965	82+135	170	Widening &Strengthening
	82+135	82+160	25	Widening &Strengthening
	82+160	82+440	280	Widening &Strengthening
	82+440	82+465	25	Realignment
	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
	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
	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
	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
	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
	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

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

	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
	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
	84+850	85+390	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
	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	18613	

(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 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

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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)	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

c) Following structures shall be provided with footpaths:

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

d) All bridges shall be high-level bridges.

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

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

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

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

(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 (Km)	Chainage	Proposed Span (M)	Remark
1.	68+700		2.0x2.0	
2.	72+660		3.0x3.0	
3.	72+735		3.0x3.0	
4.	73+160		2.0x2.0	
5.	73+710		1.5x1.5	
6.	74+190		3.0x3.0	
7.	74+260		1.5x1.5	
8.	74+350		3.0x3.0	
9.	74+600		1.5x1.5	
10.	74+835		3.0x3.0	
11.	76+020		3.0x3.0	
12.	79+365		1.5x1.5	
13.	79+570		3.0x3.0	
14.	80+222		5.0x3.0	
15.	80+775		3.0x3.0	
16.	80+870		3.0x3.0	

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

Sr. No.	Design Chainage (Km)	Proposed Span (M)	Remark
17.	81+570	1.5x1.5	
18.	82+165	1.5x1.5	
19.	82+530	3.0x3.0	
20.	82+610	2.0x2.0	
21.	82+735	1.5x1.5	
22.	83+605	3.0x3.0	
23.	83+780	1.5x1.5	
24.	85+950	2.0x2.0	
25.	86+415	2.0x2.0	
26.	86+505	2.0x2.0	
27.	86+630	2.0x2.0	
28.	86+765	2.0x2.0	

* 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	

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

6.	84+115	1.5 x 1.5	RCC BOX	
7.	85+620	1.5 x 1.50	RCC BOX	

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 ,Catchpit ,apron & Return wall BHS balance)	2.0x2.0	LHS
2.	71+580	LHS Completed(Widening & Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance)	2.0x2.0	RHS
3.	71+980	LHS Completed(Widening & Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance)	2.0x2.0	RHS
4.	75+125	LHS Completed(Widening & Catchpit ,Apron & Return wall BHS balance)	2.0x2.0	RHS
5.	79+004	Half Culvert LHS(Widening & Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance)	3.0x3.0	RHS
6.	80+963	Half Culvert RHS (Widening & Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance)	3.0x3.0	LHS
7.	81+128	Half Culvert LHS (Widening & Catchpit ,apron & Return wall BHS balance)	2.0x2.0	RHS
8.	81+320	Half Culvert RHS (Widening & ,Catchpit ,apron balance)	2.0x2.0	LHS
9.	81+710	Half Culvert RHS (Widening & Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance)	2.0x2.0	LHS

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	Catchpit & apron balance	1.5x1.5
2.	64+335	Catchpit & apron balance	1.5x1.5
3.	64+490	Catchpit & apron balance	1.5x1.5

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

Sl. No.	Design Chainage (km)	Proposal	Span (m)
4.	64+615	Catchpit ,apron & Return wall RHS balance	1.5x1.5
5.	64+750	Catchpit ,& Return wall BHS balance	3.0x3.0
6.	65+371	Catchpit & apron balance	1.5x1.5
7.	65+555	Catchpit & apron balance	1.5x1.5
8.	65+658	Catchpit & apron balance	1.5x1.5
9.	66+505	Parapet wall BHS ,Catchpit & apron balance	1.5x1.5
10.	66+725	Catchpit ,apron & Return wall BHS balance	3.0x3.0
11.	66+900	Catchpit ,apron & Return wall BHS balance	2.0x2.0
12.	67+275	Catchpit & apron balance	1.5x1.5
13.	67+336	Catchpit ,apron & Return wall BHS balance	2.0x2.0
14.	67+590	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	1.5x1.5
15.	67+850	Catchpit & apron balance	2.0x2.0
16.	67+922	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	2.0x2.0
17.	68+000	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	1.5x1.5
18.	68+135	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	1.5x1.5
19.	68+520	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	2.0x2.0
20.	68+655	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	1.5x1.5
21.	68+855	Catchpit & apron balance	2.0x2.0
22.	68+966	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	2.0x2.0
23.	69+056	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	1.5x1.5
24.	69+128	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	2.0x2.0
25.	69+508	Parapet wall BHS ,Catchpit ,apron & Return wall BHS	2.0x2.0

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

Sl. No.	Design Chainage (km)	Proposal	Span (m)
		balance	
26.	69+540	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	2.0x2.0
27.	69+715	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	3.0x3.0
28.	69+805	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	2.0x2.0
29.	70+095	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	2.0x2.0
30.	70+250	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	2.0x2.0
31.	70+505	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	1.5x1.5
32.	70+680	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	2.0x2.0
33.	70+830	,Catchpit & apron balance	1.5x1.5
34.	70+942	Catch pit ,apron & Return wall BHS balance	2.0x2.0
35.	71+070	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	2.0x2.0
36.	71+355	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	2.0x2.0
37.	71+493	Parapet wall BHS ,Catchpit ,apron & Return wall LHS balance	2.0x2.0
38.	72+060	Parapet wall BHS ,Catchpit ,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 ,Catchpit ,apron & Return wall BHS balance	2.0x2.0
42.	72+810	Parapet wall BHS ,Catchpit ,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 Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

Sl. No.	Design Chainage (km)	Proposal	Span (m)
43.	72+955	Parapet wall BHS ,Catchpit & apron balance	2.0x2.0
44.	73+390	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	2.0x2.0
45.	75+225	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	2.0x2.0
46.	75+370	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	2.0x2.0
47.	75+475	Parapet wall RHS ,Catchpit ,apron & Return wall BHS balance	2.0x2.0
48.	75+642	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	2.0x2.0
49.	75+760	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	1.5x1.5
50.	76+055	Catchpit & Apron balance	3.0x3.0
51.	76+168	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	1.5x1.5
52.	76+528	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	2.0x2.0
53.	76+665	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	2.0x2.0
54.	76+802	Parapet wall BHS ,Catchpit & Apron balance	2.0x2.0
55.	76+960	Parapet wall BHS ,Catchpit & Apron balance	3.0x3.0
56.	77+256	Parapet wall BHS ,Catchpit & Apron balance	1.5x1.5
57.	77+420	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	1.5x1.5
58.	77+570	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	1.5x1.5
59.	77+640	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	2.0x2.0
60.	77+870	Parapet wall BHS ,Catchpit ,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 Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

Sl. No.	Design Chainage (km)	Proposal	Span (m)
61.	78+140	Parapet wall BHS ,Catchpit , apron & Return wall BHS balance	1.5x1.5
62.	78+210	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	1.5x1.5
63.	78+490	Parapet wall BHS ,Catchpit ,apron & Return wall LHS balance	2.0x2.0
64.	78+840	Parapet wall BHS ,Catchpit ,apron & Return wall RHS balance	3.0x3.0
65.	79+402	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	2.0x2.0
66.	79+605	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	1.5x1.5
67.	79+722	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	2.0x2.0
68.	79+810	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	1.5x1.5
69.	79+910	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	3.0x3.0
70.	80+020	Parapet wall BHS ,Catchpit ,apron & Return wall BHS balance	2.0x2.0
71.	82+040	Parapet wall BHS ,Catchpit ,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.	Bridge	Salient Details of Existing Bridges	Adequacy or	Remarks
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“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

No.	Location (Km)	Span Arrangement (M)	Carriageway width (M)	Total width (M)	Type of Superstructure	Type of Foundation	Otherwise of the Existing Waterway, Vertical Clearance etc.	
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**

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		

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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		

(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		

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

(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

Sl 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 all locations 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

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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
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 kerbs (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

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

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	

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Sr. No.	Design Chainage (M)		Side	Type of Deficiency	Remarks
	From	To			
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	
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	

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

Sr. No.	Design Chainage (M)		Side	Type of Deficiency	Remarks
	From	To			
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	
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	

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

Sr. No.	Design Chainage (M)		Side	Type of Deficiency	Remarks
	From	To			
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	
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

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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

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

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Sr. No.	From Design Chainage (in M)	To Design Chainage (in M)	Length (M)
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
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

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

Sr. No.	From Design Chainage (in M)	To Design Chainage (in M)	Length (M)
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
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

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

Sr. No.	From Design Chainage (in M)	To Design Chainage (in M)	Length (M)
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
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

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Sr. No.	From Design Chainage (in M)	To Design Chainage (in M)	Length (M)
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
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

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Sr. No.	From Design Chainage (in M)	To Design Chainage (in M)	Length (M)
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
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

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Sr. No.	From Design Chainage (in M)	To Design Chainage (in M)	Length (M)
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
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

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Sr. No.	From Chainage (in M)	To Chainage (in M)	Length (M)
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

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.

12.3 Disposal of Debris: - As per Manual

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

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variations in the length, height and width arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.

SCHEDULE - C
(See Clause 2.1)

PROJECT FACILITIES

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:

- (bb) Toll Plaza - Nil
- (cc) Pedestrian facilities - As described
- (dd) Tree plantation - As described
- (ee) Bus shelters - As described
- (ff) 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	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

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ensure safety of pedestrians while crossing in consultation with NHIDCL. This should include (a) minimum Zebra Crossing with flashing Beacon or (b) Zebra Crossing with separate pedestrian path or (c) any other provision as approved by AE.

Landscaping

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.

- 1.1 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.
- 1.2 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 <u>Annexure-III of Schedule A.</u>
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

SCHEDULE - E

(See Clauses 2.1 and 14.2)

MAINTENANCE REQUIREMENTS

1. Maintenance Requirements

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

2.Repair/Rectification of Defects and Deficiencies

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

3. Other Defects and Deficiencies

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

4. Extension of Time Limit

Notwithstanding anything to the contrary specified in this Schedule-E, if the nature and extent of

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any Defect or deficiency justifies more time for its repair or rectification than the time specified herein, the Contractor shall be entitled to additional time in conformity with Good Industry Practice. Such additional time shall be determined by the Authority’s Engineer and conveyed to the Contractor and the Authority with reasons thereof.

5. Emergency Repairs/Restoration

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

6. Daily inspection by the Contractor

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

7. Pre-monsoon Inspection / Post-monsoon Inspection

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

8. Repairs on account of natural calamities

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

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Annex - I

(Schedule-E)

Repair/rectification of Defects and Deficiencies

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

Nature of Defect or deficiency		Time limit for repair/rectification
ROADS		
(a)	Carriageway and paved shoulders	
(i)	Breach or blockade	Temporary restoration of traffic within 24 hours; permanent restoration within 15 (fifteen) days
(ii)	Roughness value exceeding 2,200 m/min stretch of 1 km (as measured by a calibrated bump integrator)	120 (one hundred and twenty) days
(iii)	Pot holes	24 hours
(iv)	Any cracks in road surface	15 (fifteen) days
(v)	Any depressions, rutting exceeding 10 mm in road surface	30 (thirty) days
(vi)	Bleeding/skidding	7 (seven) days
(vii)	Any other 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/crossfall (shall not be less than the camber on the main carriageway)	7 (seven) days
(ii)	Edge drop at shoulders exceeding 40 mm	7 (seven) days
(iii)	Variation by more than 15% in the prescribed side (embankment) slopes	30 (thirty) days
(iv)	Rain cuts/gullies in slope	7 (seven) days
(v)	Damage to or silting of culverts and side drains	7 (seven) days
(vi)	Desilting of drains in urban/semi-urban areas	24 hours
(vii)	Railing, parapets, crash barriers	7 (seven) days (Restore immediately if causing safety hazard)
(c)	Road side furniture including road sign and	

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Nature of Defect or deficiency		Time limit for repair/rectification
	pavement marking	
(i)	Damage to shape or position, poor visibility or loss of retro-reflectivity	48 hours
(ii)	Painting of km stone, railing, parapets, crash barriers	As and when required/Once every year
(iii)	Damaged/missing road signs requiring replacement	7 (seven) days
(iv)	Damage to road mark ups	7 (seven) days
(d)	Road Lighting	
(i)	Any major failure of the system	24hours
(ii)	Faults and minor failures	8 hours
(e)	Trees and Plantation	
(i)	Obstruction in a minimum head-room of 5 m above carriageway or obstruction in visibility of road signs	24hours
(ii)	Removal of fallen trees from carriageway	4 hours
(iii)	Deterioration in health of trees and bushes	Timely watering and treatment
(iv)	Trees and bushes requiring replacement	30 (thirty) days
(v)	Removal of vegetation affecting sight line and road structures	15(fifteen)days
(f)	Rest Area	
(i)	Cleaning of toilets	Every 4 hours
(ii)	Defects in electrical, water and sanitary installations	24hours
(g)	Toll Plazas	
(h)	Other Project Facilities and Approach Roads	
(i)	Damage in approach roads, pedestrian facilities, truck lay-byes, bus-bays, bus-shelters, cattle crossings, [Traffic Aid Posts, Medical Aid Posts] and service roads	15(fifteen)days
(ii)	Damaged vehicles or debris on the road	4 (four) hours
(iii)	Malfunctioning of the mobile crane	4 (four) hours
Bridges		
(a)	Superstructure	
(i)	Any damage, cracks, spalling/ scaling Temporary measures Permanent measures	within 48 hours within15(fifteen) days or as specified by the Authority’s Engineer
(b)	Foundations	
(i)	Scouring and/or cavitation	15(fifteen)days
(c)	Piers, abutments, return walls and wing walls	

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Nature of Defect or deficiency		Time limit for repair/rectification
(i)	Cracks and damages including settlement and tilting, spalling, scaling	30 (thirty) days
(d)	Bearings (metallic) of bridges	
(i)	Deformation, damages, tilting or shifting of bearings	15(fifteen)days Greasing of metallic bearings once in a year
(e)	Joints	
(i)	Malfunctioning of joints	15(fifteen)days
(f)	Other items	
(i)	Deforming of pads in elastomeric bearings	7 (seven) days
(ii)	Gathering of dirt in bearings and joints; or clogging of spouts, weep holes and vent-holes	3 (three) days
(iii)	Damage or deterioration in kerbs, parapets, handrails and crash barriers	3 (three) days (immediatelywithin24hoursifposing 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.]

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.

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SCHEDULE - G

(See Clauses 7.1.1, 7.5.3 and 19.2)

FORM OF BANK GUARANTEE

Annex-I

(See Clause7.1.1)

Performance Security

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

WHEREAS:

_____ [name and address of contractor] (hereinafter called the “**Contractor**”) and Managing Director, NHIDCL, PTI Building, 3rd Floor, 4, Parliament Street, New Delhi-110001 (hereinafter called the “**Authority**”) have entered into an agreement (hereinafter called the “**Agreement**”) for the RFP “**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–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode**”, subject to and in accordance with the provisions of the Agreement

- A. The Agreement requires the Contractor to furnish a Performance Security for due and faithful performance of its obligations, under and in accordance with the Agreement, during the {Construction Period/ Defects Liability Period and Maintenance Period} (as defined in the Agreement) in a sum of Rs..... cr. (Rupees crore) (the “**Guarantee Amount**”).
- B. We, through our branch at (the “**Bank**”) have agreed to furnish this bank guarantee (hereinafter called the “**Guarantee**”) for the amount of Rs. - ----- cr. (Rs. -----crore) (the “**Guarantee Amount**”).

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

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful performance of the Contractor’s obligations during the {Construction Period/ Defects Liability Period and Maintenance Period} under and in accordance with 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

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- 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, fulfillment and/or performance of all or any of the obligations of the Contractor contained in the Agreement or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.
 6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Agreement or for the 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.

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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.

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

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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 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 through 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
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:

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- (i) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.
- (ii) The address, telephone number and other details of the head office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing branch.

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Annex – 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 on EPC basis from existing Km 76+640 to Km 98+065 [Design Km. 63+800 to Km. 86+835] (Design Length–23.035Km) (Package IV)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, 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 Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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 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 periods specified in paragraph 8 below and unless a demand or claim in writing is made

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

8. The Guarantee shall cease to be in force and effect 90 (ninety) days after the date of the Completion Certificate specified in Clause 12.4 of 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 through 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
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

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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 Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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–23.035Km) (Package IV)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 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.

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length- 23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

(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 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.
-

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length–23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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.

[§] 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 Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length- 23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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

For and on behalf of the Bank by:

(Signature)

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length– 23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

(Name) (Designation) (Code Number) (Address)

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length- 23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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:

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

Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage to Particular item (col.2)
1	2	3	4
Road works including culverts widening and repair of culverts.	45.928%	A- Widening and strengthening of existing road	
		(1) Earthwork up to top of the sub-grade including excavation in soil/soft rock/ hard rock and clearing & grubbing	0.289%
		(2) Sub Base Course.	3.386%
		(3) Non-Bituminous Base Course.	5.921%
		(4) Bituminous Base Course.	5.199%
		(5) Wearing Coat.	6.005%
		(6) Widening, reconstruction and repair of culverts	1.008%
		(7) Hard Shoulder	3.531%
		B.1 - Reconstruction/New 2 - lane realignment/ bypass - (Flexible pavement)	
		(1) Earthwork up to top of the sub-grade including excavation in soil/soft rock/ hard rock and clearing & grubbing	0.246%
		(2) Sub Base Course	0.978%
		(3) Non-Bituminous Base Course	2.605%
		(4) Bituminous Base course	2.034%

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length– 23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

		(5) Wearing Coat	1.882%
		(6) Hard Shoulder	1.757%
		B.2- Reconstruction/New 2 - lane realignment/ bypass - Rigid Pavement	
		(1) Earthwork up to top of the sub-grade including excavation in soil/soft rock/ hard rock and clearing & grubbing	
		(2) Sub Base Course	
		(3) Dry Lean Concrete (DLC) Course	
		(4) Pavement Quality Control (PQC) Course	
		C.1- Reconstruction/ New service road- Flexible Pavement	
		(1) Earthwork up to top of the sub-grade including excavation in soil/soft rock/ hard rock and clearing & grubbing	
		(2) Sub Base Course.	
		(3) Non-Bituminous Base Course	
		(4) Bituminous Base Course	
		(5) Wearing Coat	
		C.2- Reconstruction/ New service road- Rigid Pavement	
		(1) Earthwork up to top of the sub-grade including excavation in soil/soft rock/ hard rock and clearing & grubbing	
		(2) Sub Base Course	
		(3) Dry Lean Concrete (DLC) Course	
		(4) Pavement Quality Control (PQC) Course	
		D- Reconstruction, New culverts and widening on existing road, realignment, bypasses.	
		(1) Culverts (length <6m)	7.842%
		(1) Culverts (length <6m)	3.245%
Minor Bridge / Underpasses / Overpass	6.623%	A.1-Widening and repair of Minor Bridge (length >6m <60m)	
		(1) Minor bridge	
		A.2-New Minor Bridge (length >6m <60m)	

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		(1) Foundation + substructure: On completion of the foundation of the foundation work including foundation for wing and return walls, abutment, piers up to the abutment/pier cap	4.669%
		(2) Super-structure: On completion of the super structure in all respects including wearing coat, bearings, road signs & markings, tests in completion etc. complete in all respect.	1.062%
		(3) Approaches: On completion of approaches including Retaining walls/ Reinforced Earth walls, stone pitching, protection works complete in all respect and fit for use.	0.892%
		(4) guide bunds and river training works	
		B1-Widening and repair of under pass and over pass	
		under pass / over pass	
		B2-New under pass and over pass	
		(1)Foundation + substructure	
		(2)Super-structure	
		(3) approaches	
Other works	47.449%		
		(i) Toll Plaza	
		(ii) Road side drains	4.824%
		(iii) Road signs, markings, km stones, boundary stones, safety devices etc.	
		a) Pavement Marking	0.386%
		b) Crash Barrier/ W-metal crash barrier	1.076%
		c) Road / Traffic sign	0.614%
		d) Road boundary stone, km stone, 5th km stone, Hecto meter stone, other items etc.	0.030%
		e) Traffic blinker, LED delineators, studs, reflective pavement markers, tree reflectors	0.718%
		f) Road furniture (over head sign board, Cantilever etc.)	0.050%
		<u>(iv) Project facilities</u>	
		a) Bus bye / Bus shelter	0.122%

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	b) Junctions - (Major & Minor)	3.746%
	c) Others including construction of median & median kerb with channel paint, Rumble Strip etc.	0.324%
	(v) Road side Plantation	
	(vi) Repairs of protection works other than approaches to the bridges, elevated sections/ flyover/grade separators and ROBS/RUBs	
	(vii) Safety and traffic management during construction	
	(vi) Slope protection works as special requirement for hill road	
	(a) Hydro seeding	0.035%
	(b) Seeding and Mulching with jute net	0.473%
	(c) Catch water drain	0.279%
	(d) Retaining Structure on valley side of PCC/RCC/Gabion/Cement Masonry of Varying height between 1 to 6 meter with parapet walls	24.910%
	(e) Reinforced earth wall	3.747%
	(f) Breast wall	5.614%
	(g) Sub Surface drain with perforated pipe for collection of seepage water to avoid sinking of pavement	0.216%
	(h) Parapet wall	0.285%

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1.2 Procedure of estimating the value of work done

1.1.1 Roadworks

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

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
Table 1.3.1		
A-Widening and Strengthening of existing road		
(1) Earthwork up to top of the sub-grade including excavation in soil, soft rock and hard rock, removal of unserviceable soil etc.	0.289	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	3.386	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	5.921	
(4) Bituminous Base Course	5.199	
(5) Wearing coat	6.005	
(6) Widening with construction of balance work in existing Culverts	1.008	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.
(7) Hard Shoulder	3.531	Unit of measurement is linear length. Payment to each stage shall be made on prorata basis on completion of a stage in a length of not less than 5(five) percent to the total 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.	0.246	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

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STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
		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	0.978	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	2.605	
(4) Bituminous Base Course	2.034	
(5) Wearing coat	1.882	
(6) Hard Shoulder	1.757	
B 2- Reconstruction / New two lane alignment / bypass (Rigid pavement)		
(1) Earthwork up to top of the sub-grade	(Nil)	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m. In case of Hill Cutting, the payment procedure will be as under : Hill Cutting : 40% of weightage of A (1) Preparation of Sub-Grade: 60% of weightage of A (1)
(2) Earthwork in shoulders	[Nil]	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m.
(3) Sub Base Course	[Nil]	
(4) Dry Lean Concrete (DLC) Course	[Nil]	
(5) Pavement Quality Control (PQC) course	[Nil]	
C 1- Reconstruction / New Service road/ Slip Road (Flexible pavement)		
(1) Earthwork up to top of the sub-grade including shoulder	[Nil]	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m. In case of Hill Cutting, the payment procedure will be as under : Hill Cutting: 40% of weightage of A (1) Preparation of Sub-Grade: 60% of weightage of A (1)
(2) Sub Base Course	[Nil]	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m.
(3) Non-Bituminous Base Course	[Nil]	
(4) Bituminous Base Course	[Nil]	
(5) Wearing coat	[Nil]	

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STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
C 2- Reconstruction / New Service Road (Rigid pavement)		
(1) Earthwork up to top of the sub-grade	[Nil]	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m. In case of Hill Cutting, the payment procedure will be as under: Hill Cutting: 40% of weightage of A (1) Preparation of Sub-Grade: 60% of weightage of A (1)
(2) Sub Base Course	[Nil]	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m.
(3) Dry Lean Concrete (DLC) Course	[Nil]	
(4) Pavement Quality Control (PQC) course	[Nil]	
D - Reconstruction and New culverts on existing road, Realignment, bypasses:		
(1) Reconstruction&NewCulvertsonexistingroad,realignments,bypassesCulverts(length<6m)	7.842	Cost of each culvert shall be determined on pro rata basis with respect to the total no. of culverts. Payment shall be made on the completion of at least 01 (One) culvert.
(2) Construction of balance work & associated Protection Works in existing culverts on existing road, realignments, bypasses Culverts (length <6m)	3.245	

@ 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:

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

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

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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	4.669	(1) Foundation: Payment against Foundation shall be made on pro rata basis on completion of atleast two foundations. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2) Sub-structure: on completion of abutments, piers upto the abutment/pier cap.		(2) Sub Structure: Payment against Sub Structure shall be made on pro rata basis on completion of atleast two sub structures upto abutment / pier cap level of each bridge.
(3) Superstructure : on completion of super-structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road signs & markings, tests on completion etc. complete in all respect.	1.062	(3) Super structure: Payment shall be made on pro rata basis on completion of a stage i.e. completion of super structure of atleast one span in all respect as specified in the column of " Stage of Payment" in this Sub-clause.
(4) Approaches: on completion of approaches including Retaining walls, stone pitching, protection works complete in all respect and fit for use.	0.892	(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.

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

1.1.3 Major Bridge works, ROB/RUB and Structures.

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

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length– 23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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/returnwalls complete in all respects as specified.
(7) Guide bunds, River Training works etc.	[Nil]	(vii) Guide Bonds, River Training works: Payments shall be made on completion of all guide bunds/river training works etc. complete in all respects as specified.
(8) Approaches (including Retaining walls, stone pitching and protection works)	[Nil]	(viii) Approaches: Payment shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified.
A 2 - New Major bridges		Cost of each structure shall be determined on pro rata basis in respect to the total liner length (m) of all the structures. Payments shall be made on completion of each stage of structures as per weightage given in this table.
(1) Foundation: Foundation for abutment, piers	[Nil]	(1) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of a bridge as per weightage given in this table, subject to completion of at least two foundations in all respect. In case load testing is required for foundation, the trigger for first payment shall include load testing also where specified.

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length– 23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length– 23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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

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

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STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
retaining walls/reinforced earth walls etc.		
(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.
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.

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STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
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)		
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.

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STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
(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.
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.

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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 %
(ii) Road side drains	4.824	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	0.386	
Crash barrier/W metal crash barrier	1.076	
Traffic Sign	0.614	
Road Boundary stone, km Stone,5th km stone and hectometer stone	0.030	
Traffic blinker LED delineator, stud, reflective payment marker, tree reflector	0.718	
Road furniture (overhead signboard etc.)	0.050	
Others including construction of median& median curb with channel & paint and rumble strip	0.324	
(v) Project facilities		
(a) Bus Bays& Passenger Shelter	0.122	
(b) Truck lay byes	[Nil]	

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(c) Junction	3.746	
(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	0.284	
(b) Retaining wall	24.910	
(c) Breast Wall	5.614	
(d) Re-wall	3.747	
(ix) Safety and traffic management during construction	[Nil]	Payment shall be made on pro-rata basis every six months.
(x) Hydro seeding	0.035	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	0.473	
Catch water Drain	0.279	
Sub Surface drain with perforated pipe for collection of seepage water to avoid sinking of pavement	0.216	

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 - J

(See Clause 10.3(ii))

Project CompletionSchedule

1. Project Completion Schedule

During Construction period, the Contractor shall comply with the requirements set forth in this Schedule-J for each of the Project Milestones and the **Scheduled Completion Date**. Within 15 (fifteen) days of the date 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. ProjectMilestone-III

- (i) Project Milestone-III shall occur on the date falling on the[621st] day from the Appointed Date (the “**Project Milestone-III**”).
- (ii) Prior to the occurrence of Project Milestone-III, the Contractor shall have continued with construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 70% (seventy per cent) of the Contract Price and should have started construction of all project facilities

5. Scheduled CompletionDate

- (i) The Scheduled Completion Date shall occur on the [730th] day from the Appointed Date.
 - (ii) On or before the Scheduled Completion Date, the Contractor shall have completed construction in accordance with this Agreement.
-

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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 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

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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 roadon EPC basis from existing Km 76+640 to Km 98+065 [Design Km. 63+800 to Km. 86+835] (Design Length-23.035Km) (Package IV)in the state of Nagaland under SARDP-NE Phase A on EPC Mode”**,

- 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 Punch List.
3. In view of the foregoing, I am satisfied that the Project Road ***Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon roadon EPC basis from existing Km 76+640 to Km 98+065 [Design Km. 63+800 to Km. 86+835] (Design Length- 23.035Km) (Package IV)in the state of Nagaland under SARDP-NE Phase A on EPC Mode*** can be safely and reliably placed in service of the Users thereof, and in terms of the Agreement, the Project Highway is hereby provisionally declared fit for entry into operation on this the day of 20.....

ACCEPTED,SIGNED,SEALED

SIGNED, SEALEDAND

ANDDELIVERED

DELIVERED

For and on behalf of

for and on behalf of

CONTRACTOR by: AUTHORITY’s ENGINEER by:

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 roadon EPC basis from existing Km 76+640 to Km 98+065 [Design Km. 63+800 to Km. 86+835] (Design Length-23.035Km) (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 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)

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%

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length– 23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

(iii)	Painting, repairs/replacement kerbs, railings, parapets, guideposts/crash barriers	5%
(d)	Roadside Drains	
(i)	Cleaning and repair of drains	5%
(e)	Road Furniture	
(i)	Cleaning, painting, replacement of road signs, delineators, road markings, 200 m/km/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.

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–23.035Km) (Package IV)in the state of Nagaland under SARDP-NE Phase A on EPC Mode”**, 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 inter pretation

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.

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length– 23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

- 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 Clause18.2.
- 3.5 The Authority’s Engineer shall aid and advise the Authority on any proposal for Change of Scope under Article13.
- 3.6 In the event of any disagreement between the Parties regarding the meaning, scope and nature of Good Industry Practice, as set forth in any provision of the Agreement, the Authority’s Engineer shall specify such meaning, scope and nature by issuing a reasoned written statement relying on good industry practice and authentic literature.
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4 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 Clause10.4.
- 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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“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length– 23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

- 4.7 The Authority’s Engineer shall inspect the Construction Works and the Project Highway and shall submit a monthly Inspection Report bringing out the results of inspections and the remedial action taken by the Contractor in respect of Defects or deficiencies. In particular, the Authority’s Engineer shall include in its Inspection Report, the compliance of the recommendations made by the Safety Consultant.
- 4.8 The Authority’s Engineer shall conduct the pre-construction review of manufacturer's test reports and standard samples of manufactured Materials, and such other Materials as the Authority’s Engineer may require.
- 4.9 For determining that the Works conform to Specifications and Standards, the Authority’s Engineer shall require the Contractor to carry out, or cause to be carried out, tests at such time and frequency and in such manner as specified in the Agreement and in accordance with Good Industry Practice for quality assurance. For purposes of this Paragraph 4.9, the tests specified in the IRC Special Publication-11 (Handbook of Quality Control for Construction of Roads and Runways) and the Specifications for Road and Bridge Works issued by MORTH (the “Quality Control Manuals”) or any modification/substitution thereof shall be deemed to be tests conforming to Good Industry Practice for quality assurance.
- 4.10 The Authority’s Engineer shall test check at least 20 (twenty) percent of the quantity or number of tests prescribed for each category or type of test for quality control by the Contractor.
- 4.11 The timing of tests referred to in Paragraph 4.9, and the criteria for acceptance/ rejection of their results shall be determined by the Authority’s Engineer in accordance with the Quality Control Manuals. The tests shall be undertaken on a random sample basis and shall be in addition to, and independent of, the tests that may be carried out by the Contractor for its own quality assurance in accordance with Good Industry Practice.
- 4.12 In the event that results of any tests conducted under Clause 11.10 establish any Defects or deficiencies in the Works, the Authority’s Engineer shall require the Contractor to carry out remedial measures.
- 4.13 The Authority’s Engineer may instruct the Contractor to execute any work which is urgently required for the safety of the Project Highway, whether because of an accident, unforeseeable event or otherwise; provided that in case of any work required on account of a Force Majeure Event, the provisions of Clause 21.6 shall apply.
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“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length– 23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

- 4.14 In the event that the Contractor fails to achieve any of the Project Milestones, the Authority’s Engineer shall undertake a review of the progress of construction and identify potential delays, if any. If the Authority’s Engineer shall determine that completion of the Project Highway is not feasible within the time specified in the Agreement, it shall require the Contractor to indicate within 15 (fifteen) days the steps proposed to be taken to expedite progress, and the period within which the Project Completion Date shall be achieved. Upon receipt of a report from the Contractor, the Authority’s Engineer shall review the same and send its comments to the Authority and the Contractor forthwith.
- 4.15 The Authority’s Engineer shall obtain from the Contractor a copy of all the Contractor’s quality control records and documents before the Completion Certificate is issued pursuant to Clause12.4.
- 4.16 Authority’s Engineer may recommend to the Authority suspension of the whole or part of the Works if the work threatens the safety of the Users and pedestrians. After the Contractor has carried out remedial measure, the Authority’s Engineer shall inspect such remedial measures forthwith and make a report to the Authority recommending whether or not the suspension hereunder may 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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“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length– 23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

- 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).
 - 7.2 Authority’s Engineer shall-
-

“Balance Work of Construction of Two-Lane with hard shoulders of Merangkong Tamlu Mon road on EPC basis from existing Km76+640toKm98+065[DesignKm.63+800 to Km.86+835] (Design Length– 23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode”

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

8. Other duties and functions

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

9 Miscellaneous

- 9.1 A copy of all communications, comments, instructions, Drawings or Documents sent by the Authority’s Engineer to the Contractor pursuant to this TOR, and a copy of all the test results with comments of the Authority’s Engineer thereon, shall be furnished by the Authority’s Engineer to the Authority forthwith.
- 9.2 The Authority’s Engineer shall retain at least one copy each of all Drawings and Documents received by it, including ‘as-built’ Drawings, and keep them in its safe custody.
- 9.3 Within 90 (ninety) days of the Project Completion Date, the Authority’s Engineer shall obtain a complete set of as-built Drawings, in 2 (two) hard copies and in micro film form or in such other medium as may be acceptable to the Authority, reflecting the Project Highway as actually designed, engineered and constructed, including an as-built survey illustrating the layout of the Project Highway and setback lines, if any, of the buildings and structures forming part of Project Facilities; and shall hand them over to the Authority against receipt thereof.
- 9.4 The Authority’s Engineer, if called upon by the Authority or the Contractor or both, shall mediate and assist the Parties in arriving at an amicable settlement of any Dispute between the Parties.
- 9.5 The Authority’s Engineer shall inform the Authority and the Contractor of any event of Contractor’s Default within one week of its occurrence.
-

SCHEDULE - 0

(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
- (e) amount towards deduction of taxes

3. Contractor's claim for Damages

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

SCHEDULE - P

(See Clause 20.1)

INSURANCE

1. Insurance during Construction Period

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

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

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

2. Insurance for Contractor's Defects Liability

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

3. Insurance against injury to persons and damage to property

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

any person (except persons insured under Clause 20.9), which may arise out of the Contractor's performance of this Agreement. This insurance shall be for a limit per occurrence of not less than the amount stated below with no limit on the number of occurrences.

The insurance cover shall be not less than 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.

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.

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- 23.035Km) (Package IV) in the state of Nagaland under SARDP-NE Phase A on EPC Mode 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)
