

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

Schedule A, B, D and H

FOR

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Engineering, Procurement & Construction (EPC) Mode

BID DOCUMENT

February 2018



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

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

SCHEDULE - A
(See Clauses 2.1 and 8.1)

SITE OF THE PROJECT

1 The Site

- 1.1 Site of the Two-Laning of Existing **Chakabama - Zunheboto Road** on EPC basis from Existing km 100+345 to km 122+250 (Design km **95+000 to km 115+534**) in the state of Nagaland under SARDP-NE, Project Highway shall include the land, buildings, structures and road works as described in **Annex-I** of this Schedule-A.

The Project alignment is approachable for all location for execution of works.

- 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's Representative and the Contractor, and such inventory shall form part of the memorandum referred to in Clause 8.2.1 of this Agreement.
- 1.4 The alignment plans of the Project Highway are specified in **Annex-III**. In the case of sections where no modification in the existing alignment of the Project Highway is contemplated, the alignment plan has not been provided. Alignment plans have only been given for sections where the existing alignment is proposed to be upgraded. The proposed profile of the Project Highways shall be followed by the contractor with minimum FRL as indicated in the alignment plan. The Contractor, however, may improve/upgrade the road profile as indicated in Annexure-III based on site/design requirement.
- 1.5 The status of the environment clearances obtained or awaited is given in **Annex-IV**.

Annex I (Schedule-A)

1. Site

- 1.1 Existing **Chakabama-Zunheboto Road** is 122.250 Km in length and after DPR preparation the designated length is 115.534 Km. The complete road has been divided into five Packages for construction. The packages are as follows-

S. No.	Package Name	Existing Chainage(Km)		Design Chainage(Km)		Design Length (Km)
		From	To	From	To	
1	Package-1	0+000	25+760	0+000	25+000	25.000
2	Package-2	25+760	52+370	25+000	50+000	25.000
3	Package-3	52+370	79+040	50+000	75+000	25.000
4	Package-4	79+040	100+345	75+000	95+000	20.000
5	Package-5	100+345	122+250	95+000	115+534	20.534

The site for the instant work i.e. design Km 95.00 to design Km 115.534 is either single lane or proposed for re-alignments. The Site of the [Single Lane] Project Highway comprises of Chakabama - Zunheboto road commencing from Existing km 100.345 to km 122.250 (Design km 95+000 to km 115+534) in the State of Nagaland. The road is of sub-standard single lane with poor road surface, passing through mountainous/steep terrain, in general. The road is deficient in geometric features at almost all locations. The stretch lies within Phek and Zunheboto districts of Nagaland State.

The project corridor passes through Zhekiye, Shoixe, Sukhalu, and Zunheboto Town.

There are certain stretches along Project Highway wherein construction activities (earthwork in excavation) have been commenced by agency under previously awarded terminated works.

The consolidated statement of Existing Chainage, Design Chainage, Improvement Proposal and Construction carried out fully or partially by Previous Contractor is as tabulated below-

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
1	0+000	0+350	350	0+000	0+350	350	Widening and Strengthening	Earthwork in Excavation
2	0+350	0+590	240	0+350	0+550	200	Realignment	Earthwork in ¹ Excavation

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
3	0+590	0+907	317	0+550	0+850	300	Widening and Strengthening	Earthwork in Excavation
4	0+907	1+007	100	0+850	0+900	50	Realignment	Earthwork in Excavation
5	1+007	1+030	23	0+900	0+920	20	Widening and Strengthening	Earthwork in Excavation
6	1+030	1+107	77	0+920	0+990	70	Realignment	Earthwork in Excavation
7	1+107	1+205	98	0+990	1+100	110	Widening and Strengthening	Earthwork in Excavation
8	1+205	1+267	62	1+100	1+150	50	Realignment	Earthwork in Excavation
9	1+267	1+580	313	1+150	1+450	300	Widening and Strengthening	Earthwork in Excavation
10	1+580	1+627	47	1+450	1+490	40	Realignment	Earthwork in Excavation
11	1+627	2+400	773	1+490	2+250	760	Widening and Strengthening	Earthwork in Excavation
12	2+400	2+464	64	2+250	2+300	50	Realignment	Earthwork in Excavation
13	2+464	2+518	54	2+300	2+350	50	Widening and Strengthening	Earthwork in Excavation
14	2+518	2+600	82	2+350	2+420	70	Realignment	Earthwork in Excavation
15	2+600	2+742	142	2+420	2+570	150	Widening and Strengthening	Earthwork in Excavation
16	2+742	2+985	243	2+570	2+780	210	Realignment	Earthwork in Excavation
17	2+985	3+125	140	2+780	2+910	130	Widening and Strengthening	Earthwork in Excavation
18	3+125	3+184	59	2+910	2+970	60	Realignment	Earthwork in Excavation ²

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
19	3+184	3+334	150	2+970	3+120	150	Widening and Strengthening	Earthwork in Excavation
20	3+334	3+400	66	3+120	3+160	40	Realignment	Earthwork in Excavation
21	3+400	3+670	270	3+160	3+430	270	Widening and Strengthening	Earthwork in Excavation
22	3+670	4+118	448	3+430	3+870	440	Widening and Strengthening	No Work done
23	4+118	4+166	48	3+870	3+920	50	Realignment	No Work done
24	4+166	4+223	57	3+920	3+980	60	Widening and Strengthening	No Work done
25	4+223	4+305	82	3+980	4+060	80	Realignment	No Work done
26	4+305	4+461	156	4+060	4+210	150	Widening and Strengthening	No Work done
27	4+461	4+567	106	4+210	4+300	90	Realignment	No Work done
28	4+567	4+683	116	4+300	4+420	120	Widening and Strengthening	No Work done
29	4+683	4+720	37	4+420	4+520	100	Realignment	No Work done
30	4+720	4+800	80	4+520	4+607	87	Widening and Strengthening	No Work done
31	4+800	5+154	354	4+607	4+960	353	Widening and Strengthening	Earthwork in Excavation
32	5+154	5+300	146	4+960	5+060	100	Realignment	Earthwork in Excavation
33	5+300	5+952	652	5+060	5+635	575	Widening and Strengthening	Earthwork in Excavation
34	5+952	6+012	60	5+635	5+675	40	Realignment	Earthwork in Excavation
35	6+012	6+112	100	5+675	5+790	115	Widening and Strengthening	Earthwork in Excavation

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
36	6+112	6+153	41	5+790	5+835	45	Realignment	Earthwork in Excavation
37	6+153	6+265	112	5+835	5+940	105	Widening and Strengthening	Earthwork in Excavation
38	6+265	6+320	55	5+940	5+970	30	Realignment	Earthwork in Excavation
39	6+320	6+646	326	5+970	6+290	320	Widening and Strengthening	Earthwork in Excavation
40	6+646	6+756	110	6+290	6+390	100	Realignment	Earthwork in Excavation
41	6+756	6+783	27	6+390	6+415	25	Widening and Strengthening	Earthwork in Excavation
42	6+783	6+930	147	6+415	6+540	125	Realignment	Earthwork in Excavation
43	6+930	7+026	96	6+540	6+640	100	Widening and Strengthening	Earthwork in Excavation
44	7+026	7+097	71	6+640	6+700	60	Realignment	Earthwork in Excavation
45	7+097	7+208	111	6+700	6+800	100	Widening and Strengthening	Earthwork in Excavation
46	7+208	7+287	79	6+800	6+875	75	Realignment	Earthwork in Excavation
47	7+287	7+510	223	6+875	7+100	225	Widening and Strengthening	Earthwork in Excavation
48	7+510	7+578	68	7+100	7+160	60	Realignment	Earthwork in Excavation
49	7+578	7+626	48	7+160	7+220	60	Widening and Strengthening	Earthwork in Excavation
50	7+626	7+674	48	7+220	7+260	40	Realignment	Earthwork in Excavation
51	7+674	7+887	213	7+260	7+470	210	Widening and Strengthening	Earthwork in Excavation ⁴

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Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
52	7+887	8+071	184	7+470	7+620	150	Realignment	Earthwork in Excavation
53	8+071	8+349	278	7+620	7+890	270	Widening and Strengthening	Earthwork in Excavation
54	8+349	8+434	85	7+890	7+960	70	Realignment	Earthwork in Excavation
55	8+434	9+093	659	7+960	8+580	620	Widening and Strengthening	Earthwork in Excavation
56	9+093	9+284	191	8+580	8+825	245	Realignment	Earthwork in Excavation
57	9+284	10+155	871	8+825	9+690	865	Widening and Strengthening	Earthwork in Excavation
58	10+155	10+160	5	9+690	9+700	10	Realignment	Earthwork in Excavation
59	10+160	10+280	120	9+700	9+760	60	Realignment	Earthwork in Excavation
60	10+280	11+110	830	9+760	10+600	840	Widening and Strengthening	Earthwork in Excavation
61	11+110	11+160	50	10+600	10+645	45	Widening and Strengthening	Earthwork in Excavation
62	11+160	11+165	5	10+645	10+650	5	Widening and Strengthening	No Work done
63	11+165	11+216	51	10+650	10+695	45	Realignment	No Work done
64	11+216	11+220	4	10+695	10+700	5	Widening and Strengthening	No Work done
65	11+220	11+418	198	10+700	10+900	200	Widening and Strengthening	Earthwork in Excavation
66	11+418	11+534	116	10+900	10+980	80	Realignment	Earthwork in Excavation
67	11+534	11+770	236	10+980	11+235	255	Widening and Strengthening	Earthwork in Excavation

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Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
68	11+770	11+778	8	11+235	11+240	5	Widening and Strengthening	No Work done
69	11+778	11+828	50	11+240	11+280	40	Realignment	No Work done
70	11+828	11+830	2	11+280	11+340	60	Widening and Strengthening	No Work done
71	11+830	11+909	79	11+340	11+365	25	Widening and Strengthening	Earthwork in Excavation
72	11+909	11+961	52	11+365	11+420	55	Realignment	Earthwork in Excavation
73	11+961	12+400	439	11+420	11+850	430	Widening and Strengthening	Earthwork in Excavation
74	12+400	12+430	30	11+850	11+885	35	Widening and Strengthening	No Work done
75	12+430	12+765	335	11+885	12+210	325	Widening and Strengthening	Earthwork in Excavation
76	12+765	12+790	25	12+210	12+230	20	Realignment	Earthwork in Excavation
77	12+790	12+824	34	12+230	12+255	25	Realignment	No Work done
78	12+824	12+850	26	12+255	12+280	25	Widening and Strengthening	No Work done
79	12+850	13+200	350	12+280	12+550	270	Widening and Strengthening	Earthwork in Excavation
80	13+200	13+259	59	12+550	12+610	60	Widening and Strengthening	No Work done
81	13+259	13+298	39	12+610	12+645	35	Realignment	No Work done
82	13+298	13+467	169	12+645	12+820	175	Widening and Strengthening	No Work done
83	13+467	13+570	103	12+820	12+935	115	Realignment	No Work done
84	13+570	13+657	87	12+935	13+010	75	Widening and Strengthening	No Work done

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Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
85	13+657	13+706	49	13+010	13+050	40	Realignment	No Work done
86	13+706	13+763	57	13+050	13+105	55	Widening and Strengthening	No Work done
87	13+763	13+827	64	13+105	13+165	60	Realignment	No Work done
88	13+827	13+867	40	13+165	13+205	40	Widening and Strengthening	No Work done
89	13+867	13+919	52	13+205	13+250	45	Realignment	No Work done
90	13+919	14+061	142	13+250	13+410	160	Widening and Strengthening	No Work done
91	14+061	14+159	98	13+410	13+540	130	Realignment	No Work done
92	14+159	14+210	51	13+540	13+600	60	Widening and Strengthening	No Work done
93	14+210	14+500	290	13+600	13+885	285	Widening and Strengthening	Earthwork in Excavation
94	14+500	14+620	120	13+885	14+000	115	Widening and Strengthening	No Work done
95	14+620	14+697	77	14+000	14+080	80	Realignment	No Work done
96	14+697	14+970	273	14+080	14+360	280	Widening and Strengthening	No Work done
97	14+970	15+080	110	14+360	14+475	115	Widening and Strengthening	Earthwork in Excavation
98	15+080	15+385	305	14+475	14+785	310	Widening and Strengthening	No Work done
99	15+385	15+530	145	14+785	15+000	215	Realignment	No Work done
100	15+530	16+020	490	15+000	15+430	430	Widening and Strengthening	No Work done
101	16+020	16+370	350	15+430	15+755	325	Widening and Strengthening	Earthwork in Excavation
102	16+370	16+600	230	15+755	15+985	230	Widening and Strengthening	No Work done

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Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
103	16+600	16+613	13	15+985	16+000	15	Widening and Strengthening	Earthwork in Excavation
104	16+613	16+674	61	16+000	16+060	60	Realignment	Earthwork in Excavation
105	16+674	16+730	56	16+060	16+115	55	Widening and Strengthening	Earthwork in Excavation
106	16+730	17+720	990	16+115	17+090	975	Widening and Strengthening	No Work done
107	17+720	17+792	72	17+090	17+160	70	Realignment	No Work done
108	17+792	17+845	53	17+160	17+200	40	Widening and Strengthening	No Work done
109	17+845	17+961	116	17+200	17+290	90	Realignment	No Work done
110	17+961	18+074	113	17+290	17+400	110	Widening and Strengthening	No Work done
111	18+074	18+235	161	17+400	17+600	200	Realignment	No Work done
112	18+235	18+400	165	17+600	17+795	195	Widening and Strengthening	No Work done
113	18+400	18+527	127	17+795	17+890	95	Realignment	No Work done
114	18+527	18+672	145	17+890	18+000	110	Widening and Strengthening	No Work done
115	18+672	18+870	198	18+000	18+190	190	Realignment	No Work done
116	18+870	19+000	130	18+190	18+325	135	Widening and Strengthening	No Work done
117	19+000	19+154	154	18+325	18+490	165	Realignment	No Work done
118	19+154	19+205	51	18+490	18+545	55	Widening and Strengthening	No Work done
119	19+205	19+252	47	18+545	18+580	35	Realignment	No Work done
120	19+252	19+390	138	18+580	18+710	130	Widening and Strengthening	No Work done
121	19+390	19+619	229	18+710	18+875	165	Realignment	No Work done

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Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
122	19+619	19+800	181	18+875	19+050	175	Widening and Strengthening	No Work done
123	19+800	20+225	425	19+050	19+465	415	Widening and Strengthening	Earthwork in Excavation
124	20+225	20+455	230	19+465	19+700	235	Realignment	Earthwork in Excavation
125	20+455	20+965	510	19+700	20+160	460	Widening and Strengthening	Earthwork in Excavation
126	20+965	21+032	67	20+160	20+240	80	Realignment	Earthwork in Excavation
127	21+032	21+885	853	20+240	21+100	860	Widening and Strengthening	Earthwork in Excavation
128	21+885	21+950	65	21+100	21+220	120	Realignment	Earthwork in Excavation
129	21+950	21+986	36	21+220	21+250	30	Widening and Strengthening	Earthwork in Excavation
130	21+986	22+010	24	21+250	21+290	40	Realignment	Earthwork in Excavation
131	22+010	22+021	11	21+290	21+300	10	Realignment	No Work done
132	22+021	23+100	1079	21+300	22+360	1060	Widening and Strengthening	No Work done
133	23+100	23+170	70	22+360	22+425	65	Widening and Strengthening	Earthwork in Excavation
134	23+170	23+200	30	22+425	22+455	30	Realignment	Earthwork in Excavation
135	23+200	23+415	215	22+455	22+655	200	Widening and Strengthening	Earthwork in Excavation
136	23+415	23+440	25	22+655	22+690	35	Realignment	Earthwork in Excavation
137	23+440	24+180	740	22+690	23+350	660	Widening and Strengthening	Earthwork in Excavation

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Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
138	24+180	24+565	385	23+350	23+800	450	Widening and Strengthening	No Work done
139	24+565	24+613	48	23+800	23+840	40	Realignment	No Work done
140	24+613	25+000	387	23+840	24+250	410	Widening and Strengthening	No Work done
141	25+000	25+040	40	24+250	24+280	30	Realignment	No Work done
142	25+040	25+339	299	24+280	24+600	320	Widening and Strengthening	No Work done
143	25+339	25+390	51	24+600	24+650	50	Realignment	No Work done
144	25+390	25+970	580	24+650	25+210	560	Widening and Strengthening	No Work done
145	25+970	25+980	10	25+210	25+215	5	Realignment	No Work done
146	25+980	26+010	30	25+215	25+250	35	Realignment	Earthwork in Excavation
147	26+010	26+150	140	25+250	25+400	150	Widening and Strengthening	Earthwork in Excavation
148	26+150	26+223	73	25+400	25+450	50	Realignment	Earthwork in Excavation
149	26+223	26+334	111	25+450	25+555	105	Widening and Strengthening	Earthwork in Excavation
150	26+334	26+539	205	25+555	25+645	90	Realignment	Earthwork in Excavation
151	26+539	26+578	39	25+645	25+685	40	Widening and Strengthening	Earthwork in Excavation
152	26+578	26+652	74	25+685	25+750	65	Realignment	Earthwork in Excavation
153	26+652	26+978	326	25+750	26+050	300	Widening and Strengthening	Earthwork in Excavation
154	26+978	27+108	130	26+050	26+150	100	Realignment	Earthwork in Excavation



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Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
155	27+108	27+420	312	26+150	26+450	300	Widening and Strengthening	Earthwork in Excavation
156	27+420	27+540	120	26+450	26+550	100	Widening and Strengthening	No Work done
157	27+540	27+775	235	26+550	26+780	230	Widening and Strengthening	Earthwork in Excavation
158	27+775	27+818	43	26+780	26+820	40	Realignment	Earthwork in Excavation
159	27+818	28+010	192	26+820	27+000	180	Widening and Strengthening	Earthwork in Excavation
160	28+010	28+267	257	27+000	27+265	265	Widening and Strengthening	No Work done
161	28+267	28+428	161	27+265	27+400	135	Realignment	No Work done
162	28+428	29+110	682	27+400	28+060	660	Widening and Strengthening	No Work done
163	29+110	29+800	690	28+060	28+775	715	Widening and Strengthening	Earthwork in Excavation
164	29+800	29+898	98	28+775	28+830	55	Realignment	Earthwork in Excavation
165	29+898	30+010	112	28+830	28+960	130	Widening and Strengthening	Earthwork in Excavation
166	30+010	30+268	258	28+960	29+200	240	Realignment	Earthwork in Excavation
167	30+268	30+371	103	29+200	29+300	100	Widening and Strengthening	Earthwork in Excavation
168	30+371	30+463	92	29+300	29+380	80	Realignment	Earthwork in Excavation
169	30+463	30+739	276	29+380	29+660	280	Widening and Strengthening	Earthwork in Excavation
170	30+739	30+842	103	29+660	29+720	60	Realignment	Earthwork in Excavation

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
171	30+842	31+286	444	29+720	30+150	430	Widening and Strengthening	Earthwork in Excavation
172	31+286	31+390	104	30+150	30+240	90	Realignment	Earthwork in Excavation
173	31+390	31+448	58	30+240	30+300	60	Widening and Strengthening	Earthwork in Excavation
174	31+448	31+549	101	30+300	30+390	90	Realignment	Earthwork in Excavation
175	31+549	31+810	261	30+390	30+650	260	Widening and Strengthening	Earthwork in Excavation
176	31+810	31+900	90	30+650	30+740	90	Widening and Strengthening	No Work done
177	31+900	31+968	68	30+740	30+815	75	Widening and Strengthening	Earthwork in Excavation
178	31+968	32+013	45	30+815	30+840	25	Realignment	Earthwork in Excavation
179	32+013	32+758	745	30+840	31+550	710	Widening and Strengthening	Earthwork in Excavation
180	32+758	32+903	145	31+550	31+620	70	Realignment	Earthwork in Excavation
181	32+903	33+846	943	31+620	32+495	875	Widening and Strengthening	Earthwork in Excavation
182	33+846	34+000	154	32+495	32+640	145	Realignment	Earthwork in Excavation
183	34+000	35+210	1210	32+640	33+820	1180	Widening and Strengthening	Earthwork in Excavation
184	35+210	35+280	70	33+820	33+860	40	Realignment	Earthwork in Excavation
185	35+280	35+660	380	33+860	34+240	380	Widening and Strengthening	Earthwork in Excavation
186	35+660	35+693	33	34+240	34+270	30	Widening and Strengthening	No Work done

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
187	35+693	35+851	158	34+270	34+380	110	Realignment	No Work done
188	35+851	35+900	49	34+380	34+420	40	Widening and Strengthening	No Work done
189	35+900	35+950	50	34+420	34+455	35	Realignment	No Work done
190	35+950	36+005	55	34+455	34+500	45	Realignment	Earthwork in Excavation
191	36+005	36+101	96	34+500	34+600	100	Widening and Strengthening	Earthwork in Excavation
192	36+101	36+276	175	34+600	34+760	160	Realignment	Earthwork in Excavation
193	36+276	36+370	94	34+760	34+850	90	Widening and Strengthening	Earthwork in Excavation
194	36+370	36+427	57	34+850	34+900	50	Realignment	Earthwork in Excavation
195	36+427	36+477	50	34+900	34+950	50	Widening and Strengthening	Earthwork in Excavation
196	36+477	36+622	145	34+950	35+150	200	Realignment	Earthwork in Excavation
197	36+622	36+680	58	35+150	35+210	60	Widening and Strengthening	Earthwork in Excavation
198	36+680	36+722	42	35+210	35+250	40	Realignment	Earthwork in Excavation
199	36+722	36+730	8	35+250	35+240	-10	Widening and Strengthening	Earthwork in Excavation
200	36+730	36+780	50	35+240	35+280	40	Widening and Strengthening	No Work done
201	36+780	36+820	40	35+280	35+320	40	Widening and Strengthening	Earthwork in Excavation
202	36+820	36+920	100	35+320	35+425	105	Widening and Strengthening	No Work done
203	36+920	36+939	19	35+425	35+440	15	Widening and	Earthwork in

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
							Strengthening	Excavation
204	36+939	37+130	191	35+440	35+600	160	Realignment	Earthwork in Excavation
205	37+130	37+240	110	35+600	35+720	120	Widening and Strengthening	Earthwork in Excavation
206	37+240	37+425	185	35+720	35+860	140	Realignment	Earthwork in Excavation
207	37+425	37+750	325	35+860	36+100	240	Widening and Strengthening	Earthwork in Excavation
208	37+750	38+340	590	36+100	36+730	630	Widening and Strengthening	No Work done
209	38+340	38+430	90	36+730	36+805	75	Realignment	No Work done
210	38+430	38+450	20	36+805	36+825	20	Widening and Strengthening	No Work done
211	38+450	38+632	182	36+825	37+000	175	Widening and Strengthening	Earthwork in Excavation
212	38+632	38+705	73	37+000	37+060	60	Realignment	Earthwork in Excavation
213	38+705	39+030	325	37+060	37+390	330	Widening and Strengthening	Earthwork in Excavation
214	39+030	39+068	38	37+390	37+425	35	Realignment	Earthwork in Excavation
215	39+068	39+707	639	37+425	38+050	625	Widening and Strengthening	Earthwork in Excavation
216	39+707	39+825	118	38+050	38+110	60	Realignment	Earthwork in Excavation
217	39+825	40+098	273	38+110	38+380	270	Widening and Strengthening	Earthwork in Excavation
218	40+098	40+120	22	38+380	38+390	10	Realignment	Earthwork in Excavation
219	40+120	40+126	6	38+390	38+420	30	Realignment	No Work done

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
220	40+126	40+519	393	38+420	38+820	400	Widening and Strengthening	No Work done
221	40+519	40+600	81	38+820	38+900	80	Realignment	No Work done
222	40+600	41+020	420	38+900	39+320	420	Widening and Strengthening	No Work done
223	41+020	41+055	35	39+320	39+350	30	Realignment	No Work done
224	41+055	41+205	150	39+350	39+490	140	Widening and Strengthening	No Work done
225	41+205	41+260	55	39+490	39+550	60	Realignment	No Work done
226	41+260	41+263	3	39+550	39+550	0	Realignment	Earthwork in Excavation
227	41+263	41+466	203	39+550	39+745	195	Widening and Strengthening	Earthwork in Excavation
228	41+466	41+470	4	39+745	39+750	5	Realignment	Earthwork in Excavation
229	41+470	41+558	88	39+750	39+830	80	Realignment	No Work done
230	41+558	41+831	273	39+830	40+090	260	Widening and Strengthening	No Work done
231	41+831	41+903	72	40+090	40+140	50	Realignment	No Work done
232	41+903	42+020	117	40+140	40+270	130	Widening and Strengthening	No Work done
233	42+020	42+070	50	40+270	40+315	45	Widening and Strengthening	Earthwork in Excavation
234	42+070	42+100	30	40+315	40+370	55	Realignment	Earthwork in Excavation
235	42+100	42+134	34	40+370	40+380	10	Realignment	No Work done
236	42+134	42+200	66	40+380	40+450	70	Widening and Strengthening	No Work done
237	42+200	42+317	117	40+450	40+560	110	Widening and Strengthening	Earthwork in Excavation 15

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
238	42+317	42+470	153	40+560	40+685	125	Realignment	Earthwork in Excavation
239	42+470	42+745	275	40+685	40+825	140	Realignment	No Work done
240	42+745	42+830	85	40+825	40+950	125	Widening and Strengthening	No Work done
241	42+830	42+870	40	40+950	40+980	30	Widening and Strengthening	Earthwork in Excavation
242	42+870	42+880	10	40+980	40+990	10	Realignment	Earthwork in Excavation
243	42+880	42+925	45	40+990	41+045	55	Realignment	No Work done
244	42+925	43+210	285	41+045	41+360	315	Widening and Strengthening	No Work done
245	43+210	43+780	570	41+360	41+940	580	Widening and Strengthening	Earthwork in Excavation
246	43+780	45+460	1680	41+940	43+580	1640	No Geometric Improvement	No Work done
247	45+460	45+588	128	43+580	43+650	70	Realignment	No Work done
248	45+588	45+970	382	43+650	44+000	350	Widening and Strengthening	No Work done
249	45+970	46+227	257	44+000	44+270	270	Widening and Strengthening	Earthwork in Excavation
250	46+227	46+280	53	44+270	44+300	30	Realignment	Earthwork in Excavation
251	46+280	46+416	136	44+300	44+450	150	Widening and Strengthening	Earthwork in Excavation
252	46+416	46+480	64	44+450	44+510	60	Realignment	Earthwork in Excavation
253	46+480	46+735	255	44+510	44+760	250	Widening and Strengthening	Earthwork in Excavation
254	46+735	46+793	58	44+760	44+820	60	Realignment	Earthwork in Excavation 16

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
255	46+793	46+973	180	44+820	44+990	170	Widening and Strengthening	Earthwork in Excavation
256	46+973	47+269	296	44+990	45+250	260	Realignment	Earthwork in Excavation
257	47+269	47+361	92	45+250	45+340	90	Widening and Strengthening	Earthwork in Excavation
258	47+361	47+437	76	45+340	45+410	70	Realignment	Earthwork in Excavation
259	47+437	47+627	190	45+410	45+590	180	Widening and Strengthening	Earthwork in Excavation
260	47+627	47+703	76	45+590	45+660	70	Realignment	Earthwork in Excavation
261	47+703	47+937	234	45+660	45+890	230	Widening and Strengthening	Earthwork in Excavation
262	47+937	48+051	114	45+890	45+990	100	Realignment	Earthwork in Excavation
263	48+051	48+362	311	45+990	46+315	325	Widening and Strengthening	Earthwork in Excavation
264	48+362	48+422	60	46+315	46+390	75	Realignment	Earthwork in Excavation
265	48+422	48+486	64	46+390	46+450	60	Widening and Strengthening	Earthwork in Excavation
266	48+486	48+549	63	46+450	46+515	65	Realignment	Earthwork in Excavation
267	48+549	48+654	105	46+515	46+620	105	Widening and Strengthening	Earthwork in Excavation
268	48+654	48+838	184	46+620	46+820	200	Realignment	Earthwork in Excavation
269	48+838	48+960	122	46+820	46+950	130	Widening and Strengthening	Earthwork in Excavation
270	48+960	49+200	240	46+950	47+060	110	Realignment	Earthwork in Excavation ¹⁷

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
271	49+200	49+610	410	47+060	47+450	390	Widening and Strengthening	Earthwork in Excavation
272	49+610	49+750	140	47+450	47+550	100	Realignment	Earthwork in Excavation
273	49+750	49+990	240	47+550	47+780	230	Widening and Strengthening	Earthwork in Excavation
274	49+990	50+248	258	47+780	47+950	170	Realignment	Earthwork in Excavation
275	50+248	50+300	52	47+950	48+000	50	Widening and Strengthening	Earthwork in Excavation
276	50+300	50+340	40	48+000	48+025	25	Realignment	Earthwork in Excavation
277	50+340	50+375	35	48+025	48+060	35	Realignment	No Work done
278	50+375	50+390	15	48+060	48+075	15	Widening and Strengthening	No Work done
279	50+390	50+490	100	48+075	48+180	105	Widening and Strengthening	Earthwork in Excavation
280	50+490	50+560	70	48+180	48+250	70	Widening and Strengthening	No Work done
281	50+560	50+608	48	48+250	48+300	50	Realignment	Earthwork in Excavation
282	50+608	51+248	640	48+300	48+900	600	Widening and Strengthening	Earthwork in Excavation
283	51+248	51+400	152	48+900	49+040	140	Realignment	Earthwork in Excavation
284	51+400	51+914	514	49+040	49+550	510	Widening and Strengthening	Earthwork in Excavation
285	51+914	52+026	112	49+550	49+655	105	Realignment	Earthwork in Excavation
286	52+026	52+442	416	49+655	50+060	405	Widening and Strengthening	Earthwork in Excavation

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
287	52+442	52+686	244	50+060	50+310	250	Realignment	Earthwork in Excavation
288	52+686	52+710	24	50+310	50+330	20	Widening and Strengthening	Earthwork in Excavation
289	52+710	52+960	250	50+330	50+590	260	Widening and Strengthening	No Work done
290	52+960	52+970	10	50+590	50+600	10	Widening and Strengthening	Earthwork in Excavation
291	52+970	53+102	132	50+600	50+720	120	Realignment	Earthwork in Excavation
292	53+102	53+146	44	50+720	50+760	40	Widening and Strengthening	Earthwork in Excavation
293	53+146	53+235	89	50+760	50+850	90	Realignment	Earthwork in Excavation
294	53+235	53+300	65	50+850	50+940	90	Widening and Strengthening	Earthwork in Excavation
295	53+300	53+480	180	50+940	51+100	160	Widening and Strengthening	No Work done
296	53+480	53+537	57	51+100	51+160	60	Widening and Strengthening	Earthwork in Excavation
297	53+537	53+570	33	51+160	51+190	30	Realignment	Earthwork in Excavation
298	53+570	53+600	30	51+190	51+210	20	Realignment	No Work done
299	53+600	53+650	50	51+210	51+260	50	Widening and Strengthening	No Work done
300	53+650	53+785	135	51+260	51+400	140	Realignment	No Work done
301	53+785	53+892	107	51+400	51+510	110	Widening and Strengthening	No Work done
302	53+892	53+970	78	51+510	51+560	50	Realignment	No Work done
303	53+970	54+650	680	51+560	52+240	680	Widening and Strengthening	No Work done

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
304	54+650	54+764	114	52+240	52+350	110	Widening and Strengthening	Earthwork in Excavation
305	54+764	54+868	104	52+350	52+470	120	Realignment	Earthwork in Excavation
306	54+868	54+957	89	52+470	52+555	85	Widening and Strengthening	Earthwork in Excavation
307	54+957	55+050	93	52+555	52+650	95	Realignment	Earthwork in Excavation
308	55+050	55+106	56	52+650	52+710	60	Widening and Strengthening	Earthwork in Excavation
309	55+106	55+210	104	52+710	52+810	100	Realignment	Earthwork in Excavation
310	55+210	56+120	910	52+810	53+725	915	Widening and Strengthening	Earthwork in Excavation
311	56+120	56+162	42	53+725	53+760	35	Realignment	Earthwork in Excavation
312	56+162	56+440	278	53+760	54+050	290	Widening and Strengthening	Earthwork in Excavation
313	56+440	56+490	50	54+050	54+095	45	Realignment	Earthwork in Excavation
314	56+490	56+723	233	54+095	54+295	200	Widening and Strengthening	Earthwork in Excavation
315	56+723	56+820	97	54+295	54+370	75	Realignment	Earthwork in Excavation
316	56+820	56+891	71	54+370	54+450	80	Realignment	No Work done
317	56+891	57+039	148	54+450	54+595	145	Widening and Strengthening	No Work done
318	57+039	57+092	53	54+595	54+645	50	Realignment	No Work done
319	57+092	57+160	68	54+645	54+670	25	Widening and Strengthening	No Work done
320	57+160	57+180	20	54+670	54+690	20	Realignment	No Work done

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
321	57+180	57+232	52	54+690	54+740	50	Realignment	Earthwork in Excavation
322	57+232	57+260	28	54+740	54+770	30	Widening and Strengthening	Earthwork in Excavation
323	57+260	57+330	70	54+770	54+850	80	Widening and Strengthening	No Work done
324	57+330	57+410	80	54+850	54+925	75	Realignment	No Work done
325	57+410	57+430	20	54+925	54+940	15	Realignment	Earthwork in Excavation
326	57+430	57+476	46	54+940	54+985	45	Widening and Strengthening	Earthwork in Excavation
327	57+476	57+671	195	54+985	55+150	165	Realignment	Earthwork in Excavation
328	57+671	58+250	579	55+150	55+650	500	Widening and Strengthening	Earthwork in Excavation
329	58+250	58+320	70	55+650	55+695	45	Realignment	Earthwork in Excavation
330	58+320	58+374	54	55+695	55+740	45	Widening and Strengthening	No Work done
331	58+374	58+550	176	55+740	55+900	160	Realignment	No Work done
332	58+550	58+659	109	55+900	56+000	100	Realignment	Earthwork in Excavation
333	58+659	58+767	108	56+000	56+100	100	Widening and Strengthening	Earthwork in Excavation
334	58+767	59+000	233	56+100	56+265	165	Realignment	Earthwork in Excavation
335	59+000	59+225	225	56+265	56+485	220	Widening and Strengthening	Earthwork in Excavation
336	59+225	59+250	25	56+485	56+500	15	Realignment	Earthwork in Excavation
337	59+250	59+300	50	56+500	56+550	50	Realignment	No Work done

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
338	59+300	59+352	52	56+550	56+600	50	Realignment	Earthwork in Excavation
339	59+352	59+715	363	56+600	56+960	360	Widening and Strengthening	Earthwork in Excavation
340	59+715	59+784	69	56+960	57+015	55	Realignment	Earthwork in Excavation
341	59+784	60+005	221	57+015	57+230	215	Widening and Strengthening	Earthwork in Excavation
342	60+005	60+410	405	57+230	57+550	320	Realignment	Earthwork in Excavation
343	60+410	60+460	50	57+550	57+600	50	Widening and Strengthening	Earthwork in Excavation
344	60+460	60+490	30	57+600	57+625	25	Realignment	Earthwork in Excavation
345	60+490	60+552	62	57+625	57+665	40	Realignment	No Work done
346	60+552	60+580	28	57+665	57+695	30	Widening and Strengthening	No Work done
347	60+580	60+752	172	57+695	57+860	165	Widening and Strengthening	Earthwork in Excavation
348	60+752	60+824	72	57+860	57+935	75	Realignment	Earthwork in Excavation
349	60+824	61+043	219	57+935	58+160	225	Widening and Strengthening	Earthwork in Excavation
350	61+043	61+089	46	58+160	58+200	40	Realignment	Earthwork in Excavation
351	61+089	61+650	561	58+200	58+755	555	Widening and Strengthening	Earthwork in Excavation
352	61+650	61+714	64	58+755	58+810	55	Realignment	Earthwork in Excavation
353	61+714	61+750	36	58+810	58+850	40	Widening and Strengthening	Earthwork in Excavation

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
354	61+750	61+962	212	58+850	59+070	220	Widening and Strengthening	No Work done
355	61+962	62+042	80	59+070	59+130	60	Realignment	No Work done
356	62+042	62+156	114	59+130	59+250	120	Widening and Strengthening	No Work done
357	62+156	62+242	86	59+250	59+320	70	Realignment	No Work done
358	62+242	62+412	170	59+320	59+490	170	Widening and Strengthening	No Work done
359	62+412	62+800	388	59+490	59+850	360	Realignment	No Work done
360	62+800	63+095	295	59+850	60+070	220	Widening and Strengthening	No Work done
361	63+095	63+185	90	60+070	60+150	80	Realignment	No Work done
362	63+185	63+442	257	60+150	60+400	250	Widening and Strengthening	No Work done
363	63+442	63+495	53	60+400	60+445	45	Realignment	No Work done
364	63+495	63+545	50	60+445	60+500	55	Widening and Strengthening	No Work done
365	63+545	63+719	174	60+500	60+675	175	Realignment	No Work done
366	63+719	63+790	71	60+675	60+750	75	Widening and Strengthening	No Work done
367	63+790	63+940	150	60+750	60+900	150	Realignment	No Work done
368	63+940	64+148	208	60+900	61+100	200	Widening and Strengthening	No Work done
369	64+148	64+190	42	61+100	61+145	45	Realignment	No Work done
370	64+190	64+281	91	61+145	61+240	95	Widening and Strengthening	No Work done
371	64+281	64+390	109	61+240	61+300	60	Realignment	No Work done
372	64+390	64+491	101	61+300	61+400	100	Widening and Strengthening	No Work done

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
373	64+491	64+576	85	61+400	61+470	70	Realignment	No Work done
374	64+576	64+670	94	61+470	61+550	80	Widening and Strengthening	No Work done
375	64+670	64+762	92	61+550	61+645	95	Realignment	No Work done
376	64+762	65+282	520	61+645	62+200	555	Widening and Strengthening	No Work done
377	65+282	65+332	50	62+200	62+245	45	Realignment	No Work done
378	65+332	65+670	338	62+245	62+575	330	Widening and Strengthening	No Work done
379	65+670	66+092	422	62+575	63+000	425	Widening and Strengthening	Earthwork in Excavation
380	66+092	66+168	76	63+000	63+050	50	Realignment	Earthwork in Excavation
381	66+168	66+215	47	63+050	63+100	50	Widening and Strengthening	Earthwork in Excavation
382	66+215	66+431	216	63+100	63+300	200	Realignment	Earthwork in Excavation
383	66+431	66+504	73	63+300	63+365	65	Widening and Strengthening	Earthwork in Excavation
384	66+504	66+613	109	63+365	63+405	40	Realignment	Earthwork in Excavation
385	66+613	66+975	362	63+405	63+795	390	Widening and Strengthening	Earthwork in Excavation
386	66+975	66+990	15	63+795	63+810	15	Realignment	Earthwork in Excavation
387	66+990	67+070	80	63+810	63+875	65	Realignment	No Work done
388	67+070	67+086	16	63+875	63+890	15	Widening and Strengthening	Earthwork in Excavation
389	67+086	67+140	54	63+890	63+945	55	Widening and Strengthening	Earthwork in Excavation

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
390	67+140	67+166	26	63+945	63+970	25	Realignment	Earthwork in Excavation
391	67+166	67+200	34	63+970	64+005	35	Widening and Strengthening	Earthwork in Excavation
392	67+200	67+250	50	64+005	64+055	50	Realignment	Earthwork in Excavation
393	67+250	67+300	50	64+055	64+100	45	Widening and Strengthening	Earthwork in Excavation
394	67+300	67+350	50	64+100	64+140	40	Realignment	Earthwork in Excavation
395	67+350	67+472	122	64+140	64+245	105	Widening and Strengthening	Earthwork in Excavation
396	67+472	67+510	38	64+245	64+275	30	Realignment	Earthwork in Excavation
397	67+510	67+600	90	64+275	64+360	85	Widening and Strengthening	Earthwork in Excavation
398	67+600	67+875	275	64+360	64+600	240	Realignment	Earthwork in Excavation
399	67+875	68+015	140	64+600	64+700	100	Widening and Strengthening	Earthwork in Excavation
400	68+015	68+036	21	64+700	64+720	20	Realignment	Earthwork in Excavation
401	68+036	68+138	102	64+720	64+820	100	Widening and Strengthening	Earthwork in Excavation
402	68+138	68+185	47	64+820	64+865	45	Realignment	Earthwork in Excavation
403	68+185	68+280	95	64+865	64+950	85	Widening and Strengthening	Earthwork in Excavation
404	68+280	68+480	200	64+950	65+145	195	Realignment	Earthwork in Excavation
405	68+480	68+506	26	65+145	65+160	15	Realignment	No Work done

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
406	68+506	68+590	84	65+160	65+240	80	Widening and Strengthening	No Work done
407	68+590	68+650	60	65+240	65+305	65	Realignment	No Work done
408	68+650	68+923	273	65+305	65+520	215	Widening and Strengthening	No Work done
409	68+923	68+960	37	65+520	65+565	45	Realignment	No Work done
410	68+960	69+000	40	65+565	65+605	40	Widening and Strengthening	No Work done
411	69+000	69+033	33	65+605	65+650	45	Widening and Strengthening	Earthwork in Excavation
412	69+033	69+142	109	65+650	65+760	110	Realignment	Earthwork in Excavation
413	69+142	69+394	252	65+760	66+000	240	Widening and Strengthening	Earthwork in Excavation
414	69+394	69+460	66	66+000	66+060	60	Realignment	Earthwork in Excavation
415	69+460	69+570	110	66+060	66+175	115	Widening and Strengthening	Earthwork in Excavation
416	69+570	69+590	20	66+175	66+200	25	Widening and Strengthening	No Work done
417	69+590	69+810	220	66+200	66+380	180	Widening and Strengthening	Earthwork in Excavation
418	69+810	69+882	72	66+380	66+450	70	Realignment	Earthwork in Excavation
419	69+882	69+990	108	66+450	66+550	100	Widening and Strengthening	Earthwork in Excavation
420	69+990	70+010	20	66+550	66+570	20	Widening and Strengthening	No Work done
421	70+010	70+019	9	66+570	66+595	25	Widening and Strengthening	Earthwork in Excavation
422	70+019	70+070	51	66+595	66+645	50	Realignment	Earthwork in

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
								Excavation
423	70+070	70+180	110	66+645	66+740	95	Widening and Strengthening	Earthwork in Excavation
424	70+180	70+205	25	66+740	66+760	20	Realignment	Earthwork in Excavation
425	70+205	70+280	75	66+760	66+850	90	Widening and Strengthening	Earthwork in Excavation
426	70+280	70+300	20	66+850	66+870	20	Widening and Strengthening	No Work done
427	70+300	70+750	450	66+870	67+295	425	Widening and Strengthening	Earthwork in Excavation
428	70+750	70+986	236	67+295	67+505	210	Realignment	Earthwork in Excavation
429	70+986	71+010	24	67+505	67+525	20	Widening and Strengthening	Earthwork in Excavation
430	71+010	71+180	170	67+525	67+700	175	Widening and Strengthening	No Work done
431	71+180	72+490	1310	67+700	68+975	1275	Widening and Strengthening	Earthwork in Excavation
432	72+490	72+530	40	68+975	69+010	35	Widening and Strengthening	No Work done
433	72+530	73+170	640	69+010	69+390	380	Widening and Strengthening	Earthwork in Excavation
434	73+170	73+240	70	69+390	69+450	60	Realignment	Earthwork in Excavation
435	73+240	73+345	105	69+450	69+550	100	Widening and Strengthening	Earthwork in Excavation
436	73+345	73+405	60	69+550	69+605	55	Realignment	Earthwork in Excavation
437	73+405	73+492	87	69+605	69+690	85	Widening and Strengthening	Earthwork in Excavation

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
438	73+492	73+600	108	69+690	69+800	110	Realignment	Earthwork in Excavation
439	73+600	73+700	100	69+800	69+890	90	Widening and Strengthening	Earthwork in Excavation
440	73+700	73+760	60	69+890	69+925	35	Realignment	Earthwork in Excavation
441	73+760	74+010	250	69+925	70+190	265	Widening and Strengthening	Earthwork in Excavation
442	74+010	74+236	226	70+190	70+400	210	Widening and Strengthening	No Work done
443	74+236	74+290	54	70+400	70+450	50	Realignment	No Work done
444	74+290	74+462	172	70+450	70+600	150	Widening and Strengthening	No Work done
445	74+462	74+563	101	70+600	70+700	100	Realignment	No Work done
446	74+563	74+971	408	70+700	71+100	400	Widening and Strengthening	No Work done
447	74+971	75+059	88	71+100	71+160	60	Realignment	No Work done
448	75+059	75+087	28	71+160	71+200	40	Widening and Strengthening	No Work done
449	75+087	75+144	57	71+200	71+250	50	Realignment	No Work done
450	75+144	75+200	56	71+250	71+300	50	Widening and Strengthening	No Work done
451	75+200	75+248	48	71+300	71+350	50	Realignment	No Work done
452	75+248	75+351	103	71+350	71+440	90	Widening and Strengthening	No Work done
453	75+351	75+420	69	71+440	71+500	60	Realignment	No Work done
454	75+420	75+681	261	71+500	71+760	260	Widening and Strengthening	No Work done
455	75+681	75+733	52	71+760	71+810	50	Realignment	No Work done
456	75+733	76+157	424	71+810	72+240	430	Widening and	No Work done

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
							Strengthening	
457	76+157	76+210	53	72+240	72+290	50	Realignment	No Work done
458	76+210	76+745	535	72+290	72+800	510	Widening and Strengthening	No Work done
459	76+745	76+877	132	72+800	72+920	120	Realignment	No Work done
460	76+877	77+590	713	72+920	73+610	690	Widening and Strengthening	No Work done
461	77+590	77+849	259	73+610	73+850	240	Realignment	No Work done
462	77+849	77+956	107	73+850	73+920	70	Widening and Strengthening	No Work done
463	77+956	78+000	44	73+920	73+970	50	Realignment	No Work done
464	78+000	78+210	210	73+970	74+175	205	Widening and Strengthening	No Work done
465	78+210	78+590	380	74+175	74+550	375	Widening and Strengthening	Earthwork in Excavation
466	78+590	78+945	355	74+550	74+915	365	Widening and Strengthening	No Work done
467	78+945	79+050	105	74+915	75+020	105	Realignment	No Work done
468	79+050	79+390	340	75+020	75+380	360	Realignment	Earthwork in Excavation
469	79+390	79+410	20	75+380	75+400	20	Realignment	No Work done
470	79+410	79+600	190	75+400	75+500	100	Realignment	Earthwork in Excavation
471	79+600	80+059	459	75+500	75+955	455	Widening and Strengthening	Earthwork in Excavation
472	80+059	80+120	61	75+955	76+010	55	Realignment	Earthwork in Excavation
473	80+120	80+295	175	76+010	76+180	170	Widening and Strengthening	Earthwork in Excavation
474	80+295	80+360	65	76+180	76+240	60	Realignment	Earthwork in

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
								Excavation
475	80+360	80+510	150	76+240	76+400	160	Realignment	No Work done
476	80+510	80+700	190	76+400	76+600	200	Widening and Strengthening	No Work done
477	80+700	81+090	390	76+600	76+990	390	Widening and Strengthening	Earthwork in Excavation
478	81+090	81+125	35	76+990	77+020	30	Realignment	Earthwork in Excavation
479	81+125	81+247	122	77+020	77+150	130	Widening and Strengthening	Earthwork in Excavation
480	81+247	81+305	58	77+150	77+210	60	Realignment	Earthwork in Excavation
481	81+305	81+455	150	77+210	77+350	140	Widening and Strengthening	Earthwork in Excavation
482	81+455	81+510	55	77+350	77+400	50	Realignment	Earthwork in Excavation
483	81+510	82+510	1000	77+400	78+340	940	Widening and Strengthening	Earthwork in Excavation
484	82+510	82+560	50	78+340	78+390	50	Widening and Strengthening	No Work done
485	82+560	82+740	180	78+390	78+570	180	Widening and Strengthening	Earthwork in Excavation
486	82+740	82+760	20	78+570	78+595	25	Widening and Strengthening	No Work done
487	82+760	83+287	527	78+595	79+100	505	Widening and Strengthening	Earthwork in Excavation
488	83+287	83+603	316	79+100	79+400	300	Realignment	Earthwork in Excavation
489	83+603	83+725	122	79+400	79+520	120	Widening and Strengthening	Earthwork in Excavation
490	83+725	83+960	235	79+520	79+750	230	Realignment	Earthwork in

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
								Excavation
491	83+960	84+152	192	79+750	79+880	130	Realignment	No Work done
492	84+152	84+477	325	79+880	80+210	330	Widening and Strengthening	No Work done
493	84+477	84+728	251	80+210	80+405	195	Realignment	No Work done
494	84+728	84+932	204	80+405	80+590	185	Widening and Strengthening	No Work done
495	84+932	84+990	58	80+590	80+650	60	Realignment	No Work done
496	84+990	85+539	549	80+650	81+180	530	Widening and Strengthening	No Work done
497	85+539	85+854	315	81+180	81+450	270	Realignment	No Work done
498	85+854	85+949	95	81+450	81+545	95	Widening and Strengthening	No Work done
499	85+949	86+000	51	81+545	81+595	50	Realignment	No Work done
500	86+000	86+122	122	81+595	81+710	115	Widening and Strengthening	No Work done
501	86+122	86+175	53	81+710	81+765	55	Realignment	No Work done
502	86+175	86+533	358	81+765	82+110	345	Widening and Strengthening	No Work done
503	86+533	86+580	47	82+110	82+155	45	Realignment	No Work done
504	86+580	87+049	469	82+155	82+610	455	Widening and Strengthening	No Work done
505	87+049	87+082	33	82+610	82+645	35	Realignment	No Work done
506	87+082	87+200	118	82+645	82+755	110	Widening and Strengthening	No Work done
507	87+200	87+350	150	82+755	82+895	140	Realignment	No Work done
508	87+350	87+702	352	82+895	83+230	335	Widening and Strengthening	No Work done
509	87+702	87+730	28	83+230	83+265	35	Realignment	No Work done

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
510	87+730	88+160	430	83+265	83+680	415	Widening and Strengthening	No Work done
511	88+160	88+225	65	83+680	83+725	45	Realignment	No Work done
512	88+225	88+565	340	83+725	84+060	335	Widening and Strengthening	No Work done
513	88+565	88+649	84	84+060	84+125	65	Realignment	No Work done
514	88+649	88+675	26	84+125	84+160	35	Widening and Strengthening	No Work done
515	88+675	88+771	96	84+160	84+255	95	Realignment	No Work done
516	88+771	88+850	79	84+255	84+320	65	Widening and Strengthening	No Work done
517	88+850	88+910	60	84+320	84+360	40	Realignment	No Work done
518	88+910	89+020	110	84+360	84+450	90	Widening and Strengthening	No Work done
519	89+020	89+100	80	84+450	84+505	55	Realignment	No Work done
520	89+100	89+350	250	84+505	84+740	235	Widening and Strengthening	No Work done
521	89+350	89+390	40	84+740	84+765	25	Realignment	No Work done
522	89+390	89+490	100	84+765	84+855	90	Widening and Strengthening	No Work done
523	89+490	89+545	55	84+855	84+900	45	Realignment	No Work done
524	89+545	89+710	165	84+900	85+050	150	Widening and Strengthening	No Work done
525	89+710	89+950	240	85+050	85+250	200	Realignment	No Work done
526	89+950	90+060	110	85+250	85+350	100	Widening and Strengthening	No Work done
527	90+060	90+260	200	85+350	85+520	170	Realignment	No Work done
528	90+260	90+560	300	85+520	85+800	280	Widening and Strengthening	No Work done

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
529	90+560	90+765	205	85+800	85+970	170	Realignment	No Work done
530	90+765	91+470	705	85+970	86+650	680	Widening and Strengthening	No Work done
531	91+470	91+540	70	86+650	86+700	50	Realignment	No Work done
532	91+540	91+940	400	86+700	87+085	385	Widening and Strengthening	No Work done
533	91+940	92+130	190	87+085	87+250	165	Realignment	No Work done
534	92+130	93+040	910	87+250	88+140	890	Widening and Strengthening	No Work done
535	93+040	93+100	60	88+140	88+170	30	Realignment	No Work done
536	93+100	93+200	100	88+170	88+285	115	Widening and Strengthening	No Work done
537	93+200	93+270	70	88+285	88+340	55	Realignment	No Work done
538	93+270	93+865	595	88+340	88+910	570	Widening and Strengthening	No Work done
539	93+865	93+935	70	88+910	88+960	50	Realignment	No Work done
540	93+935	94+000	65	88+960	89+020	60	Widening and Strengthening	No Work done
541	94+000	94+290	290	89+020	89+305	285	Widening and Strengthening	Earthwork in Excavation
542	94+290	94+420	130	89+305	89+410	105	Realignment	Earthwork in Excavation
543	94+420	94+840	420	89+410	89+810	400	Widening and Strengthening	Earthwork in Excavation
544	94+840	94+940	100	89+810	89+895	85	Realignment	Earthwork in Excavation
545	94+940	95+000	60	89+895	89+950	55	Widening and Strengthening	Earthwork in Excavation
546	95+000	95+060	60	89+950	90+010	60	Realignment	Earthwork in Excavation ³³

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
547	95+060	95+263	203	90+010	90+200	190	Widening and Strengthening	Earthwork in Excavation
548	95+263	95+294	31	90+200	90+225	25	Realignment	Earthwork in Excavation
549	95+294	95+600	306	90+225	90+500	275	Widening and Strengthening	Earthwork in Excavation
550	95+600	95+660	60	90+500	90+540	40	Realignment	Earthwork in Excavation
551	95+660	96+010	350	90+540	90+845	305	Widening and Strengthening	Earthwork in Excavation
552	96+010	96+146	136	90+845	90+965	120	Widening and Strengthening	No Work done
553	96+146	96+200	54	90+965	91+005	40	Realignment	No Work done
554	96+200	96+330	130	91+005	91+150	145	Widening and Strengthening	No Work done
555	96+330	96+800	470	91+150	91+600	450	Realignment	No Work done
556	96+800	97+285	485	91+600	92+080	480	Widening and Strengthening	No Work done
557	97+285	97+358	73	92+080	92+135	55	Realignment	No Work done
558	97+358	97+420	62	92+135	92+195	60	Widening and Strengthening	No Work done
559	97+420	97+470	50	92+195	92+235	40	Realignment	No Work done
560	97+470	97+904	434	92+235	92+655	420	Widening and Strengthening	No Work done
561	97+904	97+950	46	92+655	92+700	45	Realignment	No Work done
562	97+950	98+580	630	92+700	93+340	640	Widening and Strengthening	No Work done
563	98+580	98+610	30	93+340	93+360	20	Realignment	No Work done
564	98+610	98+720	110	93+360	93+460	100	Widening and Strengthening	No Work done

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
565	98+720	99+156	436	93+460	93+850	390	Realignment	No Work done
566	99+156	99+471	315	93+850	94+150	300	Widening and Strengthening	No Work done
567	99+471	99+605	134	94+150	94+290	140	Realignment	No Work done
568	99+605	99+660	55	94+290	94+345	55	Widening and Strengthening	No Work done
569	99+660	99+947	287	94+345	94+620	275	Realignment	No Work done
570	99+947	100+119	172	94+620	94+800	180	Widening and Strengthening	No Work done
571	100+119	100+160	41	94+800	94+835	35	Realignment	No Work done
572	100+160	100+280	120	94+835	94+940	105	Widening and Strengthening	No Work done
573	100+280	100+478	198	94+940	95+140	200	Widening and Strengthening	Earthwork in Excavation
574	100+478	100+530	52	95+140	95+190	50	Realignment	Earthwork in Excavation
575	100+530	100+880	350	95+190	95+505	315	Widening and Strengthening	Earthwork in Excavation
576	100+880	100+900	20	95+505	95+530	25	Widening and Strengthening	No Work done
577	100+900	101+042	142	95+530	95+710	180	Widening and Strengthening	Earthwork in Excavation
578	101+042	101+060	18	95+710	95+730	20	Realignment	Earthwork in Excavation
579	101+060	101+103	43	95+730	95+760	30	Realignment	No Work done
580	101+103	101+254	151	95+760	95+890	130	Widening and Strengthening	No Work done
581	101+254	101+361	107	95+890	95+990	100	Realignment	No Work done
582	101+361	101+425	64	95+990	96+060	70	Widening and Strengthening	No Work done

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
583	101+425	101+430	5	96+060	96+065	5	Realignment	No Work done
584	101+430	101+505	75	96+065	96+155	90	Realignment	Earthwork in Excavation
585	101+505	101+630	125	96+155	96+250	95	Widening and Strengthening	Earthwork in Excavation
586	101+630	101+741	111	96+250	96+350	100	Realignment	Earthwork in Excavation
587	101+741	101+900	159	96+350	96+500	150	Widening and Strengthening	Earthwork in Excavation
588	101+900	102+150	250	96+500	96+740	240	Realignment	Earthwork in Excavation
589	102+150	102+296	146	96+740	96+885	145	Widening and Strengthening	Earthwork in Excavation
590	102+296	102+441	145	96+885	97+000	115	Realignment	Earthwork in Excavation
591	102+441	102+490	49	97+000	97+050	50	Widening and Strengthening	Earthwork in Excavation
592	102+490	102+555	65	97+050	97+090	40	Realignment	Earthwork in Excavation
593	102+555	102+710	155	97+090	97+150	60	Widening and Strengthening	Earthwork in Excavation
594	102+710	102+750	40	97+150	97+245	95	Widening and Strengthening	No Work done
595	102+750	102+800	50	97+245	97+270	25	Realignment	No Work done
596	102+800	102+810	10	97+270	97+275	5	Realignment	Earthwork in Excavation
597	102+810	102+940	130	97+275	97+400	125	Widening and Strengthening	Earthwork in Excavation
598	102+940	102+960	20	97+400	97+420	20	Widening and Strengthening	No Work done
599	102+960	102+970	10	97+420	97+430	10	Realignment	No Work done

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
600	102+970	103+005	35	97+430	97+440	10	Realignment	Earthwork in Excavation
601	103+005	103+010	5	97+440	97+445	5	Widening and Strengthening	Earthwork in Excavation
602	103+010	103+070	60	97+445	97+505	60	Widening and Strengthening	No Work done
603	103+070	103+418	348	97+505	97+855	350	Widening and Strengthening	Earthwork in Excavation
604	103+418	103+717	299	97+855	98+100	245	Realignment	Earthwork in Excavation
605	103+717	103+865	148	98+100	98+245	145	Widening and Strengthening	Earthwork in Excavation
606	103+865	103+870	5	98+245	98+250	5	Realignment	Earthwork in Excavation
607	103+870	104+040	170	98+250	98+400	150	Realignment	No Work done
608	104+040	104+180	140	98+400	98+500	100	Realignment	Earthwork in Excavation
609	104+180	104+210	30	98+500	98+530	30	Widening and Strengthening	Earthwork in Excavation
610	104+210	104+420	210	98+530	98+710	180	Realignment	Earthwork in Excavation
611	104+420	104+440	20	98+710	98+720	10	Realignment	No Work done
612	104+440	104+480	40	98+720	98+750	30	Realignment	Earthwork in Excavation
613	104+480	104+550	70	98+750	98+810	60	Realignment	No Work done
614	104+550	104+700	150	98+810	98+900	90	Realignment	Earthwork in Excavation
615	104+700	104+870	170	98+900	99+070	170	Widening and Strengthening	Earthwork in Excavation
616	104+870	104+930	60	99+070	99+120	50	Widening and Strengthening	No Work done

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
617	104+930	105+010	80	99+120	99+210	90	Widening and Strengthening	Earthwork in Excavation
618	105+010	105+040	30	99+210	99+250	40	Widening and Strengthening	No Work done
619	105+040	105+482	442	99+250	99+565	315	Realignment	No Work done
620	105+482	106+200	718	99+565	100+200	635	Widening and Strengthening	No Work done
621	106+200	106+390	190	100+200	100+350	150	Realignment	No Work done
622	106+390	106+488	98	100+350	100+440	90	Widening and Strengthening	No Work done
623	106+488	106+638	150	100+440	100+540	100	Realignment	No Work done
624	106+638	106+695	57	100+540	100+600	60	Widening and Strengthening	No Work done
625	106+695	106+860	165	100+600	100+750	150	Realignment	No Work done
626	106+860	107+128	268	100+750	101+000	250	Widening and Strengthening	No Work done
627	107+128	107+228	100	101+000	101+090	90	Realignment	No Work done
628	107+228	108+000	772	101+090	101+835	745	Widening and Strengthening	No Work done
629	108+000	108+822	822	101+835	102+600	765	Widening and Strengthening	Earthwork in Excavation
630	108+822	108+875	53	102+600	102+650	50	Realignment	Earthwork in Excavation
631	108+875	110+600	1725	102+650	104+300	1650	Widening and Strengthening	Earthwork in Excavation
632	110+600	110+660	60	104+300	104+355	55	Realignment	Earthwork in Excavation
633	110+660	110+866	206	104+355	104+510	155	Widening and Strengthening	Earthwork in Excavation
634	110+866	111+000	134	104+510	104+620	110	Realignment	Earthwork in ³⁸

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
								Excavation
635	111+000	111+010	10	104+620	104+630	10	Widening and Strengthening	Earthwork in Excavation
636	111+010	111+050	40	104+630	104+670	40	Widening and Strengthening	No Work done
637	111+050	111+110	60	104+670	104+730	60	Realignment	No Work done
638	111+110	111+135	25	104+730	104+750	20	Realignment	Earthwork in Excavation
639	111+135	111+620	485	104+750	105+205	455	Widening and Strengthening	Earthwork in Excavation
640	111+620	111+760	140	105+205	105+350	145	Widening and Strengthening	No Work done
641	111+760	111+810	50	105+350	105+390	40	Realignment	No Work done
642	111+810	112+030	220	105+390	105+560	170	Widening and Strengthening	No Work done
643	112+030	112+430	400	105+560	105+955	395	Widening and Strengthening	Earthwork in Excavation
644	112+430	112+450	20	105+955	105+975	20	Widening and Strengthening	No Work done
645	112+450	112+610	160	105+975	106+145	170	Widening and Strengthening	Earthwork in Excavation
646	112+610	112+685	75	106+145	106+200	55	Realignment	Earthwork in Excavation
647	112+685	112+740	55	106+200	106+255	55	Widening and Strengthening	Earthwork in Excavation
648	112+740	112+805	65	106+255	106+310	55	Realignment	Earthwork in Excavation
649	112+805	112+977	172	106+310	106+450	140	Widening and Strengthening	Earthwork in Excavation
650	112+977	113+190	213	106+450	106+600	150	Realignment	Earthwork in Excavation ³⁹

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
651	113+190	113+250	60	106+600	106+655	55	Widening and Strengthening	Earthwork in Excavation
652	113+250	113+340	90	106+655	106+740	85	Widening and Strengthening	No Work done
653	113+340	113+790	450	106+740	107+140	400	Widening and Strengthening	Earthwork in Excavation
654	113+790	113+820	30	107+140	107+165	25	Realignment	Earthwork in Excavation
655	113+820	113+828	8	107+165	107+170	5	Realignment	No Work done
656	113+828	113+920	92	107+170	107+265	95	Widening and Strengthening	No Work done
657	113+920	114+122	202	107+265	107+475	210	Widening and Strengthening	Earthwork in Excavation
658	114+122	114+223	101	107+475	107+550	75	Realignment	Earthwork in Excavation
659	114+223	114+520	297	107+550	107+845	295	Widening and Strengthening	Earthwork in Excavation
660	114+520	114+642	122	107+845	107+955	110	Widening and Strengthening	No Work done
661	114+642	114+698	56	107+955	108+000	45	Realignment	No Work done
662	114+698	115+335	637	108+000	108+660	660	Widening and Strengthening	No Work done
663	115+335	115+530	195	108+660	108+815	155	Realignment	No Work done
664	115+530	115+770	240	108+815	109+050	235	Widening and Strengthening	No Work done
665	115+770	115+845	75	109+050	109+105	55	Realignment	No Work done
666	115+845	119+750	3905	109+105	112+960	3855	No Geometric Improvement	No Work done
667	119+750	119+820	70	112+960	113+000	40	Realignment	No Work done
668	119+820	119+880	60	113+000	113+050	50	Widening and	No Work done

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage		Length (m)	Design Chainage		Length (m)	Improvement Proposal	Details of Work done by Previous Contractor
	From	To		From	To			
							Strengthening	
669	119+880	119+935	55	113+050	113+080	30	Realignment	No Work done
670	119+935	121+080	1145	113+080	114+210	1130	Widening and Strengthening	No Work done
671	121+080	121+238	158	114+210	114+340	130	Realignment	No Work done
672	121+238	121+350	112	114+340	114+450	110	Widening and Strengthening	No Work done
673	121+350	121+415	65	114+450	114+510	60	Realignment	No Work done
674	121+415	122+455	1040	114+510	115+530	1020	Widening and Strengthening	No Work done

The Index Map is appended at the end of this **Schedule-A**.

2. Chainage References (Existing Vs Design)

“Existing Chainage” means distance measured along existing roadway/vehicle pathway on the Project Highway. During topography survey, observations are made to these locations and after finalization of alignment by improving the existing geometry the chainage has been referred to “Design Chainage”. The relationship between the “Existing Chainage” and the “Design Chainage” as per field surveys of the location for the “Project Highway” is given below:

Sl. No	Existing Chainage (Km)	Design Chainage (Km)	Remarks
1	100+345	95+000	
2	101+361	95+990	
3	102+441	97+000	
4	103+865	98+245	
5	104+180	98+500	
6	105+482	99+565	
7	106+638	100+540	
8	107+228	101+090	
9	108+822	102+600	
10	109+600	103+370	
11	110+866	104+510	
12	111+810	105+390	
13	112+685	106+200	
14	113+790	107+140	

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No	Existing Chainage (Km)	Design Chainage (Km)	Remarks
15	114+642	107+955	
16	115+770	109+050	
17	115+845	109+105	
18	116+375	109+625	
19	117+400	110+700	
20	118+200	111+500	
21	119+935	113+080	
22	120+600	113+735	
23	121+415	114+510	

3. Land

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

Sl. No	Existing Chainage (km)		Design Chainage (km)		Length in m (Design)	Existing/ Available ROW (m)	Remarks
	From	To	From	To			
1	100+345	122+250	95+000	115+534	20534	3.0 to 3.5	No ROW available in realignment stretches of total 3.750 km. as given in para 2.3.1 of Annexure-1 Schedule-B.

4. Carriageway

The present carriageway of the Project Highway is substandard single lane configuration. The type of the existing pavement is flexible.

5. Major Bridges

The Site includes the following Medium Size Bridge:

Sl. No.	Design Chainage (km)	Type of Structures			No. of Spans with span length (m)	Width (m)
		Foundation	Sub-Structure	Super structure		
NIL						

6. Railway over-bridges (ROB)

The Site includes the following Railway Over Bridges

Sl. No.	Chainage (km)	Type of Structures			No. of Spans with span length (m)	Width (m)
		Foundation	Sub-Structure	Superstructure		
NIL						

7. Grade Separators

The Site includes the following Grade separators

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

8. Minor Bridges

The Site includes the following minor Bridges:

Sl. No.	Road Segment	Existing Chainage (km)	Type of Structures			No. of Spans with Span Length (m)	Total Width (m)
			Foundation	Sub-Structure	Super Structure		
NIL							

9. Railway level crossings / Railway Track

The Site includes the following railway level crossings:

Sl. No.	Road Segment	Existing Chainage (km)	Remarks
Nil			

10. Underpasses (vehicular, Non Vehicular)

The Site includes the following underpasses:

Sl. No.	Road Segment	Existing Chainage (km)	Type of Structure	No. of Spans with Span Length (m)	Width (m)
Nil					

11. Culverts

The Site includes 54 Nos. of culverts at the following locations and types:

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”



Sl. No.	Existing Chainage (km)	Type of Structure	Span / Dia. (m)	Width of Structure (m)	Remarks
1	100+590	Pipe	1 x 1.0	7.0	
2	101+678	Slab	1 x 1.5	9.9	
3	101+875	Slab	not visible	-	
4	101+940	Slab	1 x 1.5	7.4	
5	102+040	Slab	not visible	-	
6	102+135	Slab	not visible	-	
7	102+235	Slab	not visible	-	
8	103+055	Slab	1 x 1.0	12.3	
9	103+538	Slab	1 x 1.5	7.2	
10	104+022	Slab	1 x 1.5	7.2	
11	104+318	Pipe	1 x 1.0	8.8	
12	108+625	Pipe	1 x 1.0	13.5	
13	109+190	Pipe (may be)	Not visible (fully buried) and broken	-	
14	110+460	Pipe	1 x 0.9	14.0	
15	110+850	Slab	not visible	-	
16	111+150	Pipe	1 x 1.0	10.7	
17	111+260	Slab	1 x 1.5	7.2	
18	112+080	Pipe	1 x 1.0	6.3	
19	112+370	Pipe	1 x 1.0	6.2	
20	112+703	Slab	1 x 1.5	8.4	
21	113+140	Slab	1 x 1.5	12.5	
22	113+250	Slab	1 x 1.5	7.5	
23	113+838	Slab	1 x 1.5	11.0	
24	114+690	Pipe	1 x 0.9	8.5	
25	114+890	Pipe	1 x 0.9	9.0	
26	114+995	Pipe	1 x 1.0	7.0	
27	115+255	Pipe	1 x 1.0	6.4	
28	115+985	Pipe	1 x 1.0	6.6	
29	116+080	Slab	1 x 1.5	7.2	
30	116+300	Pipe (may be)	Not visible (fully buried) and broken	-	
31	116+502	Pipe	1 x 0.9	6.6	
32	116+752	Pipe	1 x 1.0	6.2	
33	116+790	Pipe	1 x 0.9	6.6	
34	117+005	Slab	1 x 1.5	7.0	
35	117+185	Slab	1 x 1.0	9.9	
36	117+276	Pipe	1 x 1.0	6.4	
37	117+743	Slab	1 x 4.5	7.2	
38	118+150	Pipe	1 x 0.6	5.6	
39	118+215	Slab	1 x 1.0	7.4	
40	118+345	Pipe	1 x 1.0	8.3	
41	118+440	Slab	1 x 0.8	6.0	
42	118+612	Slab	1 x 1.0	7.4	
43	119+730	Pipe	1 x 1.0	18.0	

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Sl. No.	Existing Chainage (km)	Type of Structure	Span / Dia. (m)	Width of Structure (m)	Remarks
44	120+115	Slab	1 x 0.8	7.0	
45	120+277	Slab	1 x 1.0	7.0	
46	120+448	Slab	1 x 1.5	6.0	
47	120+725	Slab	1 x 1.0	6.2	
48	120+930	Slab	1 x 1.0	9.3	
49	121+035	Slab	1 x 1.0	7.0	
50	121+110	Slab	1 x 1.0	6.7	
51	121+245	Slab	1 x 1.5	6.0	
52	121+545	Slab	1 x 1.0	6.8	
53	121+590	Slab	1 x 1.0	8.4	
54	121+695	Slab	1 x 0.9	5.0	

12. Bus Bays

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

Sl. No.	Road Segment	Existing Chainage (km)	Length (m)	Left Hand Side	Right Hand Side
NIL					

13. Truck Lay Bye

The details of truck lay byes on the Site are as follows:

Sl. No.	Road Segment	Existing Chainage (km)	Length (m)	Left Hand Side	Right Hand Side
NIL					

14. Road side drains.

The details of the road side drains on the Site are as follows:

Sl. No.	Existing Location		Side	Type	
	From (km)	To (km)		Masonry/CC (Pucca)	Earthen (Kutcha)
1	115+000	116+000	Right		Earthen (Kutcha)
2	116+100	116+200	Right	Masonry	
3	116+200	116+300	Right		Earthen (Kutcha)
4	116+300	116+400	Right	Masonry	
5	116+800	117+019	Right	Masonry	
6	118+400	119+000	Right	Masonry	
7	119+200	119+400	Right	Masonry	
8	119+600	120+000	Right	Masonry	

15. Major Junctions

The details of major junctions are as follows:

Sl. No.	Location		At Grade	Separated	Category of Cross Roads			
	Existing km	Design km			NH	SH	MDR	Others
1	102+600	97+135	At Grade	-			MDR	

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

16. Minor Junctions

The details of minor junctions are as follows:

Sl. No.	Existing Chainage (Km)	Design Chainage (Km)	Type	
			'T' Junction	Cross Road both sides
1	102+612	97+140	T Junction	
2	117+670	110+960	T Junction	
3	117+740	111+010	T Junction	
4	118+005	111+300	T Junction	
5	118+055	111+350	T Junction	
6	118+330	111+650	T Junction	
7	118+825	111+900	T Junction	
8	119+145	112+320	T Junction	
9	119+189	112+360	T Junction	
10	119+190	112+361	T Junction	
11	119+425	112+575	T Junction	
12	119+565	112+725	T Junction	
13	119+722	112+940	T Junction	
14	119+740	112+950	T Junction	
15	120+190	113+290	T Junction	
16	120+225	113+325	T Junction	
17	121+553	114+650	T Junction	
18	122+250	115+235	T Junction	

17. Bypasses

The details of bypass are as follows:

Sl. No.	Name of Proposed Bypass (Town)	Road Segment	Existing Chainage		Length (km)	Carriageway	
			From (km)	To (km)		Width m)	Type
NIL							

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

18. Other Structures/Details

The details of other structures are as follows:

Sl. No.	Type	Existing Chainage (km)	Length (m)	Width
Nil				



Annex-II
(Schedule-A)

Details for Providing Right of Way

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

Sl. No	Design Chainage		Length (Km)	Proposed ROW Width (m)	Date of Providing proposed ROW
	From	To			
i) 90% of ROW (full width)	95+000	115+543	20.534	Varying ROW from minimum 24m to maximum 45 m at different locations as per cross section in DPR	At Appointed date
ii) Balance Right of way (width)	95+000	115+543	20.534	Varying ROW from minimum 24m to maximum 45 m at different locations as per cross section in DPR	Within 150 days after the appointed date



Annex-III
(Schedule-A)

Alignment Plans

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

ENCLOSED



Annex-IV
(Schedule-A)

Environmental Clearances

The project Highway does not require Environment Clearance as per M o E F corrigendum dated 22.08.2013.



INDEX MAP OF PROJECT HIGHWAY SECTION



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

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

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.

Annex I (Schedule-B)

Description of Two Laning

The particulars specified in this Schedule-B are listed below as per the requirements of the Manual of Specifications and Standards for Two Laning of Highways (IRC SP:73-2015); referred to as the Manual. If any standards, specifications or details are not given in the Manual, the minimum design/construction requirements are specified in this Schedule or Schedule D.

Refer remarks column of table under Para 1.1 of Annex I of Schedule A, construction carried out by previous contractor has been indicated. The contractor has to satisfy himself about the site conditions, quantity and quality of work done. He will be accordingly fully responsible for further requirement of design and construction of 2 lane with hard shoulders.

1.0 WIDENING OF THE EXISTING HIGHWAY

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

1.2 WIDTH OF CARRIAGEWAY

1.2.1 Two-Laning with hard shoulders shall be undertaken. The paved carriageway shall be 7 (seven) m wide in accordance with the typical cross-sections drawings in the Manual.

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

Sl. No.	Built-up stretch (Township)	Location(Design Chainage)		Width (m)	Typical cross section
		From (Km)	To (Km)		
1	Zhekiye	97+550	97+650	10	TCS IV and V
2	Shoixe	101+075	101+625	10	
3	Sukhalu	105+550	106+025	10	
4	Zunheboto Town	108+350	108+700	10	
5	Zunheboto Town	109+060	109+260	10	
6	Zunheboto Town	109+450	115+315	10	

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

- 1.2.3 On horizontal curves with radius upto 300 metres width of pavement and Roadway shall be increased as follows-

S. No.	Radius of Curve	Extra width of Carriageway
1	21 to 40	1.5
2	41 to 60	1.2
3	61 to 100	0.9
4	101 to 300	0.6

- 1.2.4 At hairpin bends the roadway width of 11.5 m should be surfaced as per Section 13.4 of the Manual for minimum length of 50m.

2.0 GEOMETRIC DESIGN AND GENERAL FEATURES

2.1 General

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

2.2 Design speed

The design speed shall be as per IRC SP 73: 2015 however in exceptional cases the minimum design speed can be 30 km per hour for hilly and mountainous terrain and 20 km per hour for hair pin bend locations.

2.3 Improvement of the existing road geometrics

[Refer to paragraph 2.1 (vi) of the Manual and provide details]

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 in accordance with Section 13 of the Manual within the given right of way and proper road signs and safety measures shall be provided and in other sections it shall be designed in accordance with Section 2 of the Manual.

Sl. No.	Design Chainage(m)		Side	Type of Deficiency	Remarks
	From	To			
1	95+538.38	95+605.40	Right	Radius<40	
2	95+702.07	95+768.77	Left	Radius<40	
3	95+864.51	95+933.60	Left	Radius<40	
4	95+933.60	96+026.88	Right	Radius<40	
5	97+416.09	97+451.87	Right	Radius<40	
6	98+487.17	98+566.34	Right	Radius<40	
7	101+723.96	101+805.31	Right	Radius<40	
8	101+805.31	101+887.12	Left	Radius<40	

Sl. No.	Design Chainage(m)		Side	Type of Deficiency	Remarks
	From	To			
9	105+841.25	105+887.96	Left	Radius<40	
10	106+246.19	106+344.93	Left	Radius<40	
11	109+115.86	109+201.12	Right	Radius<40	
12	109+308.57	109+368.52	Left	Radius<40	
13	109+477.91	109+520.56	Right	Radius<40	
14	109+535.05	109+568.08	Left	Radius<40	
15	109+636.31	109+662.24	Right	Radius<40	
16	109+805.72	109+834.92	Right	Radius<40	
17	109+938.26	109+987.86	Right	Radius<40	
18	110+009.44	110+030.26	Left	Radius<40	
19	110+044.64	110+061.66	Left	Radius<40	
20	110+082.74	110+098.83	Right	Radius<40	
21	110+260.38	110+278.96	Left	Radius<40	
22	110+294.43	110+314.40	Right	Radius<40	
23	110+323.10	110+339.46	Left	Radius<40	
24	110+529.75	110+553.91	Right	Radius<40	
25	110+587.29	110+636.20	Left	Radius<40	
26	110+676.87	110+748.88	Right	Radius<40	
27	110+852.76	110+893.17	Left	Radius<40	
28	110+929.45	110+970.61	Right	Radius<40	
29	111+005.44	111+035.39	Left	Radius<40	
30	111+211.64	111+223.64	Left	Radius<40	
31	111+268.74	111+282.14	Left	Radius<40	
32	111+895.98	111+942.00	Left	Radius<40	
33	111+963.66	111+997.15	Right	Radius<40	
34	112+426.37	112+469.78	Right	Radius<40	
35	112+632.13	112+667.67	Right	Radius<40	

2.3.1 Improvement due to Realignments:

Sl. No.	Existing Chainage (Km)		Length (m)	Design Chainage (Km)		Length (m)
	From	To		From	To	
1	100+478	100+530	52	95+140	95+190	50
2	101+042	101+103	61	95+710	95+760	50
3	101+254	101+361	107	95+890	95+990	100
4	101+425	101+505	80	96+060	96+155	95
5	101+630	101+741	111	96+250	96+350	100

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage (Km)		Length (m)	Design Chainage (Km)		Length (m)
	From	To		From	To	
6	101+900	102+150	250	96+500	96+740	240
7	102+296	102+441	145	96+885	97+000	115
8	102+490	102+555	65	97+050	97+090	40
9	102+750	102+810	60	97+245	97+275	30
10	102+960	103+005	45	97+400	97+440	40
11	103+418	103+717	299	97+855	98+100	245
12	103+865	104+180	315	98+245	98+500	255
13	104+210	104+700	490	98+530	98+900	370
14	105+040	105+482	442	99+250	99+565	315
15	106+200	106+390	190	100+200	100+350	150
16	106+488	106+638	150	100+440	100+540	100
17	106+695	106+860	165	100+600	100+750	150
18	107+128	107+228	100	101+000	101+090	90
19	108+822	108+875	53	102+600	102+650	50
20	110+600	110+660	60	104+300	104+355	55
21	110+866	111+000	134	104+510	104+620	110
22	111+050	111+135	85	104+670	104+750	80
23	111+760	111+810	50	105+350	105+390	40
24	112+610	112+685	75	106+145	106+200	55
25	112+740	112+805	65	106+255	106+310	55
26	112+977	113+190	213	106+450	106+600	150
27	113+790	113+828	38	107+140	107+170	30
28	114+122	114+223	101	107+475	107+550	75
29	114+642	114+698	56	107+955	108+000	45
30	115+335	115+530	195	108+660	108+815	155
31	115+770	115+845	75	109+050	109+105	55
32	119+750	119+820	70	112+960	113+000	40
33	119+880	119+935	55	113+050	113+080	30
34	121+080	121+238	158	114+210	114+340	130
35	121+350	121+415	65	114+450	114+510	60

2.4 Proposed Right of Way

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

Contractor has to design and construct the road, if required by provision of retaining walls and/or breast walls/slope stabilization/protection measures within the Right of Way given above and provision of the same shall not

constitute a change of scope.

2.5 Type of Shoulders

(a) In built-up sections, footpaths/fully paved shoulders shall be provided in accordance with Clause 1.2.1 above.

(b) In open country, Hard Shoulder with GSB having thickness of 200mm, total 3 metre wide including both sides shall be provided and balance width shall be covered with 150 mm thick compacted layer of granular material.

(c) Design and specifications of paved shoulders and granular material shall conform to the requirements specified in paragraphs 5.10 and 5.11 of the Manual.

2.6 Lateral and vertical clearances at underpasses

2.6.1 Lateral and vertical clearances at underpasses and provision of guardrails/crash barriers shall be as per paragraph 2.10 of the Manual.

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

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

2.7 Lateral and vertical clearances at overpasses

2.7.1 Lateral and vertical clearances at overpasses shall be as per paragraph 2.11 of the Manual.

2.7.2 **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				

2.8 Service roads

Service roads shall be constructed at the locations and for the lengths indicated below:[Refer to paragraph 2.12 of the Manual and provide details]

Sl. No.	Location of Service Road (km)	Right Hand Side (RHS) / Left Hand Side (LHS) / Both	Length (km) of Service Road
---------	-------------------------------	---	-----------------------------

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

	From	To	Sides	
Nil				

2.9 Grade Separated Structures

2.9.1 Grade separated structures shall be provided as per paragraph 2.13 of the Manual. The requisite particulars are given below:

[Refer to paragraphs 2.13.3 of the Manual and provide details]

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

2.9.2 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: [Refer to paragraphs 2.13.1 of the Manual and specify the type of vehicular under pass/overpass structure and whether the cross road is to be carried at the existing level, raised or lowered].

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

2.10 Cattle and pedestrian underpass / Overpass

Cattle and pedestrian underpass/overpass shall be constructed as follows: [Refer to paragraph 2.13.2 of the Manual and specify the requirements of cattle and pedestrian underpass/overpass.

Sl. No.	Location	Type of Crossing
Nil		

2.11 Typical cross-sections of the Project Highway

The proposed cross sections for various situations are given in Fig.B-1 to B-6. These illustrate the cross sectional improvement proposals for the project highway. The Project Highway (length 20.534 km) shall be 2-lane carriageway with 3 m wide Hard shoulders facility including both sides.

Following typical cross sections shall be provided for the Project Highway However to be designed as per manual.

TCS I (a): Typical Cross Section for project road sections in Hill / Valley

	locations
TCS I (b):	Typical Cross Section for Project Road Sections requiring Fill on Valley Side
TCS II:	Typical Cross Section for project road section on ridge
TCS III:	Typical Cross Section for Project Road Sections through Box Cut Locations
TCS IV:	Typical Cross Section for Project Road Section through Town with Hill Valley Combination
TCS V:	Typical Cross Section for Project Road Section through Town on Ridge

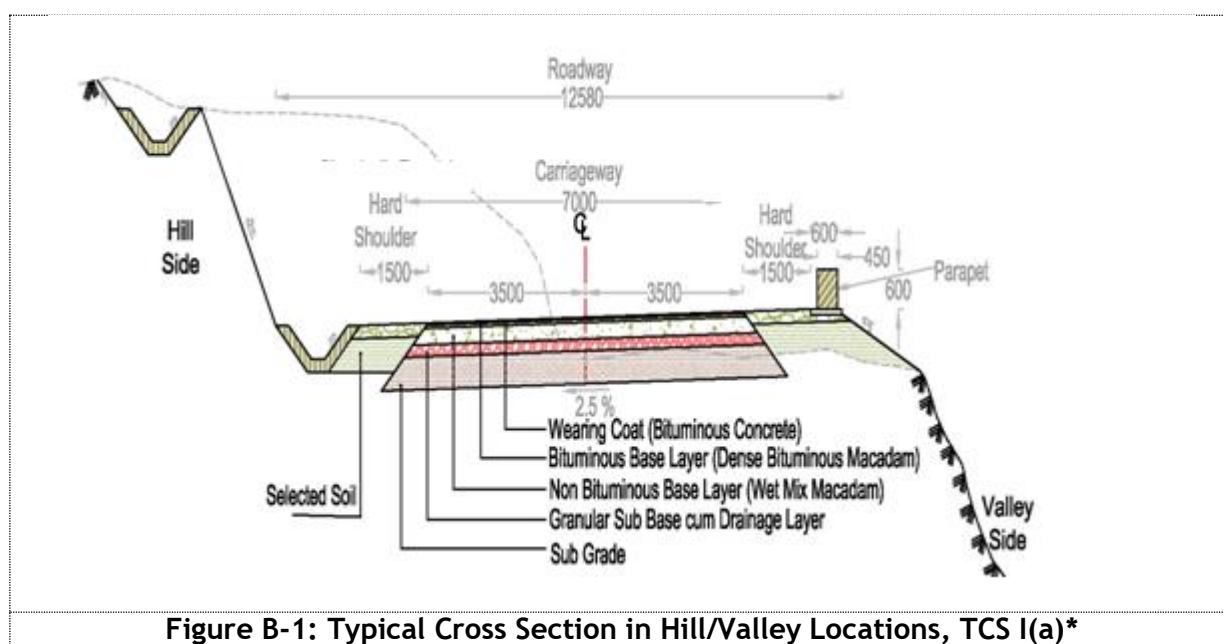
The cross section schedule shall be as follows:

Sl. No.	Chainage (Km)		Length (m)	Type	Remarks
	From	To			
1	95+000	95+550	550	I	
2	95+550	95+670	120	III	
3	95+670	95+880	210	I	
4	95+880	95+900	20	III	
5	95+900	97+430	1530	I	
6	97+430	97+700	270	II	
7	97+700	99+350	1650	I	
8	99+350	99+370	20	II	
9	99+370	99+800	430	I	
10	99+800	99+860	60	II	
11	99+860	100+000	140	I	
12	100+000	100+070	70	II	
13	100+070	100+100	30	I	
14	100+100	100+200	100	II	
15	100+200	100+260	60	I	
16	100+260	100+280	20	II	
17	100+280	102+850	2570	I	
18	102+850	102+950	100	II	
19	102+950	103+050	100	I	
20	103+050	103+080	30	II	
21	103+080	107+500	4420	I	
22	107+500	107+640	140	III	
23	107+640	108+770	1130	I	
24	108+770	108+810	40	III	
25	108+810	109+480	670	I	
26	109+480	111+630	2150	V	
27	111+630	112+700	1070	V	
28	112+700	112+950	250	V	

Sl. No.	Chainage (Km)		Length (m)	Type	Remarks
	From	To			
29	112+950	113+420	470	IV	
30	113+420	113+840	420	IV	
31	113+840	114+250	410	IV	
32	114+250	114+330	80	III	
33	114+330	114+470	140	IV	
34	114+470	115+534	1064.347	IV	

Note: The extent of cross section type is indicative and shall be reviewed in consultation with the Authority Engineer at the time of construction as per the site condition. Type I Cross section consist of two variants as I (a) without retaining wall on valley side and 1(b) with retaining wall on valley side as detailed in figure B1 & B2 respectively. For locations please refer designed cross section @ 20 m interval detailed in Annexure III of Schedule A.

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.



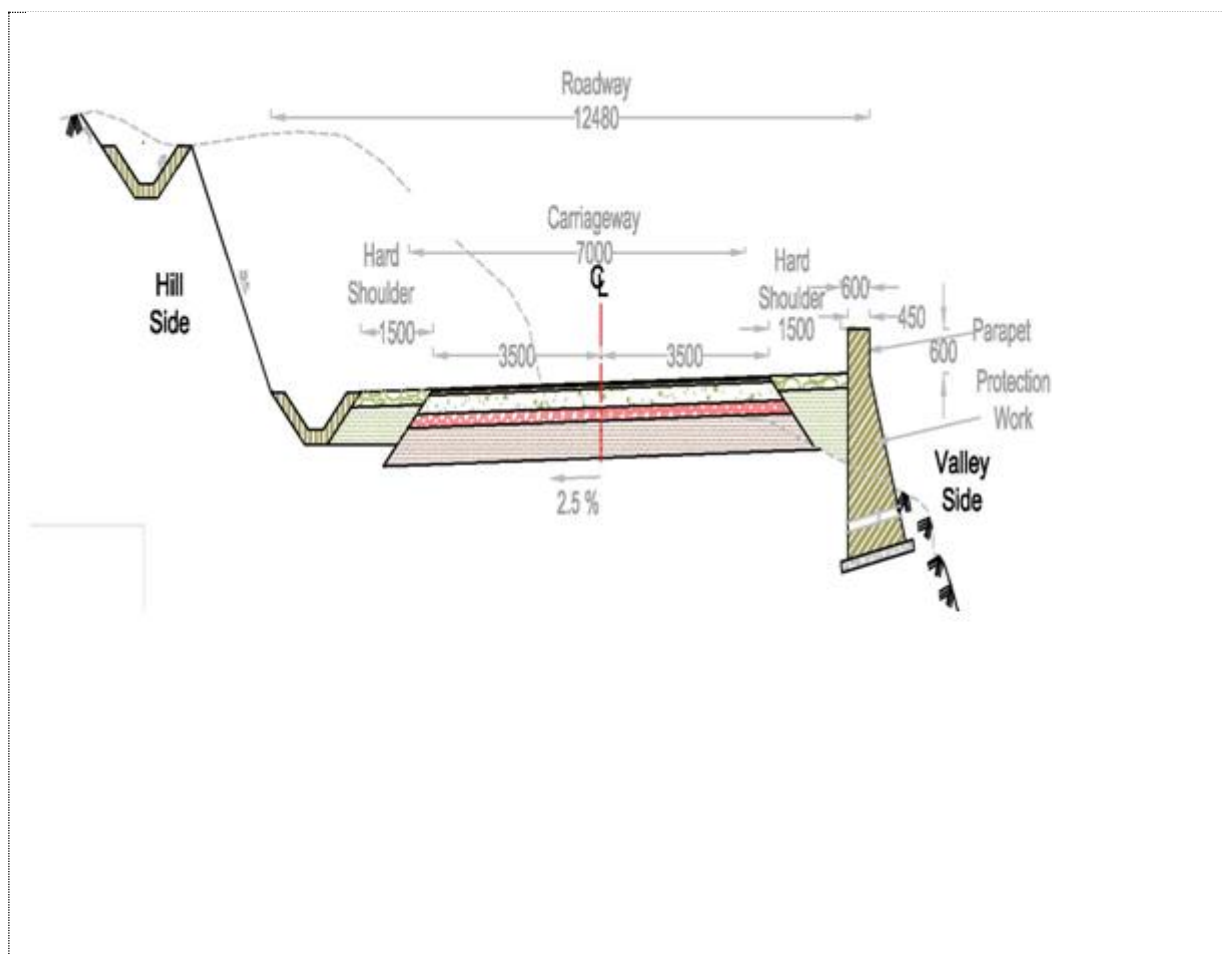


Figure B-2: TCS for Project Road Sections requiring Fill on Valley Side TCS I(b)*

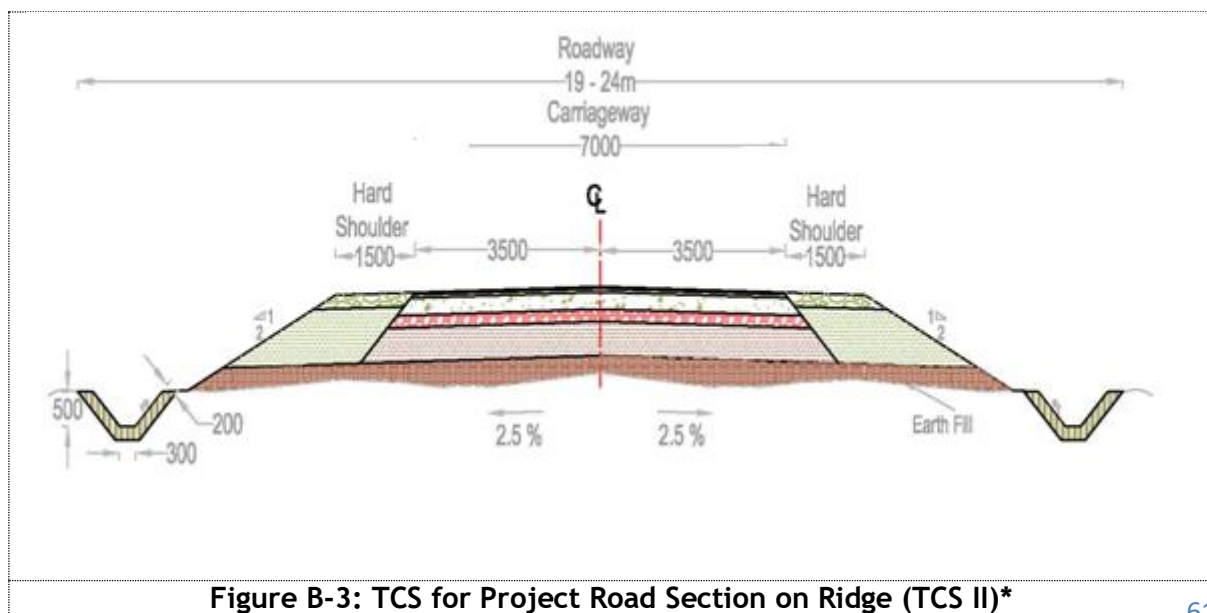
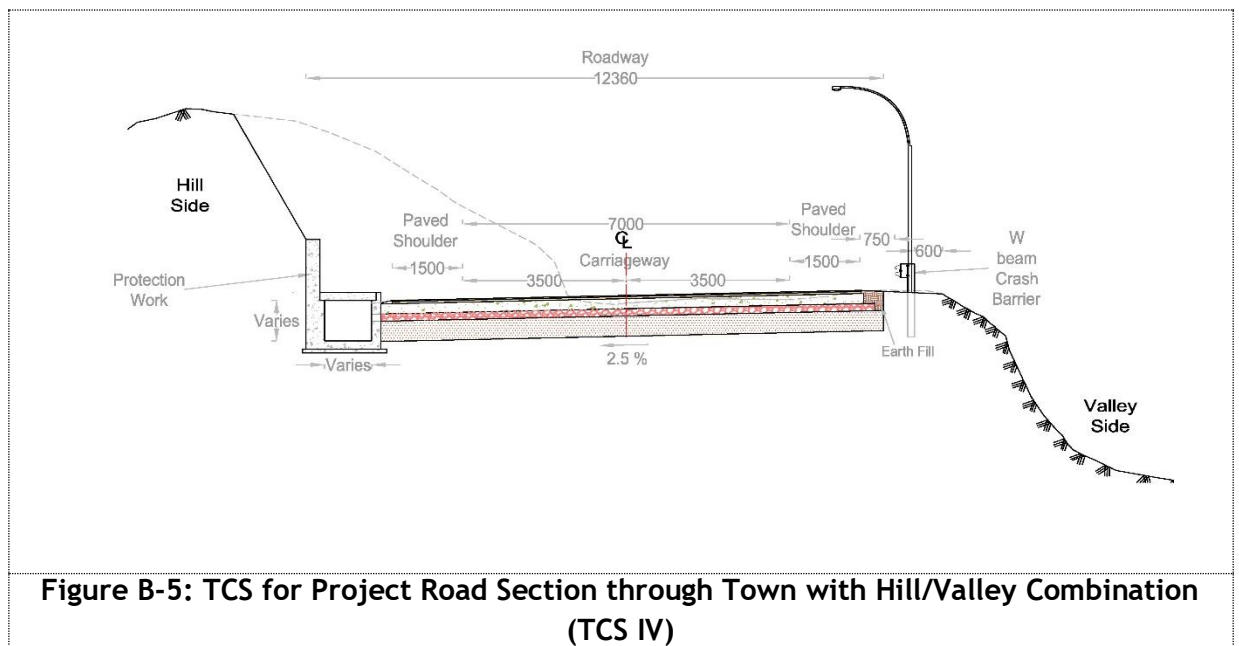
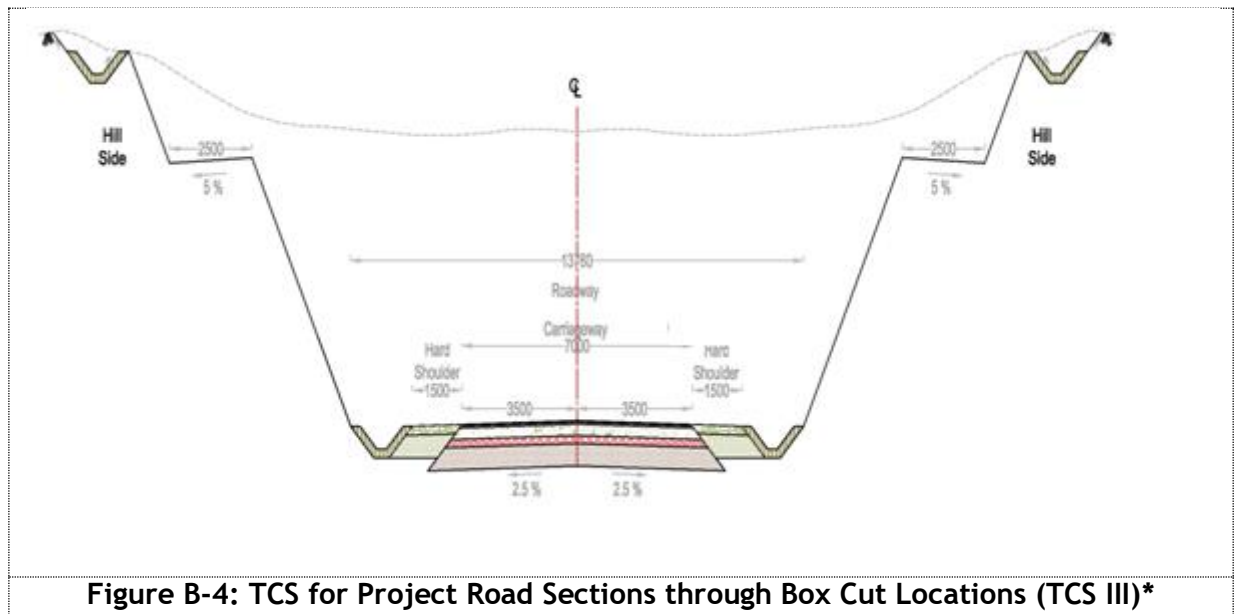
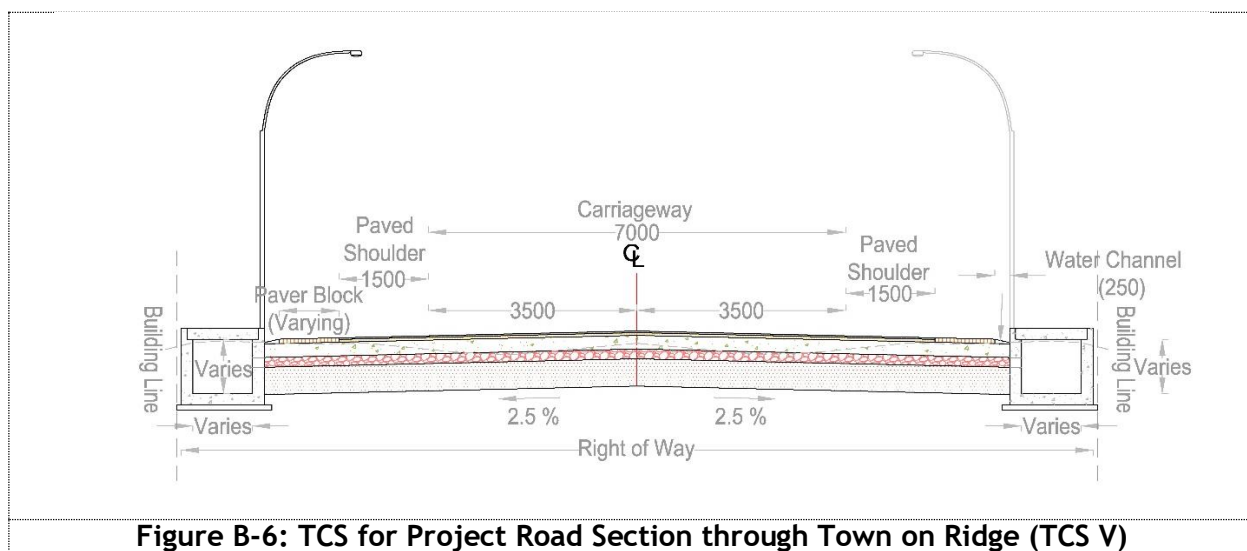


Figure B-3: TCS for Project Road Section on Ridge (TCS II)*

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”





3.0 INTERSECTIONS AND GRADE SEPARATORS

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

[Refer to paragraphs 3.1.1, 3.1.2 and 3.3 of the Manual and specify the requirements. Explain where necessary with drawings/sketches/general arrangement].

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

(a) At-grade Intersections

(i) Major Intersections

Sl. No.	Location of Intersection	Intersection Towards	Type of Intersection	Figure No.	Other Features
01	102+600	97+135	T	B 9	As per Figure

Details of junction improvements shall be as per IRC SP: 73-2015.

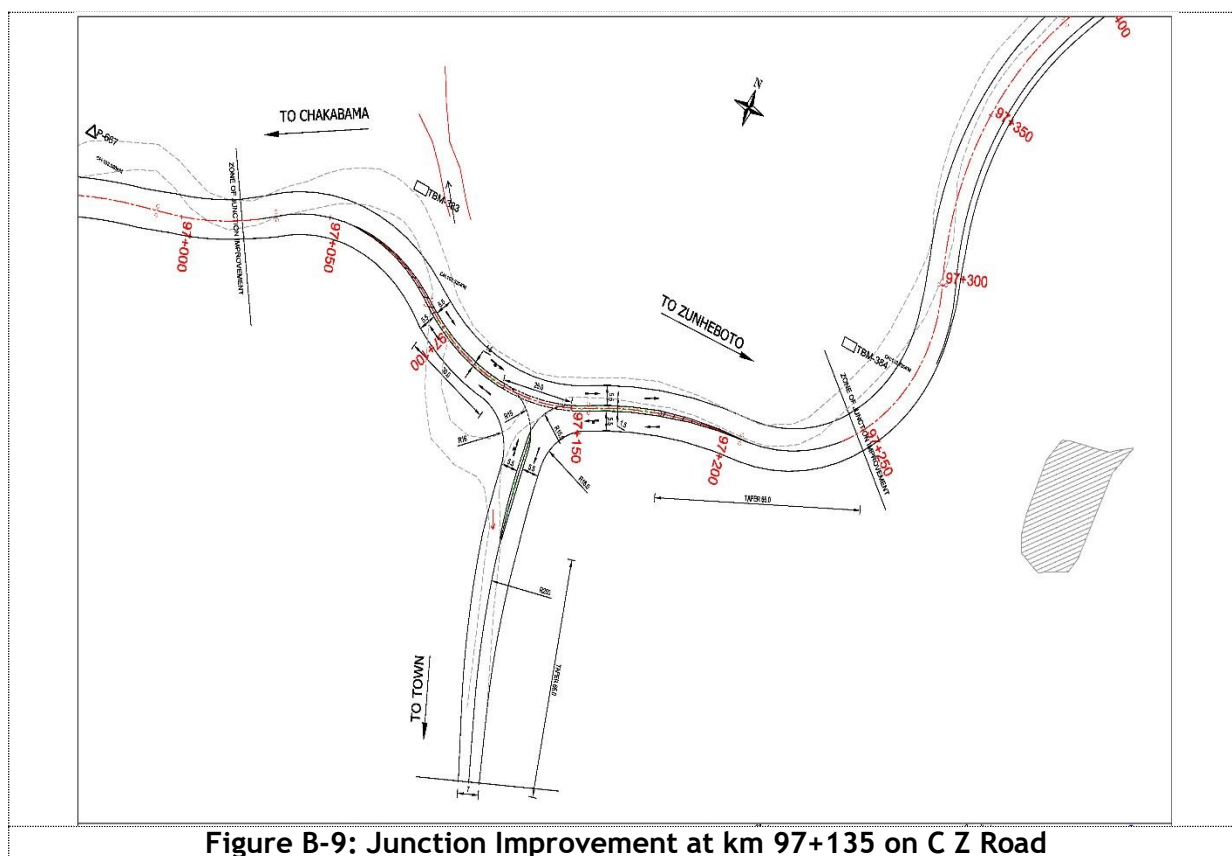


Figure B-9: Junction Improvement at km 97+135 on C Z Road

(ii) Minor Intersections

Sl. No.	Location of Intersection (Design Chainage, km)	Type of Intersection	Side
1	97+140	T	Right
2	110+960	T	Left
3	111+010	T	Right
4	111+300	T	Right
5	111+350	T	Right
6	111+650	T	Right
7	111+900	T	Left
8	112+320	T	Left
9	112+360	T	Right
10	112+361	T	Right
11	112+575	T	Left
12	112+725	T	Right
13	112+940	T	Right
14	112+950	T	Right
15	113+290	T	Right
16	113+325	T	Left
17	114+650	T	Right

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Location of Intersection (Design Chainage, km)	Type of Intersection	Side
18	115+235	T	Right

Details of junction improvements shall be as per IRC SP: 73-2015.

(b) 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				

4.0 ROAD EMBANKMENT AND CUT SECTION

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

4.2 Raising of the existing road [Refer to paragraph 4.2 of the Manual and specify sections to be raised].

The existing road shall be raised in the following sections:

Sl No.	Section (km)		Length (km)	Extent of Raising [Top of finished road level]
	From	To		
Nil				

5.0 PAVEMENT DESIGN

5.1 Pavement design shall be carried out in accordance with section 5 of the Manual.

5.2 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.

5.3 Design Requirements

The granular layers (base and sub base) shall be designed for minimum 20 msa. The bituminous courses (Dense Bituminous Macadam and Bituminous Concrete) shall be designed for minimum 5 msa. Bituminous Concrete shall be minimum 40 mm thick.

Bituminous Grade VG 40 shall be used for BC.

5.4 Reconstructions of stretches/ Realignment/ Bypass of sections

5.4.1 [Refer to paragraph 5.9.7 of the manual and specify the stretches, if any, to be reconstructed.]

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

Sl. No.	Existing Section (km)		Remarks
	From	To	
1	100+345	122+250	Poor condition of existing pavement and or Realignment Section

5.4.3 Rigid Pavement

No rigid pavement has been considered for the Project Highway.

6.0 ROAD SIDE DRAINAGE

Drainage system including surface and subsurface drains for the Project Highway shall be provided as per section 6 of the Manual.

The improvements in the drainage and the slope erosion shall be made as per the following norms:

6.1 Drainage Measures

Following measures shall be adopted:

- i) Minimum length of Covered RCC Drain with Kerb Channel on Hill Side= 9444m
- ii) Minimum length of Road Side Drains= 11461m

RCC Lined drains having rectangular shape have 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. Table below gives the location of lined drains.

These are guidelines for minimum provisions. However, contractor has to design as per requirement of road in accordance with manual.

Details of Drains

Sl. No.	Design Chainage (Km)		Length (M)	Remarks
	From	To		
1	95+000	95+550	550	V-shaped PCC Drain on Hill Side
2	95+550	95+670	120	V-shaped PCC Drain on Both Sides
3	95+670	95+880	210	V-shaped PCC Drain on Hill Side
4	95+880	95+900	20	V-shaped PCC Drain on Both Sides
5	95+900	97+430	1530	V-shaped PCC Drain on Hill Side
6	97+430	97+700	270	V-shaped PCC Drain on Both Sides
7	97+700	99+350	1650	V-shaped PCC Drain on Hill Side
8	99+350	99+370	20	V-shaped PCC Drain on Both Sides
9	99+370	99+800	430	V-shaped PCC Drain on Hill Side
10	99+800	99+860	60	V-shaped PCC Drain on Both Sides
11	99+860	100+000	140	V-shaped PCC Drain on Hill Side
12	100+000	100+070	70	V-shaped PCC Drain on Both Sides
13	100+070	100+100	30	V-shaped PCC Drain on Hill Side
14	100+100	100+200	100	V-shaped PCC Drain on Both Sides
15	100+200	100+260	60	V-shaped PCC Drain on Hill Side
16	100+260	100+280	20	V-shaped PCC Drain on Both Sides
17	100+280	102+850	2570	V-shaped PCC Drain on Hill Side
18	102+850	102+950	100	V-shaped PCC Drain on Both Sides
19	102+950	103+050	100	V-shaped PCC Drain on Hill Side
20	103+050	103+080	30	V-shaped PCC Drain on Both Sides
21	103+080	107+500	4420	V-shaped PCC Drain on Hill Side
22	107+500	107+640	140	V-shaped PCC Drain on Both Sides
23	107+640	108+770	1130	V-shaped PCC Drain on Hill Side
24	108+770	108+810	40	V-shaped PCC Drain on Both Sides
25	108+810	109+480	670	V-shaped PCC Drain on Hill Side
26	109+480	111+630	2150	RCC Covered Drain on Both Sides
27	111+630	112+700	1070	RCC Covered Drain on Both Sides
28	112+700	112+950	250	RCC Covered Drain on Both Sides
29	112+950	113+420	470	RCC Covered Drain on Hill Side
30	113+420	113+840	420	RCC Covered Drain on Hill Side
31	113+840	114+250	410	RCC Covered Drain on Hill Side
32	114+250	114+330	80	V-shaped PCC Drain on Both Sides
33	114+330	114+470	140	RCC Covered Drain on Hill Side
34	114+470	115+534	1064.347	RCC Covered Drain on Hill Side

Note: (i) Road side drain shall preferably be V-shaped having wetted area of 0.4 sqm

(ii) The above locations shall be reviewed in consultation with the Authority Engineer at the time of construction as per the site condition.

7.0 DESIGN OF STRUCTURES

7.1 General

7.1.1 The Project road from Km. 95.000 to Km.115.534 (design chainages), includes provision of **101 box culverts**. All bridges, culverts and structures shall be designed and constructed in accordance with section 7 of the Manual and shall conform to the cross-sectional features and other details specified therein.

7.1.2 Width of the carriageway of new bridges and Structures shall be as per Clause 7.3 of the Manual.

7.1.3 All bridges shall be high-level bridges.

[Refer to paragraph 7.1(iii) of the Manual and state if there is any exception]

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

[Refer to paragraph 7.1 (viii) of the Manual and provide details]

Sl. No.	Bridge at Km	Utility service to be carried	Remarks
NIL			

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

7.2 Culverts

7.2.1 Overall width of all culverts shall be equal to the roadway width of the approaches. Catch water pit at every culvert location shall be provided as per IRC standard and Breast wall of varying height shall also be provided at the end of catchpit along hill side to protect against hill toe erosion. All box culverts (excluding the box culverts in cushion) shall be provided with approach slabs on both sides.

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

S. No.	Span (m)	No. of culverts
1	1.5	26
2	2.0	60
3	3.0	14
4	4.0	NIL
5.	5.0	1

7.2.2 Reconstruction of existing culverts

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

[Refer to paragraph 7.3 (iii) 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.

Sl. No.	Existing Chainage (km)	Design Chainage (km)	Proposed Span (m)	Proposal
1	100+590	95+290	1.5	RCC Box
2	101+678	96+330	3.0	RCC Box
3	101+875	96+510	3.0	RCC Box
4	101+940	96+570	3.0	RCC Box
5	102+040	96+680	2.0	RCC Box
6	102+135	96+785	3.0	RCC Box
7	102+235	96+870	3.0	RCC Box
8	103+055	97+500	2.0	RCC Box
9	103+538	97+940	3.0	RCC Box
10	104+022	98+385	3.0	RCC Box
11	104+318	98+730	1.5	RCC Box
12	108+625	102+300	2.0	RCC Box
13	109+190	102+970	2.0	RCC Box
14	110+460	104+150	2.0	RCC Box
15	110+850	104+480	2.0	RCC Box
16	111+150	104+980	3.0	RCC Box
17	111+260	105+170	3.0	RCC Box
18	112+080	105+610	2.0	RCC Box
19	112+370	105+960	2.0	RCC Box
20	112+703	106+380	3.0	RCC Box
21	113+140	106+580	2.0	RCC Box
22	113+250	106+810	2.0	RCC Box
23	113+838	107+190	3.0	RCC Box
24	114+690	107+980	2.0	RCC Box
25	114+890	108+190	2.0	RCC Box
26	114+995	108+300	2.0	RCC Box
27	115+255	108+560	2.0	RCC Box
28	115+985	109+230	2.0	RCC Box
29	116+080	109+340	2.0	RCC Box
30	116+300	109+560	2.0	RCC Box
31	116+502	109+760	2.0	RCC Box
32	116+752	110+020	2.0	RCC Box
33	116+790	110+060	2.0	RCC Box
34	116+101	110+260	3.0	RCC Box
35	117+185	110+450	2.0	RCC Box
36	117+276	110+540	2.0	RCC Box

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage (km)	Design Chainage (km)	Proposed Span (m)	Proposal
37	117+743	111+020	5.0	RCC Box
38	118+150	111+440	2.0	RCC Box
39	118+215	111+530	2.0	RCC Box
40	118+345	111+660	2.0	RCC Box
41	118+440	111+760	2.0	RCC Box
42	118+612	111+930	2.0	RCC Box
43	119+730	112+050	2.0	RCC Box
44	120+115	112+440	2.0	RCC Box
45	120+277	112+590	2.0	RCC Box
46	120+448	112+770	3.0	RCC Box
47	120+725	113+070	2.0	RCC Box
48	120+930	113+270	2.0	RCC Box
49	121+035	113+340	2.0	RCC Box
50	121+110	113+430	2.0	RCC Box
51	121+245	113+590	3.0	RCC Box
52	121+545	113+880	2.0	RCC Box
53	121+590	113+930	2.0	RCC Box
54	121+695	114+030	2.0	RCC Box

* 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 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.

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

BOX CULVERT DETAILS

Sl. No.	Existing Chainage (km)	Design Chainage (km)	Proposed Span (m)	Proposal
1	100+220	95+510	1.5	RCC Box
2	100+420	95+710	1.5	RCC Box
3	100+775	95+830	1.5	RCC Box
4	100+890	95+960	1.5	RCC Box
5	101+030	96+090	1.5	RCC Box
6	102+350	96+960	1.5	RCC Box
7	102+425	97+040	2.0	RCC Box
8	102+715	97+260	1.5	RCC Box
9	103+420	98+025	2.0	RCC Box
10	104+187	98+520	2.0	RCC Box
11	104+720	98+950	1.5	RCC Box
12	104+945	99+160	1.5	RCC Box
13	105+180	99+350	1.5	RCC Box

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage (km)	Design Chainage (km)	Proposed Span (m)	Proposal
14	105+420	99+460	1.5	RCC Box
15	105+775	99+590	1.5	RCC Box
16	105+885	99+840	1.5	RCC Box
17	106+010	100+040	1.5	RCC Box
18	106+135	100+140	1.5	RCC Box
19	106+312	100+280	1.5	RCC Box
20	106+500	100+460	1.5	RCC Box
21	106+900	100+580	1.5	RCC Box
22	107+043	100+790	1.5	RCC Box
23	107+100	100+870	1.5	RCC Box
24	107+260	101+110	2.0	RCC Box
25	107+675	101+270	1.5	RCC Box
26	107+850	101+460	2.0	RCC Box
27	108+050	101+770	1.5	RCC Box
28	108+240	101+950	2.0	RCC Box
29	108+515	102+110	1.5	RCC Box
30	108+790	102+470	2.0	RCC Box
31	109+990	103+740	2.0	RCC Box
32	110+075	103+870	2.0	RCC Box
33	110+285	103+980	2.0	RCC Box
34	110+990	104+650	2.0	RCC Box
35	111+060	104+850	2.0	RCC Box
36	111+525	105+440	2.0	RCC Box
37	113+750	107+100	2.0	RCC Box
38	114+045	107+410	2.0	RCC Box
39	114+245	107+560	2.0	RCC Box
40	114+385	107+710	2.0	RCC Box
41	115+565	108+830	2.0	RCC Box
42	117+448	114+220	2.0	RCC Box
43	117+558	114+360	2.0	RCC Box
44	117+808	114+580	2.0	RCC Box
45	118+138	114+910	2.0	RCC Box
46	118+428	115+200	1.5	RCC Box
47	118+698	115+470	2.0	RCC Box

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

[Refer to paragraph 7.22 of the Manual and provide details]



“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

Sl. No.	Existing Chainage (km)	Design Chainage (km)	Proposal	Proposed Span
NIL				

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

7.3 Bridges

7.3.1 The existing bridges to be re-constructed/widened

- (i) The existing bridges at the following locations shall be reconstructed as new structures:

[Refer to paragraph 7.3 (iv) of the Manual and provide details]

Sl. No	Bridge Location (km)	Salient Details of Existing Bridge					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		
NIL								

7.3.2 Additional New Bridges

- (i) Minor Bridges

[Specify additional new minor bridges if required, and attach GAD]

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

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

- (ii) Major bridges

[Specify additional new major bridges if required, and attach GAD]

New major bridges at the following locations on the project highways shall be

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

constructed. GADs for the new major bridges are attached in the drawings folder.

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

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

[Refer to paragraph 7.17 (iv) of the Manual and provide details]

Sl. No.	Location (km)	Remarks
Nil		

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

[Refer to paragraph 7.17 (v) of the Manual and provide details]

Sl. No.	Location (km)	Remarks
Nil		

- 7.3.5 Drainage system for bridge decks

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

- 7.3.6 Structures in marine environment

[Refer to paragraph 7.21 of the Manual and specify the necessary measures / treatments for protecting structures in marine environment, where applicable]

7.4 Rail-road Bridges

- 7.4.1 Design, construction and detailing of ROB/RUB shall be as specified in section 7 of the Manual. [Refer to paragraph 7.18 of the Manual and specify modification, if any]

7.4.2 Road over-bridges

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

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

7.4.3 Road under-bridges

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

Sl No.	Location of Level Crossing (km)	Number and Length of Span (m)
Nil		

7.5 Grade Separated Structures

[Refer to paragraph 7.19 of the Manual]

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

7.5.1 Underpasses/Overpasses

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

7.6 Repairs and strengthening of bridges and structures

[Refer to paragraph 7.22 of the Manual and provide details]

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

A. Bridges

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

B. ROB / RUB

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

C. Overpasses / Underpasses and Other Structures

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

7.7 List of Major Bridges and Structures

The following is the list of Major Bridges and Structures

SI No.	Location Design (km)
NIL	

8.0 TRAFFIC CONTROL DEVICES AND ROAD SAFETY WORKS

- 8.1 Traffic control devices and road safety works shall be provided in accordance with Section 9 of the Manual.
- 8.2 Specifications of the reflective sheeting [Refer to paragraph 9.2 of the Manual and specify]
- 8.3 The minimum quantity of Traffic signages and pavement marking are tabulated here for Package

Traffic Signage's, Road Marking and other appurtenances	unit	Quantity
Road Marking on Centre line & Edge	sqm	7,093
Direction & Place Identification up to 0.9 sqm	sqm	76
Direction & Place Identification more than 0.9 sqm	sqm	3
60 cm Equilateral Triangle	Number	311
60 cm Circular	Number	32
60 cm High Octagon	Number	40
60 cm X 45 cm Rectangular	Number	60
60 cm X 50 cm Chevron Sign	Number	724
Hectometer Stone	Number	82
Km stone	Number	16

Traffic Signage's, Road Marking and other appurtenances	unit	Quantity
5 th km stone	Number	4
Boundary Stone (as per clause 13 herein under)	Number	204
Road Delineators	Number	1,317
Road Marker/ Road Stud	Number	10,270
Hazard Marker	Number	204
PCC kerbs (duly painted) in bus bays and Islands	Rm	9628

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 -2015

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 and installation shall be as per relevant clauses of MoRTH specifications. Overhead sign shall be installed ahead of major intersections and urban areas as per detailed design requirements. The minimum number of overhead signs shall be 02 (01 No. of gantry and 01 No. of Cantilever) as per this manual. Location shall be given by the AE.

10.0 COMPULSORY AFFORESTATION

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

Minimum 2053 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 4117 (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.

Sl No.	Design Chainage (Km)		Length (m)	Remarks
	From	To		
1	95+538.38	95+605.40	68	Radius<40
2	95+702.07	95+768.77	67	Radius<40
3	95+864.51	95+933.60	70	Radius<40
4	95+933.60	96+026.88	94	Radius<40
5	97+416.09	97+451.87	36	Radius<40
6	98+487.17	98+566.34	80	Radius<40
7	101+723.96	101+805.31	82	Radius<40
8	101+805.31	101+887.12	82	Radius<40
9	105+841.25	105+887.96	47	Radius<40
10	106+246.19	106+344.93	99	Radius<40
11	109+115.86	109+201.12	86	Radius<40
12	109+308.57	109+368.52	60	Radius<40
13	109+477.91	109+520.56	43	Radius<40
14	109+535.05	109+568.08	34	Radius<40
15	109+636.31	109+662.24	26	Radius<40
16	109+805.72	109+834.92	30	Radius<40
17	109+938.26	109+987.86	50	Radius<40
18	110+009.44	110+030.26	21	Radius<40
19	110+044.64	110+061.66	18	Radius<40
20	110+082.74	110+098.83	17	Radius<40
21	110+260.38	110+278.96	19	Radius<40
22	110+294.43	110+314.40	20	Radius<40
23	110+323.10	110+339.46	17	Radius<40
24	110+529.75	110+553.91	25	Radius<40
25	110+587.29	110+636.20	49	Radius<40
26	110+676.87	110+748.88	73	Radius<40
27	110+852.76	110+893.17	41	Radius<40
28	110+929.45	110+970.61	42	Radius<40
29	111+005.44	111+035.39	30	Radius<40
30	111+211.64	111+223.64	12	Radius<40
31	111+268.74	111+282.14	14	Radius<40
32	111+895.98	111+942.00	47	Radius<40
33	111+963.66	111+997.15	34	Radius<40
34	112+426.37	112+469.78	44	Radius<40
35	112+632.13	112+667.67	36	Radius<40
Total			1613	

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

12.0 SPECIAL REQUIREMENT 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.

12.1 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 work 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	4,622
Breast wall of PCC/RCC/Gabion /Cement Masonry having minimum height of 1.5 m	Rm	4,169
Retaining Structure on valley side of PCC/RCC/Gabion/Cement Masonry of varying height between 1 to 6 metre depending upon the slope with parapet walls	Rm	2,440
Subsurface drain with perforated pipe for collection of seepage water to avoid sinking of pavement	Rm	824
Seeding and Mulching with Jute Net	Sqm	60,486
Hydro seeding	Sqm	1,04,127
Catch Water Drain (Unlined)	Rm	14,290

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

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.

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

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"Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A"

Sl. No.	Height of Retaining Structure	Aggregate Length
1	Upto 2 m	1502
2	2 m to 4 m	912
3	4 m to 6 m	28

12.1.2 Tentative Locations and Length

Sl. No.	From Design Chainage (in m)	To Design Chainage (in m)	Length (m)
1	95+075	95+108	33
2	95+486	95+507	21
3	96+015	96+023	8
4	96+675	96+685	10
5	97+935	97+955	20
6	98+285	98+296	11
7	98+505	98+535	30
8	99+295	99+361	66
9	99+456	99+464	8
10	99+684	99+710	26
11	99+955	99+961	6
12	100+343	100+355	12
13	100+789	100+795	6
14	102+654	102+659	5
15	102+776	102+787	12
16	103+342	103+362	20
17	104+082	104+087	5
18	104+345	104+405	60

19	104+915	104+965	50
20	105+092	105+097	5
21	105+215	105+229	14
22	105+235	105+245	10
23	105+795	105+975	180
24	106+223	106+245	22
25	106+315	106+327	12
26	106+435	106+443	8
27	106+813	106+851	38
28	106+875	106+895	20
29	107+097	107+115	18
30	107+185	107+195	10
31	107+385	107+415	30
32	107+895	107+925	30
33	108+335	108+375	40
34	108+475	108+504	29
35	108+583	108+664	81
36	108+725	108+743	18
37	108+825	108+925	100
38	108+956	108+985	29
39	109+003	109+055	52
40	109+155	109+255	100
41	109+274	109+385	111
42	109+395	109+455	60
43	112+985	113+025	40
44	113+106	113+115	10



“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

45	113+427	113+623	196
46	113+635	113+835	200
47	114+345	114+385	40
48	114+415	114+458	43
49	114+775	114+795	20
50	114+815	114+825	10
51	114+875	114+915	40
52	114+943	115+007	64
53	115+015	115+065	50
54	115+175	115+185	10
55	115+205	115+245	40
56	115+255	115+303	48
57	115+330	115+533	203
Total			2440

12.1.3 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

Sl. No.	Existing Location From	New Design Chainage From
1	102+187	96+760
2	111+075	104+700
3	113+200	106+620
4	121+698	114+780

12.2 ROAD LAND BOUNDARY (Clause 12.2 IRC SP: 73 : 2015)

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 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 - 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 confirm to design requirements set out in the following documents:

Two Lane Manual (IRC: SP 73 - 2015) of Specifications and Standards for Two Laning published by IRC and Hill Road Manual IRC SP 48:1998

Annex - I
(Schedule - D)**Specifications and Standards for Construction****1 Specifications and Standards**

All materials, works and construction operations shall confirm to the Two Lane Manual (IRC: SP 73 - 2015) of Specifications and Standards for Two Laning (IRC: SP: 73 - 2015), referred as the Two Lane Manual (IRC: SP: 73 - 2015), and MORTH Specifications for Road and Bridge Works Works (Fifth Edition) with upto date amendments/modifications/additions, IRC: SP: 48-1998 and IRC 56-2011. Where the specification for a work is not given, Good Industry Practice shall be adopted to the satisfaction of the Authority's Engineer.

2 Deviations from the Specifications and Standards

- 2.1 The terms 'Concessionaire', 'Independent Engineer' and 'Concession Agreement' used in the Two Lane Manual (IRC: SP 73- 2015) shall be deemed to be substituted by the terms '**Contractor**', '**Authority's Engineer**' and '**Agreement**' respectively.
- 2.2 Notwithstanding anything to the contrary contained in the 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:73-2015)	Modified Provision
1	2.2	Design Speed: Ruling or minimum Design speed shall be followed	Design speed shall be 30 km/h for project highway where the radius is less than 40m. The same is mentioned in the Plan & Profile drawings given in Annexure-III of Schedule A.
2	2.7.2	Roadway Width: On horizontal curves with radius up to 300 m width of pavement and roadway shall be increased as per Table 2.4	On horizontal Curves with radius up to 300 m width of pavement and roadway shall be increased as per Plan & Profile drawings given in Annexure - III of Schedule A
3	2.9.4	Radius of Horizontal Curves:	Radius of Horizontal curves shall be as per the alignment plan shown in Plan & Profile drawings given in Annexure-III of Schedule A.

S. No.	Clause	Provision as per Manual (IRC:SP:73-2015)	Modified Provision
4	2.6	Type of Shoulder in open country	As given in Schedule B
5	5.1	Pavement crust thickness	As given in Schedule B
6	7.3 (ii)	New Bridges:	The minimum width of footpath clear of crash barrier and railings shall be 1.3 m as detailed in GAD drawings for Bridges as per Annexure-III of Schedule A.

- 2.3 The section of the road from Design Chainages Km. 109+460 to Km. 112+330 (Design Length-2.870 Km) is a region of no geometric improvement.



SCHEDULE – H**(See Clauses 10.1.4 and 19.3)****Contract Price Weightages**

1.1 The Contract Price for this Agreement is Rs...../-

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

ITEM	WEIGHT AGE IN PERCENTAGE TO THE CONTRACT PRICE	STAGE OF PAYMENT	PERCENTAGE WEIGHTAGE
1	2	3	5
Road works including Culverts, widening and Repair of Culverts.	65.69%	A- Widening and strengthening of existing road	
		(1) Earthwork upto top of the Sub-grade including excavation in soil/ soft rock/ hard rock and clearing & grubbing	8.24%
		(2) Sub-Base Course.	5.56%
		(3) Non Bituminous Base Course.	8.01%
		(4) Bituminous Base Course	5.39%
		(5) Wearing Coat.	3.47%
		(6) Widening and repair of culverts	0.00%
		(7) Hard Shoulder	0.91%
		B.1- Reconstruction/New 2 lane realignment/bypass (Flexible pavement)	
		(1) Earthwork upto top of the Sub-grade including excavation in soil/ soft rock/ hard rock and clearing & grubbing	7.19%
		(2) Sub-Base Course.	1.31%
		(3) Non Bituminous Base Course.	1.89%
		(4) Bituminous Base Course	1.10%
		(5) Wearing Coat.	0.70%
		(6) Hard Shoulder	0.45%
		B.2- Reconstruction/New 2 lane realignment/bypass (Rigid pavement)	

		(1) Earthwork upto top of the Sub-grade including excavation in soil, soft rock and hard rock including clearing & grubbing with required site clearance etc.	0.00%
		(2) Sub-Base Course.	0.00%
		(3) Dry Lean Concrete (DLC) Course	0.00%
		(4) Pavement Quality Control (PQC) Course	0.00%
		<i>C.1-Reconstruction /New Service road (Flexible Pavement)</i>	
		(1) Earthwork upto top of the Sub-grade including excavation in soil/ soft rock/ hard rock and clearing & grubbing	0.00%
		(2) Sub-Base Course.	0.00%
		(3) Non Bituminous Base Course.	0.00%
		(4) Bituminous Base Course	0.00%
		(5) Wearing Coat.	0.00%
		<i>C.2-Reconstruction /New Service road (Rigid Pavement)</i>	
		(1) Earthwork upto top of the Sub-grade including excavation in soil, soft rock and hard rock including clearing & grubbing with required site clearance etc.	0.00%
		(2) Sub-Base Course.	0.00%
		(3) Dry Lean Concrete (DLC) Course	0.00%
		(4) Pavement Quality Control (PQC) Course	0.00%
Minor Bridges /Underpasses/ Overpasses	0.00%	<i>D-Re-construction and New culverts on existing road, realignment, bypasses.</i>	
		(1) Culverts (Length < 6m)	21.47%
		<i>A.1-Widening and Repair of Minor Bridges (length>6m and <60m)</i>	
		(1) Minor Bridges	0.00%
		<i>A.2-New Minor Bridges (length >6m and <60m)</i>	
		(1) Foundation + Sub Structure : On completion of the foundation work including foundations for wing and return walls, abutments, piers up to the abutment/pier cap	0.00%
		(2) Super Structure : On completion of the super structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road signs & markings, tests on completion etc. complete in all respect.	0.00%



		(3) Approaches: On completion of approaches including Retaining walls, stone pitching, protection works complete in all respect and fit for use.	0.00%
		(4) Guide Bunds and River Training Works: On completion of Guide Bunds and river Training works complete in all respects.	0.00%
		B.1-Widening and Repair of underpasses/overpasses	
		(1) Underpasses / Overpasses	0.00%
		B.2-New Underpasses / Overpasses	
		(1) Foundation + Sub Structure : On completion of the foundation work including foundation for wing and return walls, abutments, piers upto the abutment/pier cap	0.00%
		(2) Super Structure: On completion of the super structure in all respects including wearing coat, bearing, expansion joints, hand rails, crash barriers, road signs & markings, tests on completion etc. Complete in all respect. Wearing Coat (a) in case of overpass-wearing coat including expansion joints complete in all respects as specified and (b) in case of underpass-rigid pavement including drainage facility complete in all respects as specified.	0.00%
Major Bridge (length >60m works and ROB/RUB/elevated sections /flyovers including voiducts, if any	0.00%	(3) Approaches: On completion of approaches including Retaining walls/ Reinforced Earth walls, stone pitching, protection works complete in all respect and fit for use.	0.00%
		A.1-Widening and repairs of Major Bridges	
		(1) Foundation	0.00%
		(2) Sub-structure	0.00%
		(3) Super-structure (including bearings)	0.00%
		(4) Wearing Coat including expansion joints	0.00%
		(5) Miscellaneous items like hand rails, crash barriers, road marking etc	0.00%
		(6) Wing walls/return walls	0.00%
		(7) Guide Bunds, River Training works etc	0.00%
		(8) Approaches (including Retaining walls, stone pitching and protection works)	0.00%
		A.2-New Major Bridges	
		(1) Foundation	0.00%
		(2) Sub-structure	0.00%

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

		(3) Super-structure (including bearings)	0.00%
		(4) Wearing Coat including expansion joints	0.00%
		(5) Miscellaneous items like hand rails, crash barriers, road markings etc	0.00%
		(6) Wing walls/return walls	0.00%
		(7) Guide Bunds, River Training works etc	0.00%
		(8) Approaches (including Retaining walls, stone pitching and protection works)	0.00%
		<i>B.1-Widening and Repair of</i>	
		<i>(a) ROB</i>	
		<i>(b) RUB</i>	
		(1) Foundation	0.00%
		(2) Sub-structure	0.00%
		(3) Super-structure (including bearings)	0.00%
		(4) Wearing Coat (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	0.00%
		(5) Miscellaneous items like hand rails, crash barriers, road markings etc	0.00%
		(6) wing walls/return walls	0.00%
		(7) Approaches (including Retaining walls, stone pitching and protection works)	0.00%
		<i>B.2-New ROB/RUB</i>	
		<i>(a) ROB</i>	
		<i>(b) RUB</i>	
		(1) Foundation	0.00%
		(2) Sub-structure	0.00%
		(3) Super-structure (including bearings)	0.00%
		(4) Wearing Coat (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	0.00%
		(5) Miscellaneous items like hand rails, crash barriers, road markings etc	0.00%
		(6) Wing walls/return walls	0.00%
		(7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	0.00%
		<i>C.1-Widening and repair of Elevated Section/Flyovers/Grade Separators</i>	
		(1) Foundation	0.00%

“Construction of two-Lane with hard shoulders of Chakabama - Zunheboto Road on EPC basis from existing Km 100.345 to Km 122.250 [Design Km. 95+000 to Km. 115+534] (Design Length -20.534 Km) in the state of Nagaland under SARDP-NE Phase A”

		(2) Sub-structure	0.00%
		(3) Super-structure (including bearings)	0.00%
		(4) Wearing Coat including expansion joints	0.00%
		(5) Miscellaneous items like hand rails, crash barriers, road markings etc	0.00%
		(6) Wing walls/return walls	0.00%
		(7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	0.00%
		<i>C.2-New Elevated Section/Flyovers/Grade Separators</i>	
		(1) Foundation	0.00%
		(2) Sub-structure	0.00%
		(3) Super-structure (including bearings)	0.00%
		(4) Wearing Coat including expansion joints	0.00%
		(5) Miscellaneous items like hand rails, crash barriers, road markings etc	0.00%
		(6) wing walls/return walls	0.00%
		(7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	0.00%
Other Works	34.31%		
		(i)Toll Plaza	0.00%
		(ii)Road side drains	12.60%
		(iii) Road signs, markings, Km stones, Safety devices etc.	
		(a) Pavement Markings	1.35%
		(b) Crash Barriers/ W metal crash Barriers	0.91%
		(c) Road/Traffic Sign	0.44%
		(d) Road Boundary stones, km Stones, 5th km stones and hectometer stones, rumble strip, other items etc.	0.03%
		(e) Traffic blinker LED delineators, studs, reflective pavement markers, tree reflectors	1.48%
		(f) Road furniture (overhead signboard etc.)	0.03%
		(iv)Project facilities	
		(a)Bus bays / Bus Shelter	0.35%
		(b) Junctions (Major & Minor)	3.63%
		(c) Others including Cable duct & Lighting on Bridges, etc.	0.00%
		(v) Road side Plantation	0.01%

	(vi) Repair of protection works other than approaches to the bridges, elevated sections/ flyovers/grade separators and ROB's /RUBs	0.00%
	(vii) Safety and traffic management during construction	0.00%
	(viii) Slope Protection Works as special requirement for hill road	
	(a) Hydro Seeding	0.12%
	(b) Seeding and Mulching with Jute net	1.29%
	(c) Catch water Drains	0.06%
	(d) Retaining Structure on valley side of PCC/RCC/Gabion/Cement Masonry of varying height between 1 to 6 metre with parapet walls	5.03%
	(e) Reinforced Earth wall	0.00%
	(f) Breast wall with PCC/RCC/Gabion/ Cement Masonry	6.44%
	(g) Sub Surface drain with perforated pipe	0.03%
	(h) Parapet wall	0.51%
	Total %	100.00%



1.3 Procedure of estimating the value of work done.

1.3.1 Road works

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

TABLE 1.3.1		
STAGE OF PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
A- Widening and strengthening of existing road		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 10 (ten) percent of the total length.
(1) Earthwork upto top of the Sub-grade including excavation in soil/ soft rock/ hard rock and clearing & grubbing	8.24%	Further, If existing road length (excluding bypasses, re-alignment, structure) is say 'L' Km and the unencumbered length along the existing road as handed over on the appointed date is 'L1' Km and the balance length i.e. 'L2' Km (L-L1) is to be handed over on a later date as per the memorandum signed under provision of clause 8.2.1 of the contract document, then the stage payment shall be worked out for the 'L1' Km length handed over on the appointed date. The stage payment for the remaining 'L2' Km shall be worked out on prorata basis from the date of handing over of such length.
(2) Sub-Base Course.	5.56%	
(3) Non Bituminous Base Course.	8.01%	
(4) Bituminous Base Course	5.39%	
(5) Wearing Coat.	3.47%	
(6) Widening and repair of culverts	0.00%	Cost of completed culverts shall be determined 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	0.91%	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 10 (ten) percent of the total length. Further, If existing road length (excluding bypasses, re-alignment, structure) is say 'L' Km and the unencumbered length along the existing road as handed over on the appointed date is 'L1' Km and the balance length i.e. 'L2' Km (L-L1) is to be handed over on a later date as per the memorandum signed under provision of clause 8.2.1 of the contract document, then the stage payment shall be worked out for

		the 'L1' Km length handed over on the appointed date. The stage payment for the remaining 'L2' Km shall be worked out on prorata basis from the date of handing over of such length.
B.1- Reconstruction/New 2lane realignment/bypass (Flexible pavement)		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 10 (ten) percent of the total length.
(1) Earthwork upto top of the Sub-grade including excavation in soil/ soft rock/ hard rock and clearing & grubbing	7.19%	Further, Unit of Measurement is linear length of each Bypass/ realignment (excluding structures) and payment of each stage shall be made on prorata basis on completion of a stage in a length of not less than 10 (ten) percent of the total length of each bypass/ realignment taken separately.
(2) Sub-Base Course.	1.31%	
(3) Non Bituminous Base Course.	1.89%	
(4) Bituminous Base Course	1.10%	
(5) Wearing Coat.	0.70%	
(6) Hard Shoulder	0.45%	
B.2- Reconstruction/New 2lane realignment/bypass (Rigid pavement)		Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in full length or 5(five) km. length, whichever is less.
(1) Earthwork upto top of the Sub-grade including excavation in soil/ soft rock/ hard rock and clearing & grubbing	0.00%	Further, Unit of Measurement is linear length of each Bypass/ realignment (excluding structures) and payment of each stage shall be made on prorata basis on completion of a stage in full length or 5 (Five) Km length of each bypass/ realignment taken separately.
(2) Sub-Base Course.	0.00%	
(3) Dry Lean Concrete (DLC) Course	0.00%	
(4) Pavement Quality Control (PQC) Course	0.00%	
C.1-Reconstruction /New Service road (Flexible Pavement)		Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in full length or 5(five) km. length, whichever is less.
(1) Earthwork upto top of the Sub-grade including excavation in soil/ soft rock/ hard rock and clearing & grubbing	0.00%	
(2) Sub-Base Course.	0.00%	
(3) Non Bituminous Base Course.	0.00%	
(4) Bituminous Base Course	0.00%	
(5) Wearing Coat.	0.00%	
C.2-Reconstruction /New Service road (Rigid Pavement)		Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in full length or 5(five) km. length, whichever is less.
(1) Earthwork upto top of the Sub-grade including excavation in soil, soft rock and hard rock including clearing & grubbing with required site clearance etc.	0.00%	

(2) Sub-Base Course.	0.00%	
(3) Dry Lean Concrete (DLC) Course	0.00%	
(4) Pavement Quality Control (PQC) Course	0.00%	
D-Re-construction and New culverts on existing road, realignment, bypasses.		Cost of each culvert shall be determined on pro rata basis with respect to the total number of culverts. Payment shall be made on the completion of at least five culverts.
(1) Culverts (Length < 6m)	21.47%	

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

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

Where P= Contract Price

L = Total length in km

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

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



1.3.2 Minor Bridge 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 OF PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
A.1-Widening and Repair of Minor Bridges (length>6m and <60m)	0.00%	Cost of each minor bridge shall be determined on pro rata basis with respect to the total linear length of the minor bridges. Payment shall be made on the completion of widening & repair works of a minor bridge.
A.2-New Minor Bridges (length >6m and <60m)		
(i) Foundation + Sub Structure : On completion of the foundation work including foundation for wing and return walls, abutments, piers upto the abutment/pier cap	0.00%	(i) Foundation + Sub Structure : Cost of each minor bridge shall be determined on pro rata basis with respect to the total linear length(m) of the minor bridges. Payment against foundation + sub structure shall be made on pro rata basis on completion of a stage i.e not less than 25% of the scope of foundation + sub structure of each bridge subject to completion of at least two foundations along with sub structure up to abutment/pier cap level of each bridge. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(ii) Super Structure : On completion of the super structure in all respects including wearing coat, bearing, expansion joint, hand rail, crash barriers, road signs & markings, tests on completion etc. Complete in all respect.	0.00%	(ii) Super Structure : Payment shall be made on pro rata basis on completion of a stage i.e completion of super structure of at least one span in all respects as specified in the column of "Stage of Payment" in this sub clause.
(iii) Approaches : On completion of approaches including Retaining walls, stone pitching, protection works complete in all respect and fit for use.	0.00%	(iii) Approaches : Payment shall be made on pro rata basis on completion of a stage i.e completion of approaches in all respect as specified in the column of "Stage of Payment" in this sub clause.
(iv) Guide Bunds and River Training Works : On completion of Guide Bunds and river Training works complete in all respects.	0.00%	(iv) Guide Bunds and River Training Works : Payment shall be made on pro rata basis on completion of a stage i.e completion of Guide Bunds and River Training Works in all respects as specified.

B.1-Widening and Repair of underpasses/ overpasses	0.00%	Cost of each underpass/overpass shall be determined on pro rata basis with respect to the total linear length of the underpasses/overpasses. Payment shall be made on the completion of widening & repair works of a underpass/overpass
B.2-New Underpasses / Overpasses		
(i) Foundation + Sub Structure : On completion of the foundation work including foundation for wing and return walls, abutments, piers up to the abutment/pier cap	0.00%	(i) Foundation + Sub Structure : Cost of each Underpass/Overpass shall be determined on pro rata basis with respect to the total linear length (m) of the Underpasses/Overpasses. Payment against foundation + sub structure shall be made on pro rata basis on completion of a stage i.e not less than 25% of the scope of foundation + sub structure of each underpasses/overpasses subject to completion of at least two foundation along with sub structure up to abutment/pier cap level each underpass/overpass. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(ii) Super Structure : On completion of the super structure in all respects including wearing coat, bearing, expansion joint, hand rail, crash barriers, road signs & marking, tests on completion etc. Complete in all respect. Wearing Coat (a) in case of overpass-wearing coat including expansion joints complete in all respects as specified and (b) in case of underpass-rigid pavement including drainage facility complete in all respects as specified as specified.	0.00%	(ii) Super Structure : Payment shall be made on pro rata basis on completion of a stage i.e completion of super structure of at least one span in all respects as specified in the column of " Stage of Payment" in this sub clause.
(iii) Approaches : On completion of approaches including Retaining walls/ Reinforced Earth walls, stone pitching, protection works complete in all respect and fit for use.	0.00%	(iii) Approaches : Payment shall be made on pro rata basis on completion of stage i.e completion of approaches in all respect as specified.

1.3.3 Major Bridge works, ROB/RUB and Structures.

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

TABLE 1.3.3		
STAGE OF PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
A.1-Widening and repairs of Major Bridges		
(i) Foundation	0.00%	(i) Foundation: Cost of each Major Bridge shall be determined on pro rata basis with respect to the total linear length (m) of the Major Bridge. Payment against foundation shall be made on pro rata basis on completion of a stage i.e not less than 25% of the scope of foundation of the major bridge subject to completion of atleast two foundation of the Major Bridge. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(ii) Sub-structure	0.00%	(ii) Sub Structure : Payment against Sub Structure shall be made on pro rata basis on completion of a stage i.e not less than 25% of the scope of sub structure of the major bridge subject to completion of atleast two sub structure of abutment/piers upto abutment/pier cap level of the major bridge.
(iii) Super-structure (including bearings)	0.00%	(iii) Super Structure: Payment shall be made pro rata basis on completion of a stage i.e completion of super structure including bearings of atleast one span in all respect as specified.
(iv) Wearing Coat including expansion joints	0.00%	(iv) Wearing Coat: Payment shall be made on completion of wearing coat including expansion joint complete in all respects as specified.
(v) Miscellaneous items like hand rails, crash barriers, road markings etc	0.00%	(v) Miscellaneous : Payment shall be made on completion of all miscellaneous work like hand rail, crash barriers, road marking etc. complete in all respect as specified.
(vi) wing walls/return walls	0.00%	(vi) Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(vii) Guide Bunds, River Training works etc	0.00%	(vii) Guide Bunds, River Training works: Payments shall be made on completion of all guide bunds/river training works etc. complete in all respects as specified.

(viii) Approaches (including Retaining walls, stone pitching and protection works)	0.00%	(viii) Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respect as specified.
A.2-New Major Bridges		
(i) Foundation	0.00%	(i) Foundation: Cost of each Major Bridge shall be determined on pro rata 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 stage i.e not less than 25% of the scope of foundation of the major bridge subject to completion of at least two foundation of the major bridge. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(ii) Sub-structure	0.00%	(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 scope of sub structure of the major bridge subject to completion of atleast two sub structure of abutment/piers upto abutment/pier cap level of the major bridge.
(iii) Super-structure (including bearings)	0.00%	(iii) Sup Structure : Payment shall be be made on pro rata basis on completion of a stage i.e completion of super structure including bearing of atleast one span in all respects as specified.
(iv) Wearing Coat including expansion joints	0.00%	(iv) Wearing Coat: Payment shall be made on completion of wearing coat including expansion joint complete in all respects as specified.
(v) Miscellaneous items like hand rails, crash barriers, road markings etc	0.00%	(v) Miscellaneous : Payment shall be made on completion of all miscellaneous work like hand rail, crash barriers, road marking etc. Complete in all respects as specified.
(vi) wing walls/return walls	0.00%	(vi) Wing walls/Return walls : Payment shall be made on completion of all wing walls/return walls complete in all respects as specified.
(vii) Guide Bunds, River Training works etc	0.00%	(vii) Guide Bunds, River Training works : Payment shall be made on completion of all guide bunds/river training works etc. complete in all respects as specified.
(viii) Approaches (including Retaining walls, stone pitching and protection works)	0.00%	(viii) Approaches: Payment shall be made on completion of both approaches including stone pitching, protection works, etc complete in all respects as specified.
B.1-Widening and Repair of		
(a) ROB		
(b) RUB		

(i) Foundation	0.00%	(i) Foundation: Cost of each ROB/RUB shall be determined on pro rata basis with respect to the total liner length (m) of the ROB/RUBs. 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 at least two foundations of the ROB/RUB. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(ii) Sub-structure	0.00%	(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/piers upto abutment/pier cap level of the ROB/RUB.
(iii) Super-structure (including bearings)	0.00%	(iii) Super Structure : Payment shall be made on pro rata basis on completion of a stage i.e completion of super structure including bearing of atleast one span in all respects as specified.
(iv) Wearing Coat including expansion joints in case of ROB. In case of RUB, rigid pavement under RUB including drainage facility as specified	0.00%	(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 as specified.
(v) Miscellaneous items like hand rails, crash barriers, road markings etc	0.00%	(v) Miscellaneous: Payment shall be made on completion of all miscellaneous work like hand rail, crash barriers, road marking etc. Complete in all respects as specified.
(vi) wing walls/return walls	0.00%	(vi) Wing walls/return walls: Payment shall be made on completion of all wing walls/return walls complete in all respects as specified.
(vii) Approaches (including Retaining walls, stone pitching and protection works	0.00%	(vii) Approaches: Payment shall be made on completion of both approaches including stone pitching, protection works, etc complete in all respect as specified.
B.2-New ROB/RUB (a) ROB (b) RUB		



(i) Foundation	0.00%	(i) Foundation: Cost of each ROB/RUB shall be determined on pro rata basis with respect to the total liner length (m) of the ROB/RUBs. 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 ROB/RUB. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(ii) Sub-structure	0.00%	(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 structures of abutments/piers upto abutment/pier cap level of the ROB/RUB.
(iii) Super-structure (including bearings)	0.00%	(iii) Super Structure: Payment shall be made on pro rata basis on completion of a stage i.e completion of super structure including bearing of atleast one span in all respects as specified.
(iv) Wearing Coat including expansion joints in case of ROB. In case of RUB, rigid pavement under RUB including drainage facility as specified	0.00%	(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 as specified.
(v) Miscellaneous items like hand rails, crash barriers, road marking etc	0.00%	(v) Miscellaneous : Payment shall be made on completion of all miscellaneous work like hand rail, crash barriers, road marking etc. Complete in all respects as specified.
(vi) wing wall/return walls	0.00%	(vi) Wing walls/return walls : Payment shall be made on completion of all wing walls/return walls complete in all respects as specified.
(vii) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection work	0.00%	(vii) Approaches : Payment shall be made on completion of both approaches including stone pitching, protection works, etc complete in all respect as specified.
C.1-Widening and repairs of Elevated Section/Flyovers/Grade Separators		



(i) Foundation	0.00%	(i) Foundation : Cost of each structure shall be determined on pro rata basis with respect to the total liner 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 foundations of the structure subject to completion of atleast two foundation of the structure. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(ii) Sub-structure	0.00%	(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 structures of abutments/piers upto abutment/pier cap level of the structure.
(iii) Super-structure (including bearings)	0.00%	(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.
(iv) Wearing Coat including expansion joints	0.00%	(iv) Wearing Coat : Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified
(v) Miscellaneous items like hand rails, crash barriers, road marking etc	0.00%	(v) Miscellaneous : Payment shall be made on completion of all miscellaneous work like hand rail, crash barriers, road marking etc. Complete in all respects as specified.
(vi) wing wall/return walls	0.00%	(vi) Wing walls/return walls : Payment shall be made on completion of all wing walls/return walls complete in all respects as specified.
(vii) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection work)	0.00%	(vii) Approaches : Payment shall be made on completion of both approaches including stone pitching, protection works, etc complete in all respect as specified.
C.2-New Elevated Section/Flyovers/Grade Separators		
(i) Foundation	0.00%	(i) Foundation : Cost of each structure shall be determined on pro rata basis with respect to the total liner 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.

(ii) Sub-structure	0.00%	(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 structures of abutments/piers upto abutment/pier cap level of the structure.
(iii) Super-structure (including bearings)	0.00%	(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.
(iv) Wearing Coat including expansion joints	0.00%	(iv) Wearing Coat : Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified
(v) Miscellaneous items like hand rails, crash barriers, road marking etc	0.00%	(v) Miscellaneous : Payment shall be made on completion of all miscellaneous work like hand rail, crash barriers, road marking etc. Complete in all respects as specified.
(vi) wing wall/return walls	0.00%	(vi) Wing walls/return walls : Payment shall be made on completion of all wing walls/return walls complete in all respects as specified.
(vii) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection work)	0.00%	(vii) Approaches : Payment shall be made on completion of both approaches including stone pitching, protection works, etc complete in all respect as specified.

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 DG (RD) & SS, MoRT&H.

Note: (2) The Schedule for exclusive tunnel project may be prepared as per site requirement before bidding with due approval of DG (RD) & SS, MoRT&H



1.3.4 Others works

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

TABLE 1.3.4		
STAGE OF PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
(i)Toll Plaza	0.00%	Unit of measurement is each completed toll plaza. Payment of each toll plaza shall be made on pro rata basis with respect to the total of all toll plazas.
(ii)Road side drains	12.60%	Unit of measurement is linear length in Km. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 10% (ten per cent) of the total length.
(iii) Road signs, markings, Km stones, Safety devices etc.		
(a) Pavement Markings	1.35%	
(b) Crash Barriers/ W metal crash Barriers	0.91%	
(c) Road/Traffic Sign	0.44%	
(d) Road Boundary stones, km Stones, 5th km stones and hectometre stone, rumble strip, other items	0.03%	
(e) Traffic blinker LED delineator, stud, reflective pavement marker, tree reflector	1.48%	
(f) Road furniture (overhead signboard etc.)	0.03%	
(iv)Project facilities		Payment shall be made on pro rata basis for completed facilities.
(a)Bus bays & Bus Shelter	0.35%	
(b) Junctions (Major & Minor)	3.63%	
(c) Others including Cable duct & Lighting on Bridges, etc.	0.00%	
(v) Road side Plantation	0.01%	Unit of measurement is linear length. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 10% (ten per cent) of the total length.
(vi) Repair of protection works other than approaches to the bridges, elevated section/flyovers/grade separators and ROBS/RUBs	0.00%	
(vii) Safety and traffic management during construction	0.00%	Payment shall be made on pro rata basis every six month.
(viii) Slope Protection Works as special requirement for hill road		Unit of measurement is linear length in Km. Payment shall be made on pro rata basis on completion of a stage in a length
(a) Hydro Seeding	0.12%	

(b) Seeding and Mulching with Jute net	1.29%	of not less than 10% (ten per cent) of the total length.
(c) Catch water Drains	0.06%	
(d) Retaining Structure on valley side of PCC/RCC/Gabion/Cement Masonry of varying height between 1 to 6 metre with parapet walls	5.03%	
(e) Reinforced Earth wall	0.00%	
(f) Breast wall with PCC/RCC/Gabion /Cement Masonry	6.44%	
(g) Sub Surface drain with perforated pipe	0.03%	
(h) Parapet wall	0.51%	

2. Procedure for payment for Maintenance

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

2.2 Payment for Maintenance shall be made in quarterly installment in accordance with the provisions of Clause 19.7

