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

Schedules

FOR

"Construction of two-Lane with hard shoulders of Changtongya – Longleng Road on EPC basis from existing Km 16.530 to Km 29.530 [Design Km. 18+779 to Km. 31+779] (Design Length – 13.000 Km) in the state of Nagaland (Pkg-2) under NH (O) Plan"

Engineering, Procurement & Construction (EPC) Mode

BID DOCUMENT

May 2023

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Schedule A

(See Clause 2.1 and 8.1)

SITE OF THE PROJECT

1 The Site

1.1 Site of the Single / Two-Laning of Existing Changtongya – Longleng Road on EPC basis from existing Km 16.530 to Km 29+530 [Design Km. 18+779 to Km. 33+428] i.e. Project Road Start from Junction with National Highway 61 near KM 191/000 from Kohima in Changtongya Village and terminates at traffic point in Longleng Km. 29+530 in Longleng District in the state of Nagaland (Pkg-1) under NH (O) Plan, Project Highway shall include the land, buildings, structures and road works as described in Annex-I of this Schedule-A.

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

1.3 An inventory of the Site including the land, buildings, Structures, road works, trees and any other immovable property on, or attached to, the Site shall be prepared jointly by the Authority Representative and the Contractor, and such inventory shall form part of the memorandum referred to in Clause 8.2(i) of this Agreement.

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

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

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Annex - I

(Schedule-A)

Site

1. Site

The site of the Single / Two-Laning of Existing Changtongya – Longleng Road commencing from existing Km 16+530 to Km 29+530 [Design Km. 18+779 to Km. 33+428 i.e., project Road starts from Junction with National Highway 61 near km 191/000 from Kohima in Changtongya village and terminates at traffic point in Longleng km 29+530 in Longleng district. The project passes through mountainous to steep terrain. The road is deficient in geometric features at almost all locations. The stretch lies Mokokchung and Longleng district of Nagaland state.

The project corridor i.e. Chagtongya – Longleng (Package -2) Road passed through Yaunglyichen, Alayong, Yaong, Orangkong and Longleng.

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

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

(i) Details of Earth work up to Subgrade

Sl.No.	Design Chainage		Length (m)	Improvement Proposal	Details of work done by Previous Contractor
	From	To			
1.	18+779	18+842	63	Widening & strengthening	SG
2.	18+842	18+892	50	Realignment	SG
3.	18+892	18+979	87	Widening & strengthening	**Not Done**
4.	18+979	19+052	73	Widening & strengthening	SG
5.	19+052	19+097	45	Realignment	SG
6.	19+097	19+279	182	Widening & strengthening	SG
7.	19+279	19+312	33	Widening & strengthening	SG
8.	19+312	19+352	40	Realignment	SG
9.	19+352	19+397	45	Widening & strengthening	**Not Done**
10.	19+397	19+437	40	Realignment	SG
11.	19+437	19+500	63	Widening & strengthening	**Not Done**
12.	19+500	19+892	392	Widening & strengthening	SG
13.	19+892	19+942	50	Realignment	SG
14.	19+942	20+012	70	Widening & strengthening	SG
15.	20+012	20+062	50	Realignment	SG
16.	20+062	21+279	1217	Widening & strengthening	SG
17.	21+279	21+379	100	Widening & strengthening	SG

Balance work of Construction of two-Lane with hard shoulders of Changtongya – Longleng Road on EPC basis from existing Km 16.530 to Km 29.530 [Design Km. 18+779 to Km. 31+779 (Design Length – 13.000 Km) in the state of Nagaland (Pkg-2) under NH (O) Plan

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Sl.No.	Design Chainage		Length (m)	Improvement Proposal	Details of work done by Previous Contractor
	From	To			
18.	21+379	21+479	100	Widening & strengthening	SG
19.	21+479	22+250	771	Widening & strengthening	SG
20.	22+250	22+400	150	Widening & strengthening	SG
21.	22+400	22+492	92	Widening & strengthening	SG
22.	22+492	22+542	50	Realignment	SG
23.	22+542	23+007	465	Widening & strengthening	SG
24.	23+007	23+052	45	Realignment	SG
25.	23+052	23+107	55	Widening & strengthening	SG
26.	23+107	23+157	50	Realignment	SG
27.	23+157	23+342	185	Widening & strengthening	SG
28.	23+342	23+392	50	Realignment	SG
29.	23+392	23+679	287	Widening & strengthening	SG
30.	23+679	23+692	13	Widening & strengthening	SG
31.	23+692	23+742	50	Realignment	SG
32.	23+742	23+779	37	Widening & strengthening	SG
33.	23+779	24+042	263	Widening & strengthening	SG
34.	24+042	24+092	50	Realignment	SG
35.	24+092	24+692	600	Widening & strengthening	SG
36.	24+692	24+732	40	Realignment	SG
37.	24+732	25+022	290	Widening & strengthening	SG
38.	25+022	25+057	35	Realignment	SG
39.	25+057	26+580	1523	Widening & strengthening	SG
40.	26+580	26+582	2	Widening & strengthening	SG
41.	26+582	26+590	8	Widening & strengthening	SG
42.	26+590	28+979	2389	Widening & strengthening	SG
43.	28+979	29+097	118	Widening & strengthening	SG
44.	29+097	29+227	130	Realignment	**Not Done**
45.	29+227	29+393	166	Widening & strengthening	**Not Done**
46.	29+393	29+558	165	Widening & strengthening	**Not Done**
47.	29+558	29+613	55	Realignment	**Not Done**
48.	29+613	29+851	238	Widening & strengthening	SG
49.	29+851	29+943	92	Widening & strengthening	SG
50.	29+943	30+043	100	Realignment	SG
51.	30+043	30+173	130	Widening & strengthening	SG
52.	30+173	30+253	80	Realignment	SG
53.	30+253	30+643	390	Widening & strengthening	**Not Done**
54.	30+643	30+753	110	Widening & strengthening	SG
55.	30+753	30+934	181	Widening & strengthening	SG
56.	30+934	30+978	44	Widening & strengthening	SG
57.	30+978	31+121	143	Widening & strengthening	**Not Done**
58.	31+121	31+349	228	strengthening	**Not Done**
59.	31+349	31+779	430	strengthening	SG

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(ii) Details of GSB Work

Sl.No.	Design Chainage		Length (m)	Improvement Proposal	Details of work done by Previous Contractor
	From	To			
1.	18+779	18+842	63	Widening & Strengthening	GSB
2.	18+979	19+052	73	Widening & Strengthening	GSB
3.	19+052	19+097	45	Realignment	GSB
4.	19+097	19+279	182	Widening & Strengthening	GSB
5.	19+279	19+312	33	Widening & Strengthening	GSB
6.	19+312	19+352	40	Realignment	GSB
7.	19+397	19+437	40	Realignment	GSB
8.	19+500	19+892	392	Widening & Strengthening	GSB
9.	19+892	19+942	50	Realignment	GSB
10.	19+942	20+012	70	Widening & Strengthening	GSB
11.	20+012	20+062	50	Realignment	GSB
12.	20+062	21+279	1217	Widening & Strengthening	GSB
13.	21+279	21+379	100	Widening & Strengthening	GSB
14.	21+379	21+479	100	Widening & Strengthening	GSB
15.	21+479	22+250	771	Widening & Strengthening	GSB
16.	22+250	22+400	150	Widening & Strengthening	GSB
17.	22+400	22+492	92	Widening & Strengthening	GSB
18.	22+492	22+542	50	Realignment	GSB
19.	22+542	23+007	465	Widening & Strengthening	GSB
20.	23+007	23+052	45	Realignment	GSB
21.	23+052	23+107	55	Widening & Strengthening	GSB
22.	23+107	23+157	50	Realignment	GSB
23.	23+157	23+342	185	Widening & Strengthening	GSB
24.	23+342	23+392	50	Realignment	GSB
25.	23+392	23+679	287	Widening & Strengthening	GSB
26.	23+679	23+692	13	Widening & Strengthening	GSB
27.	23+692	23+742	50	Realignment	GSB
28.	23+742	23+779	37	Widening & Strengthening	GSB
29.	23+779	24+042	263	Widening & Strengthening	GSB
30.	24+042	24+092	50	Realignment	GSB
31.	24+092	24+692	600	Widening & Strengthening	GSB
32.	24+692	24+732	40	Realignment	GSB
33.	24+732	25+022	290	Widening & Strengthening	GSB
34.	25+022	25+057	35	Realignment	GSB
35.	25+057	26+580	1523	Widening & Strengthening	GSB
36.	26+580	26+582	2	Widening & Strengthening	GSB
37.	26+582	26+590	8	Widening & Strengthening	GSB
38.	26+590	28+979	2389	Widening & Strengthening	GSB

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Sl.No.	Design Chainage		Length (m)	Improvement Proposal	Details of work done by Previous Contractor
	From	To			
39.	28+979	29+097	118	Widening & Strengthening	GSB
40.	29+613	29+851	238	Widening & Strengthening	GSB
41.	30+043	30+173	130	Realignment	GSB
42.	30+173	30+253	80	Realignment	GSB
43.	30+643	30+753	110	Widening & Strengthening	GSB
44.	30+753	30+934	181	Widening & Strengthening	GSB
45.	30+934	30+978	44	Widening & Strengthening	GSB
46.	31+349	31+779	430	Strengthening	GSB

(iii) Details of WMM Work

Sl.No.	Design Chainage		Length (m)	Improvement Proposal	Details of work done by Previous Contractor
	From	To			
1.	18+979	19+052	73	Widening & Strengthening	WMM
2.	19+052	19+097	45	Realignment	WMM
3.	19+097	19+279	182	Widening & Strengthening	WMM
4.	19+579	19+892	313	Widening & Strengthening	WMM
5.	19+892	19+942	50	Realignment	WMM
6.	19+942	20+012	70	Widening & Strengthening	WMM
7.	20+012	20+062	50	Realignment	WMM
8.	20+062	21+279	1217	Widening & Strengthening	WMM
9.	21+279	21+379	100	Widening & Strengthening	WMM
10.	21+479	22+250	771	Widening & Strengthening	WMM
11.	22+250	22+400	150	Widening & Strengthening	WMM
12.	22+400	22+492	92	Widening & Strengthening	WMM
13.	22+492	22+542	50	Realignment	WMM
14.	22+542	23+007	465	Widening & Strengthening	WMM
15.	23+007	23+052	45	Realignment	WMM
16.	23+052	23+107	55	Widening & Strengthening	WMM
17.	23+107	23+157	50	Realignment	WMM
18.	23+157	23+342	185	Widening & Strengthening	WMM
19.	23+342	23+392	50	Realignment	WMM
20.	23+392	23+679	287	Widening & Strengthening	WMM
21.	23+679	23+692	13	Widening & Strengthening	WMM
22.	23+692	23+742	50	Realignment	WMM
23.	23+742	23+779	37	Widening & Strengthening	WMM
24.	23+779	24+042	263	Widening & Strengthening	WMM
25.	24+042	24+092	50	Realignment	WMM
26.	24+092	24+692	600	Widening & Strengthening	WMM
27.	24+692	24+732	40	Realignment	WMM
28.	24+732	25+022	290	Widening & Strengthening	WMM

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Sl.No.	Design Chainage		Length (m)	Improvement Proposal	Details of work done by Previous Contractor
	From	To			
29.	25+022	25+057	35	Realignment	WMM
30.	25+057	26+580	1523	Widening & Strengthening	WMM
31.	26+580	26+582	2	Widening & Strengthening	WMM
32.	26+582	26+590	8	Widening & Strengthening	WMM
33.	26+590	28+979	2389	Widening & Strengthening	WMM
34.	28+979	29+097	118	Widening & Strengthening	WMM
35.	29+613	29+851	238	Widening & Strengthening	WMM
36.	30+043	30+173	130	Widening & Strengthening	WMM
37.	30+173	30+253	80	Realignment	WMM
38.	30+643	30+753	110	Widening & Strengthening	WMM
39.	30+753	30+934	181	Widening & Strengthening	WMM
40.	30+934	30+978	44	Widening & Strengthening	WMM
41.	31+349	31+779	430	Strengthening	WMM

(iv) Details of DBM Work

Sl.No.	Design Chainage		Length (m)	Improvement Proposal	Details of work done by Previous Contractor	Remarks
	From	To				
1.	18+979	19+052	73	Widening & Strengthening	DBM	
2.	19+052	19+097	45	Realignment	DBM	
3.	19+097	19+279	182	Widening & Strengthening	DBM	
4.	19+579	19+892	313	Widening & Strengthening	DBM	
5.	19+892	19+942	50	Realignment	DBM	
6.	19+942	20+012	70	Widening & Strengthening	DBM	
7.	20+012	20+062	50	Realignment	DBM	
8.	20+062	21+279	1217	Widening & Strengthening	DBM	
9.	21+279	21+379	100	Widening & Strengthening	DBM	**LHS Done**
10.	21+479	22+250	771	Widening & Strengthening	DBM	
11.	22+250	22+400	150	Widening & Strengthening	DBM	
12.	22+400	22+492	92	Widening & Strengthening	DBM	
13.	22+492	22+542	50	Realignment	DBM	
14.	22+542	23+007	465	Widening & Strengthening	DBM	
15.	23+007	23+052	45	Realignment	DBM	
16.	23+052	23+107	55	Widening & Strengthening	DBM	
17.	23+107	23+157	50	Realignment	DBM	
18.	23+157	23+342	185	Widening & Strengthening	DBM	
19.	23+342	23+392	50	Realignment	DBM	
20.	23+392	23+679	287	Widening & Strengthening	DBM	

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Sl.No.	Design Chainage		Length (m)	Improvement Proposal	Details of work done by Previous Contractor	Remarks
	From	To				
21.	23+779	24+042	263	Widening & Strengthening	DBM	
22.	24+042	24+092	50	Realignment	DBM	
23.	24+092	24+692	600	Widening & Strengthening	DBM	
24.	24+692	24+732	40	Realignment	DBM	
25.	24+732	25+022	290	Widening & Strengthening	DBM	
26.	25+022	25+057	35	Realignment	DBM	
27.	25+057	26+580	1523	Widening & Strengthening	DBM	**206m Damage**
28.	26+580	26+582	2	Widening & Strengthening	DBM	
29.	26+582	26+590	8	Widening & Strengthening	DBM	
30.	26+590	28+979	2389	Widening & Strengthening	DBM	
31.	28+979	29+088	109	Widening & Strengthening	DBM	**LHS Done**
32.	31+349	31+779	430	Strengthening	DBM	

(v) Details of BC Work

Sl.No.	Design Chainage		Length (m)	Improvement Proposal	Details of work done by Previous Contractor	Remarks
	From	To				
1.	21+504	21+600	96	Widening & Strengthening	BC	
2.	21+600	22+000	400	Widening & Strengthening	BC	
3.	22+000	22+079	79	Widening & Strengthening	BC	
4.	22+079	22+250	171	Widening & Strengthening	BC	**LHS Done**
5.	22+250	22+492	242	Widening & Strengthening	BC	**LHS Done**
6.	22+492	22+500	8	Realignment	BC	**LHS Done**
7.	22+500	22+542	42	Realignment	BC	**LHS Done**
8.	22+542	23+000	458	Widening & Strengthening	BC	**LHS Done**
9.	23+000	23+007	7	Widening & Strengthening	BC	**LHS Done**
10.	23+007	23+052	45	Realignment	BC	**LHS Done**
11.	23+052	23+107	55	Widening & Strengthening	BC	**LHS Done**
12.	23+107	23+157	50	Realignment	BC	**LHS Done**
13.	23+157	23+342	185	Widening & Strengthening	BC	**LHS Done**
14.	23+342	23+392	50	Realignment	BC	**LHS Done**
15.	23+392	23+479	87	Widening & Strengthening	BC	**LHS Done**

Reconstruction of damaged stretches: The new Contractor shall be fully responsible for reconstruction of all defects of work executed by earlier EPC Contractors for such works for which NCR was already issued for such defects if any.

Reconstruction of Damaged DBM stretch:

Sl. No.	Design Chainage		Side	Length (m)	Improvement Proposal	Details of work done by	Remarks
	From	To					

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						Previous Contractor	
1	24+779	25+022	BHS	243	Widening & Strengthening	DBM	**243m Damage**
2	26+374	26+580	BHS	206	Widening & Strengthening	DBM	**206 m Damage**

Note: - The distressed locations should be identified with their exact chainages. The distressed portion should then be marked up. Then the entire DBM layer must be scrapped off thoroughly. After scrapping of DBM layer, the top WMM surface must be thoroughly checked with respect to degree of compaction and plasticity (within the grid) randomly by doing the test pits at few locations. Further it should be extended for GSB and subgrade layer with extraction of layer material to observe CBR value. If result does not comply in any of the layers then in that grid all the material including subgrade should be excavated and reconstructed freshly if any.

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

2. Land

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

Sl. No.	Existing Chainage		Design Chainage		Length (Km)	Existing / Available Row (M)	Remark
	From	To	From	To			
1	16+530	29+530	18+779	31+779	13.000	-	No Row available in realignment of total XXX km. as given in para 3.3of Annexure -1 Schedule B

3. Carriageway

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

Sl No.	Existing Chainage		Design Chainage		Length In Km (Design)	Existing/ Lane Width	Remark
	From	To	From	To			
1	16+530	29+530	18+779	31+779	13.000	3 to 7.0	Land width other than realignment portion

4. Major Bridge

The Site includes the following Major Bridges:

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

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

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

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

6. Grade separators

The Site includes the following grade separators:

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

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7. Railway level crossings

The Site includes the following railway level crossings:

Sl No	Location(km)	Remarks
NIL		

1. **Underpasses (vehicular, Non-vehicular)**
2. The Site includes the following underpasses:

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

10. Truck Lay bays

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

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

11. Road side drains

The details of the roadside drains are as follows:

Sl.no	Chainages		Length (m)	Side	Remarks
	From	To			
1	19+545	19+570	25.0	LHS	
2	19+570	19+678	108.0	LHS	
3	19+715	19+850	135.0	LHS	
4	19+850	19+870	20.0	LHS	

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5	19+895	20+000	105.0	LHS	
6	20+000	20+076	76.0	LHS	
7	20+076	20+344	268.0	LHS	
8	20+450	20+530	80.0	LHS	
9	20+530	20+580	50.0	LHS	
10	20+650	20+710	60.0	LHS	
11	20+890	21+030	140.0	LHS	
12	21+050	21+140	90.0	LHS	
13	21+160	21+180	20.0	LHS	
14	21+187	21+387	200.0	LHS	
15	21+400	21+535	135.0	LHS	
16	21+550	21+680	130.0	LHS	
17	21+700	21+790	90.0	LHS	
18	21+800	21+890	90.0	LHS	
19	21+900	22+020	120.0	LHS	
20	22+050	22+195	145.0	LHS	
21	22+200	22+300	100.0	LHS	
22	22+326	22+385	59.0	LHS	
23	22+395	22+520	125.0	LHS	
24	22+520	22+680	160.0	LHS	
25	22+750	22+780	30.0	LHS	
26	22+792	22+900	108.0	LHS	
27	22+970	22+985	15.0	LHS	
28	23+006	23+064	58.0	LHS	
29	23+140	23+160	20.0	LHS	
30	23+225	23+500	275.0	LHS	
31	23+520	23+719	199.0	LHS	
32	23+801	24+000	199.0	LHS	
33	24+305	24+400	95.0	LHS	
34	24+410	24+800	390.0	LHS	
35	24+860	25+070	210.0	LHS	
36	25+080	25+258	178.0	LHS	
37	25+550	25+600	50.0	LHS	
38	25+680	25+865	185.0	LHS	
39	25+880	25+930	50.0	LHS	
40	26+000	26+197	197.0	LHS	
41	26+197	26+497	300.0	LHS	
42	26+504	26+715	211.0	LHS	
43	26+725	26+850	125.0	LHS	
44	26+850	26+930	80.0	LHS	
45	26+940	27+000	60.0	LHS	
46	27+000	27+020	20.0	LHS	
47	27+020	27+098	78.0	LHS	
48	27+112	27+141	29.0	LHS	
49	27+185	27+265	80.0	LHS	

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50	27+287	27+330	43.0	LHS	
51	27+336	27+415	79.0	LHS	
52	27+425	27+468	43.0	LHS	
53	27+520	27+640	120.0	LHS	
54	27+650	27+720	70.0	LHS	
55	27+740	27+910	170.0	LHS	
56	27+925	28+022	97.0	LHS	
57	28+027	28+300	273.0	LHS	
58	28+300	28+387	87.0	LHS	
59	28+410	28+555	145.0	LHS	
60	28+560	28+668	108.0	LHS	
61	28+672	28+850	178.0	LHS	
62	28+872	29+067	195.0	LHS	
63	29+300	29+888	588.0	LHS	
64	30+131	30+251	120.0	RHS	
65	30+404	30+595	191.0	RHS	
66	30+605	30+681	76.0	RHS	
67	30+728	30+753	25.0	RHS	
68	30+843	31+183	340.0	RHS	

The new Contractor shall be fully responsible for the rectification of defects and maintenance for such works including the portion or part of the work done earlier by the previous contractor.

Minor Bridges

The Site includes the following Minor Bridges:

Sl. No.	Road Segment	Design Chainage	Type Of Structures			No. of Span with span length	Width (m)	Remark
			Foundation	Sub-structure	Super Structure			
Nil								

Culvert

Sl. No.	Chainages	Span (m)	Side	Remarks
1	18+890	3.0X3.0	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall complete BHS, catch pit/apron balance BHS
2	19+100	3.0X3.0	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
3	19+680	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS

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Sl. No.	Chainages	Span (m)	Side	Remarks
4	19+892	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall 1st Lift complete LHS, Parapet wall complete RHS, catch pit complete LHS,apron balance RHS
5	19+977	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall 1st Lift complete LHS, Parapet wall complete RHS, catch pit complete LHS,apron balance RHS
6	20+137	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
7	20+430	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
8	20+542	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
9	20+707	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
10	20+850	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
11	20+990	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
12	21+182	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall incomplete LHS, Parapet wall complete RHS, catch pit complete LHS, apron balance RHS
13	21+392	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall incomplete LHS, Parapet wall complete RHS, catch pit complete LHS, apron balance RHS
14	21+635	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall complete BHS, catch pit complete LHS, apron balance RHS

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Sl. No.	Chainages	Span (m)	Side	Remarks
15	21+980	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall complete BHS, catch pit/apron balance BHS
16	22+105	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall complete BHS, catch pit/apron balance BHS
17	22+327	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall complete BHS, catch pit/apron balance BHS
18	22+389	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
19	22+700	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
20	22+790	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
21	23+084	2.0X2.0	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
22	23+222	3.0X3.0	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
23	23+505	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
24	23+720	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
25	23+800	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS

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Sl. No.	Chainages	Span (m)	Side	Remarks
26	23+947	5.0X3.0	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
27	24+002	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
28	24+197	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
29	24+297	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
30	24+405	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
31	24+560	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
32	24+602	2.0X2.0	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
33	24+842	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
34	25+010	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete BHS,catch pit/apron balance BHS
35	25+070	3.0X3.0	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete BHS,catch pit/apron balance BHS
36	25+100	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete BHS, catch pit/apron balance BHS

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Sl. No.	Chainages	Span (m)	Side	Remarks
37	25+224	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
38	25+320	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
39	25+520	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
40	25+620	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
41	25+675	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
42	25+872	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
43	25+942	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
44	26+210	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
45	26+340	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit balance LHS, Apron complete RHS.
46	26+465	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
47	26+500	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS

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Sl. No.	Chainages	Span (m)	Side	Remarks
48	26+615	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
49	26+750	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
50	26+936	3.0X3.0	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
51	27+107	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
52	27+180	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
53	27+268	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit balance LHS, Apron complete RHS.
54	27+340	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
55	27+420	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
56	27+515	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
57	27+642	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit balance LHS, Apron complete RHS.
58	27+730	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit balance LHS, Apron complete RHS.

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Sl. No.	Chainages	Span (m)	Side	Remarks
59	27+920	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
60	28+250	3.0X3.0	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
61	28+300	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
62	28+480	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
63	28+800	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
64	29+900	3.0X3.0	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete BHS, catch pit/apron balance BHS
65	29+751	3.0X3.0	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
66	30+087	2.0X2.0	BHS	Slab completed BHS, Return wall incomplete RHS, Parapet wall Incomplete BHS, catch pit/apron balance BHS
67	30+268	1.5X1.5	BHS	Slab completed BHS, Return wall incomplete RHS, Parapet wall Incomplete BHS, catch pit/apron balance BHS
68	30+508	3.0X3.0	BHS	Slab completed BHS, Return wall incomplete RHS, Parapet wall Incomplete BHS, catch pit/apron balance BHS
69	30+661	4.0X3.0	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
70	31+005	2.0X2.0	BHS	Slab completed BHS, Return wall incomplete RHS, Parapet wall Incomplete BHS, catch pit/apron balance BHS

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Protection/Other works, if any to be constructed for balance culverts and other pending culverts already constructed earlier by previous contractor As per site condition the new Contractor shall be fully responsible for the rectification of defects and maintenance for such works including the portion or part of the work done earlier by the previous contractor.

``14. Bus bays

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

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

Major Intersections along project:

The details of the minor junctions are as follows:

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

Minor Intersections along project:

The details of the minor intersections are as follows:

Sl. No.	Existing Ch.	Design Ch.	Type of intersection	
			T-Junction	Cross Road Both Side
1	17+125	19+292	T	
2	23+550	25+542	T	
3	31+230	29+581		Cross Road
4	33+428	31+779		Cross Road

Bypass

The details of Bypasses are as follows:

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

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Other structures

The details of other structures are as follows.

The details of Breast wall are as follows:

Sl.no	Chainages		Length (m)	Side	Remarks
	From	To			
	19+480	19+615	135.0	Hill side	
	19+665	19+680	15.0	Hill side	
	19+715	19+830	115.0	Hill side	
	19+830	19+855	25.0	Hill side	
	21+320	21+330	10.0	Hill side	
	21+330	21+340	10.0	Hill side	
	21+340	21+350	10.0	Hill side	
	21+350	21+360	10.0	Hill side	
	21+360	21+373	12.5	Hill side	
	21+400	21+525	125.0	Hill side	
	21+810	21+860	50.0	Hill side	
	22+540	22+610	70.0	Hill side	
	22+966	22+970	4.0	Hill side	
	22+970	22+980	10.0	Hill side	
	22+980	22+990	10.0	Hill side	
	22+990	23+000	10.0	Hill side	
	23+006	23+010	4.0	Hill side	
	23+010	23+020	10.0	Hill side	
	23+020	23+030	10.0	Hill side	
	23+030	23+040	10.0	Hill side	
	23+040	23+050	10.0	Hill side	
	23+050	23+060	10.0	Hill side	
	23+060	23+070	10.0	Hill side	
	23+100	23+110	10.0	Hill side	
	23+110	23+120	10.0	Hill side	
	23+120	23+133	12.5	Hill side	
	23+230	23+497	267.0	Hill side	
	23+630	23+730	100.0	Hill side	
	23+970	24+180	210.0	Hill side	
	24+800	24+850	50.0	Hill side	
	24+850	24+870	20.0	Hill side	
	24+890	24+940	50.0	Hill side	
	25+100	25+133	33.0	Hill side	
	25+157	25+180	23.0	Hill side	
	25+200	25+220	20.0	Hill side	
	25+600	25+715	115.0	Hill side	
	26+790	26+829	39.0	Hill side	

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Sl.no	Chainages		Length (m)	Side	Remarks
	From	To			
	27+020	27+100	80.0	Hill side	
	27+100	27+150	50.0	Hill side	
	27+150	27+167	17.2	Hill side	
	27+180	27+224	44.2	Hill side	
	27+800	27+920	120.0	Hill side	
	28+072	28+185	113.0	Hill side	
	28+210	28+260	50.0	Hill side	
	29+640	29+690	50.0	Hill side	
	30+481	30+691	210.0	Hill side	
	30+829	30+940	111.0	Hill side	

Thedetailsof RE Wall areasfollows:

Sl.no	Chainages		Length (m)	Side	Remarks
	From	To			
	19+100	19+114	14	RHS	
	19+124	19+138	14	RHS	
	19+148	19+162	14	RHS	
	19+212	19+233	21	RHS	
	19+263	19+275	12	RHS	
	19+460	19+560	100	RHS	
	20+360	20+380	20	RHS	
	20+400	20+420	20	RHS	
	21+330	21+340	10	RHS	
	21+340	21+350	10	RHS	
	21+360	21+386	26	RHS	
	26+000	26+030	30	RHS	
	26+080	26+100	20	RHS	
	29+997	30+041	44	RHS	
	30+091	30+112	21	RHS	

Thedetailsof Parapet Wall areasfollows:

Sl.no	Chainages		Length (m)	Side	Remarks
	From	To			
1	19+895	19+964	69.5	Valley Side	
2	19+998	20+096	98.0	Valley Side	
3	20+255	20+302	47.4	Valley Side	
4	20+711	20+793	82.2	Valley Side	
		Gaps deduction Quantity (In Rmt)	-58.070		

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1	19+526	19+675	149.0	Valley Side	
2	21+578	21+630	51.6	Valley Side	
3	21+710	21+751	41.0	Valley Side	
4	21+861	21+891	30.0	Valley Side	
5	22+245	22+321	76.0	Valley Side	
6	22+978	23+008	30.0	Valley Side	
7	23+140	23+236	96.0	Valley Side	
Gaps deduction Quantity (In Rmt)			- 98.600		
Upto date Quantity (In Rmt)			614.000		

Thedetailsof Gabion Wall areasfollows:

Sl.no	Chainages		Length (m)	Side	Remarks
	From	To			
	19+690	19+735	45.0	Valley Side	
	19+735	19+765	30.0	Valley Side	
	19+765	19+810	45.0	Valley Side	
	20+138	20+150	12.0	Valley Side	
	20+150	20+180	30.0	Valley Side	
	20+180	20+210	30.0	Valley Side	
	20+210	20+260	50.0	Valley Side	
	20+260	20+275	14.8	Valley Side	
	20+455	20+542	87.0	Valley Side	
	20+610	20+710	100.0	Valley Side	
	20+788	20+850	62.0	Valley Side	
	20+854	20+887	33.0	Valley Side	
	20+955	20+985	30.0	Valley Side	
	20+995	21+022	27.0	Valley Side	
	21+190	21+225	35.0	Valley Side	
	21+410	21+527	117.0	Valley Side	
	21+527	21+573	46.0	Valley Side	
	21+671	21+730	59.0	Valley Side	
	21+730	21+790	60.0	Valley Side	
	21+790	21+845	55.0	Valley Side	
	21+880	21+965	85.0	Valley Side	
	21+979	22+085	106.0	Valley Side	
	22+120	22+220	100.0	Valley Side	
	22+330	22+385	55.0	Valley Side	
	22+390	22+500	110.0	Valley Side	
	22+500	22+530	30.0	Valley Side	
	22+530	22+610	80.0	Valley Side	
	22+610	22+730	120.0	Valley Side	

Balance work of Construction of two-Lane with hard shoulders of Changtongya – Longleng Road on EPC basis from existing Km 16.530 to Km 29.530 [Design Km. 18+779 to Km. 31+779 (Design Length – 13.000 Km) in the state of Nagaland (Pkg-2) under NH (O) Plan

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Sl.no	Chainages		Length (m)	Side	Remarks
	From	To			
	22+730	22+773	43.0	Valley Side	
	22+792	22+978	186.0	Valley Side	
	23+090	23+140	50.0	Valley Side	
	23+165	23+195	30.0	Valley Side	
	23+220	23+300	80.0	Valley Side	
	23+300	23+380	80.0	Valley Side	
	23+380	23+450	70.0	Valley Side	
	23+610	23+710	100.0	Valley Side	
	23+725	23+792	67.0	Valley Side	
	23+800	23+870	70.0	Valley Side	
	24+040	24+070	30.0	Valley Side	
	24+096	24+118	22.0	Valley Side	
	24+120	24+150	30.0	Valley Side	
	24+158	24+220	62.0	Valley Side	
	24+240	24+295	55.0	Valley Side	
	24+305	24+380	75.0	Valley Side	
	24+380	24+391	11.0	Valley Side	
	24+415	24+435	20.0	Valley Side	
	24+435	24+451	16.0	Valley Side	
	24+610	24+765	155.0	Valley Side	
	24+785	24+835	50.0	Valley Side	
	24+930	25+000	70.0	Valley Side	
	25+340	25+400	60.0	Valley Side	
	25+400	25+506	106.3	Valley Side	
	25+620	25+680	60.0	Valley Side	
	25+680	25+750	70.0	Valley Side	
	25+750	25+830	80.0	Valley Side	
	25+830	25+860	30.0	Valley Side	
	25+880	25+930	50.0	Valley Side	
	26+220	26+300	80.0	Valley Side	
	26+300	26+306	5.9	Valley Side	
	26+460	26+490	30.0	Valley Side	
	26+510	26+600	90.0	Valley Side	
	26+635	26+680	45.0	Valley Side	
	26+750	26+800	50.0	Valley Side	
	26+858	26+900	42.0	Valley Side	
	27+040	27+100	60.0	Valley Side	
	27+295	27+300	5.0	Valley Side	
	27+380	27+440	60.0	Valley Side	

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Sl.no	Chainages		Length (m)	Side	Remarks
	From	To			
	27+520	27+635	115.0	Valley Side	
	27+650	27+710	60.0	Valley Side	
	27+730	27+910	180.0	Valley Side	
	27+930	27+980	50.0	Valley Side	
	28+110	28+210	100.0	Valley Side	
	28+210	28+239	28.5	Valley Side	
	28+239	28+240	1.5	Valley Side	
	28+240	28+280	40.0	Valley Side	
	28+280	28+305	25.0	Valley Side	
	28+315	28+396	81.0	Valley Side	
	28+640	28+650	10.0	Valley Side	
	28+763	28+798	35.0	Valley Side	
	28+805	28+852	47.0	Valley Side	
	28+872	28+904	32.0	Valley Side	
	30+121	30+221	100.0	Valley Side	
	30+276	30+351	75.0	Valley Side	

The new Contractor shall be fully responsible for the reconstruction/rectification of defects and maintenance for such works including the portion or part of the work done earlier by the previous contractor.

(v) ThedetailsofCrash Barrierareasfollows:

Sl.no	Chainages		Length (m)	Side	Remarks
	From	To			
	19+114	19+124	10.0	RHS	Rectification Required
	19+138	19+148	10.0	RHS	Rectification Required
	19+162	19+212	50.0	RHS	Rectification Required
	19+233	19+263	30.0	RHS	Rectification Required
	19+275	19+299	24.3	RHS	Rectification Required
	19+400	19+412	12.3	RHS	Rectification Required

Balance work of Construction of two-Lane with hard shoulders of Changtongya – Longleng Road on EPC basis from existing Km 16.530 to Km 29.530 [Design Km. 18+779 to Km. 31+779 (Design Length – 13.000 Km) in the state of Nagaland (Pkg-2) under NH (O) Plan

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Sl.no	Chainages		Length (m)	Side	Remarks
	From	To			
	19+850	19+878	28.0	RHS	Rectification Required
	20+070	20+138	68.0	RHS	Rectification Required
	20+899	20+955	56.2	RHS	Rectification Required
	23+538	23+610	72.2	RHS	Rectification Required
	23+870	23+946	76.2	RHS	Rectification Required
	24+846	24+930	84.0	RHS	Rectification Required
	25+324	25+340	16.3	RHS	Rectification Required
	26+412	26+460	48.3	RHS	Rectification Required
	26+600	26+608	8.3	RHS	Rectification Required
	26+680	26+688	8.3	RHS	Rectification Required
	26+696	26+748	52.0	RHS	Rectification Required
	27+008	27+040	32.5	RHS	Rectification Required
	27+910	27+930	20.0	RHS	Rectification Required
	30+421	30+465	44.2	LHS	Rectification Required

Balance work of Construction of two-Lane with hard shoulders of Changtongya – Longleng Road on EPC basis from existing Km 16.530 to Km 29.530 [Design Km. 18+779 to Km. 31+779 (Design Length – 13.000 Km) in the state of Nagaland (Pkg-2) under NH (O) Plan

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Sl.no	Chainages		Length (m)	Side	Remarks
	From	To			
	30+491	30+551	60.0	LHS	Rectification Required
	30+570	30+650	80.0	LHS	Rectification Required
	30+731	30+783	51.7	LHS	Rectification Required
	31+121	31+160	39.0	LHS	Rectification Required
	31+251	31+395	143.7	LHS	Rectification Required

The new Contractor shall be fully responsible for the reconstruction/rectification of defects and maintenance for such works including the portion or part of the work done earlier by the previous contractor.

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Annex II

(As per clause 8.3 (i))

(Schedule-A)

Dates for providing Right of Way

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

Sl. No	Design Chainage		Length (Km)	Proposed ROW Width (m)	Date of Providing proposed ROW
	From	To			
90% OF Row (full width)	18+779	31+779	13.000	Varying RoW from minimum 20m to maximum 45m at different locations as per cross section in DPR	At Appointment date
Balance Row width	18+779	31+779	13.000	Varying RoW from minimum 20m to maximum 45m at different locations as per cross section in DPR	Within 150 days after the appointed days

Balance work of Construction of two-Lane with hard shoulders of Changtongya – Longleng Road on EPC basis from existing Km 16.530 to Km 29.530 [Design Km. 18+779 to Km. 31+779 (Design Length – 13.000 Km) in the state of Nagaland (Pkg-2) under NH (O) Plan

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Annex – IIII

(Schedule-A)

Alignment Plans

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

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SCHEDULE – B

(See Clause 2.1)

DEVELOPMENT OF THE PROJECT HIGHWAY

1 Development of the Project Highway

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

2 Rehabilitation and augmentation

Rehabilitation and augmentation shall include (Two laning and strengthening) of the project Highway as described in Annex-1 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.

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Annex I
(Schedule-B)

Description of Two Lanning

1. Widening of the Existing Highway

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

(ii) Width of Carriageway

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

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

Sl. No.	Built-up stretch (Township)	Location(Design Chainage)		Length (m)	Typical cross section	Remark
		From (Km)	To (Km)			
1	Yaongyomchen	18+792	18+992	0.200	As per attached TCS Drawings	-
2	Alayong	18+992	19+552	0.560		-
3	Yaong	20+942	21+192	0.250		-
4	Orangkong	29+528	30+643	1.115		-
5	Longleg	30+503	31+779	1.276		-

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

2. GEOMETRIC DESIGN AND GENERAL FEATURES

(i) General

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

(ii) Design speed

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

(iii) Improvement of the existing road geometrics

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

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

Sl. No.	Design Chainage (m)		Side	Type of Deficiency	Remarks
	From	To			
1	23+017.07	23+054.24	Right	Radius<40	
2	23+112.51	23+172.36	Left	Radius<40	
3	23+172.36	23+261.57	Right	Radius<40	
4	23+563.27	23+607.03	Left	Radius<40	
5	25+506.92	25+555.74	Right	Radius<40	
6	25+920.81	25+991.50	Left	Radius<40	
7	26+599.86	26+674.42	Left	Radius<40	
8	27+353.02	27+424.83	Left	Radius<40	
9	27+785.89	27+875.42	Left	Radius<40	
10	28+137.78	28+197.96	Right	Radius<40	
11	28+666.68	28+742.10	Right	Radius<40	
12	29+906.13	29+942.23	Left	Radius<40	
13	30+400.58	30+439.61	Right	Radius<40	
14	31+021.46	31+046.10	Right	Radius<40	
15	31+112.53	31+195.86	Left	Radius<40	

(v) Improvement due to Realignments:

Sl.No.	Design Chainage		Length (m)
	From	To	
1	18+842	18+892	50
2	19+052	19+097	45
3	19+312	19+352	40
4	19+397	19+437	40
5	19+892	19+942	50
6	20+012	20+062	50
7	22+492	22+542	50
8	23+007	23+052	45
9	23+107	23+157	50

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Sl.No.	Design Chainage		Length (m)
	From	To	
10	23+342	23+392	50
11	23+692	23+742	50
12	24+042	24+092	50
13	24+692	24+732	40
14	25+022	25+057	35
15	29+097	29+227	130
16	29+558	29+613	55
17	29+943	30+043	100
18	30+173	30+253	80

(v) Proposed Right of Way

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

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

(v) Type of Shoulders

(a) In built up sections, footpath / fully paved shoulders shall be provided in accordance with clause 1.2.1 above
(b) In open country, Hard shoulders of GSB having thickness of 20mm, total 3 m wide including both sides shall be provided and balance shall be covered with 150mm thick compacted layer of granular material.
(c) Design and specifications of pavedshoulders and granular material shall conform to the requirements specified in the section 408 of MoRTH specification

(vi) **Lateral and vertical clearances at underpasses**

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

ii. Lateral Clearance:

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

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

(vii) Lateral and vertical clearances at overpasses

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

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

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

(viii) Service roads

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

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

(ix) Grade Separated Structures

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

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

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

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

(x) Cattle and pedestrian underpass / Overpass

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

Sl. No.	Location	Type of Crossing
Nil		

(xi) Typical cross-sections of the Project Highway

.

The cross-section schedule shall be as follows:

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

The cross-section schedule shall be as follows:

Sl.No.	Chainage(Km)		Length (m)	Type	Remarks
	From	To			
1	18+779	19+252	473	I	
2	19+252	12+292	40	II	
3	12+292	20+992	1700	I	
4	20+992	21+102	110	III	
5	21+102	25+542	4440	I	
6	25+542	25+562	20	II	
7	25+562	26+092	530	I	
8	26+092	26+162	70	II	
9	26+162	26+262	100	I	
10	26+262	26+542	280	III	
11	26+542	27+792	1250	I	
12	27+792	28+393	601	III	
15	28+393	28+743	350	I	
16	28+743	28+853	110	III	
17	28+853	29+243	390	I	
18	29+243	29+413	170	III	
19	29+413	29+493	80	I	
20	29+493	29+573	80	III	
21	29+573	30+193	620	I	
22	30+193	30+243	50	III	
23	30+243	31+121	878	I	
24	31+121	31+779	658	Follow Existing X Section Only	

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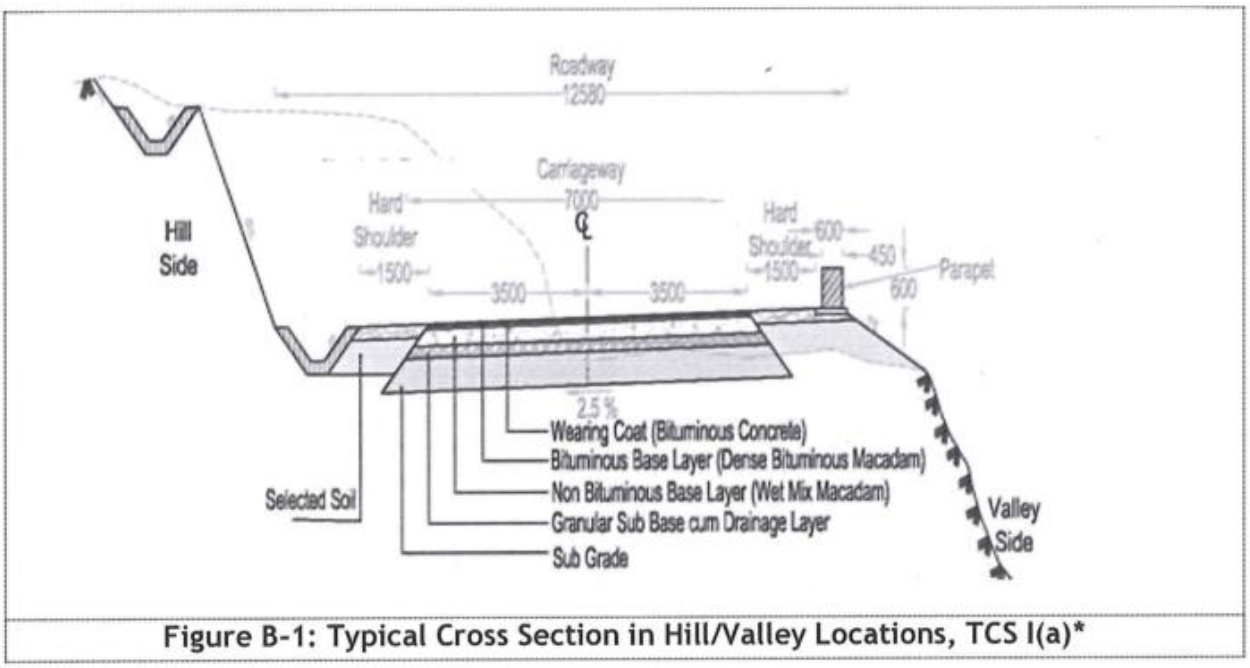

Figure B-1: Typical Cross Section in Hill/Valley Locations, TCS I(a)*

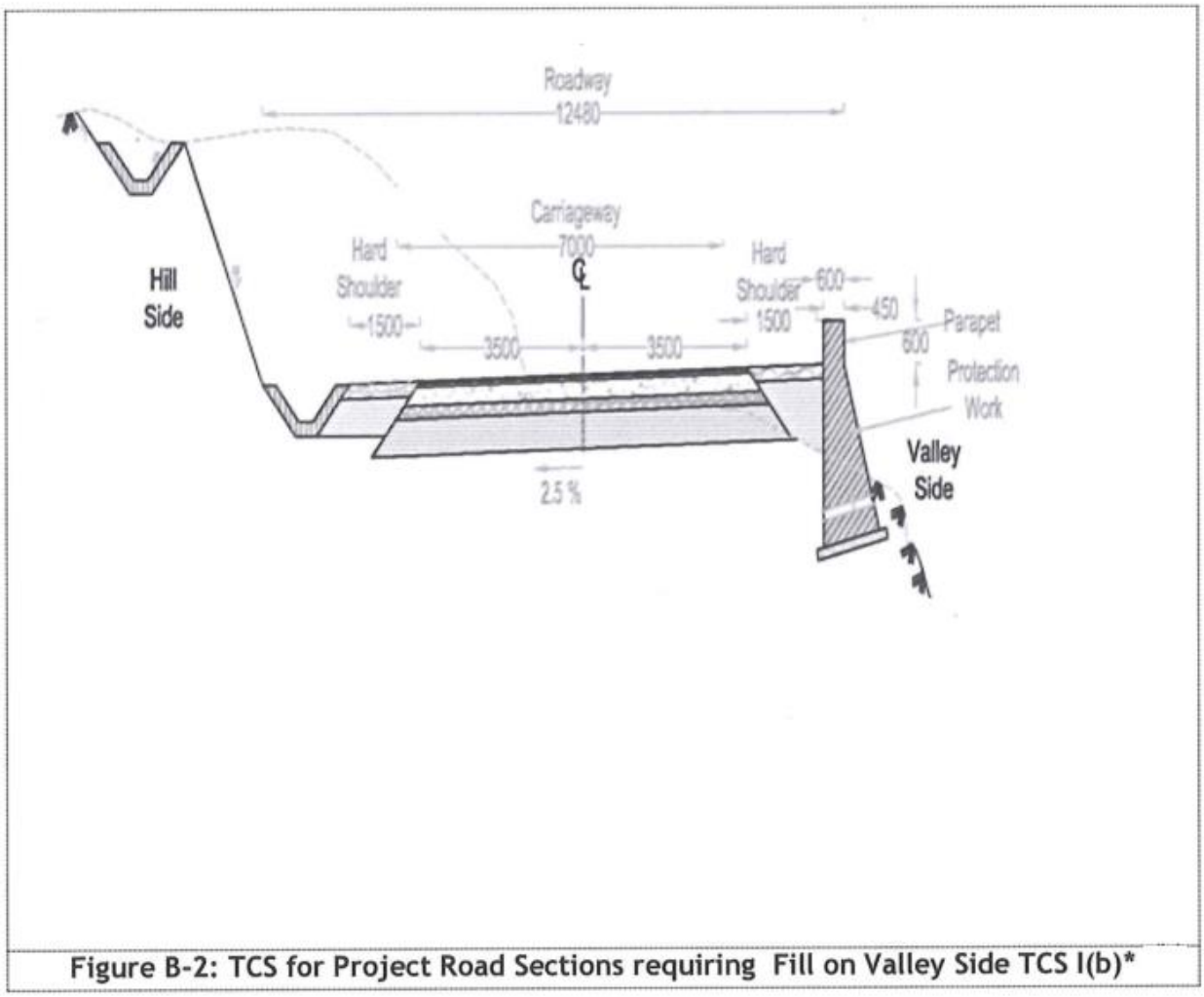

Figure B-2: TCS for Project Road Sections requiring Fill on Valley Side TCS I(b)*

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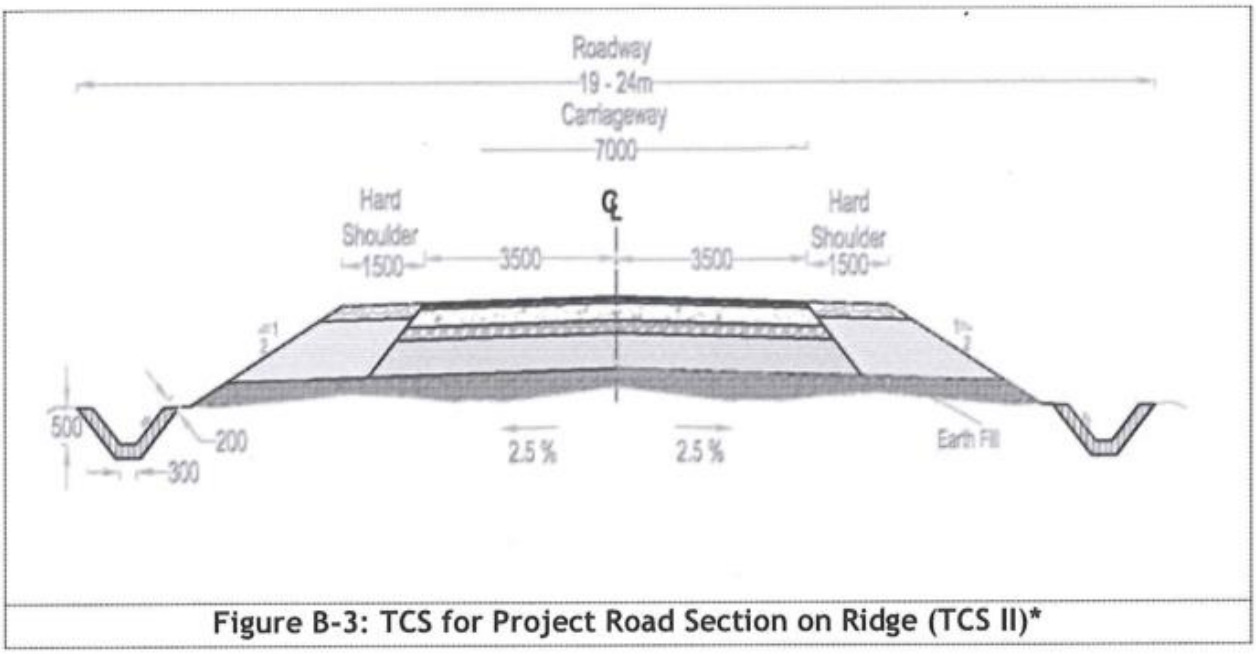

Figure B-3: TCS for Project Road Section on Ridge (TCS II)*

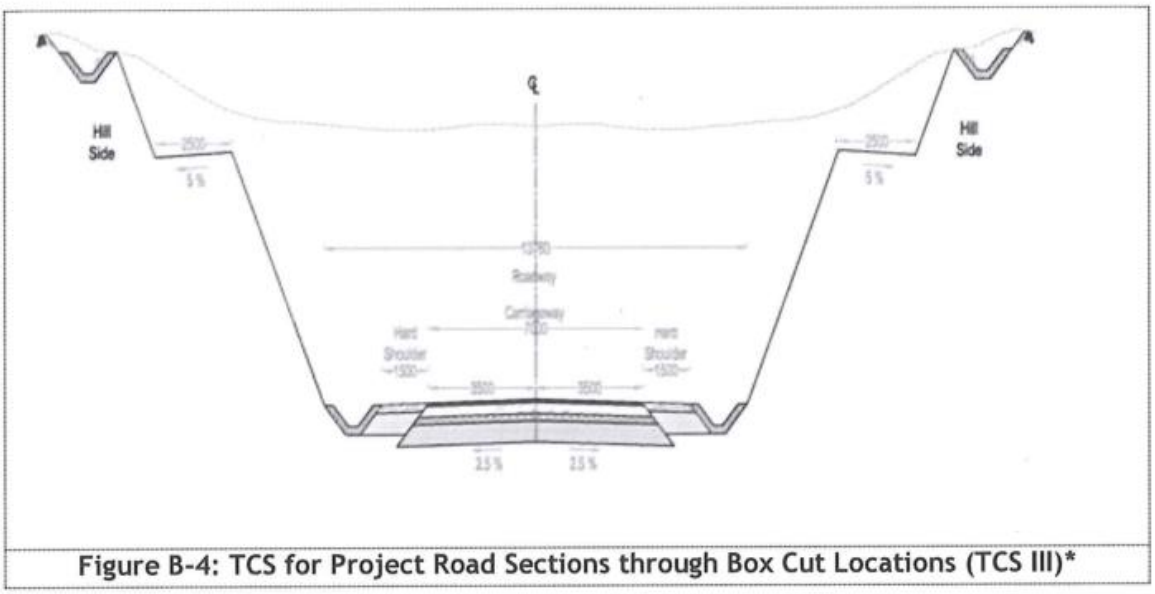

Figure B-4: TCS for Project Road Sections through Box Cut Locations (TCS III)*

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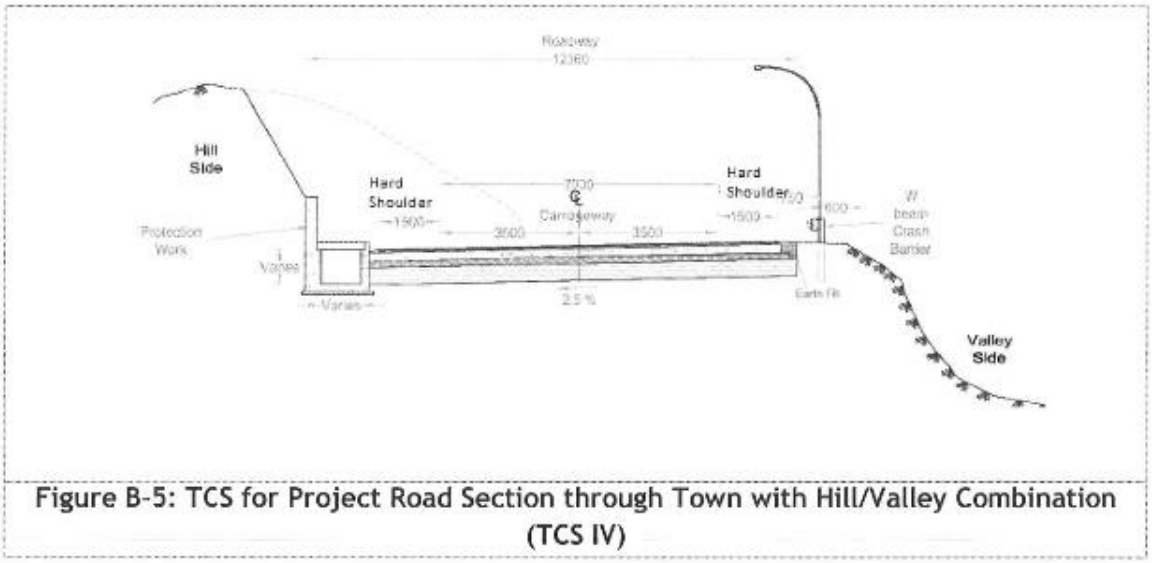

Figure B-5: TCS for Project Road Section through Town with Hill/Valley Combination (TCS IV)

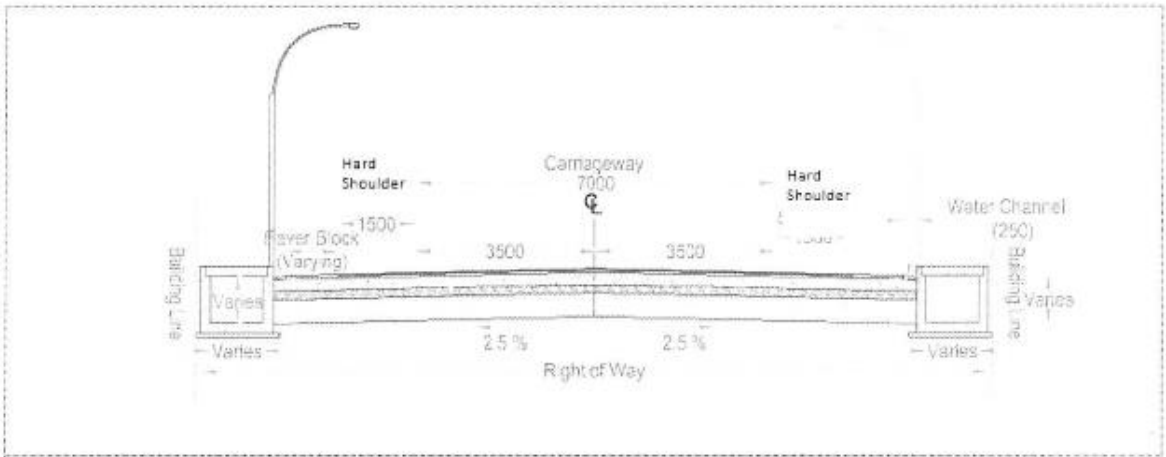

Figure B-6: TCS for Project Road Section through Town on Ridge (TCS V)

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3. INTERSECTIONS AND GRADE SEPARATORS

Introduction

All intersections shall be as per Section3 of the IRC: SP: 73-2018. Existing intersections which are deficient shall be improved to the prescribed standards.

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

(i) At-grade Intersections

Major Intersections

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

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

Minor Intersections

Sl. No.	Location of intersection (Km)	Type of intersection	Other features
1	19+292	T	Left
2	25+542	T	Left
3	31+397	CROSS	Left/Right

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

(ii) Grade Separated Intersections with/without Ramps

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

4. ROAD EMBANKMENT AND CUT SECTION

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

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b. Rising of the existing road.

The existing road shall be raised in the following sections:

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

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

5. PAVEMENT DESIGN

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

(ii) **Type of pavement**

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

(iii) **Design requirements**

The granular layers (base and subbase) shall be designed for Minimum 20 MSA. The bituminous courses (DBM and BM) shall be designed for minimum 5 MSA. Bituminous Concrete shall be 40mm thick

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

(iv) **Reconstruction of stretches / Realignment / Bypass of section**

1) [Refer to paragraph 5.9.7 of manual and specify the stretches, if any, to be reconstructed]
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	16+530	29+000	Poor condition of existing pavement and or realignment section

(v) **Rigid Pavement**

No rigid pavement has been considered for the Project Highway.

(vi) **Rigid Pavement**

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Existing section from 29+000 to 29+500 (Design chainage is from 31+121 km to km 31+779) be rehabilitated with BC 40mm and DBM 80mm with necessary take coats and pothole fillings.

6. ROAD SIDE DRAINAGE

Following measures shall be adopted:

i) Minimum length of Road Side Drains= **5731.727 m**

Open side trapezoidal cross section drain shall be provided on hill sides or both sides at Box cutting location of the project highway in order to intercept surface water from the carriageway, shoulders, and hill slopes. RCC Lined drains have slopes also been proposed in urban/semi urban/intersection stretches. The concrete drains shall be covered in reaches along commercial establishments and intersections. The drains outfall into the natural water courses i.e., either in culverts or bridges. Locations of the drain to be constructed shall be finalized in consultation with the Authority's Engineer at the time of Execution. These are guidelines for minimum provisions. However, contractor must design as per requirement of road in accordance with manual.

Note:

1. The length of side drains given above are minimum and it may vary as per site condition. In case of increase of length, no positive change of scope will be payable.
2. Drainage system including surface and subsurface drains for the Project Highway shall be provided as per Section 6 of the Manual (IRC: SP: 73-2018).
3. Road side drain shall preferably be V-shaped having wetted area of 0.4sqm
4. The above locations shall be reviewed in consultation with the Authority Engineer at the time of constructionas per the site condition

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

7.1 Minimum balance Earthwork up to Top of Sub-grade

Sl.No.	Design Chainage		Length (m)	Improvement Proposal
	From	To		
1	18+892	18+979	87	Widening & strengthening
2	19+352	19+397	45	Widening & strengthening
3	19+437	19+500	63	Widening & Strengthening
4	29+097	29+227	130	Realignment
5	29+227	29+393	166	Widening &Strengthening
6	29+393	29+558	165	Widening &Strengthening
7	29+558	29+613	55	Realignment
8	30+253	30+643	390	Widening &Strengthening

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9	30+978	31+121	143	Widening &Strengthening
10	31+121	31+349	228	Strengthening
		Total Length	**1472**	**Meter**

7.2 Minimum Balance Granular Sub Base Works: -

Sl.No.	Design Chainage		Length (m)	Improvement Proposal
	From	To		
1.	18+842	18+892	50	Realignment
2.	18+892	18+979	87	Widening & strengthening
3.	19+352	19+397	45	Widening & strengthening
4.	19+437	19+500	63	Widening & strengthening
5.	29+097	29+227	130	Realignment
6.	29+227	29+393	166	Widening & strengthening
7.	29+393	29+558	165	Widening & strengthening
8.	29+558	29+613	55	Realignment
9.	29+851	29+943	92	Widening & strengthening
10.	29+943	30+043	100	Realignment
11.	30+253	30+643	390	Widening & strengthening
12.	30+978	31+121	143	Widening & strengthening
13.	31+121	31+349	228	strengthening
		Total Length	**1714**	**Meter**

7.3 Minimum Balance WMM Works: -

Sl.No.	Design Chainage		Length (m)	Improvement Proposal
	From	To		
1.	18+779	18+842	63	Widening &Strengthening
2.	18+842	18+892	50	Realignment
3.	18+892	18+979	87	Widening &Strengthening
4.	19+279	19+312	33	Widening &Strengthening
5.	19+312	19+352	40	Realignment
6.	19+352	19+397	45	Widening &Strengthening
7.	19+397	19+437	40	Realignment
8.	19+437	19+579	142	Widening &Strengthening
9.	21+379	21+479	100	Widening &Strengthening
10.	29+097	29+227	130	Realignment
11.	29+227	23+393	166	Widening &Strengthening
12.	29+393	29+558	165	Widening &Strengthening
13.	29+558	29+613	55	Realignment
14.	29+851	29+943	92	Widening &Strengthening

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15.	29+943	30+043	100	Realignment
16.	30+253	30+643	390	Widening &Strengthening
17.	30+978	31+121	143	Widening &Strengthening
18.	31+121	31+349	228	Strengthening
		Total Length	**2069**	**Meter**

7.4 Minimum Balance DBM Works: -

Sl.No.	Design Chainage		Length (m)	Improvement Proposal
	From	To		
1.	18+779	18+842	63	Widening &Strengthening
2.	18+842	18+892	50	Realignment
3.	18+892	18+979	87	Widening &Strengthening
4.	19+279	19+312	33	Widening &Strengthening
5.	19+312	19+352	40	Realignment
6.	19+352	19+397	45	Widening &Strengthening
7.	19+397	19+437	40	Realignment
8.	19+437	19+579	142	Widening &Strengthening
9.	21+279	21+379	50	Widening &Strengthening
10.	21+379	21+479	100	Widening &Strengthening
11.	23+679	23+692	13	Widening &Strengthening
12.	23+692	23+742	50	Realignment
13.	23+742	23+779	37	Widening &Strengthening
14.	28+979	29+088	54.5	Widening &Strengthening
15.	29+088	29+097	9	Widening &Strengthening
16.	29+097	29+227	130	Realignment
17.	29+227	29+393	166	Widening &Strengthening
18.	29+393	29+558	165	Widening &Strengthening
19.	29+558	29+613	55	Realignment
20.	29+613	29+943	330	Widening &Strengthening
21.	29+943	30+043	100	Widening &Strengthening
22.	30+043	30+173	130	Widening &Strengthening
23.	30+173	30+253	80	Realignment
24.	30+253	30+643	390	Widening &Strengthening
25.	30+643	30+753	110	Widening &Strengthening
26.	30+753	31+121	368	Widening &Strengthening
27.	31+121	31+349	228	Strengthening
		Total Length	**3065.5**	**Meter**

7.5 Minimum Balance BC Works: -

Balance work of Construction of two-Lane with hard shoulders of Changtongya – Longleng Road on EPC basis from existing Km 16.530 to Km 29.530 [Design Km. 18+779 to Km. 31+779 (Design Length – 13.000 Km) in the state of Nagaland (Pkg-2) under NH (O) Plan

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Sl.No.	Design Chainage		Length (m)	Improvement Proposal
	From	To		
1.	18+779	18+842	63	Widening &Strengthening
2.	18+842	18+892	50	Realignment
3.	18+892	19+052	160	Widening &Strengthening
4.	19+052	19+097	45	Realignment
5.	19+097	19+312	215	Widening &Strengthening
6.	19+312	19+352	40	Realignment
7.	19+352	19+397	45	Widening &Strengthening
8.	19+397	19+437	40	Realignment
9.	19+437	19+892	455	Widening &Strengthening
10.	19+892	19+942	50	Realignment
11.	19+942	20+012	70	Widening &Strengthening
12.	20+012	20+062	50	Realignment
13.	20+062	21+504	1442	Widening &Strengthening
14.	22+079	22+250	85.5	Widening &Strengthening
15.	22+250	22+492	121	Widening &Strengthening
16.	22+492	22+500	4	Realignment
17.	22+500	22+542	21	Realignment
18.	22+542	23+000	229	Widening &Strengthening
19.	23+000	23+007	3.5	Widening &Strengthening
20.	23+007	23+052	22.5	Realignment
21.	23+052	23+107	27.5	Widening &Strengthening
22.	23+107	23+157	25	Realignment
23.	23+157	23+342	92.5	Widening &Strengthening
24.	23+342	23+392	25	Realignment
25.	23+392	23+479	43.5	Widening &Strengthening
26.	23+479	23+692	213	Widening &Strengthening
27.	23+692	23+742	50	Realignment
28.	23+742	24+042	300	Widening &Strengthening
29.	24+042	24+092	50	Realignment
30.	24+092	24+692	600	Widening &Strengthening
31.	24+692	24+732	40	Realignment
32.	24+732	25+022	290	Widening &Strengthening
33.	25+022	25+057	35	Realignment
34.	25+057	26+582	1525	Widening &Strengthening
35.	26+582	29+097	2515	Widening &Strengthening
36.	29+097	29+227	130	Realignment
37.	29+227	29+393	166	Widening &Strengthening
38.	29+393	29+558	165	Widening &Strengthening
39.	29+558	29+613	55	Realignment
40.	29+613	29+943	330	Widening &Strengthening
41.	29+943	30+043	100	Realignment
42.	30+043	30+173	130	Widening &Strengthening
43.	30+173	30+253	80	Realignment

.

Sl.No.	Design Chainage		Length (m)	Improvement Proposal
	From	To		
44.	30+253	30+643	390	Widening &Strengthening
45.	30+643	30+753	110	Widening &Strengthening
46.	30+753	31+121	368	Widening &strengthening
47.	31+121	31+779	658	Strengthening
	Total		**11725**	

Reconstruction of Damaged stretch:

Bidders are requested to visit the site/stretch to understand the requirement of reconstruction as per their own assessment. The locations and length given in Schedule-A are tentative.

DESIGN OF STRUCTURES

The details of culverts shall be provided by the EPC Contractor and locations are given in Clause 7(ii) of Schedule-B.
All the cross-drainage structures and other structures shall be designed in accordance with the design standards set out in **Schedule–D.**

(i) Bridges

i. General

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

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

c) Following structures shall be provided with footpaths:

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

d) All bridges shall be high-level bridges.

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

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

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

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(ii) Culverts

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

Minimumno.ofbox culvertswithSpanarrangementaregivenhereinunder:

Sr. No.	Span (M)	No. of Culverts (New / Reconstruction)	No. of Culverts (Widening &Balance work)	No. of Culvert (remaining work in Constructed Culvert	Total
1.	**1.5**	**00**	**00**	**55**	**55**
2.	**2.0**	**00**	**00**	**04**	**04**
3.	**3.0**	**00**	**00**	**09**	**09**
4.	**4.0**	**00**	**00**	**01**	**01**
5.	**5.0**	**00**	**00**	**01**	**01**

(b) Reconstruction of existing culverts

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

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

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

(d) New culverts to be constructed

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

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

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(e) Widening and Balance work construction

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

Sr. No.	Design Chainage (Km)	Proposal	Proposed Span
NIL			

(f) Construction of balance work of Return walls, Parapet Walls, Catch Pit / apron, construction of flooring and protection works in the existing constructed culverts shall be undertaken as follows:

Sl. No.	Chainages	Span (m)	Side	Remarks
1	18+890	3.0X3.0	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall complete BHS, catch pit/apron balance BHS
2	19+100	3.0X3.0	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
3	19+680	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
4	19+892	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall 1st Lift complete LHS, Parapet wall complete RHS, catch pit complete LHS,apron balance RHS
5	19+977	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall 1st Lift complete LHS, Parapet wall complete RHS, catch pit complete LHS,apron balance RHS
6	20+137	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
7	20+430	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS

.

Sl. No.	Chainages	Span (m)	Side	Remarks
8	20+542	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
9	20+707	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
10	20+850	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
11	20+990	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
12	21+182	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall incomplete LHS, Parapet wall complete RHS, catch pit complete LHS,apron balance RHS
13	21+392	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall incomplete LHS, Parapet wall complete RHS, catch pit complete LHS,apron balance RHS
14	21+635	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall complete BHS, catch pit complete LHS,apron balance RHS
15	21+980	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall complete BHS, catch pit/apron balance BHS
16	22+105	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall complete BHS, catch pit/apron balance BHS
17	22+327	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall complete BHS, catch pit/apron balance BHS
18	22+389	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
19	22+700	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS

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Sl. No.	Chainages	Span (m)	Side	Remarks
20	22+790	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
21	23+084	2.0X2.0	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
22	23+222	3.0X3.0	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
23	23+505	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
24	23+720	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
25	23+800	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
26	23+947	5.0X3.0	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
27	24+002	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
28	24+197	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
29	24+297	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
30	24+405	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS

.

Sl. No.	Chainages	Span (m)	Side	Remarks
31	24+560	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
32	24+602	2.0X2.0	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
33	24+842	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
34	25+010	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete BHS,catch pit/apron balance BHS
35	25+070	3.0X3.0	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete BHS,catch pit/apron balance BHS
36	25+100	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete BHS,catch pit/apron balance BHS
37	25+224	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
38	25+320	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
39	25+520	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
40	25+620	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
41	25+675	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS

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Sl. No.	Chainages	Span (m)	Side	Remarks
42	25+872	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
43	25+942	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
44	26+210	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
45	26+340	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit balance LHS, Apron complete RHS.
46	26+465	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
47	26+500	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
48	26+615	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
49	26+750	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
50	26+936	3.0X3.0	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
51	27+107	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
52	27+180	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS

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Sl. No.	Chainages	Span (m)	Side	Remarks
53	27+268	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit balance LHS, Apron complete RHS.
54	27+340	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
55	27+420	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
56	27+515	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
57	27+642	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit balance LHS, Apron complete RHS.
58	27+730	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit balance LHS, Apron complete RHS.
59	27+920	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
60	28+250	3.0X3.0	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
61	28+300	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
62	28+480	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
63	28+800	1.5X1.5	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS

.

Sl. No.	Chainages	Span (m)	Side	Remarks
64	29+900	3.0X3.0	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete BHS,catch pit/apron balance BHS
65	29+751	3.0X3.0	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
66	30+087	2.0X2.0	BHS	Slab completed BHS, Return wall incomplete RHS, Parapet wall Incomplete BHS,catch pit/apron balance BHS
67	30+268	1.5X1.5	BHS	Slab completed BHS, Return wall incomplete RHS, Parapet wall Incomplete BHS,catch pit/apron balance BHS
68	30+508	3.0X3.0	BHS	Slab completed BHS, Return wall incomplete RHS, Parapet wall Incomplete BHS,catch pit/apron balance BHS
69	30+661	4.0X3.0	BHS	Slab completed BHS, Return wall complete RHS, Parapet wall Incomplete LHS, Parapet wall complete RHS, catch pit/apron balance BHS
70	31+005	2.0X2.0	BHS	Slab completed BHS, Return wall incomplete RHS, Parapet wall Incomplete BHS,catch pit/apron balance BHS

Note- Protection/Other works, if any to be constructed for balance culverts and other pending culverts already constructed earlier by previous contractor As per site condition the new Contractor shall be fully responsible for the rectification of defects and maintenance for such works including the portion or part of the work done earlier by the previous contractor.

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

(iii) Bridges

i. The existing bridges to be reconstructed/widened

Sl. No.	Existing Chainage	Design Chainage	Proposed Span (m)	Proposed width (m)	Remark
NIL					

ii. The following structures shall be provided with footpaths:

Sl. No.	Location (km)	Remarks
NIL		

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iii. Additional New Minor Bridges

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

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

iv. Additional New Major bridges

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

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

Sl. No.	Location (km)	Remarks
NIL		

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

Sl. No.	Location (km)	Remarks
NIL		

v. Drainage system for bridge decks

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

vi. Structures in marine environment

NIL

(iv) Rail-road Bridges

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

(b) Road over-bridges

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

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

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(c) Road under-bridges

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

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

(v) Grade Separated Structures

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

Underpasses/Overpasses

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

(vi) Repairs and strengthening of bridges and structures

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

A. Bridges

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

B. ROB / RUB

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

C. Overpasses / Underpasses and Other Structures

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

(vii) List of Major Bridges and Structures

The following is the list of Major Bridges on Package

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

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8. TRAFFIC CONTROL DEVICES AND ROAD SAFETY WORKS

8.1 Traffic control devices and road safety works shall be provided in accordance with Section 9 of IRC: SP:73-2018.

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

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

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

8.2 Specifications of the reflective sheeting.

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

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

Sl. No	Traffic Signages, Road Marking and other appurtenances	unit	Quantity
1	Road Marking on Centre line & Edge	sqm	11665.301
2	Direction & Place Identification up to 0.9 sqm	sqm	20
3	Direction & Place Identification more than 0.9 sqm	sqm	4
4	60 cm Equilateral Triangle	Number	213
5	60 cm Circular	Number	69
6	60 cm High Octagon	Number	14
7	60 cm X 45 cm Rectangular	Number	30
8	60 cm X 50 cm Chevron Sign	Number	692
9	Hectometer Stone	Number	137
10	Km stone	Number	28
11	5th km stone	Number	6
12	Boundary Stone (as per clause 13 herein under)	Number	342
13	Road Delineators	Number	1539
14	Road Marker/ Road Stud	Number	17083
15	Hazard Marker	Number	360
16	W type Metal Crash barrier	Rm	444.550

9. Roadside Furniture

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

(ii) Overhead traffic signs: location and size

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The overhead signs shall be the reflectorized type with high intensity retro-reflective sheeting conforming to ASTM D 4956-01, type VIII and /or type IX of micro prismatic type. The retro reflected sheets of Engineering Grade and high intensity grade (ordinary) shall not be used. The height, lateral clearance, location the overhead signs shall be the reflectorized type with high intensity retro-reflective sheeting conforming to ASTM D 4956-01, type VIII and / or type IX of micro prismatic type. The retro reflected sheets of Engineering Grade and high intensity grade (ordinary) shall not be used. The height, lateral clearance, location and instillation shall be as per relevant clauses of MoRTH specifications. Overhead sign shall be installed ahead of major intersections and urban areas as per detailed design requirements.
The Minimum number of overhead signs shall be 03 (01 Nos. of Gantry and 02 Nos. of Cantilever) as per this manual.

10. COMPULSORY AFFORESTATION

Minimum 1465 nos. trees are required to be planted.

11. HAZARDOUS LOCATIONS

11.1 Metal Beam crash barrier of minimum length of 444.550 m (single runner, heavy duty and W-shape) shall be provided at the locations of bridge approaches and high embankments (3.0m and more), at sharp curves.Heavy duty metal beam crash barriers 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.

SINo.	DesignChainage(m)		Length(m)	Remarks
	From	To		
1	25+506.92	25+555.74	48.820	Radius<40
2	25+920.81	25+991.50	70.690	Radius<40
3	26+599.86	26+674.42	74.564	Radius<40
4	27+353.02	27+424.83	71.810	Radius<40
5	27+785.89	27+875.42	89.535	Radius<40
6	28+137.78	28+197.96	60.180	Radius<40
7	28+713.149	28+742.10	28.951	Radius<40
		Total	**444.550**	

12. 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

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

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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	00
Breast wall of PCC/RCC/Gabion/Cement masonry having minimum height of 3.0 m	Rm	145.60
Retaining Structure on valley side of PCC/RCC/Gabion/Cement masonry of varying height between 1 to 6 meter depending upon the slope with parapet walls	Rm	189
Subsurface drain with perforated pipe for collection of seepage water to avoid sinking of payment	Rm	50
Seeding and Mulching with Jute Net	Sqm	38726
Hydro seeding	Sqm	46676
Catch Water Drain (Unlined)	Rm	6740
Chute for culverts		At every Culvert Location

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

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

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

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

12.2 ROAD LAND BOUNDRY (CLAUSE 12.2 IRC SP 73:2019)

Road Land (ROW) boundary shall be demarcated by putting RCC boundary pillars of size 60cm X 15Cm X 15Cm embedded in concrete (as per IRC:125) along the Project Highway at 200 m interval on both sides. All the component used in delineating road

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land boundary shall be aesthetically pleasing, sturdy and vandal proof. The road land boundary shall be demarcated in consultation with NHIDCL

13. CHANGE OF SCOPE

The size of Structures, bridges, culverts and slope protection works whatsoever in terms of retaining wall, breast wall, gabion wall, RE wall, chute drain, catch pit, baffle piers/blocks etc. under special requirement of hill slope specified hereinabove shall be treated as an approximate assessment. The actual lengths, heights and widths as required on the basis of detailed investigations shall be determined by the Contractor in accordance with the Specifications and Standards. Any variations in the lengths, heights and widths and specifications in this Schedule-B shall not constitute a Change of Scope, save and except any variations in the length, height and width arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.

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SCHEDULE – C

(See Clause 2.1)

PROJECT FACILITIES

Project Facilities

This schedule indicates the minimum spatial and functional requirements of the facilities to be provided on the **Project Highway (Total length of 13.000 km)**.

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

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

Description of Project Facilities

Toll Plaza

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

Bus Shelters

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

Bus shelters shall be provided on the Project Highway at 8 locations as mentioned herein under. Bus shelters shall be constructed as per Manual on both sides of the Project Highway. These bus shelters will also have passenger shelter.

Details of Bus shelters

Sl. No.	Project Facility	Location (km)
1.	Bus Shelter	18+842
2.	Bus Shelter	19+342

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3.	Bus Shelter	21+042
4.	Bus Shelter	31+779

Pedestrian Facilities

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

Landscaping

Landscape treatment of the Project Highway shall be undertaken through planting of trees and ground cover of appropriate varieties and landscaping on surplus land in the ROW. The Construction Contractor should plant at least 1465 nos. of trees of minimum 6 ft. height with tree guard made up of MS sections.

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

Environment

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

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SCHEDULE – D

(See Clause 2.1)

SPECIFICATIONS AND STANDARDS

1. Construction

The Contractor shall comply with the Specifications and Standards set forth 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 laning Manual (IRC: SP:73-2018) Specification and standard for Two Laning published by IRC and Hill Road manual IRC: SP:48-1998

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

1. Specifications and Standards

All materials, works and construction operations shall confirm to the Manual of Specifications and Standards for Two Laning of Highways (IRC: SP: 73 – 2018), referred as the Manual, MORTH Specifications for Road and Bridge Works, and IRC: SP: 48-1998 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

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

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

S. No.	Clause	Provision as per Manual (IRC: SP:73-2018)	Modified Provision
1	2.2	**Design Speed:** Ruling or minimum Design speed shall be followed	Design speed shall be 30 Km/h for project highway excepting hair pin bend locations wherein design speed shall be 20 Km/h. The same is mentioned in the Plan & Profile drawings given in **Annexure-III of Schedule A**
2	2.7.2	**Roadway Width:** On horizontal curves with radius up to 300 m width of pavement and roadway shall be increased as per Table 2.4	On horizontal Curves with radius up to 300 m width of pavement and roadway shall be increased as per Plan & Profile drawings given in Annexure-III of Schedule A
3	2.9.4	**Radius of Horizontal Curves:**	Radius of Horizontal Curves shall be as per the alignment plan shown in Plan & Profile drawings given in **Annexure-III** of **Schedule A**.
4	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

SCHEDULE - E

(See Clauses 2.1 and 14.2)

MAINTENANCE REQUIREMENTS

1. Maintenance Requirements

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

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

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

2. Repair/Rectification of Defects and Deficiencies

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

3. Other Defects and Deficiencies

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

4. Extension of Time Limit

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

Engineer and conveyed to the Contractor and the Authority with reasons thereof.

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

5. Emergency Repairs/Restoration

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

6. Daily inspection by the Contractor

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

7. Pre-monsoon Inspection / Post-monsoon Inspection

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

8. Repairs on account of natural calamities

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

Annex - I

(Schedule-E)

Repair/rectification of Defects and Deficiencies

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

Nature of Defect or deficiency		Time limit for repair/rectification
ROADS		
(a)	**Carriageway and paved shoulders**	
(i)	Breach or blockade	Temporary restoration of traffic within 24 hours; permanent restoration within 15 (fifteen) days
(ii)	Roughness value exceeding 2,200 mm in a stretch of 1 km (as measured by a calibrated bump integrator)	120 (one hundred and twenty) days
(iii)	Pot holes	24 hours
(iv)	Any cracks in road surface	15 (fifteen) days
(v)	Any depressions, rutting exceeding 10 mm in road surface	30 (thirty) days
(vi)	Bleeding/skidding	7 (seven) days
(vii)	Any other defect/distress on the road	15 (fifteen) days
(viii)	Damage to pavement edges	15 (fifteen) days
(ix)	Removal of debris, dead animals	6 hours
(b)	**Granular earth shoulders, side slopes, drains and culverts**	
(i)	Variation by more than 1 % in the prescribed slope of camber/cross fall (shall not be less than the camber on the main carriageway)	7 (seven) days
(ii)	Edge drop at shoulders exceeding 40 mm	7 (seven) days
(iii)	Variation by more than 15% in the prescribed side (embankment) slopes	30 (thirty) days
(iv)	Rain cuts/gullies in slope	7 (seven) days
(v)	Damage to or silting of culverts and side drains	7 (seven) days
(vi)	Desilting of drains in urban/semi-urban areas	24 hours
(vii)	Railing, parapets, crash barriers	7 (seven) days (Restore immediately if causing safety hazard)
(c)	**Road side furniture including road sign and pavement marking**	
(i)	Damage to shape or position, poor visibility or loss of retro-reflectivity	48 hours
(ii)	Painting of km stone, railing, parapets, crash barriers	As and when required/Once every year

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

Nature of Defect or deficiency		Time limit for repair/rectification
(i)	Malfunctioning of joints	15 (fifteen) days
(f)	**Other items**	
(i)	Deforming of pads in elastomeric bearings	7 (seven) days
(ii)	Gathering of dirt in bearings and joints; or clogging of spouts, weep holes and vent-holes	3 (three) days
(iii)	Damage or deterioration in kerbs, parapets, handrails and crash barriers	3 (three) days (Immediately within 24 hours if posing danger to safety)
(iv)	Rain-cuts or erosion of banks of the side slopes of approaches	7 (seven) days
(v)	Damage to wearing coat	15 (fifteen) days
(vi)	Damage or deterioration in approach slabs, pitching, apron, toes, floor or guide bunds	30 (thirty) days
(vii)	Growth of vegetation affecting the structure or obstructing the waterway	15 (fifteen) days
(g)	**Hill Roads**	
(i)	Damage to retaining wall/breast wall	7 (seven) days
(ii)	Landslides requiring clearance	12 (twelve) hours
(iii)	Snow requiring clearance	24 (twenty-four) hours

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

SCHEDULE - F
(See Clause 3.1.7(a))

APPLICABLE PERMITS

1 Applicable Permits

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

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

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

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

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

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

FORM OF BANK GUARANTEE

Annex-I
(See Clause 7.1.1)
Performance Security

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

WHEREAS:

_____ [name and address of contractor] (hereinafter called the "**Contractor**") and Managing Director, NHIDCL, PTI Building, 3rd Floor, 4, Parliament Street, New Delhi-110001(hereinafter called the **"Authority"**) have entered into an agreement (hereinafter called the "Agreement") for the "***Balance Work for Construction of 2-lane with hard shoulders of Changtongya – Longleng Road on EPC basis from existing Km. 16.530 to Km. 29.530 (Design Km.18.779 to Km. 33.428, Design length 14.649 Kms.) in the State of Nagaland under (O) plan" (Pkg.-II)ARDP-NE on EPC Mode (Package I)"***

, subject to and in accordance with the provisions of the Agreement

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

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

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

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

prove or to show grounds or reasons for its demand and/or for the sum specified therein.

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

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

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

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

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

7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will

remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.

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

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

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

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

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

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

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

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

Signed and sealed this ……. day of ……., 20…… at …….

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by:

(Signature)

(Name)

(Designation)

(Code Number)

(Address)

NOTES:

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

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

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

Form for Guarantee for Withdrawal of Retention Money

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

WHEREAS:

(A) [name and address of contractor] (hereinafter called the "**Contractor**") has executed an agreement (hereinafter called the "Agreement") with the and The Managing Director , NHIDCL, PTI Building, New Delhi (hereinafter called the **"Authority"**) have entered into an agreement (hereinafter called the "Agreement") for the ***Balance Work for Construction of 2-lane with hard shoulders of Changtongya – Longleng Road on EPC basis from existing Km. 16.530 to Km. 29.530 (Design Km.18.779 to Km. 33.428, Design length 14.649 Kms.) in the State of Nagaland under (O) plan" (Pkg.-II)ARDP-NE on EPC Mode (Package I)"***, subject to and in accordance with the provisions of the Agreement.

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

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

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

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

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

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

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

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

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

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

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

9. The Bank undertakes not to revoke this Guarantee during its currency, except with the

previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.

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

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

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

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

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

Signed and sealed this ……. day of ……., 20…… at …….

SIGNED, SEALED AND DELIVERED
For and on behalf of the Bank by:
(Signature)
(Name)
(Designation)
(Code Number)
(Address)

NOTES:

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

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

1. Annex – III
(Schedule - G)
(See Clause 19.2)

Form for Guarantee for Advance Payment

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

WHEREAS:

(A) [name and address of contractor] (hereinafter called the "Contractor") has executed an agreement (hereinafter called the "Agreement") with the Managing Director, Head Office New Delhi (hereinafter called the "Authority") have entered into an agreement (hereinafter called the "Agreement") for the ***Balance Work for Construction of 2-lane with hard shoulders of Changtongya – Longleng Road on EPC basis from existing Km. 16.530 to Km. 29.530 (Design Km.18.779 to Km. 33.428, Design length 14.649 Kms.) in the State of Nagaland under (O) plan" (Pkg.-II)ARDP-NE on EPC Mode (Package I)"***

, subject to and in accordance with the provisions of the Agreement.

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

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

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

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

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

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

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

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

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

5. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Advance Payment or to extend the time or period of its repayment or to postpone for any time, and from time to time, any of

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

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

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

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

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

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

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

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

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

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

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

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

Signed and sealed this ……. day of ……., 20…… at …….

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by:

(Signature)

(Name)

(Designation)

(Code Number)

(Address)

NOTES:

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

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

Schedule - H

(See Clauses 10.1 (iv) and 19.3)

Contract Price Weightages

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

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

Bill No	Weightage in percentage to the contract price	Description of Items			Amount (in Rs.)	Percentage weightage
1		**WIDENING AND STRENGTHENING OF EXISTING ROAD**				
	63.961%	A 1.1		Earthwork up to top of the sub-grade including excavation in soil, soft rock and hard rock including Cleaning & grubbing with required site clearance etc.	18466792.72	6.958%
		A 1.2		Sub-Base Course	11427807.09	4.306%
		A 1.3		Non - Bituminous Base Course	17806548.58	6.709%
		A 1.4		Bituminous Base Course	17838851.9	6.721%
		A 1.5		Wearing Coat	4,90,54,772	18.482%
		A 1.6		Widening and repair of culverts	0	0.000%
		A 1.7		Hard Shoulder	19279700.79	7.264%
2		**RECONSTRUCTION/NEW 2-LANE ALIGNMENT/BYPASS (FLEXIBLE PAVEMENT)**				0.000%
		A 2.1		Earthwork up to top of the sub-grade including excavation in soil, soft rock and hard rock including Cleaning	69,22,588.45	2.608%

				& grubbing with required site clearance etc.		
		A 2.2		Sub-Base Course	3326077.65	1.253%
		A 2.3		Non - Bituminous Base Course	5182130.196	1.952%
		A 2.4		Bituminous Base Course	2827099.791	1.065%
		A 2.5		Wearing Coat	3867020.4	1.457%
		A 2.6		Hard Shoulder	2171879.063	0.818%
3		**RECONSTRUCTION/NEW 2-LANE ALIGNMENT/BYPASS (RIGID PAVEMENT)**				0.000%
		A 3.1		Earthwork up to top of the sub-grade including excavation in	0	0.000%
		A 3.2		Sub-Base Course	0	0.000%
		A 3.3		Dry Lean Concrete(DLC) Course	0	0.000%
		A 3.4		Pavemennt Quality Control(PQC) Course	0	0.000%
4		**RECONSTRUCTION/NEW SERVICE ROAD (FLEXIBLE PAVEMENT)**			0	0.000%
		A 4.1		Earthwork up to top of the sub-grade including excavation in soil, soft rock and hard rock including Cleaning & grubbing with required site clearance etc.	0	0.000%
		A 4.2		Sub-Base Course	0	0.000%
		A 4.3		Non Bituminous Base Course	0	0.000%
		A 4.4		Bituminous Base Course	0	0.000%
		A 4.5		Wearing Coat	0	0.000%
5		**RECONSTRUCTION/NEW SERVICE ROAD (RIGID PAVEMENT)**			0	0.000%
		A 5.1		Earthwork up to top of the sub-grade including	0	0.000%

				excavation in		
		A 5.2		Sub-Base Course	0	0.000%
		A 5.3		Dry Lean Concrete(DLC) Course	0	0.000%
		A 5.4		Pavemennt Quality Control(PQC) Course	0	0.000%
6		**RECONSTRUCTION AND NEW CULVERTS ON EXISTING ROAD, REALIGNMENTS, BYPASSES**				0.000%
		A 6.1		Culverts and associated Protection Works (Length< 6m)	11592417.15	4.368%
7	**0.00%**	**WIDENING AND REPAIR OF MINOR BRIDGES (Length > 6 m and < 60 m)**				0.000%
		A 7.1		Minor Bridges	0	0.000%
8		**NEW MINOR BRIDGES (Length > 6 m and < 60 m)**				0.000%
		A 8.1		**Foundation + Sub Structures:** On completion of the foundation work including foundations for wing wall and return walls, abutments, piers upto the abutment/pier cap.	0	0.000%
		A 8.2		**Super-structure:** On completion of the super structure in all respect including wearing coat, bearings, expansion joints, hand rails, crash barriers, road signs & markings, tests on completion etc. complete in all respect.	0	0.000%
		A 8.3		**Approaches:** On completion of approaches including retaining wall, stone pitching, protection works complete in	0	0.000%

			all respect and fit for use.		
		A8.4	**Guide Bunds and River Training Works:** On completion of Guide bunds and river training works complete in all respects.	-	0.00%
9		**WIDENING AND REPAIRS OF UNDERPASSES/ OVERPASSES**			
		A9.1	Underpasses/ Overpasses	-	0.00%
10		**NEW UNDERPASSES/ OVERPASSES**			
		A10.1	**Foundation + Sub Structures:** On completion of the foundation work including foundations for wing wall and return walls, abutments, piers upto the abutment/pier cap.	-	0.00%
		A10.2	**Super-structure:** On completion of the super structure in all respect including wearing coat, bearings, expansion joints, hand rails, crash barriers, road signs & markings, tests on completion etc. complete in all respect. Wearing Coat (a) in case of overpass- wearing coat including expansion joint complete in all respects as specified and (b) in case of underpass- Rigid pavement including drainage facility complete in all respects as	-	0.00%

		A10.3	**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%
11	**0.00%**	**WIDENING AND REPAIRS OF MAJOR BRIDGES**			
		A11.1	Foundation	-	0.00%
		A11.2	Sub-structure	-	0.00%
		A11.3	Super-structure(including bearings)	-	0.00%
		A11.4	Wearing Coat including expansion joints		0.00%
		A11.5	Miscellaneous items like handrails, crash barriers, road markings etc.		0.00%
		A11.6	Wing walls/ Return walls		0.00%
		A11.7	Guide Bunds, River Training Works etc		0.00%
		A11.8	Approaches (including Retaining walls, stone pitching and protection works)	-	0.00%
12		**NEW MAJOR BRIDGES**			
		A12.1	Foundation	-	0.00%
		A12.2	Sub-structure	-	0.00%
		A12.3	Super-structure(including bearings)	-	0.00%
		A12.4	Wearing Coat including expansion joints		0.00%
		A12.5	Miscellaneous items like handrails, crash barriers, road markings etc.		0.00%
		A12.6	Wing walls/ Return walls		0.00%
		A12.7	Guide Bunds, River Training Works etc		0.00%

		A12.8		Approaches (including Retaining walls, stone pitching and protection works)		-	0.00%
13		**WIDENING AND REPAIR OF ROB/RUB**					
		A13.1	**(a)**	**ROB**		-	0.00%
			(i)	Foundation	-		0.00%
			(ii)	Sub-structure	-		0.00%
			(iii)	Super-structure(including bearings)	-		0.00%
			(iv)	Wearing Coat in case of ROB-wearing coat including expansion joint complete in all respects as specified.	-		0.00%
			(v)	Miscellaneous items like handrails, crash barriers, road markings etc.			0.00%
			(vi)	Wing walls/ Return walls			0.00%
			(vii)	Approaches (including Retaining walls, stone pitching and protection works)	-		0.00%
		A13.2	**(b)**	**RUB**		-	
			(i)	Foundation	-		0.00%
			(ii)	Sub-structure	-		0.00%
			(iii)	Super-structure(including bearings)	-		0.00%
			(iv)	Wearing Coat in case of RUB-Rigid pavement under RUB including drainage facility complete in all respects as specified.	-		0.00%
			(v)	Miscellaneous items like handrails, crash barriers, road markings etc.			0.00%

			(vi)	Wing walls/ Return walls			0.00%
			(vii)	Approaches (including Retaining walls, stone pitching and protection works)	-		0.00%
14		**NEW ROB/RUB**					
		A14.1	**(a)**	**ROB**		-	
			(i)	Foundation	-		0.00%
			(ii)	Sub-structure	-		0.00%
			(iii)	Super-structure(including bearings)	-		0.00%
			(iv)	Wearing Coat in case of ROB-wearing coat including expansion joint complete in all respects as specified.	-		0.00%
			(v)	Miscellaneous items like handrails, crash barriers, road markings etc.			0.00%
			(vi)	Wing walls/ Return walls			0.00%
			(vii)	Approaches (including Retaining walls/ Reinforced earth walls, stone pitching and protection works)	-		0.00%
		A14.2	**(b)**	**RUB**		-	
			(i)	Foundation	-		0.00%
			(ii)	Sub-structure	-		0.00%
			(iii)	Super-structure(including bearings)	-		0.00%
			(iv)	Wearing Coat in case of RUB-Rigid pavement under RUB including drainage facility complete in all respects as	-		0.00%

				specified.			
			(v)	Miscellaneous items like handrails, crash barriers, road markings etc.			0.00%
			(vi)	Wing walls/ Return walls			0.00%
			(vii)	Approaches (including Retaining walls/ Reinforced earth walls, stone pitching and protection works)	-		0.00%
15		**WIDENING AND REPAIR OF ELEVATED SECTION/ FLYOVERS/**					
		A.15.1	(i)	Foundation	-		0.00%
			(ii)	Sub-structure	-		0.00%
			(iii)	Super-structure(including bearings)	-		0.00%
			(iv)	Wearing Coat including expansion joint.	-		0.00%
			(v)	Miscellaneous items like handrails, crash barriers, road markings etc.			0.00%
			(vi)	Wing walls/ Return walls			0.00%
			(vii)	Approaches (including Retaining walls/ Reinforced earth walls, stone pitching and protection works)	-		0.00%
16		**NEW ELEVATED SECTION/ FLYOVERS/ GRADE SEPARATORS**					
		A.16.1	(i)	Foundation	-		0.00%
			(ii)	Sub-structure	-		0.00%
			(iii)	Super-structure(including bearings)	-		0.00%
			(iv)	Wearing Coat	-		0.00%

				including expansion joint.			
			(v)	Miscellaneous items like handrails, crash barriers, road markings etc.		0	0.000%
			(vi)	Wing walls/ Return walls		0	0.000%
			(vii)	Approaches (including Retaining walls/ Reinforced earth walls, stone pitching and protection works)	-	0	0.000%
17	**36.039%**	**OTHER WORKS**				0	0.000%
		A17.1	Toll Plaza			0	0.000%
		A17.2	Road side drain			22396071.34	8.438%
		A17.3	Road signs, marking, Km stones, Safety devices etc.				0.000%
			(a)	Pavement Marking		8403183.177	3.166%
			(b)	Crash barrier/W metal crash barrier		1942167.504	0.732%
			(c)	Traffic Sign		6272794.405	2.363%
			(d)	Road Boundary stone, km Stone,5th km stone and hectometer stone		567018.3036	0.214%
			(e)	Traffic blinker LED delineator, stud, reflective payment marker, tree reflector		12973458.39	4.888%
			(f)	Traffic impact Attenuators at Abutments and Piers traffic island		0	0.000%
			(g)	Road furniture (overhead signboard etc.)		1371073.72	0.517%
			(h)	Others including construction of median& median kerb with channel & paint and rumble strip		0	0.000%
		A17.4	Project facilities				0.000%
			(a)	Truck lay-byes		0	0.000%

			(b)	Bus bays and Bus Shelter	18,55,285.71	0.699%
			(c)	Junctions (Major & Minor)	16048345.45	6.046%
			(d)	Others including Cable duct & Lighing on Bridges, etc.	0	0.000%
			(e)	Rest areas (viewpoint/recreational areas)		0.000%
		A17.5	Road Side Plantation, Median plantation & Turfing of the embankment slope			0.000%
		A17.6	Repair of protection works other than approaches to the bridges, elevated sections/ fly-overs/ grade separator and ROBs/ RUBs.		0	0.000%
		A17.7	Traffic diversion, Safety and traffic management during construction		0	0.000%
		A17.8	Slope Protection Works as special requirement for hill road			0.000%
			(a)	Hydro Seeding of Cut Slopes in Soil	87,51,750.00	3.297%
			(b)	Seeding and Mulching with Jute net all along the perpetual slide locations	30,98,080.00	1.167%
			(c)	Catchwater Drain	4,18,241.07	0.158%
			(d)	Gabion Structure on hill side/valley side of varying height between 1 to 6 metre depending upon the slope	80,34,466.69	3.027%
			(e)	Reinforced earth wall	-	0.000%
			(f)	Breast wall	33,92,233.76	1.278%
			(g)	Sub Surface drain with perforated pipe for collection of seepage water to avoid	1,30,316.96	0.049%

				sinking of pavement		
			(h)	Gabion Parapet Wall	-	0.000%
Total Civil Cost (In Rs.)					**26,54,18,172.33**	**100.00%**

1.2 Procedure of estimating the value of workdone

1.1.1 Roadworks

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

Table 1.3.1

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
Table 1.3.1		
A-Widening and Strengthening of existing road		
(1) Earthwork up to top of the sub-grade including excavation in soil, soft rock and hard rock, removal of unserviceable soil etc.	6.958	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m. In case of Hill Cutting, the payment procedure will be as under: HillCutting: 40% of weightage of A (1) Preparation of Sub-Grade: 60% of weightage of A (1)
(2) Sub Base courses	4.306	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m.
(3) Non-Bituminous Base Course	6.709	
(4) Bituminous Base Course	6.721	
(5) Wearing coat	18.482	
(6) Widening and repair of culverts	0	Cost of completed culverts shall be determined on pro rata basis with respect to the total no. of culverts. The payment shall be made on the completion of at least two culverts.
(6) Hard Shoulder	7.264	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m.
B 1- Reconstruction / New two-lane alignment / bypass (Flexible pavement)		
(1) Earthwork up to top of the sub-grade including excavation in soil,	2.608	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m. In case of Hill Cutting, the payment procedure will be as

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
soft rock and hard rock, removal of unserviceable soil etc.		under: Hill Cutting: 40% of weightage of A (1) Preparation of Sub-Grade: 60% of weightage of A (1)
(2) Sub Base Course	1.253	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m.
(3) Non-Bituminous Base Course	1.952	
(4) Bituminous Base Course	1.065	
(5) Wearing coat	1.457	
(6) Hard Shoulder	0.818	
B 2- Reconstruction / New two-lane alignment / bypass (Rigid pavement)		
(1) Earthwork up to top of the sub-grade	[Nil]	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m. In case of Hill Cutting, the payment procedure will be as under : Hill Cutting : 40% of weightage of A (1) Preparation of Sub-Grade: 60% of weightage of A (1)
(2) Earthwork in shoulders	[Nil]	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m.
(3) Sub Base Course	[Nil]	
(4) Dry Lean Concrete (DLC) Course	[Nil]	
(5) Pavement Quality Control (PQC) course	[Nil]	
C 1- Reconstruction / New Service Road/ Slip Road (Flexible pavement)		
(1) Earthwork up to top of the sub-grade including shoulder	[Nil]	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m. In case of Hill Cutting, the payment procedure will be as under: Hill Cutting : 40% of weightage of A (1) Preparation of Sub-Grade: 60% of weightage of A (1)
(2) Sub Base Course	[Nil]	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m.
(3) Non-Bituminous Base Course	[Nil]	
(4) Bituminous Base Course	[Nil]	
(5) Wearing coat	[Nil]	

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
C 2- Reconstruction / New Service Road (Rigid pavement)		
(1) Earthwork up to top of the sub-grade	[Nil]	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m. In case of Hill Cutting, the payment procedure will be as under : Hill Cutting : 40% of weightage of A (1) Preparation of Sub-Grade: 60% of weightage of A (1)
(2) Sub Base Course	[Nil]	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 500 m.
(3) Dry Lean Concrete (DLC) Course	[Nil]	
(4) Pavement Quality Control (PQC) course	[Nil]	
D - Reconstruction and New culverts on existing road, Realignments, bypasses:		
(1) Hume Pipe Culverts (length <6m)	[Nil]	Cost of each culvert shall be determined on pro rata basis with respect to the total no. of culverts. Payment shall be made on the completion of at least 01 (One) culvert.
(2) Box Culverts New / Reconstruction (length <6m)	[Nil]	
3) Box Culverts (Balance work in existing culvert (length <6m)	4.368	

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

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

Were,
P = Contract Price

L = Total length in km

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

Note: The length affected due to law-and-order problems or litigation during execution due to which the Contractor is unable to execute the work, may be deducted from the total project length for payment purposes. The total length calculated here is only for payment

purposes and will not affect and referred in other clauses of the Contract Agreement.

1.1.2 Minor Bridges and Underpasses/Overpasses.

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

Table 1.3.2

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

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

1.1.3 Major Bridge works, ROB/RUB andStructures.

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

Table 1.3.3

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
Table 1.3.3		
A.1 Widening and repair of Major Bridge		
(1) Foundation	[Nil]	(i) Foundation: Cost of each Major Bridge shall be determined on prorata basis with respect to the total linear length (m) of the Major Bridge. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the major Bridge subject to completion of atleast two foundations of the major bridge. In case where load testing is required for foundation, the trigger of first payment shall include load testing also were specified.
(2) Sub-structure	[Nil]	(ii) Sub-Structure: Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of the major bridge subject to completion of atleast two sub structures of abutment / pier cap level of the major bridge..
(3) Super-structure (including bearings)	[Nil]	Payment shall be made on pro rata basis on completion of a stage i.e. completion of super structure including bearings of atleast one span in all respects as specified.
(4) Wearing Coat including expansion joints	[Nil]	(iv)Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	[Nil]	(v) Miscellaneous: Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.
(6) Wing walls/return walls upto top	[Nil]	(vi) Wing walls/return walls: Payments shall be made on completion of all wing walls/returnwallscompletein all respects as specified.
(7) Guide bunds, River Training works etc.	[Nil]	(vii) Guide Bonds, River Training works: Payments shall be made on completion of all guide bunds/river training works etc. complete in all respects as specified.

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

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
(4) Other Ancillary works: wearing coat, expansion joints hand rails, crash barriers, tests on completion etc. completion in all respect.	[Nil]	Payment shall be made on pro-rata basis on completion of the stage in all respect as specified, for each structure.
(5) Miscellaneous Works: stone pitching, protection works, excluding retaining walls/reinforced earth walls etc.	[Nil]	Payment shall be made on pro-rata basis on completion of the stage in all respect as specified, for each structure.
(6) Wing/Return wall up to full height	[Nil]	Wing/Return wall up to full height: Payment shall be made on completion of all wing wall/return walls for a bridges as per weightage given in this table, completion in all respect as specified.
(7) Guide bunds, River Trainings works etc.	[Nil]	Payment shall be made on pro rata basis on completion of the stage in all respect as specified, for each structure.
(8) Retaining walls/Reinforced earth walls etc.	[Nil]	
a) Panel Casting	[Nil]	a) Panel Casting: Unit of measurement is area in Sqm. Payment against casting of panels shall be made on pro rata basis with respect to total area panels required for the structure on completion of a stage i.e. not less than completion of casting of 25% of scope of the RE wall panel of each bridge.
b) Erection of panel / construction of retaining wall	[Nil]	b) Erection of Panel / Construction of Retaining wall : Unit of measurement is area in Sqm. Payment shall be made on pro rata basis on completion of stage i.e. completion of erection of panels/ Construction of retaining wall complete in all respect for atleast 25% scope of work for each structure.
B 1 - Widening and repair of		
a) ROB b) RUB		
1) Foundation	[Nil]	(i)Foundation:Cost of each RoB / RuB shall be determined on pro rata basis with respect to the total linear length (m) of the RoB / RuB. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the RoB / RuB subject to completion of atleast two foundations of the RuB/ROB. In case where load testing is required for foundation, the trigger of first payment shall

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

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

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
walls etc.		
a) Panel Casting	[Nil]	a) Panel Casting : Unit of measurement is area in Sqm. Payment against casting of panels shall be made on pro rata basis with respect to total area panels required for the structure on completion of a stage i.e. not less than completion of casting of 25% of scope of the RE wall panel of each ROB/RUB.
b) Erection of panel / construction of retaining wall	[Nil]	b) Erection of Panel / Construction of Retaining wall : Payment shall be made on pro rata basis on completion of stage i.e. completion of erection of panels/ Construction of retaining wall complete in all respect for atleast 25% scope of work for each ROB/RUB.
C 1 - Widening and repair of Elevated sections / Fly overs / Grade Separators		
1) Foundation	[Nil]	(i)Foundation:Cost of each structure shall be determined on pro rata basis with respect to the total linear length (m) of the structure. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the structure subject to completion of atleast two foundations of the structure. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
2) Sub Structure	[Nil]	(ii) Sub-Structure: Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e.not less than 25% of the scope of sub-structure of the structure subject to completion of atleast two sub structure of abutments / pier cap level of the structure.
3) Super Structure (Including bearings)	[Nil]	(iii) Super-structure: Payment shall be made on pro rata basis on completion of a stage i.e. completion of super structure including bearings of atleast one span in all respects as specified.
4) Wearing coat including expansion joints	[Nil]	(iv) Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
5) Miscellaneous items like hand rails, crash barrier, road markings etc	[Nil]	(v) Miscellaneous: Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.

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

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

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

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

1.1.4 Other works.

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

<table>
<tr><th colspan="3">Table 1.3.4</th></tr>
<tr><th>Other Works</th><th>[**]</th><th></th></tr>
<tr><td rowspan="8">(i) Toll Plaza</td><td rowspan="8">[Nil]</td><td>Payment of Toll Plaza shall be made on Pro rata basis as per following completed stages:</td></tr>
<tr><td>(i) Rigid pavement up to DLC (LHS) -12.5 %</td></tr>
<tr><td>(ii) Rigid pavement up to DLC (RHS)- 12.5 %</td></tr>
<tr><td>(iii) PQC (LHS)-25 %</td></tr>
<tr><td>(iv) PQC (RHS)-25 %</td></tr>
<tr><td>(v) Admin Building, Maintenance Building & Misc. Works-10% %</td></tr>
<tr><td>(vi) Canopy, Toll Booth, Safety Items & Miscellaneous Works-12.5 %</td></tr>
<tr><td>(vii) Toll Plaza Tunnel-2.5 %</td></tr>
<tr><td>(ii) Road side drains</td><td>8.438</td><td rowspan="11">Unit of measurement is linear length in km. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 5% (five percent) of the total length & area of not less than 10% of the total area.</td></tr>
<tr><td>(iii) Pavement Marking</td><td>3.166</td></tr>
<tr><td>(iv) Crash Barrier/ W metal Crash barrier</td><td>0.732</td></tr>
<tr><td>(v) Traffic Sign</td><td>2.363</td></tr>
<tr><td>(vi) Road Boundary stone, KM stone, 5th Km Stone & Hectometer stone</td><td>0.214</td></tr>
<tr><td>(vii) Traffic blinker LED delineator, stud, reflective payment marker, tree reflector</td><td>4.888</td></tr>
<tr><td>(viii) Road Furniture (Overhead sign board etc.)</td><td>0.517</td></tr>
<tr><td>(ix) Bus Bays& Bus Shelter</td><td>0.699</td></tr>
<tr><td>(x) Junctions (Major & Minor)</td><td>6.046</td></tr>
<tr><td>(xi) Hydro seeding</td><td>3.297</td></tr>
</table>

(xii) Seeding and Mulching through Jute net	1.167	
(xiii) Catch water Drain	0.158	
(xiv) Gabion Structure/ Retaining wall	3.027	
(Xiii) Reinforced earth wall	0	
(xiv) Breast Wall	1.278	
(xv) Sub Surface drain with perforated pipe for collection of seepage water to avoid sinking of pavement	0.049	
(xvi) Gabion Parapet wall	0.0	

Note 1: The weightage for the stages of superstructure for New Major Bridges, New RoB / RUB, New Elevated sections / flyover / grade separators as mentioned in sl no 3 of A2, B2 & C2 of Table 1.3.3 will be as under:

a) Casting of girders – 40%
b) Erection of girders – 60%
c) Casting of segments – 40%
d) Erection of segments – 60%

Note 2: The weightage for the Retaining walls / Reinforced Earth walls for New Major Bridges, New RoB / RUB, New Elevated sections / flyover / grade separators as mentioned in sl no 8 of A2 and sl no 7 of B2 & C2 respectively of Table 1.3.3 will be as under:

a) Casting of Panels – 40%
b) Erection of Panels – 60%

Note 3: The weightage pertaining to the sub stage of Toll Plaza mentioned in sl no (i) of other works as in table 1.3.4 will be as under:

a) Rigid pavement upto DLC (LHS) -12.5%
b) Rigid pavement upto DLC (RHS) – 12.5%
c) PQC (LHS) – 25%
d) PQC (RHS) – 25%
e) Admin Building, Maintenance Building & Misc Works – 10%
f) Canopy, Toll Booth, Safety items & Misc works – 12.5%

Toll Plaza Tunnel – 2.5%

2. Procedure for payment for Maintenance

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

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

SCHEDULE - I
(See Clause 10.2.4)

DRAWINGS

1 Drawings

In compliance of the obligations set forth in Clause 10.2 of this Agreement, the Contractor shall furnish to the Authority's Engineer, free of cost, all Drawings listed in Annex-I of this Schedule-I.

2 Additional Drawings

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

Annex - I
(Schedule - I)
List of Drawings

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

1. A minimum list of the drawings of the various components/elements of the project highway and project facility required to be submitted by the Contractor is given below:
    - (a) Drawing of plan, profile and cross sections
    - (b) Drawings of cross drainage works
    - (c) Drawings of junctions
    - (d) Drawing of typical cross sections
    - (e) Drawings of bus-bay and bus shelters with furniture and drainage system
    - (f) Drawing of a truck parking lay bye with furniture and drainage system
    - (g) Drawings of road furniture items including traffic signage, marking, safety barriers, etc.
    - (h) Drawings of traffic diversions plans and traffic control measures
    - (i) Drawings of road drainage measures
    - (j) Drawings of typical details slope protection measures

Schedule - J

(See Clause 10.3(ii))

Project Completion Schedule

1. Project Completion Schedule

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

2. Project Milestone-I

(i) Project Milestone-I shall occur on the date falling on the **[128th]**day from the Appointed Date (the **"Project Milestone-I"**).

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

3. Project Milestone-II

(i) Project Milestone-II shall occur on the date falling on the **[219th]** day from the Appointed Date (the **"Project Milestone-II"**).

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

4. Project Milestone-III

(i) Project Milestone-III shall occur on the date falling on the **[292th] day** from the Appointed Date (the **"Project Milestone-III"**).

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

5. Scheduled Completion Date

(i) The Scheduled Completion Date shall occur on the **[365 th] day** from the Appointed Date.

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

6. Extension of time

Upon extension of any or all of the aforesaid Project Milestones or the Scheduled Completion Date, as the case may be, under and in accordance with the provisions of this Agreement, the Project Completion Schedule shall be deemed to have been amended accordingly.

SCHEDULE - K

(See Clause 12.1.2)

TESTS ON COMPLETION

1 Schedule for Tests

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

1.2 The Contractor shall notify the Authority's Engineer of its readiness to subject the Project Highway to Tests at any time after 10 (ten) days from the date of such notice, and upon receipt of such notice, the Authority's Engineer shall, in consultation with the Contractor, determine the date and time for each Test and notify the same to the Authority who may designate its representative to witness the Tests. The Authority's Engineer shall thereupon conduct the Tests itself or cause any of the Tests to be conducted in accordance with Article 12 and this Schedule-K.

2 Tests

2.1 Visual and physical test: The Authority's Engineer shall conduct a visual and physical check of construction to determine that all works and equipment forming part thereof conform to the provisions of this Agreement. The physical tests shall include (to be decided in consultation with Authority's Engineer as per relevant IRC codes/manual).

2.2 Riding quality test: Riding quality of each lane of the carriageway shall be checked with the help of a calibrated bump integrator and the maximum permissible roughness for purposes of this Test shall be 2,000 (two thousand) mm for each kilometre.

2.3 Tests for bridges: All major and minor bridges shall be subjected to the rebound hammer and ultrasonic pulse velocity tests, to be conducted in accordance with the procedure described in Special Report No. 17: 1996 of the IRC Highway Research Board on Non-destructive Testing Techniques, at two spots in every span, to be chosen at random by the Authority's Engineer. Bridges with a span of 15 (fifteen) metres or more shall also be subjected to load testing.

2.4 Other tests: The Authority's Engineer may require the Contractor to carry out or cause to be carried additional tests, in accordance with Good Industry Practice, for determining the compliance of the Project Highway with Specifications and Standards.

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

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

3 Agency for conducting Tests

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

4 Completion Certificate

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

SCHEDULE - L
(See Clause 12.2 and 12.4)

PROVISIONAL CERTIFICATE

1 I, …… (Name of the Authority's Engineer), acting as the Authority's Engineer, under and in accordance with the Agreement dated ……. (the "Agreement"), for ***Balance Work for Construction of 2-lane with hard shoulders of Changtongya – Longleng Road on EPC basis from existing Km. 16.530 to Km. 29.530 (Design Km.18.779 to Km. 33.428, Design length 14.649 Kms.) in the State of Nagaland under (O) plan" (Pkg.-II)ARDP-NE on EPC Mode (Package I)***

2 (the "Project Highway") on Engineering, Procurement and Construction (EPC) basis through …… (Name of Contractor), hereby certify that the Tests in accordance with Article 12 of the Agreement have been undertaken to determine compliance of the Project Highway with the provisions of the Agreement.

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

4 In view of the foregoing, I am satisfied that the Project Road ***of Balance Work for Construction of 2-lane with hard shoulders of Changtongya – Longleng Road on EPC basis from existing Km. 16.530 to Km. 29.530 (Design Km.18.779 to Km. 33.428, Design length 14.649 Kms.) in the State of Nagaland under (O) plan" (Pkg.-II)ARDP-NE on EPC Mode (Package I)*** can be safely and reliably placed in service of the Users thereof, and in terms of the Agreement, the Project Highway is hereby provisionally declared fit for entry into operation on this the …… day of …….. 20…..

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

COMPLETION CERTIFICATE

1 I, …… (Name of the Authority's Engineer), acting as the Authority's Engineer, under and in accordance with the Agreement dated …… (the "Agreement"), for ***Balance Work for Construction of 2-lane with hard shoulders of Changtongya – Longleng Road on EPC basis from existing Km. 16.530 to Km. 29.530 (Design Km.18.779 to Km. 33.428, Design length 14.649 Kms.) in the State of Nagaland under (O) plan" (Pkg.-II)ARDP-NE on EPC Mode (Package I)***

(the "Project Highway") on Engineering, Procurement and Construction (EPC) basis through …… (Name of Contractor), hereby certify that the Tests in accordance with Article 12 of the Agreement have been successfully undertaken to determine compliance of the Project Highway with the provisions of the Agreement, and I am satisfied that the Project Highway can be safely and reliably placed in service of the Users thereof.

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

SIGNED, SEALED AND DELIVERED

For and on behalf of

The Authority's Engineer by:

(Signature)

(Name)

(Designation)

(Address)

SCHEDULE - M

(See Clauses 14.6, 15.2 and 19.7)

PAYMENT REDUCTION FOR NON-COMPLIANCE

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

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

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

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

2. Percentage reductions in lump sum payments

2.1 The following percentages shall govern the payment reduction:

S. No.	**Item/Defect/Deficiency**	**Percentage**
(a)	**Carriageway/Pavement**	
(i)	Potholes, cracks, other surface defects	15%
(ii)	Repairs of Edges, Rutting	5%
(b)	**Road, Embankment, Cuttings, Shoulders**	
(i)	Edge drop, inadequate crossfall, undulations, settlement, potholes, ponding, obstructions	10%
(ii)	Deficient slopes, raincuts, disturbed pitching, vegetation growth, pruning of trees	5%
(c)	**Bridges and Culverts**	
(i)	Desilting, cleaning. vegetation growth, damaged pitching, flooring, parapets, wearing course, footpaths, any damage to foundations	20%
S. No.	**Item/Defect/Deficiency**	**Percentage**
(ii)	Any Defects in superstructures, bearings and sub-structures	10%
(iii)	Painting, repairs/replacement kerbs, railings, parapets, guideposts/crash barriers	5%
(d)	**Roadside Drains**	
(i)	Cleaning and repair of drains	5%
(e)	**Road Furniture**	
(i)	Cleaning, painting, replacement of road signs, delineators, road markings, 200 m/km/5th km stones	5%
(f)	**Miscellaneous Items**	

(i)	Removal of dead animals, broken down/accidental vehicles, fallen trees, road blockades or malfunctioning of mobile crane	10%
(ii)	Any other Defects in accordance with paragraph 1.	5%
(g)	**Defects in Other Project Facilities**	5%

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

R=P/IOO x M x L1/L

Where P = Percentage of particular item/Defect/deficiency for deduction

M = Monthly lump-sum payment in accordance with the Bid

L1 = Non-complying length

L = Total length of the road,

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

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

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

SCHEDULE - N
(See Clause 18.1.1)
SELECTION OF AUTHORITY'S ENGINEER

1 ***Selection of Authority's Engineer***

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

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

2 ***Terms of Reference***

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

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

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

Annex – I

(Schedule - N)

TERMS OF REFERENCE FOR AUTHORITY'S ENGINEER

1 Scope

1.1 These Terms of Reference (the "TOR") for the Authority's Engineer are being specified pursuant to the EPC Agreement dated..... (the "Agreement), which has been entered into between the National Highways and Infrastructure Development Corporation Ltd, 3rd Floor, PTI Building, 4, Parliament Street, New Delhi – 110001the "Authority") and ..... (the "Contractor") Balance Work for Construction of 2-lane with hard shoulders of Changtongya – Longleng Road on EPC basis from existing Km. 16.530 to Km. 29.530 (Design Km.18.779 to Km. 33.428, Design length 14.649 Kms.) in the State of Nagaland under (O) plan" (Pkg.-II)ARDP-NE on EPC Mode (Package I), *and a copy of which is annexed hereto and marked as Annex-A to form part of this TOR.*

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

2 Definitions and interpretation

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

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

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

3. General

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

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

(a) any Time Extension;

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

(c) the Termination Payment; or

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

3.3 The Authority's Engineer shall submit regular periodic reports, at least once every month, to the Authority in respect of its duties and functions under this Agreement. Such reports shall be submitted by the Authority's Engineer within 10 (ten) days of the beginning of every month.

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

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

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

4 Construction Period

4.1 During the Construction Period, the Authority's Engineer shall review the Drawings furnished by the Contractor along with supporting data, including the geo-technical and hydrological investigations, characteristics of materials from borrow areas and quarry sites, topographical surveys, and the recommendations of the Safety Consultant in accordance with the provisions of Clause 10.1.6. The Authority's Engineer shall complete such review and send its observations to the Authority and the Contractor within 15 (fifteen) days of receipt of such Drawings; provided, however that in case of a Major Bridge or Structure, the aforesaid period of 15 (fifteen) days may be extended up to 30 (thirty) days. In particular, such comments shall specify the conformity or otherwise of such Drawings with the Scope of the Project and Specifications and Standards.

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

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

4.4 The Authority's Engineer shall complete the review of the methodology proposed to be adopted by the Contractor for executing the Works, and convey its comments to the Contractor within a period of 10 (ten) days from the date of receipt of the proposed methodology from the Contractor.

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

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

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

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

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

Manuals") or any modification/substitution thereof shall be deemed to be tests conforming to Good Industry Practice for quality assurance.

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

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

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

4.13 The Authority's Engineer may instruct the Contractor to execute any work which is urgently required for the safety of the Project Highway, whether because of an accident, unforeseeable event or otherwise; provided that in case of any work required on account of a Force Majeure Event, the provisions of Clause 21.6 shall apply.

4.14 In the event that the Contractor fails to achieve any of the Project Milestones, the Authority's Engineer shall undertake a review of the progress of construction and identify potential delays, if any. If the Authority's Engineer shall determine that completion of the Project Highway is not feasible within the time specified in the Agreement, it shall require the Contractor to indicate within 15 (fifteen) days the steps proposed to be taken to expedite progress, and the period within which the Project Completion Date shall be achieved. Upon receipt of a report from the Contractor, the Authority's Engineer shall review the same and send its comments to the Authority and the Contractor forthwith.

4.15 The Authority's Engineer shall obtain from the Contractor a copy of all the Contractor's quality control records and documents before the Completion Certificate is issued pursuant to Clause 12.4.

4.16 Authority's Engineer may recommend to the Authority suspension of the whole or part of the Works if the work threatens the safety of the Users and pedestrians. After the Contractor has carried out remedial measure, the Authority's Engineer shall inspect such remedial measures forthwith and make a report to the Authority recommending whether or not the suspension hereunder may be revoked.

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

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

5. Maintenance Period

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

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

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

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

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

6 Determination of costs and time

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

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

6.3 The Authority's Engineer shall consult each Party in every case of determination in accordance with the provisions of Clause 18.5.

7. Payments

7.1 The Authority's Engineer shall withhold payments for the affected works for which the Contractor fails to revise and resubmit the Drawings to the Authority's Engineer in accordance with the provisions of Clause 10.2.4 (d).

7.2 Authority's Engineer shall -

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

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

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

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

8. Other duties and functions

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

9 Miscellaneous

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

Engineer to the Authority forthwith.

9.2 The Authority's Engineer shall retain at least one copy each of all Drawings and Documents received by it, including 'as-built' Drawings, and keep them in its safe custody.

9.3 Within 90 (ninety) days of the Project Completion Date, the Authority's Engineer shall obtain a complete set of as-built Drawings, in 2 (two) hard copies and in micro film form or in such other medium as may be acceptable to the Authority, reflecting the Project Highway as actually designed, engineered and constructed, including an as-built survey illustrating the layout of the Project Highway and setback lines, if any, of the buildings and structures forming part of Project Facilities; and shall hand them over to the Authority against receipt thereof.

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

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

SCHEDULE - O

(See Clauses 19.4.1, 19.6.1, and 19.8.1)

Forms of Payment Statements

1. Stage Payment Statement for Works

The Stage Payment Statement for Works shall state:

a. the estimated amount for the Works executed in accordance with Clause 19.3.1 subsequent to the last claim;
b. amounts reflecting adjustments in price for the aforesaid claim;
c. the estimated amount of each Change of Scope Order executed subsequent to the last claim;
d. amounts reflecting adjustment in price, if any, for (c) above in accordance with the provisions of Clause 13.2.3 (a);
e. total of (a), (b), (c) and (d) above;
f. Deductions:
    i. Any amount to be deducted in accordance with the provisions of the Agreement except taxes;
    ii. Any amount towards deduction of taxes; and
    iii. Total of (i) and (ii) above.
g. Net claim: (e) – (f) (iii);
h. The amounts received by the Contractor upto the last claim:
    i. For the Works executed (excluding Change of Scope orders);
    ii. For Change of Scope Orders, and
    iii. Taxes deducted

2. Monthly Maintenance Payment Statement

The monthly Statement for Maintenance Payment shall state:

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

(b) the deductions for maintenance work not done;

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

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

(e) amount towards deduction of taxes

3. Contractor's claim for Damages

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

SCHEDULE - P

(See Clause 20.1)

INSURANCE

1. Insurance during Construction Period

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

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

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

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

2. Insurance for Contractor's Defects Liability

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

3. Insurance against injury to persons and damage to property

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

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

The insurance cover shall be not less than value of the contract price.

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

a) the Authority's right to have the construction works executed on, over, under, in or through any land, and to occupy this land for the Works; and
b) damage which is an unavoidable result of the Contractor's obligations to execute the Works.

4. **Insurance to be in joint names**

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

Schedule-Q

(See Clause 14.10)

Tests on Completion of Maintenance Period

1. Riding Quality test:

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

2. Visual and physical test:

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

Schedule-R

(See Clause 14.10)

Taking Over Certificate

I, …… (Name and designation of the Authority's Representative) under and in accordance with the Agreement dated …… (the "**Agreement**"), for ***"Balance Work for Construction of 2-lane with hard shoulders of Changtongya – Longleng Road on EPC basis from existing Km. 16.530 to Km. 29.530 (Design Km.18.779 to Km. 33.428, Design length 14.649 Kms.) in the State of Nagaland under (O) plan" (Pkg.-II)ARDP-NE on EPC Mode (Package I)"(***the "**Project Highway**") on Engineering, Procurement and Construction (EPC) basis through(Name of Contractor), hereby certify that the Tests on completion of Maintenance Period in accordance with Article 14 of the Agreement have been successfully undertaken to determine compliance of the Project Highway with the provisions of the Agreement and I hereby certify that the Authority has taken over the Project highway from the Contractor on this day.....

SIGNED, SEALED AND DELIVERED

(Signature)

(Name and designation of Authority's Representative)

(Address)

Balance Work for Construction of 2-lane with hard shoulders of **Changtongya – Longleng** Road on EPC basis from existing Km. 16.530 to Km. 29.530 (Design Km.18.779 to Km. 33.428, Design length 14.649 Kms.) in the State of Nagaland under (O) plan" (Pkg.-II)