SCHEDULE – B

(See Clause 2.1)

DEVELOPMENT OF THE PROJECT HIGHWAY

1 Development of the Project Highway

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

2 Rehabilitation and augmentation

NA

3 Specifications and Standards

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

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: the width of the carriageway shall be as specified in following table:

Sl. No.	Built-up stretch (Township)	Location		Width (m)	Typical Cross Section (Refer to Manual)	Remarks
1	Jalukie B	143+277	144+587	7	As per attached TCS drawing	7 m Carriageway

Except as otherwise provided in this Agreement the width of the paved carriageway and cross-sectional features shall conform to paragraph 1(ii) above.

2. GEOMETRIC DESIGN AND GENERAL FEATURES

(i) General

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

(ii) Design speed

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

(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:

Probable location of Sharp Curves having design speed less than 30 Kmph:

Sl. No.	Stretch (from km to km)	Remarks
1	127+830 to 127+858	Design Speed = 20 Kmph
2	127+903 to 127+915	Design Speed = 20 Kmph
3	127+968 to 127+981	Design Speed = 20 Kmph
4	128+110 to 128+132	Design Speed = 20 Kmph
5	128+329 to 128+366	Design Speed = 20 Kmph
6	128+580 to 128+589	Design Speed = 20 Kmph
7	128+731 to 128+753	Design Speed = 20 Kmph
8	129+952 to 129+981	Design Speed = 20 Kmph
9	132+221 to 132+264	Design Speed = 20 Kmph
10	133+142 to 133+173	Design Speed = 20 Kmph
11	133+218 to 133+255	Design Speed = 20 Kmph
12	133+323 to 133+337	Design Speed = 20 Kmph
13	133+404 to 133+424	Design Speed = 20 Kmph
14	133+480 to 133+496	Design Speed = 20 Kmph
15	133+535 to 133+561	Design Speed = 20 Kmph
16	133+608 to 133+650	Design Speed = 20 Kmph
17	133+770 to 133+827	Design Speed = 20 Kmph
18	133+953 to 133+976	Design Speed = 20 Kmph
19	134+083 to 134+090	Design Speed = 20 Kmph
20	134+512 to 134+555	Design Speed = 20 Kmph
21	134+750 to 134+792	Design Speed = 20 Kmph
22	137+032 to 137+067	Design Speed = 20 Kmph

(iv) Proposed Right of Way

Details of the proposed Right of Way are tabulated below.

Sl. No	Design Chainage		Length (Km)	Proposed ROW Width (m)
	From	To		
i) 90% of ROW (full width)	126.775	146.208	19.433	Varying ROW from minimum 15 m to maximum 24 m at different locations
ii) Balance Right of way (width)	126.775	146.208	19.433	Varying ROW from minimum 15m to maximum 24 m at different locations

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

(v) Type of Shoulders

(a) Hard shoulders of 1.5 m width shall be provided with granular material except in built up areas given in paragraph 1(ii).

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

(c) In built-up sections. footpaths/fully paved shoulders shall be provided in the following stretches:

Sl. No.	Stretch (from Km to Km)	Fully Paved shoulders/footpaths	Reference to cross section
1	143+277 to 144+587	2 X 1.0 m width Footpath	TCS-12

(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 (km)]		Span/Opening (m)	Remarks
	From	To		
Nil				

(vii) Lateral and vertical clearances at overpasses

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

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

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

(viii) Service roads

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

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

(ix) Grade Separated Structures

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

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

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

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 TCS of the project highway along with its respective locations is tabulated below:

TCS TYPE	DESCRIPTION	Length (m)
TCS-2	New Construction of two lane carraigeway in rural area with Both Side 'V'Shaped Pcc Open Drain On Hill Section	1200
TCS-3	New Construction of two lane carriageway in rural area With Breast Wall On Hill Side And 'V' Shaped PCC Open Drain On Valley Side	203
TCS-4	New Construction of two lane carriageway in rural area With Breast Wall On Hill Side And Earthen Shoulder On Valley Side	188
TCS-5	Reconstruction Of Two Lane Carriageway In Rural Area With 'V' Shaped Pcc Open Drain On Hill Side And Earthen Shoulder On Valley Side	3747
TCS-6	Reconstruction Of Two Lane Carriageway In Rural Area With Both Side 'V' Shaped PCC Open Drain On Hill Section	4307
TCS-7	Reconstruction Of Two Lane Carriageway At Reconstruction Stretch In Rural Area With Retaining Wall On Valley Side And 'V' Shaped PCC Open Drain On Hill Side	2667
TCS-9	Reconstruction Of Two Lane Carriageway In Rural Area With Breast Wall On Hill Side And 'V' Shaped PCC Open Drain On Valley Side	100
TCS-10	Reconstruction Of Two Lane Carriageway In Rural Area With Retaining Wall On Valley Side And Breast Wall On Hill Side	125
TCS-11	Reconstruction Of Two Lane Carriageway In Rural Area	2871
TCS-12	Reconstruction Of Two Lane Carriageway In Built Up Area With Both Side Footpath Cum	1310

TCS TYPE	DESCRIPTION	Length (m)
	RCC Rectangular Drain	
TCS-16	Reconstruction Of Two Lane Carriageway Stretch In Rural Area With bothside Breast Wall On Hill Side	1250
TCS-18	Reconstruction Of Two Lane Carriageway In Rural Area With Bothside Retaining Wall On valley Side	175
TCS-22	New construction Of Two Lane Carriageway Stretch In Rural Area With bothside Breast Wall On Hill Side	1175
TCS-23	New construction Of Two Lane Carriageway In Rural Area With Bothside Retaining Wall On valley Side	115
	Total length =	**19433**

(xii)

Chainage (Km)		Net Length (m)	TCS No.
From	To		
126775	126837	62	TCS-5
126837	126892	55	TCS-7
126892	126987	95	TCS-6
126987	127047	60	TCS-5
127047	127142	95	TCS-7
127142	127237	95	TCS-5
127237	127312	75	TCS-7
127312	127437	125	TCS-5
127437	127787	350	TCS-7
127787	127912	125	TCS-5
127912	128112	200	TCS-7
128112	128187	75	TCS-4
128187	128262	75	TCS-7
128262	128362	100	TCS-5
128362	128475	113	TCS-4
128475	128500	25	TCS-9
128500	128650	150	TCS-7
128650	128725	75	TCS-9
128725	128775	50	TCS-7
128775	129425	650	TCS-16
129425	129600	175	TCS-6
129600	129800	200	TCS-16
129800	130050	250	TCS-6
130050	130250	200	TCS-7
130250	130425	175	TCS-5
130425	130625	200	TCS-22
130625	130700	75	TCS-6
130700	130750	50	TCS-10
130750	130825	75	TCS-6
130825	130900	75	TCS-10
130900	130987	87	TCS-5
130987	131067	80	TCS-7
131067	131167	100	TCS-5
131167	131262	95	TCS-7
131262	131387	125	TCS-5
131387	131597	210	TCS-7

Chainage (Km)		Net Length (m)	TCS No.
From	To		
131597	131850	253	TCS-5
131850	132500	650	TCS-6
132500	132900	400	TCS-16
132900	133625	725	TCS-6
133625	133957	332	TCS-5
133957	134137	180	TCS-7
134137	134362	225	TCS-5
134362	134397	35	TCS-6
134397	134425	28	TCS-3
134425	135150	725	TCS-2
135150	135650	500	TCS-6
135650	135825	175	TCS-18
135825	136075	250	TCS-5
136075	136150	75	TCS-7
136150	136300	150	TCS-6
136300	136450	150	TCS-7
136450	136625	175	TCS-3
136625	136897	272	TCS-7
136897	137287	390	TCS-5
137287	137337	50	TCS-7
137337	137425	88	TCS-5
137425	138000	575	TCS-22
138000	138475	475	TCS-2
138475	138875	400	TCS-22
138875	139387	512	TCS-6
139387	139447	60	TCS-5
139447	139652	205	TCS-7
139652	139767	115	TCS-23
139767	139867	100	TCS-7
139867	139957	90	TCS-6
139957	140037	80	TCS-5
140037	140117	80	TCS-6
140117	140587	470	TCS-5
140587	140662	75	TCS-6
140662	140737	75	TCS-5
140737	140957	220	TCS-6
140957	141047	90	TCS-5
141047	141137	90	TCS-6
141137	141277	140	TCS-5
141277	141412	135	TCS-6
141412	141652	240	TCS-5
141652	142027	375	TCS-6
142027	143277	1250	TCS-11
143277	144587	1310	TCS-12
144587	146208	1621	TCS-11
Total Length		**19433**	**m**

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
1	142+026	3-Legged	LHS - Towards New Peren District HQ	At-grade improvement proposed
2	146+208	3-Legged	LHS - Towards Saijang	At-grade improvement proposed

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	128+760	Y-Type	3 Legged
2	129+100	Y-Type	3 Legged
3	136+180	Y-Type	3 Legged
4	137+360	Y-Type	3 Legged
5	140+973	T-Type	3 Legged
6	142+880	Y-Type	3 Legged
7	143+530	X-Type	4 Legged
8	143+810	X-Type	4 Legged
9	143+910	T-Type	3 Legged
10	143+955	Y-Type	3 Legged
11	144+080	T-Type	3 Legged
12	144+205	T-Type	3 Legged
13	144+333	T-Type	3 Legged
14	144+737	T-Type	3 Legged
15	145+028	Y-Type	3 Legged
16	145+274	Y-Type	3 Legged
17	145+817	Y-Type	3 Legged
18	145+930	Y-Type	3 Legged

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

(ii) Grade Separated Intersections with/without Ramps

Sl	Location	Salient	Minimum Length of	Road to be Carried

No.	(km)	Features	Viaduct to be Provided (m)	Over/Under the Structures
Nil				

4. ROAD EMBANKMENT AND CUT SECTION

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

b. Rising of the existing road.

The existing road shall be raised in the following sections:

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

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

5. PAVEMENT DESIGN

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

(ii) Type of pavement

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

(iii) Design requirements

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

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

(iv) Reconstruction / Realignment/ Bypass of sections

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

SL NO.	Stretch from Km to Km	Remarks	TCS Type
1	126+775 Km to 126+837 Km	Reconstruction	TCS-5
2	126+837 Km to 126+892 Km	Reconstruction	TCS-7
3	126+892 Km to 126+987 Km	Reconstruction	TCS-6
4	126+987 Km to 127+047 Km	Reconstruction	TCS-5
5	127+047 Km to 127+142 Km	Reconstruction	TCS-7
6	127+142 Km to 127+237 Km	Reconstruction	TCS-5
7	127+237 Km to 127+312 Km	Reconstruction	TCS-7

SL NO.	Stretch from Km to Km	Remarks	TCS Type
8	127+312 Km to 127+437 Km	Reconstruction	TCS-5
9	127+437 Km to 127+787 Km	Reconstruction	TCS-7
10	127+787 Km to 127+912 Km	Reconstruction	TCS-5
11	127+912 Km to 128+112 Km	Reconstruction	TCS-7
12	128+187 Km to 128+262 Km	Reconstruction	TCS-7
13	128+262 Km to 128+362 Km	Reconstruction	TCS-5
14	128+475 Km to 128+500 Km	Reconstruction	TCS-9
15	128+500 Km to 128+650 Km	Reconstruction	TCS-7
16	128+650 Km to 128+725 Km	Reconstruction	TCS-9
17	128+725 Km to 128+775 Km	Reconstruction	TCS-7
18	128+775 Km to 129+425 Km	Reconstruction	TCS-16
19	129+425 Km to 129+600 Km	Reconstruction	TCS-6
20	129+600 Km to 129+800 Km	Reconstruction	TCS-16
21	129+800 Km to 130+050 Km	Reconstruction	TCS-6
22	130+050 Km to 130+250 Km	Reconstruction	TCS-7
23	130+250 Km to 130+425 Km	Reconstruction	TCS-5
24	130+625 Km to 130+700 Km	Reconstruction	TCS-6
25	130+700 Km to 130+750 Km	Reconstruction	TCS-10
26	130+750 Km to 130+825 Km	Reconstruction	TCS-6
27	130+825 Km to 130+900 Km	Reconstruction	TCS-10
28	130+900 Km to 130+987 Km	Reconstruction	TCS-5
29	130+987 Km to 131+067 Km	Reconstruction	TCS-7
30	131+067 Km to 131+167Km	Reconstruction	TCS-5
31	131+167 Km to 131+262 Km	Reconstruction	TCS-7
32	131+262 Km to 131+387 Km	Reconstruction	TCS-5
33	131+387 Km to 131+597 Km	Reconstruction	TCS-7
34	131+597 Km to 131+850 Km	Reconstruction	TCS-5
35	131+850 Km to 132+500 Km	Reconstruction	TCS-6
36	132+500 Km to 132+900 Km	Reconstruction	TCS-16
37	132+900 Km to 133+625Km	Reconstruction	TCS-6
38	133+625 Km to 133+957Km	Reconstruction	TCS-5
39	133+957 Km to 134+137Km	Reconstruction	TCS-7
40	134+137 Km to 134+362 Km	Reconstruction	TCS-5
41	134+362 Km to 134+397 Km	Reconstruction	TCS-6
42	135+150 Km to 135+650 Km	Reconstruction	TCS-6
43	135+650 Km to 135+825 Km	Reconstruction	TCS-18
44	135+825 Km to 136+075 Km	Reconstruction	TCS-5
45	136+075 Km to 136+150 Km	Reconstruction	TCS-7
46	136+150 Km to 136+300 Km	Reconstruction	TCS-6
47	136+300 Km to 136+450 Km	Reconstruction	TCS-7
48	136+625 Km to 136+897 Km	Reconstruction	TCS-7
49	136+897 Km to 137+287 Km	Reconstruction	TCS-5
50	137+287 Km to 137+337 Km	Reconstruction	TCS-7
51	137+337 Km to 137+425 Km	Reconstruction	TCS-5
52	138+875 Km to 139+387 Km	Reconstruction	TCS-6
53	139+387 Km to 139+447 Km	Reconstruction	TCS-5
54	139+447 Km to 139+652 Km	Reconstruction	TCS-7
55	139+767 Km to 139+867 Km	Reconstruction	TCS-7
56	139+867 Km to 139+957 Km	Reconstruction	TCS-6
57	139+957 Km to 140+037 Km	Reconstruction	TCS-5

SL NO.	Stretch from Km to Km	Remarks	TCS Type
58	140+037 Km to 140+117 Km	Reconstruction	TCS-6
59	140+117 Km to 140+587 Km	Reconstruction	TCS-5
60	140+587 Km to 140+662 Km	Reconstruction	TCS-6
61	140+662 Km to 140+737 Km	Reconstruction	TCS-5
62	140+737 Km to 140+957 Km	Reconstruction	TCS-6
63	140+957 Km to 141+047 Km	Reconstruction	TCS-5
64	141+047 Km to 141+137 Km	Reconstruction	TCS-6
65	141+137 Km to 141+277 Km	Reconstruction	TCS-5
66	141+277 Km to 141+412 Km	Reconstruction	TCS-6
67	141+412 Km to 141+652Km	Reconstruction	TCS-5
68	141+652 Km to 142+027 Km	Reconstruction	TCS-6
69	142+027 Km to 143+277 Km	Reconstruction	TCS-11
70	143+277 Km to 144+587 Km	Reconstruction	TCS-12
71	144+587 Km to 146+208 Km	Reconstruction	TCS-11

6. ROAD SIDE DRAINAGE

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

Drain Types	Side	Net length (m)
RR Masonry Trapezoidal Drain	Both/one side	22500

(ii) RCC Covered drain shall be provided at following locations:

Details of Covered Drains

Chainage		Side	Net Length (m)
From(m)	To(m)		
143277	145587	Both	4620
		Total Length=	**4620 m**

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

7. 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) Culverts

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

(b) Reconstruction of existing culverts

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

Sl. No.	Culvert Location(km)	Span/Opening (m)	Remarks*
1	127.280	3.0 X 3.0	Single Span
2	128.345	3.0 X 3.0	Single Span
3	128.747	2.0 X 3.0	Single Span
4	129.602	2.0 X 2.0	Single Span
5	129.995	2.0 X 2.0	Single Span
6	130.655	2.0 X 3.0	Single Span
7	131.857	2.0 X 3.0	Single Span
8	131.940	2.0 X 3.0	Single Span
9	133.000	2.0 X 2.0	Single Span
10	133.242	2.0 X 2.0	Single Span
11	133.763	2.0 X 2.0	Single Span
12	133.990	2.0 X 3.0	Single Span
13	134.204	2.0 X 2.0	Single Span
14	136.637	2.0 X 2.0	Single Span
15	136.865	2.0 X 3.0	Single Span
16	137.049	2.0 X 2.0	Single Span
17	137.205	2.0 X 2.0	Single Span
18	137.320	2.0 X 3.0	Single Span
19	137.435	2.0 X 2.0	Single Span
20	137.628	2.0 X 2.0	Single Span
21	139.500	2.0 X 3.0	Single Span
22	139.630	3.0 X 4.0	Single Span
23	140.135	2.0 X 3.0	Single Span
24	140.380	2.0 X 2.0	Single Span
25	140.480	2.0 X 2.0	Single Span
26	140.700	2.0 X 2.0	Single Span
27	141.025	2.0 X 2.0	Single Span
28	141.630	2.0 X 2.0	Single Span
29	141.820	2.0 X 2.0	Single Span
30	141.950	2.0 X 2.0	Single Span
31	143.042	2.0 X 2.0	Single Span
32	143.645	2.0 X 2.0	Single Span
33	144.228	2.0 X 3.0	Single Span
34	144.320	3.0 X 4.0	Single Span
35	145.250	2.0 X 3.0	Single Span
36	146.015	2.0 X 2.0	Single Span

* 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, wing wall etc. shall be provided which must be ascertained as per the site conditions and details given in drawings of culvert.

(b) **New culverts to be constructed**

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

BOX CULVERT DETAILS

Sl. No.	Culvert Location(km)	Span /Opening (m)	Remarks*
1	126.878	2.0 X 3.0	Single Span
2	127.116	2.0 X 2.0	Single Span
3	127.724	2.0 X 2.0	Single Span
4	128.050	2.0 X 2.0	Single Span
5	128.255	2.0 X 2.0	Single Span
6	128.604	2.0 X 2.0	Single Span
7	128.897	3.0 X 3.0	Single Span
8	129.065	2.0 X 2.0	Single Span
9	129.226	2.0 X 2.0	Single Span
10	130.100	2.0 X 2.0	Single Span
11	130.189	2.0 X 3.0	Single Span
12	130.409	2.0 X 2.0	Single Span
13	131.019	2.0 X 2.0	Single Span
14	131.257	2.0 X 2.0	Single Span
15	131.554	2.0 X 3.0	Single Span
16	132.340	2.0 X 2.0	Single Span
17	132.425	2.0 X 2.0	Single Span
18	133.907	2.0 X 2.0	Single Span
19	133.707	2.0 X 2.0	Single Span
20	134.394	2.0 X 2.0	Single Span
21	134.672	3.0 X 4.0	Single Span
22	135.000	2.0 X 2.0	Single Span
23	135.326	2.0 X 2.0	Single Span
24	135.492	2.0 X 2.0	Single Span
25	135.702	2.0 X 3.0	Single Span
26	135.816	3.0 X 4.0	Single Span
27	135.950	2.0 X 2.0	Single Span
28	136.075	2.0 X 2.0	Single Span
29	136.248	3.0 X 4.0	Single Span
30	136.360	3.0 X 4.0	Single Span
31	136.525	2.0 X 2.0	Single Span
32	138.502	2.0 X 2.0	Single Span
33	139.000	2.0 X 2.0	Single Span
34	139.277	2.0 X 2.0	Single Span
35	139.452	2.0 X 2.0	Single Span
36	139.752	2.0 X 3.0	Single Span
37	140.025	2.0 X 2.0	Single Span
38	140.551	3.0 X 4.0	Single Span
39	141.200	2.0 X 2.0	Single Span
40	141.450	2.0 X 2.0	Single Span
41	142.377	2.0 X 2.0	Single Span
42	142.900	2.0 X 2.0	Single Span
43	144.770	2.0 X 2.0	Single Span
44	145.850	2.0 X 2.0	Single Span
45	146.125	2.0 X 2.0	Single Span

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

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

(e) 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 (KM)	Design Chainage (KM)	Proposed Span(m)	Proposed Width(m)
NIL				

ii. The following structures shall be provided with footpaths:

Sl. No.	Location (km)	Remarks
NIL		

iii. Additional New Minor Bridges

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

Sr. No.	Designed Chainage (km)	River/ Nallah Name	Proposed Span Arrangement (m)
NIL			

iv. Additional New Major bridges

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

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

Sl. No.	Location (km)	Remarks
Nil		

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

Sl. No.	Location (km)	Remarks

Nil

vii. Drainage system for bridge decks

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

viii. Structures in marine environment

NIL

(iv) Rail-road Bridges

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

(b) Road over-bridges

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

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

(c) Road under-bridges

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

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

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.

(a) 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.

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

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

9. Roadside Furniture

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

(a) Road Boundary Stone: For the entire Project Highway.

(b) Pedestrian: The pedestrian facilities shall include the provision of the;

(i) Pedestrian guardrail: Provide pedestrian guardrail at each bus stop location.

(ii) Pedestrian Crossings: Provide pedestrian crossing facilities on Junctions.

(ii) Overhead traffic signs: location and size

(c) Full width Overhead signs: Full width Overhead signs shall be provided as below

Sl. No.	Location (Km)	Size
1	At Jalukie Town (Ch. 146+208 km)	16 m X 1.2 m (Double Pole)

(d) Cantilever Overhead signs: Overhead signs shall be provided as below:

Sl. No.	Design Chainage	Remarks
1	130.650	
2	136.218	

(iii) Delineators: Delineators for the entire Project Highway shall be provided at the locations as per section 9.4 of IRC SP 73:2018.

10. COMPULSORY AFFORESTATION

Minimum 2000 nos. trees are required to be planted.

11. HAZARDOUS LOCATIONS

11.1 Metal Beam crash barrier of minimum length of 5000 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 on both sides of the highway at the locations finalized in consultation with AE. Typical details of metal crash barrier are given in manual. Increase in length if any as per site requirement will not constitute change of scope

11.2 Rest of the complete length of the project highway shall have parapet wall as per IRC SP 48:1998.

12. SPECIAL REQUIREMENT FOR HILL ROADS

Refer to section 13 of IRC: SP: 73-2018..

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

Type of Protection Work		
Protection Work	**Unit**	**Quantity**
Breast wall (2m height) of RRM	Rm	4025
Breast wall (3m height) of RRM	Rm	2300
Breast wall (4m height) of RRM	Rm	1450
Retaining wall of RRM upto 6m height	Rm	5670

Type of Protection Work		
Protection Work	**Unit**	**Quantity**
Seeding and Mulching with Jute Net	sqm	60000
Seeding and Mulching with Coir net	sqm	60000
Hydro seeding	sqm	98,390
Chute for Culvert		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.

13. CHANGE OF SCOPE

The length of Structures and bridges specified here in above shall be treated as an approximate assessment. The actual lengths 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 specified in this Schedule- B shall not constitute a Change of Scope save and except any variations in the length arising out of a Change of Scope expressly under taken in accordance with the provisions of Article 13.

Schedule - H

(See Clauses 10.1 (iv) and 19.3)

Contract Price Weightages

1.1 The Contract Price for this Agreement is Rs. ****

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

Item	Weightage in % of CP	Stage for Payment	Percentage
1	2	3	4
Road Works including Culverts, widening and repair of culverts	70.54 %	**A- Widening and strengthening of existing road**	
		(1) Earthwork up to top of the sub-grade	37.32%
		(2) Sub-base Course	13.25%
		(3) Non bituminous Base course	12.39%
		(4) Bituminous Basecourse	9.71 %
		(5) Wearing Coat	5.72 %
		(6) Widening and repair of culverts	[Nil]
		B.1-Reconstruction/New 2-Lane Realignment /Bypass(Flexible Pavement)	
		(1) Earthwork up to top of the sub-grade	[Nil]
		(2) Sub-base Course	[Nil]
		(3) Non bituminous Base course	[Nil]
		(4) Bituminous Basecourse	[Nil]
		(5) Wearing Coat	[Nil]
		B.2-Reconstruction/New 8-Lane Realignment/ Bypass(Rigid Pavement)	
		(1) Earthwork up to top of the sub-grade	[Nil]
		(2) Sub-base Course	[Nil]
		(3) Dry Lean Concrete (DLC) Course	[Nil]
		(4) Pavement Quality Control (PQC) Course	[Nil]
		C.1-Reconstruction/ New Service Road (Flexible Pavement)	
		(1) Earthwork up to top of the sub-grade	[Nil]
		(2) Sub-base Course	[Nil]
		(3) Non bituminous Base course	[Nil]
		(4) Bituminous Basecourse	[Nil]
		(5) Wearing Coat	[Nil]

Item	Weightage in % of CP	Stage for Payment	Percentage
		C.2- Reconstruction/New Service road (Rigid Pavement)	
		(1) Earthwork up to top of the sub-grade	[Nil]
		(2) Sub-base Course	[Nil]
		(3) DryLean Concrete (DLC) Course	[Nil]
		(4) Pavement Quality Control (PQC) Course	[Nil]
		D- Reconstruction & New Culverts on existing road, realignments, bypasses Culverts (length <6m)	21.60 %
Minor bridge/ Underpasses/ Overpasses	0.00 %	**A.1-widening and repairing of Minor Bridges (length >6 m&<60m)**	
		Minor Bridges	[Nil]
		A.2- New Minor bridges (length >6 mand<60m)	
		(1)Foundation + Sub-Structure: On completion of the foundation work including foundations for wing and return walls, abutments, piers upto the abutment/pier cap.	[Nil]
		(2)Super-structure:On completion of the super-structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road,signs & markings, tests on completion etc. complete in all respect.	[Nil]
		(3)Approaches:On completionof approaches includingRetainingwalls, stonepitching, protection works complete in all and fit for use	[Nil]
		(4) GuideBundsand River Training Works:On completion of GuideBunds andriver training works complete in all respects	[Nil]
		B.1- Widening and repairs of underpasses/overpasses	
		Underpasses/ Overpasses	[Nil]
		B.2-NewUnderpasses/Overpasses	
		(1)Foundation + Sub-Structure: On completion of the foundation work including foundations for wing and return walls, abutments, piers upto the abutment/pier cap.	[Nil]
		(2)Super-structure:On completion of the super-structure in all respects including wearing coat, bearings, expansion joints, hand	[Nil]

Item	Weightage in % of CP	Stage for Payment	Percentage
		rails,crash barriers, road signs & markings, tests on completion etc. complete in all respect. Wearing Coat (a) in case of Overpass-wearing coat including expansion joints complete in all respects as specified and (b) in case of underpass- rigid pavement including drainage facility complete in all respects as specified.	
		(3) Approaches: On completion of approaches including Retaining walls/ Reinforced Earth walls, stone pitching, protection works complete in all respect and fit for use.	[Nil]
Major bridge(length>60 m)works and ROB/RUB/elevated sections/flyovers including viaducts, if any	0.000 %	**A.1- Widening and repairs of Major Bridges**	
		(1)Foundation	[Nil]
		(2)Sub-structure	[Nil]
		(3)Super-structure(including bearings)	[Nil]
		(4)Wearing Coat including expansion joints	[Nil]
		(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]
		(6) Wing walls/return walls	[Nil]
		(7)Guidebunds,RiverTrainingworks etc.	[Nil]
		(8)Approaches(including Retaining walls, stone pitchingandprotection works)	[Nil]
		A.2-NewMajorBridges	
		(1)Foundation	[Nil]
		(2)Sub-structure	[Nil]
		(3)Super-structure(including bearings)	[Nil]
		(4)WearingCoatincludingexpansion joints	[Nil]
		(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]
		(6) Wing walls/return walls	[Nil]
		(7)Guidebunds,RiverTrainingworks etc.	[Nil]
		(8)Approaches(including Retaining walls, stone pitchingand protection	[Nil]

Item	Weightage in % of CP	Stage for Payment	Percentage
		works)	
		B.1-Wideningandrepairsof (a) ROB (b) RUB	
		(1) Foundations	[Nil]
		(2) Sub-Structure	[Nil]
		(3) Super-Structure (Including bearings)	[Nil]
		(4)Wearing Coat(a)in case of ROB-wearing coat including expansion joints complete in all respectsas specified and (b) incase of RUB-rigid pavement under RUB including drainagefacility completein all respects as specified	[Nil]
		(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]
		(6) Wing walls/Return walls	[Nil]
		(7) Approaches (Including Retaining walls,Stone Pitching and protection works)	[Nil]
		B.2-NewROB/RUB	
		(1)Foundations	[Nil]
		(2) Sub-Structure	[Nil]
		(3) Super-Structure (Including bearings)	[Nil]
		(4)Wearing Coat (a) in case of ROB-wearing coat including expansion joints complete in all respectsas specified and (b) incase of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified	[Nil]
		(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]
		(6) Wing walls/Return walls	[Nil]
		(7)Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[Nil]
		C.1- Widening and repair of Elevated Section/Flyovers/Grade Separators	
		(1) Foundations	[Nil]
		(2) Sub-Structure	[Nil]
		(3)Super-Structure(Including bearings)	[Nil]
		(4)Wearing Coat including expansion joints	[Nil]
		(5) Miscellaneous Items like handrails, crash barrier, road	[Nil]

Item	Weightage in % of CP	Stage for Payment	Percentage
		markings etc.	
		(6) Wing walls/Return walls	[Nil]
		(7)Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[Nil]
		C.2- New Elevated Section/Flyovers/Grade Separators	
		(1) Foundations	[Nil]
		(2) Sub-Structure	[Nil]
		(3)Super-Structure(Including bearings)	[Nil]
		(4)Wearing Coat including expansion joints	[Nil]
		(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]
		(6) Wing walls/Return walls	[Nil]
		(7)Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[Nil]
Other Works	29.46 %	(i) Toll Plaza	[Nil]
		(ii) Road side drains	21.84%
		(iii) Road signs, Road furniture, km stones, safety devices etc.	8.88%
		(iv) Road marking & studs	3.25%
		(v) Project facilities	
		a) Bus Bays & Passenger Shelter	2.30 %
		b) Truck Lay-byes	[Nil]
		c) Hydro seeding	8.58 %
		d) Junction	1.94%
		(vi) Road side Plantation	[Nil]
		(vii) Repair of Protection Works other than approaches to the bridges, elevated sections/flyover/grade separators and ROBs/ RUBs	[Nil]
		(viii) Safety &Traffic Management during const.	[Nil]
		(ix) Breast Wall	29.21%
		(x) Toe Wall	[Nil]
		(xi) Retaining Wall	20.01 %
		(xii) Boundary wall	[Nil]
		(xiii) Site Clearance & Dismantling	3.94 %
		(xiv) Rain water harvesting	[Nil]
		(xv) Composite RE Wall	[Nil]

1.2 Procedure of estimating the value of work done

1.2.1 Road works

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

Table 1.3.1

Stage of Payment	Percentage weightage	Payment Procedure
A- Widening & Strengthening of road		Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 5(five) percent of the total length.
(1)Earthwork up to top of the sub-grade	37.32%	
(3) Sub-base Course	13.25%	
(4) Non bituminous Base course	12.39%	
(5) Bituminous Base course	9.71%	
(6) Wearing Coat	5.72%	
(7) Widening and repair of culverts	[Nil]	Cost of five completed culverts shall be determined on pro rata basis with respect to the total number of culverts.
B.1- Reconstruction/New2-Lane Realignment/Bypass (Flexible Pavement)		Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 5(five) percent of the total length
(1)Earthwork up to top of the sub-grade	[Nil]	
(3) Sub-base Course	[Nil]	
(4) Non bituminous Base course	[Nil]	
(5) Bituminous Base course	[Nil]	
(6) Wearing Coat	[Nil]	
(7) Widening and repair of culverts		
B.2- Reconstruction/New 8-Lane Realignment/Bypass(Rigid Pavement)		Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 5(five) percent of the total length
(1)Earthwork up to top of the sub-grade	[Nil]	
(2) Sub-base Course	[Nil]	
(3) Dry Lean Concrete (DLC) Course	[Nil]	
(4) Pavement Quality Control (PQC) Course	[Nil]	
C.1- Reconstruction/New Service Road/ Slip Road (Flexible Pavement)		Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 5(five) percent of the total length
(1)Earthwork up to top of the sub-grade	[Nil]	
(2) Sub-base Course	[Nil]	
(3) Non bituminous Base course	[Nil]	
(4) Bituminous Basecourse	[Nil]	
(5) Wearing Coat	[Nil]	
C.2- Reconstruction/New Service road (Rigid Pavement)		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 5(five) percent of the total length
(1)Earthwork up to top of the sub-grade	[Nil]	
(2) Sub-base Course	[Nil]	
(3) Dry Lean Concrete (DLC)Course	[Nil]	
(4) Pavement Quality Control	[Nil]	

(PQC) Course		
D- Reconstruction &New Culverts on existingroad, realignments, bypasses		Cost of each culverts shall be determined on pro rata basis with respect to the total number of culverts. Payment shall be made on the completion of at least three culverts
Culverts (length <6m)	21.60 %	

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

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

Where,

P = Contract Price

L = Total length in km

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

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

1.2.2 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 of Payment	Weightage	Payment Procedure
1	2	3
A.1-Widening and repairs of Minor Bridges(length>6m&<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 the completion of widening & repair works of a minor bridge
A.2- New Minor Bridges (length > 6m & < 60m)		
(1)Foundation + Sub-Structure: On completion of the foundation work including foundations for wing and return walls, abutments, piers up to the abutment/pier cap.	[Nil]	Foundation: Cost of each minor bridge shall be determined on pro-rata basis with respect to the total linear length (m) of the minor bridges. Payment against foundation 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 bridge. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.

(2)Super-structure: On completion of the super-structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road, signs & markings, tests on completion etc. complete in all respect.	[Nil]	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super structure of at least one span in all respects as specified in the column of "Stage of Payment" in this sub-clause. In case of structures where pre-cast girders have been proposed by the Contractor, 50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above

Stage of Payment	Weightage	Payment Procedure
(3)Approaches :On completion of approaches including Retaining walls, stone pitching, protection works complete in all and fit for use	[Nil]	Approaches: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of approaches in all respect as specified in the column of "Stage of Payment" in this sub-clause.
(4) Guide Bunds and River Training Works: On completion of Guide Bunds and river training works complete in all respects	[Nil]	Guide Bunds and River Training Works: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of Guide Bund sand River training Works in all respects as specified
B.1- Widening and repairs 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 underpasses/ overpasses. Payment shall be made on the completion of widening & repair works of a underpass/overpass.
B.2- New Underpasses/Overpasses		
(1)Foundation + Sub-Structure: On completion of the foundation work including foundations for wing and return walls, abutments, piers up to the abutment/pier cap.	[Nil]	Foundation: Cost of each Underpass/ Overpass shall be determined on pro- rata basis with respect to the total linear length (m) of the Underpasses/Overpasses. Payment against foundation 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 Underpasses/ Overpasses. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.

(2)Super-structure: On completion of the super-structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road signs & markings, tests on completion etc. complete in all respect. Wearing Coat (a) in case of Overpass-wearing coat including expansion joints complete in all respects as specified and (b) in case of underpass- rigid pavement including drainage facility complete in all respects as specified.	[Nil]	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure of at least one span in all respects as specified in the column of "Stage of Payment" in this sub-clause. In case of structures where pre-cast girders have been proposed by the Contractor,50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above
(3) Approaches: On completion of approaches including Retaining walls/ Reinforced Earth walls, stone pitching, protection works complete in all respect and fit for use.	[Nil]	Payment shall be made on pro-rata basis on completion of a stage in all respects as specified

1.2.3 Major Bridge works, ROB/RUB and Structures.

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

Table 1.3.3

Stage of Payment	Weightage	Payment Procedure
A.1- Widening and repairs of Major Bridges		
(1) Foundation	[Nil]	Foundation: Cost of each Major Bridge shall be determined on pro-rata basis with respect to the total linear length (m) of the Major Bridge. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the major Bridge. 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]	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 major bridge.

(3)Super-structure(including bearings)	[Nil]	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure including bearings of at least one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor,50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above
(4)Wearing Coat including expansion joints	[Nil]	Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]	Miscellaneous: Payments shall be made on completion of all miscellaneous works like handrails, crash barriers, road markings etc. complete in all respects as specified.
(6) Wing walls/return walls	[Nil]	Wingwalls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(7)Guide Bunds, River Training works etc.	[Nil]	Guide Bunds, River Training works: Payments shall be made on completion of all guide bunds/river training works etc. complete in all respects as specified.
(8)Approaches(including Retaining walls, stone pitching and protection works)	[Nil]	Approaches: Payments shall be made on pro-rata basis on completion of 10% of the scope of each stage.
A.2-NewMajorBridges		
(1)Foundation	[Nil]	Foundation: Cost of each Major Bridge shall be determined on pro-rata basis with respect to the total linear length (m) of the Major Bridge. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the major Bridge. 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]	Sub-structure: Payment against sub- structure shall be made on pro-rata basis on completion of a stage i.e. not lessthan25% of the scope of sub- structure of major bridge.
(3)Super-structure(including bearings)	[Nil]	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure including bearings of at least one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor, 50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above
(4)Wearing Coat including expansion joints	[Nil]	Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]	Miscellaneous: Payments shall be made on completion of all miscellaneous works like handrails, crash barriers, road markings. complete in all respects as specified.
(6) Wing walls/return walls	[Nil]	Wingwalls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.

(7)Guide bunds, River Training works etc.	[Nil]	Guide Bunds, River Training works: Payments shall be made on completion of all guide bunds/river training works etc. complete in all respects as specified.
(8)Approaches(including Retaining walls, stone pitching and protection works)	[Nil]	Approaches: Payments shall be made on pro-rata basis on completion of 10% of the scope of each stage.
B.1- Widening and repairs of (a)ROB (b)RUB		
(1) Foundations	[Nil]	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. 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]	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 ROB/RUB.
(3) Super-Structure (Including bearings)	[Nil]	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure including bearings of at least one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor,50%ofthe stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on

Stage of Payment	Weightage	Payment Procedure
		completion of stage specified as above
(4) Wearing Coat(a)in case of ROB-wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified	[Nil]	Wearing Coat: Payment shall be made on completion (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 handrails, crash barrier, road markings etc.	[Nil]	Miscellaneous: Payments shall be made on completion of all miscellaneous works like handrails, crash barriers, road markings etc. complete in all respects as specified.
(6) Wing walls/Return walls	[Nil]	Wingwalls/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]	Payments shall be made on pro-rata basis on completion of 20% of the total area.
B.2-NewROB/RUB		
(1) Foundation	[Nil]	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.
(2) Sub-structure	[Nil]	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 ROB/RUB.
(3) Super-structure (including bearing)	[Nil]	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure including bearings of at least one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor,50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above
(4)Wearing Coat (a) in case of ROB- wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified	[Nil]	Wearing Coat: Payment shall be made on completion (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 handrails, crash barrier, road markings etc.	[Nil]	Miscellaneous: Payments shall be made on completion of all miscellaneous works like handrails, crash barriers, road markings etc. Complete in all respects as specified.
(6) Wing walls/Return walls	[Nil]	Wingwalls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all

Stage of Payment	Weightage	Payment Procedure
		respects as specified.
(7)Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[Nil]	Payment shall be made on pro-rata basis on completion of a stage in all respects as specified
C.1-Wideningandrepairs of Elevated Section/ Flyovers/Grade Separators		
(1) Foundations	[Nil]	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. 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]	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 structure.
(3) Super-Structure(Including bearings)	[Nil]	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure including bearings of at least one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor,50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above
(4) Wearing Coat including expansion joints	[Nil]	Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]	Miscellaneous: Payments shall be made on completion of all miscellaneous works like handrails, crash barriers, road markings etc. Complete in all respects as specified.
(6) Wing walls/Return walls	[Nil]	Wingwalls/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/Reinforced Earth wall, stone pitching and protection works)	[Nil]	Payment shall be made on pro-rata basis on completion of a stage in all respects as specified
C.2- New Elevated Section/ Flyovers/Grade Separators		
(1) Foundations	[Nil]	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. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where

Stage of Payment	Weightage	Payment Procedure
		specified.
(2) Sub-Structure	[Nil]	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 structure.
(3)Super-Structure(Including bearings)	[Nil]	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure including bearings of at least one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor,50% of the stage payment shall be due and payable on casting of girders foreach span and balance 50% of the stage payment shall be made on completion of stage specified as above
(4)Wearing Coat including expansion joints	[Nil]	Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]	Miscellaneous: Payments shall be made on completion of all miscellaneous works like handrails, crash barriers, road markings etc. complete in all respects as specified.
(6) Wing walls/Return walls	[Nil]	Wingwalls/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/Reinforced Earth wall, stone pitching and protection works)	[Nil]	Payments shall be made on pro-rata basis on completion of 20% of the total area.

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.

1.2.4 Other works.

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

Table 1.3.4

Stage of Payment	Weightage	Payment Procedure
1	2	3
(1) Toll Plaza	[Nil]	Unit of measurement is each completed toll plaza. Payment of each toll plaza shall be made on pro-rata basis with respect to the total of all toll plaza.
(2) Roadside drains	21.84%	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 per cent) of the total length
(3) Road signs, Road furniture, km stones, safety devices etc.	8.88%	
(4) Road marking & studs	3.25%	

Stage of Payment	Weightage	Payment Procedure
(5) Project Facilities		Payment shall be made on pro rata basis for two completed facilities
a) Bus Bays & Passenger Shelter	2.30 %	
b) Truck Lay-byes	[Nil]	
c) Junction	1.85 %	
(6) Road side Plantation including Horticulture in Wayside Amenities	0.10	Unit of measurement is minimum 100 trees
(7) Repair of Protection Works other than approaches to the bridges, elevated sections/flyover/grade separators and ROBs/ RUBs	[Nil]	Unit of measurement is linear length. Payment shall be made on pro-rata basis on completion of a stage in a length of not less than 10% (ten percent)of the total length.
(8) Safety and traffic management during construction	[Nil]	Payment shall be made on prorate basis every six months.
(9) Protection Works		Unit of measurement is linear length. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 5% (Five per cent) of the total length
(a) Retaining Wall	20.01%	
(b) Breast Wall	29.21%	
(c) Composite RE Wall	[Nil]	
(10) Site Clearance & Dismantling	3.98 %	Unit of measurement is linear length. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 5% (Five per cent) of the total length.
(11) Hydro seeding	4.28%	Unit of measurement is linear length. Payment shall be made on pro rata basis on completion of a stage in area of not less than 10% of the area for seeding and mulching.
(12) Seeding and Mulching with Jute and Coir	4.30%	

2. Procedure for payment for Maintenance

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

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