Schedule-A

(See Clauses 2.1 and 8.1)

Site of the Project

1 The Site

(i) Site of the [Two-Lane] Project Highway shall include the land, buildings, structures and road works as described in Annex-I of this Schedule-A.

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

(iii) 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.

(iv) The alignment plans of the Project Highway are specified in Annex-III. In the case of sections where no modification in the existing alignment of the Project Highway is contemplated, the alignment plan has not been provided. Alignment plans have only been given for sections where the existing alignment is proposed to be upgraded. The proposed profile of the Project Highways shall be followed by the contractor with minimum FRL as indicated in the alignment plan. The Contractor, however, improve/upgrade the Road Profile as indicated in Annex-III based on site/design requirement.

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

Annex –I

(Schedule-A)

Site

[Note: Through suitable drawings and description in words, the land, buildings, structures and road works comprising the Site shall be specified briefly but precisely in this Annex-I. All the chainages/ location referred to in Annex-I to Schedule-A shall be existing chainages.]

1. Site

The Site of the [Two-Lane] Project Highway comprises the section of NH-129A commencing from km 9+840 to km 54+990 in the state of Manipur.
The land, carriageway and structures comprising the Site are described below.

2. Land

The Site of the Project Highway comprises the land (sum total of land already in possession and land to be possessed) as described below:

Sl. No.	Existing Chainage (km)		Design Chainage (km)		Length in m (Design)	Existing/Available ROW (m)
	From	To	From	To		
1	9.840	54.990	9.450	50.850	41400	7m-19m

3. Carriageway

The present carriageway of the Project Highway is Two Lane. The type of the existing pavement is [flexible].

4. Major Bridges

The Site includes the following Major Bridges: -

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

S. No.	Chainage (km)	Type of Structure		No. of Spans with span length (m)	Width (m)	ROB/ RUB
		Foundation	Superstructure			
Nil						

6. Grade separators

The Site includes the following grade separators:

S. No.	Chainage (km)	Type of Structure		No. of Spans with span length (m)	Width (m)
		Foundation	Superstructure		
Nil					

7. Minor bridges

The Site includes the following minor bridges:

S. No.	Chainage (km)	Type of Structure			No. of Spans with span length (m)	Width (m)
		Foundation	Sub- structure	Super- structure		
1	54.750	Open	Wall type	Steel bridge (Bailey)	1x22	3.7

8. Railway level crossings

The Site includes the following railway level crossings:

S. No.	Location(km)	Remarks
Nil		

9. Underpasses (vehicular, non- vehicular)

The Site includes the following underpasses:

S. No.	Chainage (km)	Type of Structure	No. of Spans with span length (m)	Width (m)
Nil				

10. Culverts

The Site has the following culverts:

Sl No.	Existing Chainage (km)	Type of Culvert	Span/Dia(m)	Width(m)
1.	10+237	Hume Pipe	1x1.0m Dia	7.7
2.	10+340	Hume Pipe	1x0.9m Dia	7.2
3.	10+595	Hume Pipe	1x0.6m Dia	8
4.	11+066	SLAB	1x4.0m	5.8
5.	11+220	SLAB	1x4.0m	6.4
6.	11+304	Hume Pipe	1x1.2m Dia	6.5
7.	11+535	Hume Pipe	1x0.6m Dia	11.3
8.	11+748	Hume Pipe	1x0.6m Dia	8.8
9.	12+080	Hume Pipe	1x 1.0m Dia	11.5
10.	12+550	Hume Pipe	1x1.2m Dia	13
11.	12+872	Hume Pipe	1x0.9m Dia	7.4
12.	13+229	Hume Pipe	1x1.0m Dia	8.7
13.	13+638	Hume Pipe	1x0.9m Dia	11.5
14.	14+100	Hume Pipe	1x0.9m Dia	7.8
15.	14+280	Hume Pipe	1x0.9m Dia	7.6
16.	14+545	Hume Pipe	1x0.3m Dia	7.8
17.	15+150	Hume Pipe	1x0.6m Dia	10
18.	15+455	Hume Pipe	1x1.0m Dia	9
19.	15+540	Hume Pipe	1x1.0m Dia	7.7
20.	16+066	Hume Pipe	1x1.0m Dia	8.22

Sl No.	Existing Chainage (km)	Type of Culvert	Span/Dia(m)	Width(m)
21.	16+276	Hume Pipe	1x0.9m Dia	7.8
22.	16+408	Hume Pipe	1x1.0m Dia	8
23.	16+607	Hume Pipe	1x0.9m Dia	7.8
24.	16+980	Hume Pipe	1x0.9m Dia	7.7
25.	17+354	Hume Pipe	1x0.9m Dia	7.5
26.	17+547	Hume Pipe	1x1.0m Dia	11
27.	18+204	Hume Pipe	1x0.9m Dia	7.5
28.	18+367	Hume Pipe	1x0.9m Dia	13.8
29.	18+600	Hume Pipe	1x0.6m Dia	7.7
30.	18+952	Hume Pipe	1x1.0m Dia	7.5
31.	19+063	Hume Pipe	1x1.0m Dia	14
32.	19+381	Hume Pipe	1x1.0m Dia	13.8
33.	19+550	Hume Pipe	1x1.0m Dia	13.8
34.	19+908	Hume Pipe	1x0.9m Dia	8
35.	20+200	Hume Pipe	1x1.2m Dia	7.8
36.	20+406	Hume Pipe	1x0.6m Dia	15.8
37.	20+602	Hume Pipe	1x0.9m Dia	7.5
38.	20+770	Hume Pipe	1x0.9m Dia	7.5
39.	21+286	Hume Pipe	1x0.6m Dia	7.8
40.	21+379	Hume Pipe	1x0.6m Dia	7.8
41.	21+627	Hume Pipe	1x0.9m Dia	7.8
42.	21+955	Hume Pipe	1x0.9m Dia	7.5
43.	22+003	Hume Pipe	1x1.2m Dia	7.6
44.	22+332	Hume Pipe	1x0.9m Dia	7.5
45.	22+598	Hume Pipe	1x1.2m Dia	7.7
46.	23+104	Hume Pipe	1x0.9m Dia	8
47.	23+180	Hume Pipe	1x0.9m Dia	16.6
48.	23+280	Hume Pipe	1x0.9m Dia	16.4
49.	23+473	Hume Pipe	1x0.9m Dia	7.8
50.	23+867	Hume Pipe	1x1.2m Dia	7.8
51.	23+984	Hume Pipe	1x0.9m Dia	7.6
52.	24+128	Hume Pipe	1x1.0m Dia	17
53.	24+463	Hume Pipe	1x0.6m Dia	7.7
54.	24+613	Hume Pipe	1x1.0m Dia	7.3
55.	24+805	Hume Pipe	1x0.9m Dia	7.8
56.	24+987	Hume Pipe	1x0.9m Dia	7.7
57.	25+049	Hume Pipe	1x0.9m Dia	7.8
58.	25+176	Hume Pipe	1x0.6m Dia	7.7
59.	25+384	Hume Pipe	1x0.9m Dia	7.7
60.	25+514	Hume Pipe	1x0.9m Dia	7.7
61.	25+647	Hume Pipe	1x1.0m Dia	8
62.	25+741	Hume Pipe	1x0.9m Dia	7.7
63.	25+889	Hume Pipe	1x1.2m Dia	7.7
64.	26+068	Hume Pipe	1x0.9m Dia	7.8
65.	26+583	Hume Pipe	1x0.6m Dia	6

Sl No.	Existing Chainage (km)	Type of Culvert	Span/Dia(m)	Width(m)
66.	27+068	Hume Pipe	1x1.0m Dia	7.5
67.	27+707	Hume Pipe	1x1.0m Dia	6.6
68.	27+902	Hume Pipe	1x0.9m Dia	7.8
69.	28+205	Hume Pipe	1x0.6m Dia	8.7
70.	28+727	Hume Pipe	1x1.2m Dia	7.5
71.	29+518	Hume Pipe	1x1.0m Dia	7.4
72.	30+407	Hume Pipe	1x0.9m Dia	12.6
73.	30+516	Hume Pipe	1x1.0m Dia	7.3
74.	30+684	Hume Pipe	1x1.0m Dia	6
75.	31+407	Hume Pipe	1x0.7m Dia	6.8
76.	31+570	Hume Pipe	1x1.2m Dia	6.7
77.	32+444	Hume Pipe	1x0.7m Dia	7.4
78.	32+628	Hume Pipe	1x1.0m Dia	7.5
79.	32+703	Hume Pipe	1x0.7m Dia	6.5
80.	32+880	Hume Pipe	1x0.7m Dia	6.8
81.	33+718	Hume Pipe	1x0.7m Dia	6
82.	33+907	Hume Pipe	1x0.9m Dia	7.4
83.	34+154	Hume Pipe	1x1.2m Dia	6.5
84.	34+365	Hume Pipe	1x1.0m Dia	6.8
85.	34+936	Hume Pipe	1x1.2m Dia	6.2
86.	35+559	Hume Pipe	1x1.0m Dia	8
87.	35+785	Hume Pipe	1x1.2m Dia	10
88.	36+069	Hume Pipe	1x1.0m Dia	7.9
89.	36+275	Hume Pipe	1x1.0m Dia	7.6
90.	36+729	Hume Pipe	1x1.2m Dia	6.8
91.	37+244	Hume Pipe	1x1.0m Dia	6
92.	37+894	Hume Pipe	1x0.9m Dia	8.4
93.	38+528	Hume Pipe	1x1.5m Dia	8.4
94.	38+590	Hume Pipe	1x1.2m Dia	8.4
95.	40+640	Hume Pipe	1x0.9m Dia	7.5
96.	40+782	Hume Pipe	1x0.6m Dia	8.5
97.	41+968	Hume Pipe	1x0.9m Dia	7.5
98.	42+147	Hume Pipe	1x0.9m Dia	7.5
99.	42+764	Hume Pipe	1x0.9m Dia	9.8
100.	43+222	Hume Pipe	1x0.6m Dia	7.4
101.	43+706	Hume Pipe	1x1.0m Dia	7.2
102.	43+801	Hume Pipe	1x1.0m Dia	9.6
103.	44+183	Hume Pipe	1x1.0m Dia	6.7
104.	44+962	Hume Pipe	1x0.7m Dia	6.7
105.	45+238	Hume Pipe	1x0.9m Dia	7
106.	45+336	Hume Pipe	1x0.9m Dia	7.1
107.	45+429	Hume Pipe	1x0.9m Dia	6.7
108.	45+945	Hume Pipe	1x0.9m Dia	7.1
109.	46+199	Hume Pipe	1x1.0m Dia	7
110.	46+501	Hume Pipe	1x1.0m Dia	7.2

Sl No.	Existing Chainage (km)	Type of Culvert	Span/Dia(m)	Width(m)
111.	46+599	Hume Pipe	1x1.0m Dia	7.4
112.	47+182	Hume Pipe	1x0.9m Dia	7.4
113.	47+293	Hume Pipe	1x0.9m Dia	6.5
114.	47+569	Hume Pipe	1x1.0m Dia	6
115.	49+616	Hume Pipe	1x1.0m Dia	6.6
116.	49+936	Hume Pipe	1x0.9m Dia	5.8
117.	50+270	Hume Pipe	1x1.2m Dia	7.6
118.	50+800	Hume Pipe	1x1.5m Dia	7.5
119.	51+255	Hume Pipe	1x1.2m Dia	7.4
120.	51+350	Hume Pipe	1x1.0m Dia	6.7
121.	51+443	Hume Pipe	1x1.2m Dia	6.5
122.	51+892	Hume Pipe	1x1.0m Dia	7
123.	52+127	Hume Pipe	1x1.0m Dia	9
124.	52+195	Hume Pipe	1x1.0m Dia	6.5
125.	52+262	Hume Pipe	1x1.0m Dia	7.2
126.	52+481	Hume Pipe	1x1.0m Dia	7
127.	52+540	Hume Pipe	1x1.0m Dia	7
128.	52+937	Hume Pipe	1x1.2m Dia	7
129.	53+003	Hume Pipe	1x1.0m Dia	8.3
130.	53+378	Hume Pipe	1x0.9m Dia	7.1
131.	54+312	Hume Pipe	1x0.9m Dia	7.1
132.	54+880	Hume Pipe	1x0.3m Dia	7.4

11. Bus bays

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

S. No.	Chainage (km)	Length (m)	Left Hand Side	Right Hand Side
Nil				

12. Truck Lay byes

The details of truck lay byes are as follows:

S. No.	Chainage (km)	Length (m)	Left Hand Side	Right Hand Side
Nil				

13. Roadside drains

The details of the roadside drains are as follows:

Sl. No.	Location		Side	Type	
	From(m)	To(m)	Left/Right/Both	Masonry/CC(Pucca)	Earthen(Kutcha)
3	9840	20000	Left		√
4	20060	22000	Right		√
5	25100	26100	Right		√

14. Major junctions

The details of major junctions are as follows:

Sl.	Existing	Location	Type of	At	Grade	Category of Cross Road

No.	Chainage(km)		Junction	Grade	Separated	NH	SH	MDR	Others
1	27+400	Tolui	3-Leged	√	-	-	-	-	√
2	37+850	Hoomi	3-Legged	√	-	-	-	-	√

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

15. Minor junctions

The details of the minor junctions are as follows:

Sl. No.	Location		Type of intersection	
	From Km	To Km	T-Junction	Cross Road
1.	17+820		T-Type	3-legged
2.	20+330		X-Type	4-legged
3.	26+370		T-Type	3-legged
4.	27+420		Y-Type	3-legged
5.	27+680		T-Type	3-legged
6.	27+800		Y-Type	3-legged
7.	37+380		T-Type	3-legged
8.	37+960		Y-Type	3-legged
9.	38+870		Y-Type	3-legged
10.	39+830		T-Type	3-legged
11.	40+760		T-Type	3-legged

16. Bypasses

The details of the existing road sections proposed to be bypassed are as follows:

Sl. No.	Name of bypass (town)	Chainage (km) From km to km	Length (in Km)
Nil			

17. Other structures

Details of Existing Retaining Wall are as follows:

Sl No	Existing Chainage(m)		Side		Length(m)	
	From	To	Left	Right	Left	Right
1	34165	34169	-	R	-	4
2	44135	44147	L	-	12	-
				Total Length(m)=	**12**	**4**

Details of Existing Breast Wall are as follows:

Sl No	Existing Chainage(m)		Side		Length(m)	
	From	To	Left	Right	Left	Right
1	10966	10989	Left	-	23	-
2	11115	11170	Left	-	55	-
3	11350	11380	Left	-	30	-
4	11515	11525	Left	-	10	-
5	15142	15160	Left	-	18	-
6	15695	15717	Left	-	22	-
7	16049	16073	Left	-	24	-

Sl No	Existing Chainage(m)		Side		Length(m)	
	From	To	Left	Right	Left	Right
8	16100	16122	Left	-	22	-
9	16320	16330	Left	-	10	-
10	18514	18538	Left	-	24	-
11	18600	18650	Left	-	50	-
12	19617	19635	Left	-	18	-
14	21255	21282	-	Right	-	27
15	21570	21645	-	Right	-	75
16	21661	21676	-	Right	-	15
17	21955	22013	-	Right	-	58
18	23320	23365	-	Right	-	45
19	23396	23452	-	Right	-	56
20	23563	23603	-	Right	-	40
21	23620	23636	-	Right	-	16
	Total Length(m)=				**306**	**332**

17. Other structures

[Provide details of other structures, if any.]

18. **Existing utilities**

(i) Electrical utilities

The site includes the following electrical utilities: -

a) Extra High-Tension Lines (EHT Lines) *

Sr. No.	Chainage		Length (in km)				Crossings			
	From	To	400KV	220KV	110KV	66KV	400KV	220KV	110KV	66KV
Nil										

b) High Tension/Low Tension Lines (HT/LT Lines)*

Sr. No.	Chainage		HT/LT Lines (Nos.)			Crossings			Transformer		Conductor	
	From	To	33KV	11KV	LT	33KV	11KV	LT	No	Capacity	Type	Length
1	9.84	54.99	8	40	42							

(ii) Public Health utilities (Water/Sewage Pipe Lines) *

The site includes the following Public Health utilities: -

Sr. No.	Chainage		Length (in km)				Crossings				Water Tank	
			Water Supply Line		Sewage Line		Water Supply Line		Sewage Line			
	From	To	With Pumping	With Gravity Flow	With Pumping	With Gravity Flow	With Pumping	With Gravity Flow	With Pumping	With Gravity Flow	Capacity (in Liters)	Nos.
1	9.84	54.99	19.05								20000	2

(iii) Any Other line

(* This illustrative and may change as per features of existing utilities.)

Annex – II

(As per Clause 8.3 (i))

(Schedule-A)

Dates for providing Right of Way of Construction Zone

Sl. No	**Design Chainage(km)**		**Length in km**	**Existing ROW**	**Proposed ROW Width (m)**	**Date of Providing proposed ROW**
	From	To				
(i) Full Right of Way (full width)	9.840	26.000	16.160	7m-19m	16m -24 m wide for construction work.	90 % at Appointed Date
ii) Balance Right of Way (full width)	9.840	26.000	16.160	7m-19m	16 m -24 m wide for construction work.	Within 90 days after the appointed date as per clause 8.2 of DCA
(iii) Full Right of Way (full width)	26.000	54.990	28.990	4.5m -13m	16m -24m wide for construction work.	90 % at Appointed Date
iv) Balance Right of Way (full width)	26.000	54.990	28.990	4.5m -13m	16 m -24 m wide for construction work.	Within 90 days after the appointed date as per clause 8.2 of DCA

Annex - III

(Schedule-A)

Alignment Plans

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

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

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

Annex – IV

(Schedule-A)

Environmental Clearances

MOEF Clearance:

The project highway does not require Environmental clearance as per MoEF corrigendum dated 22.08.2013

Forest Clearance:

Online proposal uploaded of Form A, Part –I on 13.07.2016 Hard copy of Form A, Part –I submitted to Chief Conservator of Forest on 02.08.2016. & Tree counting survey under Ukhrul Forest Division & Senapati Forest Division is completed on 09.09.2016. and 29.08.2016 respectively.FRA Certificate received from Deputy Commissioner of Ukhrul & Senapati district on dated 1.10.2016 &27.09.2016 respectively & the FRA Certificate submitted to both NHIDCL & Concerned DFO. Joint Site Visit with DFO & Conservator of Forest in Ukhrul & Senapati district completed on 10.12.2016 & 18.10.2016 respectively & Form A, Part-II of Forest Clearance is Uploaded by Concerned DFO of Ukhrul & Senapati District on 30.12.2016 and it is pending at Chief Conservator of Forests/Nodal officer(FCA), Govt. of Manipur.

Wildlife Clearance:

The project highway does not require Wildlife Clearance as per letter no F. No.8-64/2013-FC dt.20.08.2014 of the Ministry of Environment, Forest and Climate Change (FC Divison), Govt. of India.

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-Lanning and Strengthening] of the Project Highway as described in Annex-I of this Schedule-B and in Schedule-C.

3. Specifications and Standards

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

Annex – I

(Schedule-B)

Description of [Two-Lanning]

[Note: Description of the Project Highway shall be given by the Authority in detail together with explanatory drawings (where necessary) to explain the Authority's requirements precisely in order to avoid subsequent changes in the Scope of the Project. The particulars that must be specified in this Schedule-B are listed below as per the requirements of the Manual of Specifications and Standards for [Two Lanning of Highways (IRC: SP: 73-2015)] referred to as the Manual. If any standards specifications or details are not given in the Manual the minimum design/construction requirements shall be specified in this Schedule. In addition to these all other essential project specific details as required should be provided in order to define the Scope of the Project clearly and precisely.]

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

(a) Two-Lanning [with] hard shoulders shall be undertaken. The paved carriageway shall be [7(seven) m] wide.

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

Sl. No.	Built-up stretch (Township)	Location		Width (m)	Typical Cross Section (Refer to Manual)	Remarks
1.	Tolui	25.565	26.305	7	As per attached TCS drawing	7 m Carriageway
2.		27.545	27.575	7	As per attached TCS drawing	7 m Carriageway

(b) Except as otherwise provided in this Agreement the width of the paved carriageway and cross-sectional features shall conform to paragraph 1.1 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

For Mountainous terrain design speed shall be the minimum design speed of 40km/hr and for sharp curve and hair pin bend locations speed reduces up to 30kmph & 20 kmph respectively.

(iii) Improvement of the existing road geometrics

The stretches where design speed reduces below 40 kmph are summarized below:

Sl. No.	HIP No.	Stretch (from km to km)	Type of Deficiency	Remarks
1.	115	17+184 to 17+224	Sharp Bend	Design Speed = 20 Kmph
2.	116	17+388 to 17+406	Sharp Bend	Design Speed = 30 Kmph
3.	117	17+560 to 17+639	Sharp Bend	Design Speed = 30 Kmph
4.	118	17+729 to 17+740	Sharp Bend	Design Speed = 20 Kmph
5.	119	17+771 to 17+797	Sharp Bend	Design Speed = 20 Kmph
6.	120	17+837 to 17+864	Sharp Bend	Design Speed = 20 Kmph
7.	121	17+944 to 17+982	Sharp Bend	Design Speed = 20 Kmph
8.	122	18+021 to 18+047	Sharp Bend	Design Speed = 20 Kmph
9.	123	18+142 to 18+180	Sharp Bend	Design Speed = 20 Kmph
10.	124	18+262 to 18+280	Sharp Bend	Design Speed = 20 Kmph
11.	125	18+336 to 18+348	Sharp Bend	Design Speed = 20 Kmph
12.	126	18+392 to 18+399	Sharp Bend	Design Speed = 20 Kmph
13.	127	18+454 to 18+461	Sharp Bend	Design Speed = 20 Kmph
14.	128	18+517 to 18+528	Sharp Bend	Design Speed = 20 Kmph
15.	129	18+595 to 18+622	Sharp Bend	Design Speed = 20 Kmph
16.	154	22+395 to 22+410	Sharp Bend	Design Speed = 30 Kmph
17.	155	22+456 to 22+467	Sharp Bend	Design Speed = 30 Kmph
18.	156	22+595 to 22+630	Sharp Bend	Design Speed = 25 Kmph
19.	157	22+719 to 22+747	Sharp Bend	Design Speed = 25 Kmph
20.	163	23+678 to 23+706	Sharp Bend	Design Speed = 25 Kmph
21.	172	24+811 to 24+902	Sharp Bend	Design Speed = 30 Kmph
22.	173	24+981 to 25+013	Sharp Bend	Design Speed = 25 Kmph
23.	174	25+118 to 25+170	Sharp Bend	Design Speed = 30 Kmph
24.	175	25+243 to 25+270	Sharp Bend	Design Speed = 30 Kmph
25.	176	25+411 to 25+489	Sharp Bend	Design Speed = 25 Kmph
26.	177	25+562 to 25+589	Sharp Bend	Design Speed = 25 Kmph
27.	178	25+641 to 25+690	Sharp Bend	Design Speed = 25 Kmph
28.	179	25+747 to 25+760	Sharp Bend	Design Speed = 25 Kmph
29.	180	25+850 to 25+944	Sharp Bend	Design Speed = 25 Kmph
30.	181	26+061 to 26+076	Sharp Bend	Design Speed = 25 Kmph
31.	182	26+138 to 26+174	Sharp Bend	Design Speed = 25 Kmph
32.	183	26+315 to 26+358	Sharp Bend	Design Speed = 25 Kmph
33.	184	26+443 to 26+470	Sharp Bend	Design Speed = 30 Kmph
34.	185	26+539 to 26+590	Sharp Bend	Design Speed = 30 Kmph
35.	192	27+779 to 27+806	Sharp Bend	Design Speed = 20 Kmph
36.	196	28+317 to 28+343	Sharp Bend	Design Speed = 20 Kmph
37.	221	32+257 to 32+288	Sharp Bend	Design Speed = 20 Kmph
38.	222	32+367 to 32+379	Sharp Bend	Design Speed = 30 Kmph
39.	223	32+466 to 32+494	Sharp Bend	Design Speed = 30 Kmph
40.	224	32+649 to 32+680	Sharp Bend	Design Speed = 20 Kmph
41.	225	32+804 to 32+823	Sharp Bend	Design Speed = 30 Kmph
42.	309	44+000 to 44+005	Sharp Bend	Design Speed = 30 Kmph
43.	310	44+050 to 44+077	Sharp Bend	Design Speed = 20 Kmph
44.	311	44+114 to 44+120	Sharp Bend	Design Speed = 25 Kmph
45.	312	44+151 to 44+168	Sharp Bend	Design Speed = 25 Kmph
46.	313	44+221 to 44+245	Sharp Bend	Design Speed = 30 Kmph

Sl. No.	HIP No.	Stretch (from km to km)	Type of Deficiency	Remarks
47.	324	45+606 to 45+612	Sharp Bend	Design Speed = 25 Kmph
48.	325	45+663 to 45+671	Sharp Bend	Design Speed = 30 Kmph
49.	326	45+725 to 45+749	Sharp Bend	Design Speed = 20 Kmph
50.	327	45+836 to 45+859	Sharp Bend	Design Speed = 20 Kmph
51.	328	45+902 to 45+926	Sharp Bend	Design Speed = 25 Kmph
52.	333	46+454 to 46+488	Sharp Bend	Design Speed = 25 Kmph
53.	334	46+553 to 46+570	Sharp Bend	Design Speed = 20 Kmph
54.	346	48+679 to 48+707	Sharp Bend	Design Speed = 30 Kmph
55.	347	48+766 to 48+800	Sharp Bend	Design Speed = 30 Kmph
56.	348	48+870 to 48+883	Sharp Bend	Design Speed = 30 Kmph
57.	349	48+998 to 49+027	Sharp Bend	Design Speed = 20 Kmph
58.	359	50+469 to 50+501	Sharp Bend	Design Speed = 30 Kmph
59.	360	50+568 to 50+599	Sharp Bend	Design Speed = 30 Kmph
60.	361	50+716 to 50+819	Sharp Bend	Design Speed = 30 Kmph

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 existing right of way and proper road signs and safety Measures shall be provided.

(iv) Right of Way

Sl. No	Design Chainage(km)		Length(km)	Width (m)
	From	To		
1	9+450	50+850	41.400	16 m - 24 m wide for construction work.

(v) Type of shoulders

[Refer to provision of relevant Manual and specify]

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

Sr. No.	Stretch (from Km)	Stretch (to Km)	Length (m)	Fully Hard shoulders/footpaths	Reference to cross section
1.	25565	25785	220	2 X 1.5 m Hard Shoulder with 2x1.5m Footpath cum Drain	"Refer Schedule-D"
2.	25785	26000	215	2 X 1.5 m Hard Shoulder with 2x1.5m Footpath cum Drain	
3.	26000	26235	235	2 X 1.5 m Hard Shoulder with 2x1.5m Footpath cum Drain	
4.	27545	27575	30	2 X 1.5 m Hard Shoulder with 2x1.5m Footpath cum Drain	

(b) Both side Hard shoulders of 1.5 m width shall be provided with selected earth wherever applicable as per TCS drawing.

(c) Design and specifications of Hard shoulders and granular material shall conform to the requirements specified in the relevant Manual.

(d) Surface layer has been designed for 10 MSA and Base -Subbase has been designed for 20 MSA as per relevant IRC Manual.

(vi) Lateral and vertical clearances at underpasses

(a) Lateral and vertical clearances at underpasses and provision of guardrails/crash barriers shall be as per requirements specified in the relevant Manual.

(b) 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

(a) Lateral and vertical clearances at overpasses shall be as per requirements specified in the relevant Manual.

(b) Lateral clearance: The width of the opening at the overpasses shall be as follows:

Sl. No.	Location (Chainage) (from km to km)	Span/Opening (m)	Remarks
Nil			

(viii) Service roads

Service roads shall be constructed at the locations and for the lengths indicated below: [Refer requirements specified in the relevant Manual]

Sl. No.	Location of service road (from km to km)	Right hand side (RHS)/Left hand side (LHS)/ or Both sides	Length (km) of service road
Nil			

(ix) Grade separated structures

(a) Grade separated structures shall be provided as per provision of the Manual. The requisite are given below:

[Refer to requirements specified in the relevant Manual]

Sl. No.	Location of Structure (VUP)	Length (m)	Number and length of spans	Approach gradient	Remarks. if any
Nil					

(b) In the case of grade separated structures the type of structure and the level of the Project Highway and the cross roads shall be as follows: [Refer to provision of the Manual and specify the type of vehicular under pass/ overpass structure and whether the cross road is to be carried at the existing level raised or lowered]

Sl. No.	Location	Type of structure Length (m)	Cross road at			Remarks. if any
			Existing Level	Raised Level	Lowered Level	
Nil						

(x) Cattle and pedestrian underpass /overpass

Cattle and pedestrian underpass/overpass shall be constructed as follows: [Refer to provision of the relevant Manual 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

[Give typical cross-sections of the Project Highway by reference to the Manual] As per IS, refer Schedule-D.

3. Intersections and Grade Separators

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

[Refer to provision of the relevant Manual and specify the requirements. Explain where necessary with drawings/sketches/general arrangement]

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

(i) At-grade intersections

Major Intersections

Sl. No.	Location of intersection (Km)	Type of intersection	Other features	Remarks
1	25+670	3 Legged	RHS- Towards Tolui	At-grade improvement proposed
2	34+950	3 Legged	LHS- Towards Hoomi	At-grade improvement proposed

Minor Intersections

Sl. No.	Location of intersection (Km)	Type of intersection	Other features
1.	16+690	T-Type	3-legged
2.	19+050	X-Type	4-legged
3.	24+675	Y-Type	3-legged
4.	25+690	T-Type	3-legged
5.	25+970	Y-Type	3-legged
6.	26+080	T-Type	3-legged
7.	34+400	Y-Type	3-legged
8.	34+950	Y-Type	3-legged
9.	35+790	T-Type	3-legged
10.	36+700	T-Type	3-legged
11.	37+610	Y-Type	3-legged
12.	50+450	T-Type	3-legged

(ii) Grade separated intersection with/without ramps

Sl. No.	Location	Salient features	Minimum length of viaduct to be provided	Road to be carried over/under the structures
Nil				

4. Road Embankment and Cut Section

(i) 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.

(ii) Raising of the existing road [Refer to provision of the relevant Manual and specify sections to be raised]

The existing road shall be raised in the following sections:

Sl. No.	Section (from km to km)	Length (km)	Extent of raising [Top of finished road level]
Nil			

5. Pavement Design

(i) Pavement design: Surface Course has been designed for 10 MSA and Base -Sub base has been designed for 20 MSA as per relevant IRC Manual

(ii) Type of pavement

Flexible Pavement

(iii) Design requirements

[Refer to provision of the relevant Manual and specify design requirements and strategy]

(a) Design Period and strategy

Flexible pavement for new pavement or for widening and strengthening of the existing pavement shall be designed for a minimum design period of 20 years.

(b) Design Traffic

Notwithstanding anything to the contrary contained in this Agreement or the Manual. The Contractor shall design the pavement for Surface Course has been designed for 10 MSA and Base –Sub base has been designed for 20 MSA as per relevant IRC Manual

(c) Reconstruction of stretches

[Refer to provision of the relevant Manual and specify the stretches if any to be reconstructed.]

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

6. Roadside Drainage

Drainage system including surface and subsurface drains for the Project Highway has been provided in the table given below:

RR Masonry Covered Drain

TCS TYPE	Length	SIDE	Net Length
Refer Schedule-D	220.00	Both side	440.00
	469.60	Both side	939.20
	70.00	Both side	140.00

Total Length= 1519.20

length of Drain = 1519.20 m
Taking Outfall length 50 m = 50.00 m

Total length of drain = 1569.20 m

RR Masonry Triangular Open Drain (Minimum clear width 1.0m)

Left Side		
Chainage		Length (m)
From	To	
9450	9985	535
9985	10035	50
10035	10245	210
10245	10285	40
10285	10515	230
10515	10585	70
10585	10665	80
10665	11855	1190
11855	12005	150
12005	12025	20
12025	12215	190
12215	12265	50
12265	12715	450
12715	12775	60
12775	12915	140
12915	12985	70
12985	13195	210
13195	13285	90
13285	13455	170
13455	13505	50
13505	13615	110
13615	13675	60
13675	13695	20
13695	13755	60
13755	13815	60
13815	14285	470

Left Side		
Chainage		Length (m)
From	To	
14285	14345	60
14345	14495	150
14495	14675	180
14675	14715	40
14715	14805	90
14805	14895	90
14895	15045	150
15045	15175	130
15175	15195	20
15195	15275	80
15275	15355	80
15355	15385	30
15385	15755	370
15755	15795	40
15795	16145	350
16145	16175	30
16175	16235	60
16255	16315	60
16315	16595	280
16595	16605	10
16605	16705	100
16705	16775	70
16775	16825	50
16825	16855	30
16855	17045	190
17045	17185	140
17205	17385	180
17385	17745	360
17745	17755	10
17755	17995	240
18015	18045	30
18045	18145	100
18145	18155	10
18155	18675	520
18675	18695	20
18695	18715	20
18715	18755	40
18755	18875	120
18875	18975	100
18975	19065	90
19225	19295	70
19450	19715	265
19715	19755	40
19755	19905	150
19905	20135	230
20135	20300	165
20300	20400	100
20400	20440	40

Left Side		
Chainage		Length (m)
From	To	
20440	20565	125
20565	20675	110
20995	21105	110
21295	21575	280
21635	21715	80
21785	21865	80
21865	21895	30
21895	21905	10
21905	21975	70
23655	23695	40
23775	23835	60
24425	24455	30
24455	24530	75
24530	24605	75
25235	25275	40
25305	25465	160
25465	25565	100
26305	26415	110
26455	26655	200
26655	27005	350
27005	27175	170
27175	27215	40
27215	27255	40
27255	27365	110
27365	27405	40
27405	27495	90
27515	27545	30
27575	27775	200
27775	27875	100
27875	28175	300
28175	28255	80
28255	28295	40
28295	28335	40
28335	28555	220
28555	28625	70
28625	28675	50
28675	28795	120
28795	28845	50
28845	28885	40
28885	28945	60
28945	29005	60
29005	29045	40
29045	29065	20
29065	29105	40
29105	29155	50
29155	29265	110
29265	29315	50
29315	29355	40

Left Side		
Chainage		Length (m)
From	To	
29355	29405	50
29405	29545	140
29545	30075	530
30075	30125	50
30125	30655	530
30655	30685	30
30685	30705	20
30705	30765	60
30765	30785	20
30785	30905	120
30905	30975	70
30975	31035	60
31035	31085	50
31085	31115	30
31115	31155	40
31155	31185	30
31185	31365	180
31365	31465	100
31465	31485	20
31485	31565	80
31565	31635	70
31635	31685	50
31685	32195	510
32195	32685	490
32685	32835	150
32835	32915	80
32915	32945	30
32945	33495	550
33495	33555	60
33555	33745	190
33745	33795	50
33795	33875	80
33875	33905	30
33905	33945	40
33945	33985	40
33985	34055	70
34055	34085	30
34085	34115	30
34115	34125	10
34125	34240	115
34240	34285	45
34285	34345	60
34345	34385	40
34415	34445	30
34445	34470	25
34470	34545	75
34545	34585	40
34585	34775	190

Left Side		
Chainage		**Length (m)**
From	**To**	
34775	35045	270
35045	35195	150
35195	35265	70
35265	35285	20
35285	35565	280
35565	35715	150
35715	35735	20
35735	35785	50
36375	36635	260
37705	37840	135
38305	39105	800
39575	39625	50
40475	40605	130
41515	41565	50
41995	42055	60
42055	42145	90
42335	42375	40
42535	42605	70
42985	43005	20
43495	43535	40
43695	43775	80
43775	43875	100
44305	45525	1220
45715	45815	100
45815	45865	50
46285	46335	50
46695	46745	50
46865	47225	360
47445	47565	120
47605	47675	70
48165	48385	220
48965	50125	1160
50125	50215	90
50385	50415	30
50775	50850	75
Total length =		**26970**

Right Side		
Chainage		**Length (m)**
From	**To**	
9450	9985	535
9985	10035	50
10035	10245	210
10245	10285	40
10285	10515	230
10515	10585	70
10665	11855	1190

Right Side		
Chainage		Length (m)
From	To	
11855	12005	150
12005	12025	20
12215	12265	50
12715	12775	60
12915	12985	70
13195	13285	90
13455	13505	50
13615	13675	60
13675	13695	20
13695	13755	60
13815	14285	470
14345	14495	150
14715	14805	90
14895	15045	150
15175	15195	20
15275	15355	80
15355	15385	30
15755	15795	40
16255	16315	60
16605	16705	100
16705	16775	70
16775	16825	50
16825	16855	30
17185	17205	20
18015	18045	30
18045	18145	100
18715	18755	40
18755	18875	120
18975	19065	90
19065	19175	110
19175	19195	20
19195	19225	30
19225	19295	70
19295	19450	155
20300	20400	100
20675	20995	320
20995	21105	110
21105	21295	190
21295	21575	280
21575	21635	60
21635	21715	80
21715	21785	70
21785	21865	80
21865	21895	30
21895	21905	10
21905	21975	70
21975	22045	70
22045	22205	160

Right Side		
Chainage		Length (m)
From	To	
22205	22475	270
22475	23195	720
23195	23585	390
23585	23615	30
23615	23655	40
23655	23695	40
23725	23775	50
23775	23835	60
23835	23925	90
24115	24125	10
24425	24455	30
24455	24530	75
24530	24605	75
24605	24635	30
24635	24675	40
24675	24740	65
24740	24755	15
24755	24770	15
24875	24920	45
24920	24960	40
24960	25195	235
25195	25235	40
25235	25275	40
25275	25305	30
25305	25465	160
25465	25565	100
26655	27005	350
27005	27175	170
27175	27215	40
27255	27365	110
27405	27495	90
27775	27875	100
28335	28555	220
28675	28795	120
28845	28885	40
28885	28945	60
29005	29045	40
29105	29155	50
29315	29355	40
29355	29405	50
29545	30075	530
30125	30655	530
30905	30975	70
31035	31085	50
31085	31115	30
31115	31155	40
31155	31185	30
31185	31365	180

Right Side		
Chainage		Length (m)
From	To	
31485	31565	80
31565	31635	70
31685	32195	510
32195	32685	490
32835	32915	80
32945	33495	550
33555	33745	190
33905	33945	40
33945	33985	40
34055	34085	30
34115	34125	10
34125	34240	115
34415	34445	30
34585	34775	190
34775	35045	270
35045	35195	150
35285	35565	280
35565	35715	150
35715	35735	20
35865	35895	30
35895	36375	480
36375	36635	260
36635	36655	20
36655	36685	30
36710	36735	25
36735	36845	110
36845	36865	20
36865	37595	730
37595	37645	50
37645	37705	60
37985	38275	290
38275	38305	30
39105	39530	425
39530	39555	25
39555	39575	20
39575	39625	50
39625	39655	30
39655	39665	10
39665	39955	290
39955	40015	60
40015	40225	210
40255	40475	220
40475	40605	130
40605	40685	80
40685	40715	30
40715	41265	550
41265	41325	60
41325	41500	175

Right Side		
Chainage		Length (m)
From	To	
41500	41515	15
41515	41565	50
41565	41825	260
41825	41895	70
41895	41955	60
41955	41995	40
41995	42055	60
42055	42145	90
42145	42335	190
42335	42375	40
42375	42425	50
42425	42535	110
42535	42605	70
42605	42985	380
42985	43005	20
43005	43495	490
43495	43535	40
43535	43555	20
43555	43565	10
43565	43615	50
43615	43685	70
43685	43695	10
43695	43775	80
43775	43875	100
43875	44065	190
44065	44075	10
44075	44105	30
44105	44115	10
44115	44305	190
44305	45525	1220
45715	45815	100
45815	45865	50
45915	46285	370
46285	46335	50
46385	46415	30
46415	46455	40
46455	46465	10
46465	46695	230
46695	46745	50
46745	46865	120
46865	47225	360
47225	47445	220
47445	47565	120
47565	47605	40
47605	47675	70
47675	47745	70
47745	47755	10
47755	47795	40

Right Side		
Chainage		Length (m)
From	To	
47795	47815	20
47815	48165	350
48165	48385	220
48385	48775	390
48815	48965	150
48965	50125	1160
50125	50215	90
50215	50285	70
50285	50355	70
50355	50385	30
50385	50415	30
50415	50445	30
Total length =	**28795**	

catch pit drain & outlet = **5576 m**

Total Length of Drain = 26970 + 28795 + 5576 = 61341m

7. Design of Structures

(i) General

(a) All bridges culverts and structures shall be designed and constructed in accordance with provision of the relevant Manual and shall conform to the cross- sectional features and other details specified therein.

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

[Refer to provision of the relevant Manual and specify the width of carriageway of new bridges and structures of more than 60 (sixty) metre length. if the carriageway width is different from 7.5 (seven point five) metres in the table below.]

Sl. No.	Bridge/Structure at km	Width of carriageway and cross-sectional features
1	50.655	Carriageway Width = 11.0m Width of Railing / crash barrier = 1.0m (2x0.50m) Overall width = 12 m

(c) The following structures shall be provided with footpaths:

[Refer to provision of the relevant Manual and provide details of new Structures with footpath]

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

(d) All bridges shall be high-level bridges.

[Refer to provision of the relevant Manual and state if there is any exception] (e)

The following structures shall be designed to carry utility services specified in

Table below:

[Refer to provision of the relevant Manual and provide details]

Sl. No.	Bridge at km	Utility service to be carried	Remarks
Nil			

(f) Cross-section of the new culverts and bridges at deck level for the Project Highway shall conform to the typical cross-sections given in provision of the relevant Manual.

(ii) 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 culverts:

[Refer to provision of the relevant Manual and provide details]

Sl No	*Proposed Chainage (Km)*	Proposal Type	Span/Dia (m)
1	9+830	BOX CULVERT	2X2X1 Cell
2	11+475	BOX CULVERT	2X3X1 Cell
3	11+915	BOX CULVERT	2X2X1 Cell
4	12+200	BOX CULVERT	2X3X1 Cell
5	12+548	BOX CULVERT	2X2X1 Cell
6	12+884	BOX CULVERT	2X2X1 Cell
7	13+350	BOX CULVERT	2X3X1 Cell
8	13+525	BOX CULVERT	2X2X1 Cell
9	13+785	BOX CULVERT	2X3X1 Cell
10	14+315	BOX CULVERT	2X2X1 Cell Earth Cushion
11	14+525	BOX CULVERT	2X3X1 Cell
12	14+625	BOX CULVERT	2X2X1 Cell Earth Cushion
13	15+398	BOX CULVERT	2X3X1 Cell
14	15+535	BOX CULVERT	2X2X1 Cell
15	15+892	BOX CULVERT	2X3X1 Cell
16	16+249	BOX CULVERT	2X3X1 Cell
17	17+020	BOX CULVERT	2X2X1 Cell
18	17+192	BOX CULVERT	2X2X1 Cell
19	17+735	BOX CULVERT	2X2X1 Cell Earth Cushion
20	17+850	BOX CULVERT	2X2X1 Cell
21	18+166	BOX CULVERT	2X3X1 Cell
22	18+339	BOX CULVERT	2X2X1 Cell
23	18+690	BOX CULVERT	2X3X1 Cell
24	18+958	BOX CULVERT	2X3X1 Cell
25	19+186	BOX CULVERT	2X2X1 Cell Earth Cushion

Sl No	*Proposed*	Proposal Type	Span/Dia (m)
26	19+320	BOX CULVERT	2X3X1 Cell
27	19+485	BOX CULVERT	2X2X1 Cell
28	19+990	BOX CULVERT	2X2X1 Cell
			Earth Cushion
29	20+099	BOX CULVERT	2X3X1 Cell
30	20+335	BOX CULVERT	2X2X1 Cell
			Earth Cushion
31	20+637	BOX CULVERT	2X3X1 Cell
32	21+020	BOX CULVERT	2X2X1 Cell
33	21+252	BOX CULVERT	2X3X1 Cell
34	21+720	BOX CULVERT	2X3X1 Cell
35	21+771	BOX CULVERT	2X2X1 Cell
			Earth Cushion
36	21+876	BOX CULVERT	2X3X1Cell
37	21+982	BOX CULVERT	2X2X1 Cell
38	22+345	BOX CULVERT	2X2X1 Cell
39	22+458	BOX CULVERT	2X3X1 Cell
40	22+943	BOX CULVERT	2X2X1 Cell
41	23+394	BOX CULVERT	2X3X1 Cell
42	23+457	BOX CULVERT	2X3X1 Cell
43	23+585	BOX CULVERT	2X2X1 Cell
			Earth Cushion
44	23+750	BOX CULVERT	2X2X1 Cell
45	23+874	BOX CULVERT	2X3X1 Cell
46	24+017	BOX CULVERT	2X2X1 Cell
47	24+120	BOX CULVERT	2X3X1 Cell
48	24+432	BOX CULVERT	2X2X1 Cell
49	25+348	BOX CULVERT	2X2X1 Cell
50	25+990	BOX CULVERT	2X2X1 Cell
51	26+175	BOX CULVERT	2X2X1 Cell
52	26+448	BOX CULVERT	2X3X1 Cell
53	27+522	BOX CULVERT	2X3X1 Cell
54	28+328	BOX CULVERT	2X2X1 Cell
			Earth Cushion
55	28+438	BOX CULVERT	2X2X1 Cell
56	29+154	BOX CULVERT	2X2X1 Cell
57	29+298	BOX CULVERT	2X3X1 Cell
58	30+482	BOX CULVERT	2X2X1 Cell
59	31+570	BOX CULVERT	2X2X1 Cell
60	31+775	BOX CULVERT	2X2X1 Cell
61	32+832	BOX CULVERT	2X2X1 Cell
62	33+306	BOX CULVERT	2X3X1 Cell
63	33+490	BOX CULVERT	2X2X1 Cell
64	33+822	BOX CULVERT	2X3X1 Cell
65	37+490	BOX CULVERT	2X2X1 Cell
66	37+630	BOX CULVERT	2X3X1 Cell
67	38+945	BOX CULVERT	2X3X1 Cell
68	39+550	BOX CULVERT	2X3X1 Cell
69	39+975	BOX CULVERT	2X2X1 Cell
70	40+425	BOX CULVERT	2X3X1 Cell

Sl No	*Proposed*	Proposal Type	Span/Dia (m)
71	40+520	BOX CULVERT	2X2X1 Cell
72	40+870	BOX CULVERT	2X3X1 Cell
73	41+640	BOX CULVERT	2X2X1 Cell
74	41+885	BOX CULVERT	2X2X1 Cell
75	41+980	BOX CULVERT	2X2X1 Cell
76	42+520	BOX CULVERT	2X3X1 Cell
77	42+782	BOX CULVERT	2X2X1 Cell
78	43+045	BOX CULVERT	2X2X1 Cell
			Earth Cushion
79	43+140	BOX CULVERT	2X2X1 Cell
			Earth Cushion
80	43+685	BOX CULVERT	2X3X1 Cell
81	43+790	BOX CULVERT	2X2X1 Cell
82	44+062	BOX CULVERT	2X2X1 Cell
83	45+920	BOX CULVERT	2X2X1 Cell
84	46+240	BOX CULVERT	2X3X1 Cell
85	46+560	BOX CULVERT	2X2X1 Cell
86	47+020	BOX CULVERT	2X2X1 Cell
87	47+515	BOX CULVERT	2 X 3 X 1 CELL
88	47+595	BOX CULVERT	2X2X1 Cell
89	47+942	BOX CULVERT	2X2X1 Cell
			Earth Cushion
90	48+310	BOX CULVERT	2X2X1 Cell
91	48+500	BOX CULVERT	2 X 3 X 1 CELL
92	48+560	BOX CULVERT	2X2X1 Cell
93	48+945	BOX CULVERT	2 X 3 X 1 CELL
94	49+013	BOX CULVERT	2X2X1 Cell
95	49+362	BOX CULVERT	2X2X1 Cell
96	50+233	BOX CULVERT	2X2X1 Cell
97	50+755	BOX CULVERT	4X4X1 Cell
			Earth Cushion

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

(c) Widening of existing culverts:

All existing culverts which are not to be reconstructed shall be widened to the Roadway width of the Project Highway as per the typical cross section given in provision of the relevant Manual. Repairs and strengthening of existing structures where required shall be carried out.

Sl. No.	Culvert location	Type, span, height and width of existing culvert (m)	Repairs to be carried out [specify]
Nil			

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

Sl. No.	Culvert Location	Span /Opening (m)	Remarks*
1	10+350	2X2X1 Cell	Box Culvert

Sl. No.	Culvert Location	Span /Opening (m)	Remarks*
2	10+920	2X2X1 Cell	Box Culvert
3	12+293	2X3X1 Cell	Box Culvert
4	13+125	2X3X1 Cell	Box Culvert
5	13+180	2X2X1 Cell	Box Culvert
6	14+850	2X3X1 Cell	Box Culvert
7	15+712	2X2X1 Cell	Box Culvert
8	16+506	2X2X1 Cell	Box Culvert
9	16+925	2X2X1 Cell	Box Culvert
10	18+542	2X2X1 Cell	Box Culvert
11	19+828	2X3X1 Cell	Box Culvert
12	20+748	2X3X1 Cell	Box Culvert
13	23+223	2X2X1 Cell	Box Culvert
14	24+250	2X2X1 Cell	Box Culvert
15	24+617	2X2X1 Cell	Box Culvert
16	24+747	2X2X1 Cell	Box Culvert
17	25+081	2X3X1 Cell	Box Culvert
18	26+348	2X3X1 Cell	Box Culvert
19	27+233	2X2X1 Cell	Box Culvert
20	27+386	2X3X1 Cell	Box Culvert
21	28+177	2X2X1 Cell	Box Culvert
22	28+821	2X2X1 Cell	Box Culvert
23	29+083	2X3X1 Cell	Box Culvert
24	31+096	2X2X1 Cell	Box Culvert
25	34+118	2X3X1 Cell	Box Culvert
26	34+385	2X3X1 Cell	Box Culvert
27	35+248	2X2X1 Cell	Box Culvert
28	35+820	2X2X1 Cell	Box Culvert
29	36+020	2X3X1 Cell	Box Culvert
30	36+220	2X2X1 Cell	Box Culvert
31	36+695	2X2X1 Cell	Box Culvert
32	37+695	2X2X1 Cell	Box Culvert
33	37+870	2X2X1 Cell	Box Culvert
34	37+951	2X2X1 Cell	Box Culvert
35	38+120	2X2X1 Cell	Box Culvert
36	38+289	2X2X1 Cell	Box Culvert
37	38+376	2X2X1 Cell	Box Culvert
38	38+451	2X2X1 Cell	Box Culvert
39	39+120	2X2X1 Cell	Box Culvert
40	39+213	2X3X1 Cell	Box Culvert
41	39+470	2X3X1 Cell	Box Culvert
42	40+195	2X2X1 Cell	Box Culvert
43	40+341	2X2X1 Cell	Box Culvert
44	40+805	2X2X1 Cell	Box Culvert
45	41+195	2X2X1 Cell	Box Culvert
46	41+337	2X3X1 Cell	Box Culvert
47	41+510	2X2X1 Cell	Box Culvert

Sl. No.	Culvert Location	Span /Opening (m)	Remarks*
48	42+195	2X2X1 Cell	Box Culvert
49	42+405	2X2X1 Cell	Box Culvert
50	43+270	2X2X1 Cell	Box Culvert
51	43+558	2X3X1 Cell	Box Culvert
52	44+145	2X2X1 Cell	Box Culvert
53	46+370	2X3X1 Cell	Box Culvert
54	46+457	2X2X1 Cell	Box Culvert
55	47+751	2X2X1 Cell	Box Culvert

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

[Refer provision of the relevant Manual and provide details]

Sl. No.	Location at km	Type of repair required
Nil		

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

(iii) Bridges

(a) Existing bridges to be re-constructed/widened

[(i) The existing bridges at the following locations shall be re-constructed as new Structures]

[Refer provision of the relevant Manual and provide details]

Sl. No.	Bridge location	Salient details of existing bridge		Adequacy or otherwise of the existing waterway, vertical clearance etc.*	Remarks
	(km)	Type of Structures	Span Arrangement and Total Vent way (No. x Length) (m)		
1	50+655	Belly Bridge	1X22m	Insufficient width and not conform to IRC Loading	T- RCC Beam bridge (3X24m)

(ii) The following narrow bridges shall be widened:

Sl. No.	Location (km)	Existing width (m)	Extent of widening (m)	Cross-section at deck level for widening @
Nil				

(b) Additional new bridges

[Specify additional new bridges if required. And attach GAD]

New bridges at the following locations on the Project Highway shall be constructed. GADs for the new bridges are attached in the drawings folder.

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

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

[Refer provision of the relevant Manual and provide details:]

Sl. No.	Location at km	Remarks
Nil		

(d) Repairs/replacements of railing/parapets of the existing bridges shall be undertaken as follows:

[Refer to provision of the relevant Manual and provide details]

Sl. No.	Location at km	Remarks
Nil		

(e) Drainage system for bridge decks

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

(f) Structures in marine environment

[Refer to provision of the relevant Manual and specify the necessary measures / treatments for protecting structures in marine environment. Where applicable]

(iv) Rail-road bridges

(a) Design construction and detailing of ROB/RUB shall be as specified in provision of the relevant Manual [Refer to provision of the relevant Manual and specify modification, if any]

(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 (Chainage 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 (Chainage km)	Number and length of span (m)
Nil		

(v) Grade separated structures

[Refer provision of the relevant Manual]

The grade separated structures shall be provided at the locations and of the type and length

specified in paragraphs 2(ix) and 3 of this Annex-I.

(vi) Repairs and strengthening of bridges and structures

[Refer to provision of the relevant Manual and provide details]

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

(a) Bridges

Sl. No.	Location of bridge (km)	Nature and extent of repairs /strengthening to be carried out
Nil		

(b) ROB / RUB

Sl. No.	Location of ROB/RUB (km)	Nature and extent of repairs/strengthening to be carried out
Nil		

(c) Overpasses/Underpasses and other structures

Sl. No.	Location of Structure (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 the Major Bridges and Structures:

	Sl. No. Location (Km)
Nil	

8. Traffic Control Devices and Road Safety Works

(i) Traffic control devices and road safety works shall be provided in accordance with provisions of relevant Manual.

Traffic Signages, Road Marking and other appurtenances	Quantity	unit
Kilometer stones=	34	Nos
5th Kilometer stones=	8	Nos
Boundary Stones=	416	Nos
Delineators (100 cm long and circular shaped)+Hazard marker =	4392	Nos
Parapet Wall	5538	m
900 mm Octagonal	2	Nos
600 mm circular	1458	Nos
900 mm Triangular	548	Nos
800 mm x 600 mm rectangular	9	Nos
Direction Sign < 0.9 sqm	4	sqm
Direction Sign > 0.9 sqm	8	sqm
Street Lighting	73	Nos
Rumble Strip=	98	Sqm
Road Studs	17052	Nos.
Overhead Gantry	1	No.

(ii) Specifications of the reflective sheeting. [Refer to provision of relevant Manual and specify]

9. Roadside Furniture

(i) Roadside furniture shall be provided in accordance with article 8(i) of this schedule. a.

Overhead traffic signs: location and size

Sl. No.	Location (Km)	Size
1	9+450	12m x 2.1m

10. Compulsory Afforestation

[Refer to provision of relevant Manual and specify the number of trees which are required to be planted by the concerned department as compensatory afforestation.]

11. Bamboo Plantation :

[Refer to provision of relevant Manual and specify the number of bamboo which are required to be planted by the concerned department as compensatory afforestation.]
Minimum area for bamboo plantation is required **330235.00 sqm.**

12. Hazardous Locations

The safety barriers shall also be provided at the following hazardous locations:

a) Breast Wall (minimum height of breast wall is 1.5m above GL): The location of Breast Wall shall be as follows:-

Chainage (m)		Side	Length (m)
From	To		
9985	10035	Left	50
10515	10585	Left	70
11855	12005	Left	150
12215	12265	Left	50
13455	13505	Left	50
13615	13675	Left	60
13695	13755	Left	60
15275	15355	Left	80
16705	16775	Left	70
18045	18145	Left	100
18755	18875	Left	120
19225	19295	Right	70
19450	20300	Right	850
20400	20675	Right	275
23655	23695	Right	40
23695	23725	Right	30
23725	23775	Right	50
23835	23925	Right	90
23925	24115	Right	190
24115	24125	Right	10
24125	24425	Right	300
24425	24455	Right	30
24530	24605	Right	75
24770	24875	Right	105

Chainage (m)		Side	Length (m)
From	To		
25305	25465	Right	160
25565	25785	Both	440
25785	26000	Left	215
26000	26235	Left	235
27005	27175	Left	170
27545	27575	Left	30
28675	28795	Left	120
28795	28845	Left	50
28845	28885	Left	40
31155	31185	Left	30
31565	32200	Left	635
33945	33985	Left	40
34055	34085	Left	30
34115	34125	Left	10
34470	34545	Left	75
34585	34775	Left	190
35195	35265	Left	70
40225	40255	Right	30
41995	42055	Right	60
43695	43775	Right	80
45525	45715	Right	190
45715	45815	Right	100
45865	45915	Right	50
46335	46385	Right	50
46385	46415	Right	30
48775	48815	Right	40
49160	49410	Right	250
50125	50215	Right	90
Total Length of Breast Wall=			**6485 m**

b) Retaining Wall The location of Retaining Wall shall be as follows:-

Chainage		side	Avg. Hight from GL in m	Length
From	To			
13755	13815	Right	2.0	60
14285	14345	Right	3.0	60
14495	14675	Right	2.0	180
16145	16175	Right	4.0	30
16595	16605	Right	2.0	10
17745	17755	Right	2.0	10
18675	18695	Right	2.0	20
19175	19195	Left	2.0	20
23585	23615	Left	4.0	30
23725	23775	Left	2.0	50
23835	23925	Left	2.0	90
24115	24125	Left	4.0	10

Chainage		side	Avg. Hight from GL in m	Length
From	To			
17995	18015	Left	4.0	20
24740	24755	Left	2.0	15
24920	24960	Left	2.0	40
26235	26305	Right	4.0	70
27365	27405	Right	2.0	40
27515	27545	Right	2.0	30
28175	28255	Right	2.0	80
28295	28335	Right	3.0	40
28625	28675	Right	2.0	50
29065	29105	Right	2.0	40
29265	29315	Right	4.0	50
30765	30785	Right	4.0	20
31365	31465	Right	3.0	100
31465	31485	Right	2.0	20
31635	31685	Right	3.0	50
33795	33875	Right	3.0	80
34240	34285	Right	4.0	45
34345	34385	Right	4.0	40
34470	34585	Right	4.0	115
35195	35265	Right	2.0	70
35735	35785	Right	3.0	50
36685	36710	Left	2.0	25
36845	36865	Left	2.0	20
37595	37645	Left	4.0	50
38275	38305	Left	2.0	30
39530	39555	Left	2.0	25
39655	39665	Left	2.0	10
39955	40015	Left	4.0	60
40685	40715	Left	2.0	30
35785	35865	Both	5.0	160
28795	28845	Right	6.0	50
35865	35895	Left	6.0	30
41825	41895	Left	2.0	70
43615	43685	Left	2.0	70
44065	44075	Left	3.0	10
44105	44115	Left	2.0	10
46385	46415	Left	3.0	30
46455	46465	Left	3.0	10
47745	47755	Left	2.0	10
47795	47815	Left	6.0	20
50285	50355	Left	4.0	70
50775	50850	Right	4.0	75
Total length			**2500 m**	

Metal Beam Crash Barrier: The location of W Beam crash Barriers shall be as follows: -

Chainage		Side	Length (m)
From	To		
17900	18020	Right	120
18500	18650	Right	150
19700	19900	Left	200
20200	20300	Left	100
20400	20550	Left	150
22319	22450	Left	131
23050	23350	Left	300
28050	28250	Right	200
31250	32200	Right	950
39800	39944	Left	144
40250	40350	Left	100
40700	40800	Left	100
42900	43004	Left	104
43500	43555	Left	55
43800	44000	Left	200
46000	46150	Left	150
46400	46450	Left	50
48394	48694	Left	300
48850	48950	Left	100
49160	49410	Left	250
49550	49650	Left	100
Total=			**3954 m**

Total length of Crash Barrier Provided in Bridge approaches: 120.0m

Special Treatment of High hill cutting (Height above 18.0m)

Soil Nailing:

Chainage		Length (m)	Average cutting Height (m)	TCS Type
From	To			
31250	32200	950	24	TCS-15A
49160	49410	250	24	TCS-15A
Total Length=	**1200m**			

Gabion Structure:

Chainage		side	Length (m)	TCS Type
From	To			
19450	20300	Valley Side	850	TCS-15
20400	20675	Valley Side	275	TCS-15
35785	36245	Valley Side	460	TCS-15
Total Length=			**1585m**	

Hill side Typical Surficial Protection and Erosion Control Measures for cut height of side slope more than 20.0m are presented in described below:

(a) Hill side Toe RCC Breast wall with minimum height 3.0 m shall be constructed after cutting at the toe of hill side slope. Breast wall shall be constructed along with granular filter media behind the Wall for filtration & separation and road edge drain.

(b) (b) Surficial Protection for hill cutting above 15m height -Continuously threaded anchors shall be installed on the side slope. Surficial protection with secured drapery system shall be done for minimum 8 m length and height of cut slope surface developed by cutting with slope angle of 60 degree with horizontal after excavation. in Surface protection shall be done by high resistance double twisted hexagonal Shaped Wire Mesh Netting of Mesh Type 10 x12 with D=100 mm with PVC coated with top, bottom and surface continuously threaded anchors. Top, bottom and surface anchors shall have minimum length and minimum diameter as 8.0 m and 32 mm respectively. Top and bottom anchors shall be provided at a minimum spacing of 3.0 m c/c in longitudinal and vertical directions for total area. All anchors shall be fully grouted. Minimum yield strength of anchorages shall be 500
MPa.

(c) Providing and spreading Non Woven Geotextile (150 GSM) for total area from the bottom of the cut slope.

(c) Erosion Control Measures for Soil Surface - Self drilling anchors shall be installed wherever collapsible strata are encountered on the slope. Erosion control measures shall be adopted for cut slope wherever soil strata is encountered at the surface and slope angle shall be limited to 60 degrees or flatter with horizontal after the excavation upto proposed right of way. Three dimensional reinforced syntheticgeo-mats shall be used for erosion control measures along with hydraulically applied erosion control measures. Self-Drilling Anchors shall be used for supporting coir-mat along with u-pins. Minimum length and outer diameter of self-drilling anchors shall be 1 m and 32 mm respectively. Self-drilling anchors shall be provided with maximum spacing of 3 m c/c in longitudinal and vertical directions.

(d) Drainage Measures for Cut Slopes - Drainage measures for internal seepage in the cut slope shall be adopted by installing PVC pipes inside the slope. PVC pipes for internal seepage shall be half perforated and lined with geotextile. PVC pipes shall be installed for minimum 4 m length at spacing of 4 m c/c in longitudinal direction in minimum 4 layers at the bottom of the cut slope. Top drain shall also be constructed at the toe wherever soil strata is encountered after rocky strata. In addition to the above mentioned drainage measures, suitable surface drainage measures shall be adopted as per the site condition.

(e) (1.2m x 1.8m) Horizontal Transverse Trench Drain with Granular Material @100m c/c has been provided at this location

(f) Hill side Toe Gabion wall for Isolated Soil Strata- Mechanically woven with PVC coated steel wire mesh Gabion wall with minimum height of wall 8.0 m shall be constructed for the locations wherever soil strata is encountered after cutting at the toe of hill side slope. Gabion wall shall be constructed along with non-woven geotextile behind the Wall for filtration & separation and road edge drain. The minimum details of locations with length and average height are as above.

Total Area of Seeding and Mulching as per site condition is 330235.20 sqm

Total area of Turfing as per site condition is 46776.80 sqm

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 undertaken in accordance with the provisions of Article 13.

(Schedule-B1)

The details of utilities tentative quantity as per the estimate prepared by Utility owning department are as follows:

a) Extra High-Tension Lines (EHT Lines)

Sl. No.	Chainage		Length (in km)				Crossings			
	From	To	400KV	220KV	110KV	66KV	400KV	220KV	110KV	66KV
	NIL									

b) High Tension/Low Tension Lines (HT/LT Lines)

Sl. No.	Agency	Chainage		No of poles to be erected			Transformers	
		From	To	33KV	11KV	LT	No	Capacity
1	MSPDCL	km 9+450	km 50+850		38	32	1	63 kVA
2	MSPDCL					10		
3	MSPCL			8				
Total				**8**	**38**	**42**	**1**	**63 kVA**

c) Public Health utilities (Water/Sewage Pipe Lines)

Sr. No.	Chainage		Length (in km) Longitudinal/Crossing				Water Tank	
			Water Supply Line		Sewage Line			
	From	To	With Pumping	With Gravity Flow	With Pumping	With Gravity Flow	Capacity (in Litres)	Nos.
1	9.45	50.85	19.05				20000	2

Shifting of obstructing existing utilities indicated in Schedule A to an appropriate location in accordance with the standards and Specification of concern Utility Owning Departments is a part of scope of work for the Contractor/Concessionaire. The bidder may visit the site and assess the quantum of shifting of utilities for the project before submission of the bid. The specifications of concerned Utility Owning Department shall be applicable and followed.

Note-The details are given in utility shifting plan in Schedule - A. The tentative quantities for shifting are detailed as above, however, the actual 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 specified in this Schedule B shall not constitute a Change of Scope.

(i) Any Other Line

(a) The type/spacing/size/specifications of poles/towers/lines/cables to be used in shifting work are as per the guidelines of utility owning department and it is solely between the Contractor and the utility owning department. No change of scope shall be eligible or no cost shall be paid for using different type/spacing /size/specifications in shifted work in comparison to those in the existing or for making any overhead crossings to underground as per requirement of utility owning department/construction of project highway. The Contractor shall carry out joint inspection with utility owning department and

get the estimates sanctioned from utility owning department. The assistance of the Authority is limited to giving forwarding letter on the proposal of Contractor to utility owning department whenever asked by the Contractor. The decision/approval of utility owning department shall be binding on the Contractor. No CoS or no cost shall, be eligible on any account.

(b) The supervision charges at the rates/charges applicable between implementing agencies of MoRTH and utility owning department shall be paid directly by the Authority to the Utility Owning Entity as and when Contractor furnishing a demand of Utility Owning Department along with a copy of sanctioned estimate.

(c) The credit of dismantled materials has been accounted for in the estimated cost. The dismantled material /scrap of existing Utility to be shifted/dismantled shall belong to the Contractor/Concessionaire who would be free to dispose-off the dismantled material as deemed fit by them. If the Contractor is forced to deposit the dismantled material to utility owning department, then the amount of credit for dismantled material indicated in the sanctioned estimates of utility owning department will be reimbursed to the Contractor after submitting the duly authenticated receipt of the dismantled material from utility owning department to the Authority.

(d) The utilities shall be handed over after shifting work is completed to Utility Owning Department up to their entire satisfaction. The maintenance liability shall rest with the Utility Owning Department after handing over process is complete as far as utility shifting works are concerned.

(e) No change of scope shall be paid for any over-ground utilities. However, for any underground utilities not mentioned in Schedule B shall form change of scope, which shall be worked out as per the estimation of the concerned utility owning dept. and shall be payable to the contractor accordingly.

Schedule - C

(See Clause 2.1)

Project Facilities

1. Project Facilities

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

(a) Toll Plaza

(b) Roadside furniture;

(c) Pedestrian facilities;

(d) Truck Lay byes;

(e) Bus-bays and passenger shelters; (f)

Rest areas; and

(g) Others to be specified

2. Description of Project Facilities

Each of the Project Facilities is described below:

a) Toll Plaza: -

Sl. No.	Design Chainage (km)	Name of the Place
Nil		

b) Roadside furniture: -

Sl. No.	Description	Location	Design Standard
1	Traffic sign & pavement marking	Entire Length (As per Schedule B)	As per Manual
2	Km Stone, 5th kilometer stone	Entire Length	As per Manual
3	Boundary Stone	Entire Length	As per Manual
4	Roadside Delineator, marker & Road Stud	As per Schedule B	As per Manual
5	Metal beam crash barrier	As per Schedule B	As per Manual

C) Pedestrian Facility: -

Pedestrian facilities in the form of foot path shall be provided in the built up area (refer typical cross – section drawing). Pedestrian facilities shall be provided at the locations of urban sections in order to ensure safety of pedestrians while crossing in consultation with NHIDCL.

d) Truck Lay bye: -

Sl. No.	Truck lay bye Chainage (Both Side)	Name of the Place
1	26.750	Toloi
Note: 02 Nos. in 01 location		

e) Bus Bay & Passenger shelter: -

Sl. No.	Project Facility	Location (km)	Design Requirements	Other Essential Details
1	Bus Bay & Passenger shelter	26.250	Bus Bays & Passenger shelter have been placed on both side of proposed roadway	Dimension of Bus Bay (L X B = 59.0 m X 3.0 m) Dimension of Passenger Shelter (L X B = 6.0 m X 2.0 m) (Refer Passenger Shelter Drawing)
2		37.560		
Note: 04 Nos. in 02 location				

f) Rest Areas

Sl. No.	Rest Area Chainage	Name of the Place
Nil		

g) Others to be specified

Street Lighting:

Street lighting shall be provided in the built-up area and bus bay locations.

Environment

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

Note: Provide adequate details of each Project Facility to ensure their design and completion in accordance with the project-specific requirements and the provisions of the Manual.

Schedule - D

(See Clause 2.1)

Specifications and Standards

1. Construction

The Contractor shall comply with the Specifications and Standards set forth in Annex- I of this Schedule-D for construction of the Project Highway.

2. Design Standards

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

[Manual of Specifications and Standards for Two Lanning of Highways (IRC: SP: 73-2015), referred to herein as the Manual]

[Note: Specify the relevant Manual, Specifications and Standards]

Annex – I

(Schedule-D)

Specifications and Standards for Construction

1. Specifications and Standards

All Materials, works and construction operations shall conform to the Manual of Specifications and Standards for [Two-Lanning of Highways (IRC:SP:73-2015)], referred to as the Manual, and MORTH Specifications for Road and Bridge Works. 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 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, the aforesaid Specifications and Standards shall be deemed to be amended to the extent set forth below:]

Item	**Manual Clause Referenc**	**Provision as per Manual**					**Modified Provision**				
Shoulder	2.6	**Mountainous Terrain**					**Mountainous Terrain**				
		Type of Section		**Width of Shoulder (m)**			**Type of Section**		**Width of Shoulder (m)**		
				Paved	**Earthen**	**Total**			**Hard**	**Earthen**	**Total**
		Open Country with Isolated Built-up Area	Hill Side	1.5	-	1.5	Open Country with Isolated Built-up Area	Hill Side	1.5	-	1.5
			Valley Side	1.5	1	2.5		Valley Side	1.5	1	2.5
		Built-up Area and Approaches to grade separated structures/ bridges	Hill Side	0.25 m + 1.5 m (Raised)	-	1.75	Built-up Area and Approaches to grade separated structures/ bridges	Hill Side	1.5	-	1.5
			Valley Side	0.25 m + 1.5 m (Raised)	-	1.75		Valley Side	1.5	-	1.5

<table>
<tr><td>Design Speed</td><td>2.2</td><td><u>Mountainous Terrain:</u>

Ruling : 60 Kmph

Minimum : 40 Kmph</td><td><u>Mountainous Terrain:</u>

Design Speed followed 40-60 kmph in general. However, design speed has been reduced to 20 kmph due to site conditions

Due to site constraints and to accommodate the proposal within EROW, design speed has been reduced below 40 kmph to 20 kmph. Such stretches are mentioned in Table 1.1</td></tr>
<tr><td>Extra Widening</td><td>2.7</td><td>Extra Widening has been proposed as per IRC: SP: 73-2015<table><tr><th>Radius</th><th>Extra Widening</th></tr><tr><td>75-100 m</td><td>0.9 m</td></tr><tr><td>101-300 m</td><td>0.6 m</td></tr></table></td><td>Extra Widening has been proposed as per IRC: SP: 48-1998 (Table<table><tr><th>Radius</th><th>Extra Widening</th></tr><tr><td>21-40 m</td><td>1.5 m</td></tr><tr><td>41-60 m</td><td>1.2 m</td></tr><tr><td>61-100 m</td><td>0.9 m</td></tr><tr><td>75-100 m</td><td>0.9 m</td></tr><tr><td>101-300 m</td><td>0.6 m</td></tr><tr><td>Above 300 m</td><td>NIL</td></tr></table></td></tr>
<tr><td>Radii of Horizontal Curve</td><td>2.9.4</td><td><u>Mountainous Terrain:</u>
Desirable Minimum Radius: 150 m
Absolute Minimum Radius: 75 m</td><td>Radius below 75 m has been provided in the location listed in table 1.2</td></tr>
<tr><td>Vertical Gradient</td><td>2.9.7.2</td><td>Mountainous Terrain:
Ruling Gradient: 5.0 %
Limiting Gradient: 6.0%</td><td>Vertical Gradient adopted up to 6.0 % in general, however due to site constraints, exceptional gradient has been adopted up to 8.0
% at some stretches (IRC: 52 - 2019, Cl. 6.9.1.3-6)</td></tr>
<tr><td>Width of Structure</td><td>7.3 (ii)</td><td><u>As per Fig.-7.6</u>
The Width of New bridge for all Terrain = 16.00m
Carriageway = 11.0m
Crash Barrier = 2 x 0.5m
Footpath = 2 x 1.5m
Pedestrian Railing = 2 x 0.5m</td><td>The Width of New bridge for all Terrain = 12.00m
Carriageway = 11.0m
Crash Barrier = 2 x 0.5m</td></tr>
<tr><td>Special Treatment of High hill cutting</td><td></td><td></td><td>Protection required for high hill cutting using Seeding and Mulching, Turfing and Slope Protection with Soil Nailing & non- woven geotextile and Bamboo Plantation.</td></tr>
</table>

Table 1.1: Locations where Design Speed is less than 40 kmph

Sl. No.	HIP No.	Stretch (from km to km)	Type of Deficiency	Remarks
1.	115	17+184 to 17+224	Sharp Bend	Design Speed = 20 Kmph
2.	116	17+388 to 17+406	Sharp Bend	Design Speed = 30 Kmph
3.	117	17+560 to 17+639	Sharp Bend	Design Speed = 30 Kmph
4.	118	17+729 to 17+740	Sharp Bend	Design Speed = 20 Kmph
5.	119	17+771 to 17+797	Sharp Bend	Design Speed = 20 Kmph
6.	120	17+837 to 17+864	Sharp Bend	Design Speed = 20 Kmph
7.	121	17+944 to 17+982	Sharp Bend	Design Speed = 20 Kmph
8.	122	18+021 to 18+047	Sharp Bend	Design Speed = 20 Kmph
9.	123	18+142 to 18+180	Sharp Bend	Design Speed = 20 Kmph
10.	124	18+262 to 18+280	Sharp Bend	Design Speed = 20 Kmph
11.	125	18+336 to 18+348	Sharp Bend	Design Speed = 20 Kmph
12.	126	18+392 to 18+399	Sharp Bend	Design Speed = 20 Kmph
13.	127	18+454 to 18+461	Sharp Bend	Design Speed = 20 Kmph
14.	128	18+517 to 18+528	Sharp Bend	Design Speed = 20 Kmph
15.	129	18+595 to 18+622	Sharp Bend	Design Speed = 20 Kmph
16.	154	22+395 to 22+410	Sharp Bend	Design Speed = 30 Kmph
17.	155	22+456 to 22+467	Sharp Bend	Design Speed = 30 Kmph
18.	156	22+595 to 22+630	Sharp Bend	Design Speed = 25 Kmph
19.	157	22+719 to 22+747	Sharp Bend	Design Speed = 25 Kmph
20.	163	23+678 to 23+706	Sharp Bend	Design Speed = 25 Kmph
21.	172	24+811 to 24+902	Sharp Bend	Design Speed = 30 Kmph
22.	173	24+981 to 25+013	Sharp Bend	Design Speed = 25 Kmph
23.	174	25+118 to 25+170	Sharp Bend	Design Speed = 30 Kmph
24.	175	25+243 to 25+270	Sharp Bend	Design Speed = 30 Kmph
25.	176	25+411 to 25+489	Sharp Bend	Design Speed = 25 Kmph
26.	177	25+562 to 25+589	Sharp Bend	Design Speed = 25 Kmph
27.	178	25+641 to 25+690	Sharp Bend	Design Speed = 25 Kmph
28.	179	25+747 to 25+760	Sharp Bend	Design Speed = 25 Kmph
29.	180	25+850 to 25+944	Sharp Bend	Design Speed = 25 Kmph
30.	181	26+061 to 26+076	Sharp Bend	Design Speed = 25 Kmph
31.	182	26+138 to 26+174	Sharp Bend	Design Speed = 25 Kmph
32.	183	26+315 to 26+358	Sharp Bend	Design Speed = 25 Kmph
33.	184	26+443 to 26+470	Sharp Bend	Design Speed = 30 Kmph
34.	185	26+539 to 26+590	Sharp Bend	Design Speed = 30 Kmph
35.	192	27+779 to 27+806	Sharp Bend	Design Speed = 20 Kmph
36.	196	28+317 to 28+343	Sharp Bend	Design Speed = 20 Kmph
37.	221	32+257 to 32+288	Sharp Bend	Design Speed = 20 Kmph
38.	222	32+367 to 32+379	Sharp Bend	Design Speed = 30 Kmph
39.	223	32+466 to 32+494	Sharp Bend	Design Speed = 30 Kmph
40.	224	32+649 to 32+680	Sharp Bend	Design Speed = 20 Kmph
41.	225	32+804 to 32+823	Sharp Bend	Design Speed = 30 Kmph
42.	309	44+000 to 44+005	Sharp Bend	Design Speed = 30 Kmph
43.	310	44+050 to 44+077	Sharp Bend	Design Speed = 20 Kmph
44.	311	44+114 to 44+120	Sharp Bend	Design Speed = 25 Kmph
45.	312	44+151 to 44+168	Sharp Bend	Design Speed = 25 Kmph

Sl. No.	HIP No.	Stretch (from km to km)	Type of Deficiency	Remarks
46.	313	44+221 to 44+245	Sharp Bend	Design Speed = 30 Kmph
47.	324	45+606 to 45+612	Sharp Bend	Design Speed = 25 Kmph
48.	325	45+663 to 45+671	Sharp Bend	Design Speed = 30 Kmph
49.	326	45+725 to 45+749	Sharp Bend	Design Speed = 20 Kmph
50.	327	45+836 to 45+859	Sharp Bend	Design Speed = 20 Kmph
51.	328	45+902 to 45+926	Sharp Bend	Design Speed = 25 Kmph
52.	333	46+454 to 46+488	Sharp Bend	Design Speed = 25 Kmph
53.	334	46+553 to 46+570	Sharp Bend	Design Speed = 20 Kmph
54.	346	48+679 to 48+707	Sharp Bend	Design Speed = 30 Kmph
55.	347	48+766 to 48+800	Sharp Bend	Design Speed = 30 Kmph
56.	348	48+870 to 48+883	Sharp Bend	Design Speed = 30 Kmph
57.	349	48+998 to 49+027	Sharp Bend	Design Speed = 20 Kmph
58.	359	50+469 to 50+501	Sharp Bend	Design Speed = 30 Kmph
59.	360	50+568 to 50+599	Sharp Bend	Design Speed = 30 Kmph
60.	361	50+716 to 50+819	Sharp Bend	Design Speed = 30 Kmph

Table 1.2: Locations where Radii of Horizontal Curve is less than 75 m

Sl. No.	HIP No.	Stretch (from km to km)	Radius
1.	67	9+814 to 9+829	60
2.	69	10+087 to 10+117	70
3.	71	10+422 to 10+429	60
4.	74	10+697 to 10+749	50
5.	75	10+847 to 10+880	60
6.	76	11+017 to 11+042	60
7.	77	11+116 to 11+154	60
8.	79	11+344 to 11+370	70
9.	80	11+463 to 11+505	50
10.	83	11+911 to 11+925	70
11.	84	12+077 to 12+123	50
12.	87	12+544 to 12+564	60
13.	88	12+728 to 12+763	50
14.	89	12+879 to 12+935	50
15.	91	13+327 to 13+348	50
16.	93	13+588 to 13+601	60
17.	94	13+749 to 13+757	50
18.	95	13+841 to 13+873	50
19.	96	13+964 to 13+978	50
20.	97	14+106 to 14+151	60
21.	98	14+268 to 14+321	50
22.	99	14+419 to 14+458	50
23.	100	14+562 to 14+605	60
24.	101	14+886 to 14+902	60
25.	103	15+255 to 15+272	60
26.	105	15+738 to 15+770	60
27.	106	15+852 to 15+903	50
28.	112	16+690 to 16+709	60

Sl. No.	HIP No.	Stretch (from km to km)	Radius
29.	113	16+826 to 16+837	50
30.	115	17+184 to 17+224	20
31.	117	17+560 to 17+639	50
32.	118	17+729 to 17+740	40
33.	119	17+771 to 17+797	30
34.	120	17+837 to 17+864	20
35.	121	17+944 to 17+982	30
36.	122	18+021 to 18+047	40
37.	123	18+142 to 18+180	20
38.	125	18+336 to 18+348	20
39.	126	18+392 to 18+399	40
40.	127	18+454 to 18+461	60
41.	128	18+517 to 18+528	40
42.	129	18+595 to 18+622	25
43.	130	18+680 to 18+688	60
44.	131	18+812 to 18+831	50
45.	136	19+612 to 19+629	70
46.	139	19+983 to 20+059	50
47.	140	20+220 to 20+234	70
48.	141	20+460 to 20+507	50
49.	142	20+664 to 20+714	50
50.	143	20+809 to 20+820	50
51.	145	21+012 to 21+057	50
52.	149	21+619 to 21+633	70
53.	150	21+728 to 21+871	63
54.	152	22+161 to 22+195	50
55.	154	22+395 to 22+410	50
56.	155	22+456 to 22+467	60
57.	156	22+595 to 22+630	25
58.	161	23+179 to 23+281	60
59.	162	23+460 to 23+496	50
60.	163	23+678 to 23+706	25
61.	164	23+890 to 23+906	60
62.	165	24+007 to 24+049	50
63.	166	24+138 to 24+162	70
64.	172	24+811 to 24+902	60
65.	173	24+981 to 25+013	30
66.	174	25+118 to 25+170	60
67.	175	25+243 to 25+270	60
68.	176	25+411 to 25+489	40
69.	177	25+562 to 25+589	30
70.	178	25+641 to 25+690	40
71.	179	25+747 to 25+760	60
72.	180	25+850 to 25+944	70
73.	181	26+061 to 26+076	30
74.	182	26+138 to 26+174	60
75.	183	26+315 to 26+358	60

Sl. No.	HIP No.	Stretch (from km to km)	Radius
76.	184	26+443 to 26+470	35
77.	185	26+539 to 26+590	35
78.	187	26+983 to 27+021	60
79.	188	27+158 to 27+209	50
80.	191	27+652 to 27+665	60
81.	192	27+779 to 27+806	20
82.	194	28+125 to 28+148	50
83.	196	28+317 to 28+343	20
84.	197	28+465 to 28+481	50
85.	198	28+566 to 28+608	50
86.	199	28+712 to 28+735	50
87.	200	28+812 to 28+828	60
88.	201	28+922 to 28+967	50
89.	202	29+054 to 29+088	70
90.	203	29+163 to 29+201	50
91.	204	29+287 to 29+314	50
92.	205	29+398 to 29+422	50
93.	206	29+545 to 29+595	60
94.	213	30+901 to 30+927	60
95.	214	31+087 to 31+125	60
96.	216	31+406 to 31+450	50
97.	217	31+538 to 31+598	50
98.	218	31+684 to 31+762	50
99.	220	32+063 to 32+094	50
100.	221	32+257 to 32+288	30
101.	222	32+367 to 32+379	60
102.	224	32+649 to 32+680	20
103.	225	32+804 to 32+823	40
104.	226	32+904 to 32+913	50
105.	228	33+124 to 33+148	50
106.	231	33+713 to 33+784	50
107.	232	34+089 to 34+093	50
108.	233	34+197 to 34+218	50
109.	237	34+688 to 34+731	50
110.	238	34+822 to 34+837	70
111.	239	34+928 to 34+988	50
112.	240	35+089 to 35+186	50
113.	241	35+267 to 35+293	50
114.	248	36+538 to 36+571	60
115.	249	36+668 to 36+681	60
116.	251	36+950 to 36+968	70
117.	257	37+671 to 37+686	60
118.	264	38+544 to 38+553	70
119.	265	38+653 to 38+677	50
120.	266	38+763 to 38+779	50
121.	267	38+857 to 38+876	70
122.	269	39+154 to 39+163	70

Sl. No.	HIP No.	Stretch (from km to km)	Radius
123.	275	39+815 to 39+873	70
124.	277	40+137 to 40+149	60
125.	279	40+310 to 40+325	50
126.	280	40+428 to 40+453	50
127.	282	40+650 to 40+663	70
128.	283	40+743 to 40+770	50
129.	287	41+266 to 41+282	70
130.	291	41+769 to 41+797	50
131.	292	41+874 to 41+875	60
132.	293	41+969 to 41+989	50
133.	294	42+063 to 42+075	70
134.	295	42+170 to 42+183	70
135.	296	42+353 to 42+414	50
136.	297	42+520 to 42+554	60
137.	301	42+969 to 43+008	60
138.	305	43+531 to 43+574	60
139.	308	43+877 to 43+909	70
140.	309	44+000 to 44+005	50
141.	310	44+050 to 44+077	20
142.	311	44+114 to 44+120	30
143.	312	44+151 to 44+168	30
144.	313	44+221 to 44+245	40
145.	314	44+333 to 44+343	60
146.	318	44+856 to 44+875	60
147.	320	45+160 to 45+182	60
148.	323	45+466 to 45+526	50
149.	324	45+606 to 45+612	30
150.	325	45+663 to 45+671	40
151.	326	45+725 to 45+749	20
152.	327	45+836 to 45+859	20
153.	328	45+902 to 45+926	30
154.	330	46+079 to 46+103	60
155.	332	46+372 to 46+381	60
156.	333	46+454 to 46+488	30
157.	334	46+553 to 46+570	20
158.	335	46+677 to 46+696	60
159.	336	46+899 to 46+912	50
160.	337	47+005 to 47+042	50
161.	338	47+227 to 47+253	60
162.	341	47+733 to 47+750	50
163.	342	48+024 to 48+069	60
164.	343	48+156 to 48+230	50
165.	345	48+557 to 48+576	60
166.	346	48+679 to 48+707	30
167.	347	48+766 to 48+800	50
168.	348	48+870 to 48+883	40
169.	349	48+998 to 49+027	20

Sl. No.	HIP No.	Stretch (from km to km)	Radius
170.	351	49+340 to 49+392	50
171.	353	49+587 to 49+614	50
172.	355	49+942 to 49+964	50
173.	356	50+049 to 50+052	50
174.	357	50+138 to 50+156	60
175.	358	50+230 to 50+251	70
176.	359	50+469 to 50+501	30
177.	360	50+568 to 50+599	50
178.	361	50+716 to 50+819	50

Table 1.2: Locations where Gradient 6 % & above

Sr. No.	Chainage in m		Length (m)	Gradient
	From	To		
1	9736	9818	82	6.47%
2	13688	14049	361	7.00%
3	16039	16147	108	-6.74%
4	16866	16886	20	-6.76%
5	18783	19037	254	7.00%
6	19187	19396	209	-6.99%
7	20463	20484	21	-6.92%
8	24524	24590	66	-7.11%
9	24670	24957	287	6.00%
10	25037	25307	270	6.90%
11	25387	26732	1345	6.00%
12	31432	31694	262	-6.00%
13	31754	31844	90	-7.90%
14	31904	32069	165	-6.00%
15	32129	32219	90	-7.90%
16	32279	32444	165	-6.00%
17	32504	32594	90	-7.90%
18	32654	32819	165	-6.00%
19	32879	32969	90	-7.90%
20	33029	33194	165	-6.00%
21	33254	33344	90	-7.90%
22	33404	33569	165	-6.00%
23	33629	33719	90	-7.90%
24	33779	33944	165	-6.00%
25	34004	34094	90	-7.90%
26	34154	34319	165	-6.00%
27	34379	34469	90	-7.90%

28	34529	34694	165	-6.00%
29	34754	34844	90	-7.90%
30	34904	35069	165	-6.00%
31	35129	35219	90	-7.90%
32	35279	36734	1455	-6.00%
33	37820	37863	43	-6.97%
34	42830	43091	261	-6.39%
35	46080	46240	160	-7.00%
36	46940	47030	90	-8.00%
37	47090	47230	140	-7.00%
38	47290	47340	50	-8.00%
39	48728	48818	90	-7.90%
40	48878	49043	165	-6.00%
41	49103	49193	90	-7.90%
42	49253	49418	165	-6.00%
43	49478	49568	90	-7.90%
44	49628	49793	165	-6.00%
45	49853	49943	90	-7.90%
46	50003	50168	165	-6.00%
47	50228	50318	90	-7.90%
48	50378	50533	155	-6.00%

(iii) [Note1: Deviations from the aforesaid Specifications and Standards shall be listed out here. Such deviations shall be specified only if they are considered essential in view of project-specific requirements.]

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	**68.77 %**	A- Widening and strengthening of existing road	
		(1) Earthwork up to top of the sub- grade	[Nil]
		(2) Sub-base Course	[Nil]
		(3) Non bituminous Base course	[Nil]
		(4) Bituminous Base course	[Nil]
		(5) Wearing Coat	[Nil]
		(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	55.5%
		(2) Sub-base Course	15.41%
		(3) Non bituminous Base course	8.24%
		(4) Bituminous Base course	0.71%
		(5) Wearing Coat	6%
		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 Base course	[Nil]
		(5) Wearing Coat	[Nil]
		C.2- Reconstruction/New Service Road (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]
		D- Reconstruction & New Culverts on existing road, realignments, bypasses Culverts (length <6m)	14.14%
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 m and<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]
		(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 completion of approaches including Retaining walls, stone pitching, protection works complete in all and fit for use	[Nil]
		(4) Guide Bunds and River Training Works: On completion of Guide Bunds and river 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 up to 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. 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]
		(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]
bridge(length>60 m)works and ROB/RUB/elevated sections/flyovers including viaducts, if any	**3.62 %**		
		(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)Guide bunds, River Training works etc.	[Nil]
		(8)Approaches(including Retaining walls, stone pitching and protection works)	[Nil]
		A.2-New Major Bridges	
		(1)Foundation	18.16%

		(2)Sub-structure	51.26%
		(3)Super-structure (including bearings)	24%
		(4)Wearing Coat including expansion joints	2.72%
		(5)Miscellaneous Items like handrails, crash barrier, road markings etc.	1.28%
		(6) Wing walls/return walls	[Nil]
		(7)Guide bunds, River Training works etc.	[Nil]
		(8)Approaches(including Retaining walls, stone pitching and protection works)	2.58%
		B.1-Widening and repairs of (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 respects as 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, 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 respects as 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 markings etc.	[Nil]
		(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	**27.61 %**	(i) Toll Plaza	[Nil]
		(ii) Road side drains	20.344%
		(iii) Road signs ,markings, km stones, safety devices etc	5.035%
		(iv) Project facilities	
		a) Bus Bays	0.194%
		b) Truck Lay-byes	0.692%
		c) Passenger Shelter	0.08%
		d) Rest Area	[Nil]
		e) Diversion Works	[Nil]
		(v) Road side Plantation	[Nil]
		(vi) Repair of Protection Works other than approaches to the bridges, elevated sections/flyover/grade separators and ROBs/ RUBs	[Nil]
		(vii) Safety & Traffic Management during const.	[Nil]
		(viii) Breast Wall	17.569%
		(ix) Toe Wall	[Nil]
		(ix) Gabion Structure	17.203%
		(x) Retaining Wall	13.982%
		(xi) "W" : Metal Beam Crash Barrier	1.744%
		(xi) Parapet Wall	3.815%
		(xii) Site Clearance & Dismantling	1.503%
		(xiii) Protection Works (Seeding and Mulching, Turfing and Slope Protection with Soil Nailing & Coir Mat)	16.873%
		(xiv) Utility Shifting	0.966%

1.3 Procedure of estimating the value of work done

1.3.1 Road works

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

Table 1.3.1

Stage of Payment	Percentage weightage	Payment Procedure
A- Widening & 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 10 (Ten)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 Base course	[Nil]	
(5) Wearing Coat	[Nil]	
(6) Widening and repair of culverts	[Nil]	Cost of ten 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 full length or 5 km length, whichever is less.
(1)Earthwork up to top of the sub-grade	55.5%	
(2) Sub-base Course	15.41%	
(3) Non bituminous Base course	8.24%	
(4) Bituminous Base course	0.71%	
(5) Wearing Coat	6.00%	
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 full length or 5(five) km length, whichever is less.
(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 full length or 5(five) km length, whichever is less.
(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 full length or 5(five) km length, whichever is less.
(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]	
D-Reconstruction & New Culverts on existing road, 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
Culverts (length <6m)	14.14%	

Stage of Payment	Percentage weightage	Payment Procedure
		least five culverts

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

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

Where,

P = Contract Price

L = Total length in km

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

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

1.3.2 Minor 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 of Payment	Weightage	Payment Procedure
		stage specified as above
(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

1.3.3 Major Bridge works, ROB/RUB and Structures.

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

Table 1.3.3

Stage of Payment	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	18.16%	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.

Stage of Payment	Weightage	Payment Procedure
(2)Sub-structure	51.26%	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)	24%	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	2.72%	Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(5) Miscellane ous Items like handrails, crash barrier, road markings etc.	1.28%	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]	Wing walls/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)	2.58%	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 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	[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

Stage of Payment	Weightage	Payment Procedure
including drainage facility 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 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

Stage of Payment	Weightage	Payment Procedure
		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 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

Stage of Payment	Weightage	Payment Procedure
(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.

1.3.4 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
(2) Road side drains	20.344%	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.
(3) Road signs, markings, km stones, safety devices etc	5.035%	
(4) Project Facilities		Payment shall be made on pro rata basis for completed facilities.
a) Bus Bays	0.194%	
b) Truck Lay-byes	0.692%	
c) Passenger Shelter	0.08%	
(8) 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 10% (ten percent)of the total length.
(a) Retaining Wall	13.982%	
(b) Breast Wall	17.569%	
(c) Gabian Structure	17.203%	
(d) "W" : Metal Beam Crash Barrier	1.744%	
(e) Parapet Wall	3.815%	

Stage of Payment	Weightage	Payment Procedure
(9) Site Clearance & Dismantling	1.503%	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.
(10) Other Works (Protection Works (Seeding and Mulching, Turfing and Slope Protection with Soil Naling & Coir Mat)	16.873%	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.
(11) Utility Shifting	0.966%	Unit of measurement is as per completed activities. Cost per activity shall be determined on pro-rata basis as per its weightage with reference to total cost. Payment shall be made for completed activity.

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.