

National Highways & Infrastructure Development Corporation Limited



EPC Schedules

FOR

Construction of Intermediate Lane with Hard Shoulder of Hunli to Hayuliang (Package-III) from design Km 60.000 to Km 121.500 (Design Length 61.500 km, Greenfield) Section of Frontier Highway (NH-913) in the State of Arunachal Pradesh on EPC Mode.

**NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD
(MINISTRY OF ROAD TRANSPORT & HIGHWAYS, GOVT. OF INDIA)**

January 2024

*NHIDCL, 3RD FLOOR, PRESS TRUST OF INDIA BUILDING, 4, PARLIAMENT STREET,
NEW DELHI - 110001*

SCHEDULE - A

(See Clauses 2.1 and 8.1)

SITE OF THE PROJECT

1 The Site

- (i) Site of the **“Construction of Intermediate Lane with Hard Shoulder of Hunli to Hayuliang (Package-III) from design Km 60.000 to Km 121.500 (Design Length 61.500 km, Greenfield) Section of Frontier Highway (NH-913) in the State of Arunachal Pradesh on EPC Mode”** 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 8.2.1 of this Agreement.
- (iv) The alignment plans of the Project Highway are specified in Annex-III.
- (v) The status of the environment clearances obtained or awaited is given in Annex-IV.

Annex-I
(Schedule-A)

Site for the Project

1. Site

The site of the “Construction of Intermediate Lane of Hunli to Hayuliang Road from Design Km 60+000 to Design Km 121+500 (Design Length: 61.500 Km, Package-III, Greenfield Alignment`) in the State of Arunachal Pradesh on EPC mode.”. The land, carriageway and structures comprising the site are described below.

2. Land

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

S. No.	Chainage (km)		ROW (m)	Remarks
	From	To		
1.	60.000	121.500	24 -150	

3. Carriageway

There is no existing carriageway.

4. Major Bridges

The Site does not include any Major Bridges as it is predominantly greenfield alignment:

S. No.	Existing Chainage (Km)	Type of Structure			Span Arrangement (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.	Existing Chainage (Km)	Type of Structure		Span Arrangement (m)	Width (m)
		Foundation	Super structure		
Nil*					

6. Grade separators

The Site includes the following grade separators:

S. No.	Existing Chainage (Km)	Type of Structure		Span Arrangement (m)	Width (m)
		Foundation	Super structure		
Nil*					

7. Minor bridges

There is no Minor Bridges exists on the project road.

S. No.	Design Chainage (Km)	Type of Structure			No of spans with Span Length (m)	Width (m)
		Foundation	Sub structure	Super Structure		
Nil*						

8. Railway level crossings

The Site doesn't include the following railway level crossings:

S. No.	Location (km)	Remarks
NIL*		

9. Underpasses (vehicular, non-vehicular)

The Site doesn't include the following underpasses:

S. No.	Existing Chainage (Km)	Type of structure	No. of span with Span Arrangement (m)	width (m)
Nil*				

10. Culverts

There are no existing culverts.

S. No.	Design Chainage	Type of Culvert	No. x span length /diameter (m)	Width (m)	Remarks
Nil*					

11. Bus bays

There are no any Bus Bays situated along the project stretch:

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

12. Truck Lay byes

There are no any truck lay byes situated along the project stretch:

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

SL.	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.	Chainage		No of poles affected			Transformers	
	From	To	33KV	11KV	LT	No	Capacity
Nil*							

17.2 Public Health utilities (Water/Sewage Pipelines)

S. No	Chainage		Length (in Km)
	From	To	Water Supply line
Nil*			

18. Other Structures

NIL

[Note: * = Greenfield)

Annex - II

(See Clauses 8.3 (i))

(Schedule-A)

Dates for providing Right of Way of Construction Zone

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

Sl. No	Design		Length (Km)	Proposed ROW Width (m)	Date of Providing proposed ROW
	From	To			
1	60+000	121+500	61.50	24-150m	90% of ROW (Full width) On Appointed Date and Balance Within 150 days after the Appointed Date.

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1	60000	60010	10	12	65	77
2	60010	60030	20	12	12	24
3	60030	60050	20	12	15	27
4	60050	60070	20	12	12	24
5	60070	60090	20	30	12	42
6	60090	60110	20	12	12	24
7	60110	60130	20	12	12	24
8	60130	60150	20	12	12	24
9	60150	60170	20	12	12	24
10	60170	60190	20	12	12	24
11	60190	60210	20	12	12	24
12	60210	60230	20	12	100	112
13	60230	60250	20	12	45	57
14	60250	60270	20	20	45	65
15	60270	60290	20	50	50	100
16	60290	60310	20	12	12	24
17	60310	60330	20	20	12	32
18	60330	60350	20	20	40	60
19	60350	60370	20	50	35	85

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
20	60370	60380	10	60	12	72
21	60380	60390	10	12	12	24
22	60390	60410	20	12	75	87
23	60410	60430	20	15	12	27
24	60430	60450	20	12	100	112
25	60450	60470	20	12	80	92
26	60470	60490	20	12	12	24
27	60490	60510	20	12	60	72
28	60510	60530	20	12	55	67
29	60530	60550	20	95	55	150
30	60550	60570	20	12	65	77
31	60570	60590	20	12	80	92
32	60590	60610	20	12	80	92
33	60610	60630	20	15	55	70
34	60630	60650	20	12	12	24
35	60650	60655	5	12	12	24
36	60655	60670	15	12	12	24
37	60670	60690	20	12	12	24
38	60690	60710	20	12	70	82

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
39	60710	60730	20	12	80	92
40	60730	60750	20	12	25	37
41	60750	60760	10	100	50	150
42	60760	60770	10	12	12	24
43	60770	60790	20	115	12	127
44	60790	60810	20	12	81	93
45	60810	60830	20	12	86	98
46	60830	60850	20	12	56	68
47	60850	60870	20	12	61	73
48	60870	60890	20	124	26	150
49	60890	60910	20	12	12	24
50	60910	60930	20	12	12	24
51	60930	60950	20	12	12	24
52	60950	60970	20	45	12	57
53	60970	60990	20	12	25	37
54	60990	61010	20	15	25	40
55	61010	61020	10	12	55	67
56	61020	61030	10	12	12	24
57	61030	61050	20	138	12	150
58	61050	61070	20	130	20	150
59	61070	61090	20	70	80	150
60	61090	61110	20	15	12	27
61	61110	61130	20	12	12	24
62	61130	61170	40	12	12	24
63	61170	61190	20	12	12	24
64	61190	61210	20	12	12	24
65	61210	61230	20	12	12	24
66	61230	61250	20	15	12	27
67	61250	61260	10	12	12	24
68	61260	61270	10	12	12	24
69	61270	61290	20	12	12	24
70	61290	61310	20	45	45	90
71	61310	61330	20	12	12	24
72	61330	61350	20	12	40	52
73	61350	61370	20	24	20	44
74	61370	61390	20	12	12	24
75	61390	61410	20	12	12	24
76	61410	61420	10	12	20	32
77	61420	61430	10	12	12	24
78	61430	61450	20	12	12	24
79	61450	61470	20	12	50	62

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
80	61470	61490	20	12	12	24
81	61490	61510	20	12	12	24
82	61510	61530	20	12	12	24
83	61530	61550	20	12	12	24
84	61550	61570	20	12	50	62
85	61570	61590	20	12	60	72
86	61590	61610	20	25	40	65
87	61610	61630	20	30	40	70
88	61630	61650	20	28	40	68
89	61650	61670	20	12	35	47
90	61670	61690	20	35	35	70
91	61690	61710	20	12	12	24
92	61710	61730	20	12	40	52
93	61730	61750	20	15	35	50
94	61750	61760	10	12	12	24
95	61760	61770	10	12	12	24
96	61770	61790	20	12	12	24
97	61790	61810	20	55	15	70
98	61810	61830	20	12	15	27
99	61830	61850	20	12	30	42
100	61850	61860	10	35	12	47
101	61860	61870	10	12	12	24
102	61870	61890	20	50	100	150
103	61890	61910	20	55	95	150
104	61910	61930	20	50	100	150
105	61930	61950	20	12	100	112
106	61950	61970	20	12	101	113
107	61970	61990	20	12	86	98
108	61990	62010	20	12	81	93
109	62010	62030	20	12	71	83
110	62030	62050	20	12	61	73
111	62050	62070	20	12	61	73
112	62070	62080	10	12	55	67
113	62080	62090	10	12	12	24
114	62090	62110	20	125	12	137
115	62110	62130	20	138	12	150
116	62130	62150	20	20	55	75
117	62150	62170	20	12	55	67
118	62170	62190	20	12	55	67
119	62190	62210	20	12	35	47
120	62210	62230	20	12	40	52

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
121	62230	62250	20	12	60	72
122	62250	62270	20	12	40	52
123	62270	62290	20	12	12	24
124	62290	62310	20	15	20	35
125	62310	62330	20	12	12	24
126	62330	62340	10	12	12	24
127	62340	62350	10	12	12	24
128	62350	62370	20	12	12	24
129	62370	62390	20	12	12	24
130	62390	62410	20	15	12	27
131	62410	62430	20	20	80	100
132	62430	62450	20	30	50	80
133	62450	62470	20	20	50	70
134	62470	62490	20	30	15	45
135	62490	62510	20	12	12	24
136	62510	62520	10	12	12	24
137	62520	62530	10	12	12	24
138	62530	62550	20	12	12	24
139	62550	62570	20	12	12	24
140	62570	62590	20	12	45	57
141	62590	62610	20	85	46	131
142	62610	62630	20	132	18	150
143	62630	62650	20	12	26	38
144	62650	62670	20	12	21	33
145	62670	62710	40	59	91	150
146	62710	62730	20	12	12	24
147	62730	62750	20	35	12	47
148	62750	62770	20	20	12	32
149	62770	62790	20	12	20	32
150	62790	62810	20	115	35	150
151	62810	62830	20	130	12	142
152	62830	62850	20	100	50	150
153	62850	62870	20	65	85	150
154	62870	62890	20	12	12	24
155	62890	62900	10	15	12	27
156	62900	62910	10	12	12	24
157	62910	62930	20	12	25	37
158	62930	62950	20	12	50	62
159	62950	62970	20	20	50	70
160	62970	62990	20	12	25	37
161	62990	63010	20	12	50	62

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
162	63010	63030	20	12	12	24
163	63030	63050	20	12	12	24
164	63050	63070	20	12	12	24
165	63070	63090	20	12	45	57
166	63090	63110	20	12	60	72
167	63110	63130	20	12	12	24
168	63130	63140	10	12	12	24
169	63140	63150	10	12	12	24
170	63150	63170	20	12	12	24
171	63170	63190	20	12	12	24
172	63190	63210	20	12	50	62
173	63210	63220	10	12	12	24
174	63220	63230	10	12	12	24
175	63230	63250	20	12	12	24
176	63250	63270	20	12	12	24
177	63270	63290	20	15	12	27
178	63290	63310	20	20	12	32
179	63310	63330	20	12	12	24
180	63330	63340	10	30	90	120
181	63340	63350	10	12	12	24
182	63350	63370	20	50	100	150
183	63370	63390	20	12	12	24
184	63390	63410	20	12	12	24
185	63410	63430	20	50	95	145
186	63430	63450	20	12	12	24
187	63450	63470	20	12	20	32
188	63470	63490	20	45	65	110
189	63490	63510	20	20	25	45
190	63510	63530	20	12	12	24
191	63530	63550	20	50	30	80
192	63550	63570	20	12	25	37
193	63570	63590	20	12	25	37
194	63590	63610	20	12	20	32
195	63610	63630	20	20	40	60
196	63630	63650	20	12	40	52
197	63650	63670	20	12	12	24
198	63670	63690	20	12	12	24
199	63690	63710	20	12	75	87
200	63710	63730	20	12	35	47
201	63730	63750	20	12	25	37
202	63750	63770	20	12	12	24

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
203	63770	63790	20	12	20	32
204	63790	63810	20	12	35	47
205	63810	63830	20	12	25	37
206	63830	63850	20	12	12	24
207	63850	63870	20	15	12	27
208	63870	63890	20	12	12	24
209	63890	63910	20	12	12	24
210	63910	63930	20	12	90	102
211	63930	63950	20	80	65	145
212	63950	63970	20	12	65	77
213	63970	63990	20	12	80	92
214	63990	64010	20	12	12	24
215	64010	64030	20	50	70	120
216	64030	64050	20	12	45	57
217	64050	64070	20	12	40	52
218	64070	64090	20	12	45	57
219	64090	64110	20	20	40	60
220	64110	64130	20	20	45	65
221	64130	64150	20	12	12	24
222	64150	64155	5	12	12	24
223	64155	64170	15	12	12	24
224	64170	64190	20	12	12	24
225	64190	64210	20	25	95	120
226	64210	64230	20	25	65	90
227	64230	64250	20	20	55	75
228	64250	64270	20	20	30	50
229	64270	64290	20	12	15	27
230	64290	64300	10	75	25	100
231	64300	64310	10	12	12	24
232	64310	64330	20	12	20	32
233	64330	64350	20	12	90	102
234	64350	64370	20	12	12	24
235	64370	64390	20	12	80	92
236	64390	64410	20	15	55	70
237	64410	64430	20	12	35	47
238	64430	64450	20	12	12	24
239	64450	64470	20	12	12	24
240	64470	64480	10	12	12	24
241	64480	64490	10	12	12	24
242	64490	64510	20	12	12	24
243	64510	64530	20	12	12	24

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
244	64530	64550	20	12	40	52
245	64550	64570	20	12	35	47
246	64570	64590	20	65	30	95
247	64590	64610	20	12	30	42
248	64610	64630	20	12	12	24
249	64630	64650	20	50	15	65
250	64650	64670	20	60	20	80
251	64670	64690	20	50	15	65
252	64690	64710	20	12	12	24
253	64710	64730	20	25	12	37
254	64730	64750	20	50	35	85
255	64750	64770	20	55	45	100
256	64770	64790	20	60	50	110
257	64790	64810	20	60	40	100
258	64810	64830	20	60	12	72
259	64830	64850	20	12	12	24
260	64850	64870	20	60	12	72
261	64870	64890	20	35	12	47
262	64890	64910	20	35	12	47
263	64910	64930	20	12	12	24
264	64930	64950	20	30	12	42
265	64950	64970	20	12	45	57
266	64970	64990	20	12	55	67
267	64990	65010	20	12	55	67
268	65010	65030	20	12	61	73
269	65030	65050	20	12	46	58
270	65050	65070	20	12	21	33
271	65070	65090	20	50	18	68
272	65090	65110	20	80	26	106
273	65110	65130	20	89	61	150
274	65130	65150	20	12	70	82
275	65150	65170	20	12	65	77
276	65170	65190	20	12	55	67
277	65190	65210	20	12	50	62
278	65210	65230	20	12	50	62
279	65230	65250	20	12	50	62
280	65250	65270	20	100	50	150
281	65270	65280	10	100	50	150
282	65280	65290	10	12	12	24
283	65290	65310	20	95	55	150
284	65310	65330	20	12	65	77

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
285	65330	65350	20	55	12	67
286	65350	65370	20	12	12	24
287	65370	65390	20	12	12	24
288	65390	65410	20	12	12	24
289	65410	65430	20	12	12	24
290	65430	65450	20	12	12	24
291	65450	65470	20	12	12	24
292	65470	65530	60	12	12	24
293	65530	65550	20	85	12	97
294	65550	65570	20	55	12	67
295	65570	65590	20	12	12	24
296	65590	65610	20	90	12	102
297	65610	65630	20	12	12	24
298	65630	65650	20	12	12	24
299	65650	65680	30	12	12	24
300	65680	65690	10	12	12	24
301	65690	65710	20	60	12	72
302	65710	65730	20	45	12	57
303	65730	65750	20	12	12	24
304	65750	65770	20	12	12	24
305	65770	65790	20	40	12	52
306	65790	65810	20	25	12	37
307	65810	65830	20	25	12	37
308	65830	65850	20	20	20	40
309	65850	65870	20	20	12	32
310	65870	65890	20	15	30	45
311	65890	65910	20	12	30	42
312	65910	65920	10	12	12	24
313	65920	65930	10	12	12	24
314	65930	65950	20	12	12	24
315	65950	65970	20	12	12	24
316	65970	65990	20	12	75	87
317	65990	66010	20	12	12	24
318	66010	66030	20	12	12	24
319	66030	66050	20	30	12	42
320	66050	66070	20	20	12	32
321	66070	66090	20	20	90	110
322	66090	66110	20	12	70	82
323	66110	66130	20	12	60	72
324	66130	66150	20	12	55	67
325	66150	66170	20	12	25	37

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
326	66170	66190	20	60	15	75
327	66190	66210	20	55	15	70
328	66210	66230	20	12	26	38
329	66230	66250	20	15	56	71
330	66250	66270	20	20	56	76
331	66270	66290	20	20	56	76
332	66290	66310	20	20	51	71
333	66310	66330	20	15	36	51
334	66330	66350	20	12	45	57
335	66350	66370	20	12	50	62
336	66370	66390	20	12	12	24
337	66390	66410	20	12	20	32
338	66410	66430	20	12	20	32
339	66430	66450	20	12	30	42
340	66450	66470	20	12	45	57
341	66470	66490	20	12	12	24
342	66490	66510	20	12	12	24
343	66510	66530	20	12	100	112
344	66530	66550	20	12	12	24
345	66550	66570	20	12	12	24
346	66570	66590	20	12	12	24
347	66590	66610	20	12	12	24
348	66610	66630	20	30	65	95
349	66630	66650	20	20	25	45
350	66650	66670	20	105	20	125
351	66670	66690	20	12	20	32
352	66690	66710	20	12	20	32
353	66710	66730	20	12	12	24
354	66730	66750	20	12	12	24
355	66750	66770	20	12	25	37
356	66770	66790	20	15	40	55
357	66790	66810	20	20	40	60
358	66810	66830	20	20	35	55
359	66830	66850	20	15	25	40
360	66850	66870	20	12	25	37
361	66870	66890	20	12	12	24
362	66890	66910	20	12	45	57
363	66910	66930	20	12	25	37
364	66930	66950	20	12	100	112
365	66950	66970	20	12	100	112
366	66970	66990	20	12	100	112

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
367	66990	67010	20	12	12	24
368	67010	67030	20	12	95	107
369	67030	67050	20	12	65	77
370	67050	67070	20	12	35	47
371	67070	67090	20	12	20	32
372	67090	67100	10	12	12	24
373	67100	67110	10	12	12	24
374	67110	67130	20	138	12	150
375	67130	67150	20	12	30	42
376	67150	67170	20	20	45	65
377	67170	67190	20	12	45	57
378	67190	67210	20	12	12	24
379	67210	67230	20	12	12	24
380	67230	67250	20	12	20	32
381	67250	67260	10	12	12	24
382	67260	67270	10	12	12	24
383	67270	67290	20	138	12	150
384	67290	67310	20	120	12	132
385	67310	67330	20	15	12	27
386	67330	67350	20	12	12	24
387	67350	67370	20	15	35	50
388	67370	67390	20	15	50	65
389	67390	67410	20	12	55	67
390	67410	67430	20	12	85	97
391	67430	67450	20	12	95	107
392	67450	67470	20	12	12	24
393	67470	67490	20	12	12	24
394	67490	67510	20	12	18	30
395	67510	67530	20	12	18	30
396	67530	67550	20	12	18	30
397	67550	67570	20	12	18	30
398	67570	67590	20	12	18	30
399	67590	67610	20	15	18	33
400	67610	67630	20	12	90	102
401	67630	67650	20	12	60	72
402	67650	67670	20	15	55	70
403	67670	67690	20	15	60	75
404	67690	67710	20	12	60	72
405	67710	67730	20	12	55	67
406	67730	67750	20	12	55	67
407	67750	67770	20	12	45	57

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
408	67770	67790	20	12	30	42
409	67790	67800	10	12	12	24
410	67800	67810	10	12	12	24
411	67810	67830	20	138	12	150
412	67830	67850	20	130	20	150
413	67850	67870	20	12	20	32
414	67870	67890	20	12	25	37
415	67890	67910	20	12	25	37
416	67910	67930	20	12	30	42
417	67930	67950	20	12	30	42
418	67950	67970	20	12	30	42
419	67970	67990	20	12	40	52
420	67990	68010	20	95	55	150
421	68010	68030	20	85	65	150
422	68030	68050	20	12	70	82
423	68050	68070	20	12	80	92
424	68070	68090	20	12	90	102
425	68090	68110	20	12	12	24
426	68110	68130	20	15	12	27
427	68130	68150	20	12	20	32
428	68150	68190	40	12	12	24
429	68190	68210	20	12	12	24
430	68210	68230	20	12	12	24
431	68230	68250	20	12	12	24
432	68250	68270	20	12	12	24
433	68270	68290	20	15	12	27
434	68290	68330	40	12	18	30
435	68330	68350	20	12	18	30
436	68350	68370	20	35	18	53
437	68370	68390	20	12	18	30
438	68390	68410	20	12	18	30
439	68410	68430	20	12	80	92
440	68430	68440	10	125	25	150
441	68440	68450	10	12	12	24
442	68450	68470	20	130	20	150
443	68470	68490	20	12	80	92
444	68490	68510	20	12	12	24
445	68510	68570	60	12	12	24
446	68570	68620	50	50	100	150
447	68620	68670	50	12	12	24
448	68670	68690	20	12	12	24

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
449	68690	68710	20	12	12	24
450	68710	68730	20	12	12	24
451	68730	68750	20	12	12	24
452	68750	68790	40	12	12	24
453	68790	68810	20	110	40	150
454	68810	68830	20	130	20	150
455	68830	68870	40	12	12	24
456	68870	68890	20	12	12	24
457	68890	68910	20	12	12	24
458	68910	68930	20	12	12	24
459	68930	68950	20	12	12	24
460	68950	68970	20	12	12	24
461	68970	68990	20	12	12	24
462	68990	69010	20	60	90	150
463	69010	69030	20	65	70	135
464	69030	69050	20	45	20	65
465	69050	69070	20	45	40	85
466	69070	69090	20	12	12	24
467	69090	69110	20	12	12	24
468	69110	69130	20	12	12	24
469	69130	69150	20	12	12	24
470	69150	69170	20	12	12	24
471	69170	69190	20	12	12	24
472	69190	69210	20	12	12	24
473	69210	69230	20	12	12	24
474	69230	69250	20	12	12	24
475	69250	69270	20	12	12	24
476	69270	69290	20	15	12	27
477	69290	69310	20	12	30	42
478	69310	69330	20	15	12	27
479	69330	69350	20	15	12	27
480	69350	69370	20	12	12	24
481	69370	69390	20	12	12	24
482	69390	69410	20	12	12	24
483	69410	69430	20	12	12	24
484	69430	69450	20	50	12	62
485	69450	69470	20	50	12	62
486	69470	69490	20	55	12	67
487	69490	69510	20	12	18	30
488	69510	69530	20	25	18	43
489	69530	69550	20	12	18	30

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
490	69550	69570	20	15	18	33
491	69570	69610	40	12	18	30
492	69610	69630	20	12	12	24
493	69630	69650	20	12	26	38
494	69650	69670	20	12	25	37
495	69670	69690	20	12	12	24
496	69690	69730	40	12	12	24
497	69730	69750	20	12	12	24
498	69750	69770	20	12	12	24
499	69770	69790	20	12	12	24
500	69790	69810	20	12	12	24
501	69810	69830	20	12	12	24
502	69830	69850	20	12	12	24
503	69850	69890	40	12	12	24
504	69890	69900	10	12	12	24
505	69900	69910	10	12	12	24
506	69910	69930	20	12	12	24
507	69930	69950	20	60	90	150
508	69950	69970	20	12	75	87
509	69970	69990	20	12	80	92
510	69990	70010	20	45	60	105
511	70010	70030	20	12	12	24
512	70030	70050	20	35	12	47
513	70050	70070	20	12	100	112
514	70070	70090	20	12	95	107
515	70090	70110	20	12	70	82
516	70110	70130	20	55	95	150
517	70130	70150	20	115	35	150
518	70150	70170	20	12	12	24
519	70170	70190	20	125	25	150
520	70190	70210	20	135	12	147
521	70210	70250	40	55	95	150
522	70250	70270	20	12	12	24
523	70270	70290	20	12	12	24
524	70290	70310	20	12	12	24
525	70310	70330	20	12	12	24
526	70330	70350	20	15	12	27
527	70350	70370	20	15	65	80
528	70370	70390	20	12	40	52
529	70390	70410	20	12	12	24
530	70410	70430	20	50	12	62

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
531	70430	70450	20	12	12	24
532	70450	70470	20	12	95	107
533	70470	70490	20	40	85	125
534	70490	70510	20	40	85	125
535	70510	70530	20	50	95	145
536	70530	70570	40	12	100	112
537	70570	70590	20	12	12	24
538	70590	70610	20	12	12	24
539	70610	70630	20	12	95	107
540	70630	70710	80	12	12	24
541	70710	70730	20	12	12	24
542	70730	70830	100	12	18	30
543	70830	70890	60	12	12	24
544	70890	70930	40	12	12	24
545	70930	70950	20	115	35	150
546	70950	70960	10	115	15	130
547	70960	70970	10	12	12	24
548	70970	70990	20	110	25	135
549	70990	71010	20	105	25	130
550	71010	71030	20	110	25	135
551	71030	71050	20	110	12	122
552	71050	71070	20	12	12	24
553	71070	71090	20	65	85	150
554	71090	71110	20	12	65	77
555	71110	71130	20	12	60	72
556	71130	71150	20	12	55	67
557	71150	71170	20	12	50	62
558	71170	71190	20	12	45	57
559	71190	71210	20	12	40	52
560	71210	71220	10	130	12	142
561	71220	71230	10	12	12	24
562	71230	71250	20	120	30	150
563	71250	71270	20	12	30	42
564	71270	71290	20	12	40	52
565	71290	71310	20	12	45	57
566	71310	71330	20	12	45	57
567	71330	71350	20	15	50	65
568	71350	71370	20	12	60	72
569	71370	71390	20	12	70	82
570	71390	71410	20	12	80	92
571	71410	71430	20	12	95	107

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
572	71430	71450	20	12	12	24
573	71450	71470	20	12	12	24
574	71470	71490	20	12	12	24
575	71490	71500	10	12	25	37
576	71500	71510	10	12	12	24
577	71510	71530	20	120	12	132
578	71530	71550	20	115	25	140
579	71550	71570	20	12	70	82
580	71570	71590	20	12	70	82
581	71590	71610	20	12	70	82
582	71610	71630	20	12	75	87
583	71630	71670	40	12	90	102
584	71670	71690	20	12	18	30
585	71690	71710	20	12	18	30
586	71710	71730	20	12	18	30
587	71730	71750	20	12	18	30
588	71750	71770	20	100	18	118
589	71770	71790	20	75	12	87
590	71790	71810	20	12	12	24
591	71810	71830	20	12	35	47
592	71830	71850	20	12	35	47
593	71850	71870	20	12	50	62
594	71870	71890	20	12	55	67
595	71890	71910	20	12	55	67
596	71910	71930	20	12	70	82
597	71930	71950	20	12	30	42
598	71950	71970	20	12	12	24
599	71970	71990	20	25	75	100
600	71990	72000	10	30	80	110
601	72000	72010	10	12	12	24
602	72010	72030	20	12	80	92
603	72030	72050	20	12	85	97
604	72050	72070	20	12	70	82
605	72070	72090	20	15	75	90
606	72090	72110	20	12	25	37
607	72110	72130	20	12	12	24
608	72130	72150	20	12	12	24
609	72150	72170	20	30	25	55
610	72170	72190	20	12	30	42
611	72190	72210	20	35	12	47
612	72210	72230	20	12	65	77

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
613	72230	72250	20	12	60	72
614	72250	72270	20	12	70	82
615	72270	72290	20	12	70	82
616	72290	72310	20	12	12	24
617	72310	72330	20	12	65	77
618	72330	72350	20	12	40	52
619	72350	72370	20	12	70	82
620	72370	72390	20	12	50	62
621	72390	72410	20	12	12	24
622	72410	72430	20	12	12	24
623	72430	72450	20	12	12	24
624	72450	72470	20	12	12	24
625	72470	72490	20	12	12	24
626	72490	72510	20	75	12	87
627	72510	72530	20	35	12	47
628	72530	72550	20	35	12	47
629	72550	72570	20	12	12	24
630	72570	72590	20	12	12	24
631	72590	72610	20	12	40	52
632	72610	72630	20	12	61	73
633	72630	72710	80	64	86	150
634	72710	72730	20	135	15	150
635	72730	72770	40	12	12	24
636	72770	72790	20	125	12	137
637	72790	72810	20	12	12	24
638	72810	72830	20	12	12	24
639	72830	72850	20	12	12	24
640	72850	72870	20	12	12	24
641	72870	72890	20	12	12	24
642	72890	72910	20	12	50	62
643	72910	72930	20	12	45	57
644	72930	72950	20	12	50	62
645	72950	72970	20	12	30	42
646	72970	72990	20	12	12	24
647	72990	73010	20	12	55	67
648	73010	73030	20	65	30	95
649	73030	73050	20	40	50	90
650	73050	73070	20	12	55	67
651	73070	73090	20	12	55	67
652	73090	73110	20	12	12	24
653	73110	73130	20	100	50	150

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
654	73130	73150	20	12	12	24
655	73150	73170	20	12	12	24
656	73170	73190	20	12	12	24
657	73190	73210	20	20	50	70
658	73210	73230	20	15	50	65
659	73230	73250	20	20	50	70
660	73250	73270	20	20	50	70
661	73270	73290	20	12	50	62
662	73290	73310	20	75	55	130
663	73310	73330	20	60	55	115
664	73330	73350	20	65	20	85
665	73350	73370	20	12	12	24
666	73370	73390	20	75	70	145
667	73390	73410	20	75	75	150
668	73410	73430	20	70	80	150
669	73430	73450	20	70	80	150
670	73450	73470	20	12	90	102
671	73470	73490	20	12	12	24
672	73490	73510	20	12	40	52
673	73510	73530	20	65	12	77
674	73530	73550	20	55	50	105
675	73550	73570	20	60	12	72
676	73570	73590	20	60	12	72
677	73590	73610	20	60	12	72
678	73610	73630	20	60	12	72
679	73630	73650	20	60	12	72
680	73650	73670	20	75	12	87
681	73670	73690	20	50	12	62
682	73690	73710	20	45	15	60
683	73710	73730	20	45	25	70
684	73730	73750	20	50	25	75
685	73750	73770	20	12	12	24
686	73770	73780	10	12	12	24
687	73780	73790	10	12	12	24
688	73790	73810	20	12	12	24
689	73810	73830	20	12	12	24
690	73830	73850	20	12	40	52
691	73850	73870	20	60	40	100
692	73870	73890	20	12	30	42
693	73890	73910	20	12	25	37
694	73910	73930	20	12	12	24

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
695	73930	73950	20	12	55	67
696	73950	73970	20	20	12	32
697	73970	73990	20	20	50	70
698	73990	74010	20	12	45	57
699	74010	74030	20	12	50	62
700	74030	74070	40	12	55	67
701	74070	74090	20	12	12	24
702	74090	74110	20	12	12	24
703	74110	74130	20	115	35	150
704	74130	74150	20	12	12	24
705	74150	74160	10	12	12	24
706	74160	74170	10	12	12	24
707	74170	74190	20	12	12	24
708	74190	74210	20	12	12	24
709	74210	74230	20	90	60	150
710	74230	74250	20	12	85	97
711	74250	74270	20	45	25	70
712	74270	74290	20	12	12	24
713	74290	74310	20	12	45	57
714	74310	74330	20	12	35	47
715	74330	74350	20	12	20	32
716	74350	74370	20	12	20	32
717	74370	74390	20	12	20	32
718	74390	74410	20	12	21	33
719	74410	74430	20	12	21	33
720	74430	74450	20	115	18	133
721	74450	74470	20	114	36	150
722	74470	74490	20	110	36	146
723	74490	74510	20	110	36	146
724	74510	74530	20	12	30	42
725	74530	74550	20	12	25	37
726	74550	74570	20	12	25	37
727	74570	74590	20	12	30	42
728	74590	74610	20	12	40	52
729	74610	74630	20	12	45	57
730	74630	74650	20	12	55	67
731	74650	74670	20	12	70	82
732	74670	74690	20	12	80	92
733	74690	74710	20	12	90	102
734	74710	74730	20	12	80	92
735	74730	74750	20	50	12	62

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
736	74750	74760	10	12	12	24
737	74760	74770	10	12	12	24
738	74770	74790	20	12	12	24
739	74790	74810	20	45	35	80
740	74810	74830	20	45	12	57
741	74830	74850	20	40	12	52
742	74850	74870	20	35	12	47
743	74870	74890	20	12	12	24
744	74890	74910	20	12	12	24
745	74910	74930	20	12	12	24
746	74930	74950	20	80	30	110
747	74950	74970	20	80	25	105
748	74970	74990	20	80	15	95
749	74990	75010	20	80	12	92
750	75010	75020	10	80	12	92
751	75020	75030	10	12	12	24
752	75030	75050	20	125	12	137
753	75050	75070	20	80	12	92
754	75070	75090	20	12	20	32
755	75090	75110	20	12	30	42
756	75110	75130	20	12	35	47
757	75130	75150	20	12	40	52
758	75150	75170	20	12	45	57
759	75170	75190	20	12	50	62
760	75190	75210	20	12	55	67
761	75210	75230	20	85	65	150
762	75230	75250	20	75	75	150
763	75250	75270	20	65	85	150
764	75270	75290	20	12	95	107
765	75290	75310	20	12	100	112
766	75310	75330	20	12	12	24
767	75330	75350	20	12	12	24
768	75350	75370	20	12	12	24
769	75370	75390	20	12	50	62
770	75390	75410	20	12	85	97
771	75410	75430	20	12	12	24
772	75430	75450	20	12	12	24
773	75450	75470	20	12	100	112
774	75470	75490	20	85	65	150
775	75490	75510	20	105	12	117
776	75510	75530	20	105	12	117

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
777	75530	75550	20	12	12	24
778	75550	75570	20	85	12	97
779	75570	75580	10	12	12	24
780	75580	75590	10	12	12	24
781	75590	75610	20	12	12	24
782	75610	75630	20	80	35	115
783	75630	75650	20	80	35	115
784	75650	75670	20	75	30	105
785	75670	75690	20	12	25	37
786	75690	75710	20	100	15	115
787	75710	75730	20	100	12	112
788	75730	75750	20	15	18	33
789	75750	75770	20	12	26	38
790	75770	75790	20	12	31	43
791	75790	75810	20	12	31	43
792	75810	75830	20	12	36	48
793	75830	75850	20	125	25	150
794	75850	75870	20	135	12	147
795	75870	75880	10	138	12	150
796	75880	75890	10	12	12	24
797	75890	75910	20	138	12	150
798	75910	75930	20	125	25	150
799	75930	75950	20	12	85	97
800	75950	75970	20	12	95	107
801	75970	76010	40	12	100	112
802	76010	76030	20	60	90	150
803	76030	76050	20	75	75	150
804	76050	76070	20	12	65	77
805	76070	76090	20	12	50	62
806	76090	76110	20	12	35	47
807	76110	76130	20	12	20	32
808	76130	76150	20	35	12	47
809	76150	76160	10	60	12	72
810	76160	76170	10	12	12	24
811	76170	76190	20	60	12	72
812	76190	76210	20	12	25	37
813	76210	76230	20	12	25	37
814	76230	76250	20	12	30	42
815	76250	76270	20	12	30	42
816	76270	76290	20	28	40	68
817	76290	76310	20	30	50	80

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
818	76310	76330	20	12	60	72
819	76330	76350	20	25	25	50
820	76350	76360	10	12	12	24
821	76360	76370	10	12	12	24
822	76370	76390	20	12	12	24
823	76390	76410	20	12	12	24
824	76410	76430	20	12	95	107
825	76430	76450	20	12	90	102
826	76450	76470	20	12	75	87
827	76470	76490	20	12	60	72
828	76490	76510	20	12	50	62
829	76510	76530	20	12	40	52
830	76530	76550	20	12	45	57
831	76550	76570	20	12	45	57
832	76570	76590	20	12	55	67
833	76590	76610	20	12	50	62
834	76610	76630	20	12	50	62
835	76630	76650	20	12	45	57
836	76650	76670	20	90	60	150
837	76670	76690	20	75	75	150
838	76690	76710	20	12	12	24
839	76710	76730	20	12	12	24
840	76730	76750	20	12	12	24
841	76750	76770	20	12	18	30
842	76770	76790	20	12	18	30
843	76790	76810	20	12	18	30
844	76810	76830	20	12	18	30
845	76830	76890	60	12	18	30
846	76890	76910	20	12	12	24
847	76910	76930	20	20	12	32
848	76930	76950	20	12	12	24
849	76950	76970	20	12	55	67
850	76970	76990	20	12	45	57
851	76990	77010	20	12	30	42
852	77010	77030	20	12	30	42
853	77030	77050	20	12	80	92
854	77050	77070	20	12	55	67
855	77070	77090	20	12	40	52
856	77090	77110	20	12	25	37
857	77110	77130	20	12	20	32
858	77130	77150	20	12	12	24

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
859	77150	77160	10	12	12	24
860	77160	77170	10	12	12	24
861	77170	77190	20	12	12	24
862	77190	77210	20	12	12	24
863	77210	77230	20	12	100	112
864	77230	77250	20	12	90	102
865	77250	77270	20	12	50	62
866	77270	77290	20	12	40	52
867	77290	77310	20	95	25	120
868	77310	77330	20	12	12	24
869	77330	77350	20	120	25	145
870	77350	77370	20	125	25	150
871	77370	77390	20	125	25	150
872	77390	77410	20	12	25	37
873	77410	77430	20	12	30	42
874	77430	77450	20	12	30	42
875	77450	77470	20	12	30	42
876	77470	77490	20	12	35	47
877	77490	77510	20	12	40	52
878	77510	77530	20	12	55	67
879	77530	77550	20	12	86	98
880	77550	77610	60	12	101	113
881	77610	77630	20	12	18	30
882	77630	77650	20	12	12	24
883	77650	77670	20	12	12	24
884	77670	77690	20	12	12	24
885	77690	77710	20	60	20	80
886	77710	77730	20	50	12	62
887	77730	77750	20	45	12	57
888	77750	77760	10	45	12	57
889	77760	77770	10	12	12	24
890	77770	77790	20	45	55	100
891	77790	77810	20	12	60	72
892	77810	77830	20	12	60	72
893	77830	77850	20	12	60	72
894	77850	77870	20	85	65	150
895	77870	77890	20	80	70	150
896	77890	77910	20	60	90	150
897	77910	77930	20	60	90	150
898	77930	77950	20	120	30	150
899	77950	77970	20	110	40	150

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
900	77970	77990	20	105	45	150
901	77990	78010	20	12	12	24
902	78010	78030	20	130	20	150
903	78030	78050	20	100	50	150
904	78050	78070	20	120	30	150
905	78070	78090	20	138	12	150
906	78090	78110	20	12	12	24
907	78110	78130	20	105	45	150
908	78130	78150	20	12	75	87
909	78150	78170	20	12	12	24
910	78170	78190	20	12	12	24
911	78190	78210	20	12	12	24
912	78210	78230	20	12	12	24
913	78230	78250	20	12	12	24
914	78250	78270	20	12	12	24
915	78270	78290	20	85	30	115
916	78290	78300	10	12	12	24
917	78300	78310	10	12	12	24
918	78310	78330	20	12	12	24
919	78330	78350	20	75	75	150
920	78350	78370	20	75	65	140
921	78370	78390	20	65	85	150
922	78390	78410	20	120	15	135
923	78410	78430	20	110	40	150
924	78430	78450	20	12	35	47
925	78450	78470	20	119	31	150
926	78470	78490	20	124	26	150
927	78490	78510	20	94	56	150
928	78510	78530	20	104	46	150
929	78530	78550	20	25	26	51
930	78550	78570	20	110	25	135
931	78570	78590	20	12	12	24
932	78590	78610	20	12	40	52
933	78610	78630	20	12	45	57
934	78630	78650	20	12	45	57
935	78650	78670	20	12	50	62
936	78670	78690	20	80	55	135
937	78690	78710	20	12	70	82
938	78710	78730	20	12	95	107
939	78730	78750	20	65	85	150
940	78750	78770	20	12	12	24

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
941	78770	78790	20	75	70	145
942	78790	78810	20	85	65	150
943	78810	78830	20	85	65	150
944	78830	78850	20	80	70	150
945	78850	78870	20	80	70	150
946	78870	78890	20	65	85	150
947	78890	78900	10	130	20	150
948	78900	78910	10	12	12	24
949	78910	78930	20	90	12	102
950	78930	78950	20	70	12	82
951	78950	78970	20	12	12	24
952	78970	78990	20	12	12	24
953	78990	79010	20	30	75	105
954	79010	79030	20	12	90	102
955	79030	79050	20	12	50	62
956	79050	79070	20	12	40	52
957	79070	79090	20	12	35	47
958	79090	79110	20	12	35	47
959	79110	79130	20	12	40	52
960	79130	79150	20	12	40	52
961	79150	79160	10	115	35	150
962	79160	79170	10	12	12	24
963	79170	79190	20	110	40	150
964	79190	79210	20	12	55	67
965	79210	79230	20	12	65	77
966	79230	79250	20	12	80	92
967	79250	79270	20	12	12	24
968	79270	79290	20	12	12	24
969	79290	79310	20	12	12	24
970	79310	79330	20	12	12	24
971	79330	79350	20	15	12	27
972	79350	79370	20	12	12	24
973	79370	79390	20	12	12	24
974	79390	79410	20	12	45	57
975	79410	79430	20	12	20	32
976	79430	79450	20	95	15	110
977	79450	79470	20	105	40	145
978	79470	79490	20	120	20	140
979	79490	79510	20	12	12	24
980	79510	79530	20	12	25	37
981	79530	79550	20	12	25	37

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
982	79550	79570	20	12	30	42
983	79570	79590	20	12	35	47
984	79590	79610	20	12	41	53
985	79610	79630	20	12	41	53
986	79630	79650	20	12	46	58
987	79650	79670	20	12	66	78
988	79670	79690	20	12	71	83
989	79690	79710	20	65	41	106
990	79710	79730	20	65	35	100
991	79730	79750	20	12	12	24
992	79750	79770	20	50	75	125
993	79770	79790	20	50	85	135
994	79790	79810	20	12	12	24
995	79810	79830	20	45	100	145
996	79830	79850	20	50	100	150
997	79850	79870	20	12	12	24
998	79870	79890	20	12	12	24
999	79890	79910	20	30	12	42
1000	79910	79930	20	15	12	27
1001	79930	79950	20	12	12	24
1002	79950	79970	20	12	12	24
1003	79970	79990	20	12	12	24
1004	79990	80010	20	12	12	24
1005	80010	80030	20	12	12	24
1006	80030	80050	20	12	30	42
1007	80050	80070	20	12	25	37
1008	80070	80090	20	12	12	24
1009	80090	80110	20	15	80	95
1010	80110	80130	20	15	70	85
1011	80130	80150	20	12	100	112
1012	80150	80170	20	12	20	32
1013	80170	80190	20	12	95	107
1014	80190	80210	20	25	12	37

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1015	80210	80230	20	50	12	62
1016	80230	80250	20	55	12	67
1017	80250	80260	10	55	12	67
1018	80260	80270	10	12	12	24
1019	80270	80290	20	50	12	62
1020	80290	80310	20	12	12	24
1021	80310	80330	20	55	12	67
1022	80330	80350	20	12	12	24
1023	80350	80370	20	12	12	24
1024	80370	80390	20	12	12	24
1025	80390	80410	20	12	12	24
1026	80410	80450	40	12	12	24
1027	80450	80470	20	90	12	102
1028	80470	80490	20	15	20	35
1029	80490	80510	20	15	12	27
1030	80510	80530	20	40	12	52
1031	80530	80550	20	12	12	24
1032	80550	80570	20	25	12	37
1033	80570	80590	20	55	80	135
1034	80590	80610	20	12	60	72
1035	80610	80630	20	85	50	135
1036	80630	80650	20	12	35	47
1037	80650	80670	20	12	25	37
1038	80670	80690	20	135	12	147
1039	80690	80700	10	65	12	77
1040	80700	80710	10	12	12	24
1041	80710	80730	20	45	12	57

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1042	80730	80750	20	45	12	57
1043	80750	80770	20	70	25	95
1044	80770	80790	20	125	20	145
1045	80790	80810	20	130	20	150
1046	80810	80830	20	125	25	150
1047	80830	80850	20	120	30	150
1048	80850	80870	20	109	41	150
1049	80870	80890	20	49	101	150
1050	80890	80910	20	104	46	150
1051	80910	80930	20	124	26	150
1052	80930	80950	20	84	66	150
1053	80950	80960	10	130	20	150
1054	80960	80970	10	12	12	24
1055	80970	80990	20	120	30	150
1056	80990	81000	10	12	25	37
1057	81000	81030	30	12	25	37
1058	81030	81050	20	50	100	150
1059	81050	81070	20	12	12	24
1060	81070	81090	20	12	12	24
1061	81090	81110	20	12	12	24
1062	81110	81130	20	12	12	24
1063	81130	81150	20	12	12	24
1064	81150	81170	20	12	35	47
1065	81170	81180	10	120	30	150
1066	81180	81190	10	12	12	24
1067	81190	81210	20	85	30	115
1068	81210	81230	20	12	75	87

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1069	81230	81250	20	12	12	24
1070	81250	81270	20	75	12	87
1071	81270	81290	20	12	40	52
1072	81290	81310	20	12	30	42
1073	81310	81330	20	12	20	32
1074	81330	81350	20	125	12	137
1075	81350	81370	20	12	12	24
1076	81370	81390	20	138	12	150
1077	81390	81410	20	70	80	150
1078	81410	81430	20	100	50	150
1079	81430	81450	20	12	30	42
1080	81450	81470	20	15	12	27
1081	81470	81490	20	12	12	24
1082	81490	81510	20	12	12	24
1083	81510	81530	20	12	12	24
1084	81530	81550	20	12	12	24
1085	81550	81590	40	138	12	150
1086	81590	81610	20	12	12	24
1087	81610	81670	60	12	12	24
1088	81670	81690	20	12	12	24
1089	81690	81710	20	135	12	147
1090	81710	81730	20	70	80	150
1091	81730	81750	20	12	70	82
1092	81750	81770	20	20	80	100
1093	81770	81790	20	15	50	65
1094	81790	81810	20	12	25	37
1095	81810	81830	20	115	15	130

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1096	81830	81850	20	120	30	150
1097	81850	81870	20	12	30	42
1098	81870	81890	20	12	35	47
1099	81890	81910	20	20	35	55
1100	81910	81930	20	12	35	47
1101	81930	81950	20	12	35	47
1102	81950	81970	20	12	40	52
1103	81970	81990	20	12	45	57
1104	81990	82010	20	90	50	140
1105	82010	82030	20	75	60	135
1106	82030	82050	20	25	60	85
1107	82050	82070	20	12	12	24
1108	82070	82090	20	12	65	77
1109	82090	82110	20	12	85	97
1110	82110	82130	20	12	12	24
1111	82130	82150	20	25	12	37
1112	82150	82170	20	25	12	37
1113	82170	82190	20	12	90	102
1114	82190	82210	20	12	60	72
1115	82210	82230	20	12	85	97
1116	82230	82250	20	12	75	87
1117	82250	82270	20	12	75	87
1118	82270	82290	20	12	90	102
1119	82290	82310	20	12	12	24
1120	82310	82330	20	12	100	112
1121	82330	82350	20	12	100	112
1122	82350	82370	20	12	70	82

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1123	82370	82390	20	12	90	102
1124	82390	82410	20	12	12	24
1125	82410	82430	20	12	12	24
1126	82430	82450	20	12	65	77
1127	82450	82470	20	12	86	98
1128	82470	82490	20	20	86	106
1129	82490	82510	20	15	76	91
1130	82510	82530	20	12	51	63
1131	82530	82550	20	12	51	63
1132	82550	82570	20	12	12	24
1133	82570	82590	20	12	12	24
1134	82590	82610	20	12	12	24
1135	82610	82630	20	12	12	24
1136	82630	82650	20	12	12	24
1137	82650	82670	20	12	12	24
1138	82670	82690	20	12	12	24
1139	82690	82710	20	12	12	24
1140	82710	82730	20	12	12	24
1141	82730	82770	40	12	12	24
1142	82770	82790	20	70	80	150
1143	82790	82810	20	30	65	95
1144	82810	82830	20	40	20	60
1145	82830	82850	20	80	15	95
1146	82850	82870	20	12	12	24
1147	82870	82890	20	110	40	150
1148	82890	82910	20	12	40	52
1149	82910	82930	20	12	30	42

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1150	82930	82950	20	12	30	42
1151	82950	82970	20	12	30	42
1152	82970	82990	20	15	35	50
1153	82990	83010	20	12	35	47
1154	83010	83030	20	12	12	24
1155	83030	83050	20	12	12	24
1156	83050	83070	20	12	12	24
1157	83070	83090	20	12	65	77
1158	83090	83110	20	12	12	24
1159	83110	83120	10	12	12	24
1160	83120	83130	10	12	12	24
1161	83130	83150	20	12	12	24
1162	83150	83170	20	12	12	24
1163	83170	83190	20	12	40	52
1164	83190	83210	20	12	35	47
1165	83210	83230	20	12	30	42
1166	83230	83250	20	105	25	130
1167	83250	83270	20	12	12	24
1168	83270	83290	20	55	35	90
1169	83290	83310	20	45	50	95
1170	83310	83320	10	40	12	52
1171	83320	83330	10	12	12	24
1172	83330	83350	20	25	12	37
1173	83350	83370	20	12	12	24
1174	83370	83390	20	15	12	27
1175	83390	83410	20	12	40	52
1176	83410	83430	20	12	12	24

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1177	83430	83450	20	12	60	72
1178	83450	83470	20	20	50	70
1179	83470	83490	20	12	40	52
1180	83490	83510	20	12	35	47
1181	83510	83530	20	12	30	42
1182	83530	83550	20	12	30	42
1183	83550	83570	20	12	30	42
1184	83570	83590	20	12	35	47
1185	83590	83600	10	12	40	52
1186	83600	83610	10	12	12	24
1187	83610	83630	20	50	12	62
1188	83630	83650	20	35	85	120
1189	83650	83670	20	35	90	125
1190	83670	83690	20	25	80	105
1191	83690	83710	20	12	12	24
1192	83710	83730	20	12	18	30
1193	83730	83750	20	12	21	33
1194	83750	83770	20	15	36	51
1195	83770	83790	20	12	41	53
1196	83790	83810	20	12	18	30
1197	83810	83820	10	15	21	36
1198	83820	83830	10	12	18	30
1199	83830	83850	20	15	12	27
1200	83850	83870	20	12	30	42
1201	83870	83890	20	12	25	37
1202	83890	83910	20	12	15	27
1203	83910	83930	20	12	15	27

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1204	83930	83950	20	12	15	27
1205	83950	83970	20	12	20	32
1206	83970	83990	20	12	45	57
1207	83990	84010	20	12	35	47
1208	84010	84030	20	12	25	37
1209	84030	84050	20	12	25	37
1210	84050	84070	20	12	25	37
1211	84070	84090	20	15	25	40
1212	84090	84110	20	12	20	32
1213	84110	84130	20	12	15	27
1214	84130	84150	20	30	12	42
1215	84150	84170	20	40	15	55
1216	84170	84190	20	12	12	24
1217	84190	84210	20	130	12	142
1218	84210	84230	20	138	12	150
1219	84230	84250	20	12	15	27
1220	84250	84270	20	12	40	52
1221	84270	84290	20	12	70	82
1222	84290	84310	20	55	95	150
1223	84310	84330	20	12	12	24
1224	84330	84350	20	55	95	150
1225	84350	84370	20	60	90	150
1226	84370	84390	20	70	80	150
1227	84390	84410	20	80	70	150
1228	84410	84430	20	80	70	150
1229	84430	84450	20	85	65	150
1230	84450	84470	20	95	55	150

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1231	84470	84490	20	100	45	145
1232	84490	84510	20	100	35	135
1233	84510	84530	20	105	45	150
1234	84530	84550	20	110	40	150
1235	84550	84570	20	100	50	150
1236	84570	84590	20	100	50	150
1237	84590	84610	20	105	35	140
1238	84610	84630	20	12	12	24
1239	84630	84650	20	90	60	150
1240	84650	84670	20	70	80	150
1241	84670	84690	20	12	12	24
1242	84690	84710	20	95	12	107
1243	84710	84730	20	100	12	112
1244	84730	84750	20	100	12	112
1245	84750	84770	20	12	25	37
1246	84770	84790	20	12	60	72
1247	84790	84810	20	12	12	24
1248	84810	84820	10	12	12	24
1249	84820	84830	10	12	12	24
1250	84830	84850	20	12	12	24
1251	84850	84870	20	12	12	24
1252	84870	84890	20	80	25	105
1253	84890	84910	20	12	25	37
1254	84910	84930	20	12	25	37
1255	84930	84950	20	20	20	40
1256	84950	84970	20	12	15	27
1257	84970	84990	20	12	12	24

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1258	84990	85010	20	15	15	30
1259	85010	85030	20	30	12	42
1260	85030	85050	20	20	12	32
1261	85050	85060	10	20	12	32
1262	85060	85070	10	12	12	24
1263	85070	85090	20	15	15	30
1264	85090	85110	20	20	12	32
1265	85110	85130	20	12	15	27
1266	85130	85150	20	12	12	24
1267	85150	85170	20	12	18	30
1268	85170	85190	20	12	18	30
1269	85190	85210	20	12	18	30
1270	85210	85230	20	12	18	30
1271	85230	85250	20	12	101	113
1272	85250	85270	20	12	90	102
1273	85270	85290	20	12	55	67
1274	85290	85310	20	12	40	52
1275	85310	85330	20	12	40	52
1276	85330	85350	20	20	35	55
1277	85350	85370	20	20	20	40
1278	85370	85390	20	20	12	32
1279	85390	85410	20	12	12	24
1280	85410	85430	20	12	12	24
1281	85430	85450	20	12	12	24
1282	85450	85460	10	15	12	27
1283	85460	85470	10	12	12	24
1284	85470	85490	20	12	12	24

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1285	85490	85510	20	12	12	24
1286	85510	85530	20	12	12	24
1287	85530	85540	10	12	12	24
1288	85540	85550	10	12	12	24
1289	85550	85570	20	12	12	24
1290	85570	85590	20	12	12	24
1291	85590	85610	20	15	12	27
1292	85610	85620	10	12	12	24
1293	85620	85630	10	12	12	24
1294	85630	85650	20	20	12	32
1295	85650	85670	20	20	12	32
1296	85670	85690	20	12	12	24
1297	85690	85710	20	12	12	24
1298	85710	85730	20	12	12	24
1299	85730	85750	20	12	12	24
1300	85750	85770	20	12	12	24
1301	85770	85790	20	12	12	24
1302	85790	85810	20	12	12	24
1303	85810	85830	20	12	12	24
1304	85830	85850	20	12	12	24
1305	85850	85870	20	15	12	27
1306	85870	85890	20	50	12	62
1307	85890	85910	20	12	12	24
1308	85910	85930	20	40	12	52
1309	85930	85950	20	20	12	32
1310	85950	85970	20	15	12	27
1311	85970	85985	15	15	12	27

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1312	85985	85990	5	12	12	24
1313	85990	86010	20	20	12	32
1314	86010	86030	20	12	12	24
1315	86030	86050	20	12	20	32
1316	86050	86070	20	12	26	38
1317	86070	86090	20	12	21	33
1318	86090	86110	20	12	18	30
1319	86110	86130	20	20	18	38
1320	86130	86150	20	20	18	38
1321	86150	86170	20	20	12	32
1322	86170	86190	20	45	12	57
1323	86190	86210	20	45	15	60
1324	86210	86230	20	12	12	24
1325	86230	86250	20	20	15	35
1326	86250	86270	20	12	12	24
1327	86270	86290	20	12	15	27
1328	86290	86310	20	12	25	37
1329	86310	86330	20	12	40	52
1330	86330	86350	20	12	45	57
1331	86350	86370	20	35	35	70
1332	86370	86390	20	35	12	47
1333	86390	86410	20	12	12	24
1334	86410	86450	40	50	12	62
1335	86450	86470	20	12	12	24
1336	86470	86490	20	12	12	24
1337	86490	86510	20	12	100	112
1338	86510	86530	20	12	95	107

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
1339	86530	86550	20	12	60	72
1340	86550	86570	20	100	25	125
1341	86570	86590	20	100	15	115
1342	86590	86610	20	100	15	115
1343	86610	86630	20	100	12	112
1344	86630	86650	20	100	12	112
1345	86650	86670	20	100	12	112
1346	86670	86690	20	12	12	24
1347	86690	86710	20	100	12	112
1348	86710	86730	20	100	12	112
1349	86730	86750	20	95	55	150
1350	86750	86770	20	100	20	120
1351	86770	86790	20	12	12	24
1352	86790	86810	20	12	12	24
1353	86810	86830	20	12	12	24
1354	86830	86850	20	12	12	24
1355	86850	86870	20	12	12	24
1356	86870	86890	20	12	12	24
1357	86890	86950	60	12	12	24
1358	86950	86970	20	12	12	24
1359	86970	86990	20	12	12	24
1360	86990	87010	20	40	12	52
1361	87010	87030	20	60	12	72
1362	87030	87050	20	12	18	30
1363	87050	87070	20	12	18	30
1364	87070	87090	20	12	18	30
1365	87090	87110	20	12	18	30

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
1366	87110	87130	20	12	18	30
1367	87130	87150	20	12	12	24
1368	87150	87170	20	35	12	47
1369	87170	87190	20	55	12	67
1370	87190	87210	20	12	12	24
1371	87210	87230	20	65	12	77
1372	87230	87250	20	55	95	150
1373	87250	87270	20	55	95	150
1374	87270	87290	20	60	90	150
1375	87290	87310	20	12	12	24
1376	87310	87330	20	130	20	150
1377	87330	87350	20	60	90	150
1378	87350	87370	20	100	50	150
1379	87370	87390	20	90	60	150
1380	87390	87400	10	130	12	142
1381	87400	87410	10	12	12	24
1382	87410	87430	20	100	12	112
1383	87430	87450	20	100	12	112
1384	87450	87470	20	100	45	145
1385	87470	87490	20	12	50	62
1386	87490	87510	20	12	45	57
1387	87510	87530	20	12	30	42
1388	87530	87550	20	12	20	32
1389	87550	87570	20	80	12	92
1390	87570	87580	10	12	12	24
1391	87580	87590	10	12	12	24
1392	87590	87610	20	12	12	24

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1393	87610	87630	20	50	12	62
1394	87630	87650	20	50	12	62
1395	87650	87670	20	55	12	67
1396	87670	87690	20	12	12	24
1397	87690	87710	20	50	12	62
1398	87710	87730	20	12	15	27
1399	87730	87750	20	12	20	32
1400	87750	87770	20	12	20	32
1401	87770	87790	20	12	20	32
1402	87790	87810	20	12	12	24
1403	87810	87830	20	12	12	24
1404	87830	87840	10	12	12	24
1405	87840	87850	10	12	12	24
1406	87850	87870	20	12	12	24
1407	87870	87890	20	12	12	24
1408	87890	87910	20	12	12	24
1409	87910	87930	20	12	15	27
1410	87930	87950	20	12	25	37
1411	87950	87970	20	12	30	42
1412	87970	87990	20	12	30	42
1413	87990	88010	20	12	12	24
1414	88010	88030	20	12	45	57
1415	88030	88050	20	12	65	77
1416	88050	88070	20	12	25	37
1417	88070	88090	20	12	12	24
1418	88090	88110	20	12	12	24
1419	88110	88130	20	12	12	24

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1420	88130	88150	20	12	12	24
1421	88150	88170	20	12	80	92
1422	88170	88180	10	12	65	77
1423	88180	88190	10	12	12	24
1424	88190	88210	20	12	35	47
1425	88210	88230	20	12	30	42
1426	88230	88250	20	12	12	24
1427	88250	88270	20	12	12	24
1428	88270	88290	20	12	12	24
1429	88290	88310	20	15	45	60
1430	88310	88330	20	15	45	60
1431	88330	88350	20	12	35	47
1432	88350	88370	20	12	30	42
1433	88370	88390	20	100	25	125
1434	88390	88410	20	100	15	115
1435	88410	88430	20	12	12	24
1436	88430	88440	10	12	12	24
1437	88440	88450	10	12	12	24
1438	88450	88470	20	12	12	24
1439	88470	88490	20	12	12	24
1440	88490	88510	20	110	35	145
1441	88510	88530	20	12	40	52
1442	88530	88550	20	12	45	57
1443	88550	88570	20	12	45	57
1444	88570	88590	20	12	50	62
1445	88590	88610	20	12	60	72
1446	88610	88630	20	12	65	77

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1447	88630	88730	100	60	90	150
1448	88730	88760	30	12	12	24
1449	88760	88860	100	12	18	30
1450	88860	88880	20	12	12	24
1451	88880	88930	50	12	12	24
1452	88930	88950	20	80	12	92
1453	88950	88970	20	12	12	24
1454	88970	88990	20	12	12	24
1455	88990	89010	20	12	12	24
1456	89010	89050	40	12	12	24
1457	89050	89070	20	12	12	24
1458	89070	89190	120	12	12	24
1459	89190	89210	20	60	90	150
1460	89210	89230	20	60	20	80
1461	89230	89250	20	60	12	72
1462	89250	89265	15	60	12	72
1463	89265	89270	5	12	12	24
1464	89270	89290	20	60	12	72
1465	89290	89310	20	60	18	78
1466	89310	89410	100	60	81	141
1467	89410	89430	20	60	12	72
1468	89430	89450	20	12	12	24
1469	89450	89470	20	60	25	85
1470	89470	89490	20	60	12	72
1471	89490	89550	60	60	90	150
1472	89550	89570	20	12	12	24
1473	89570	89590	20	12	12	24

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1474	89590	89610	20	12	12	24
1475	89610	89630	20	30	12	42
1476	89630	89650	20	12	85	97
1477	89650	89670	20	40	12	52
1478	89670	89690	20	12	12	24
1479	89690	89720	30	60	12	72
1480	89720	89790	70	12	12	24
1481	89790	89810	20	100	40	140
1482	89810	89815	5	100	35	135
1483	89815	89890	75	12	12	24
1484	89890	89910	20	12	12	24
1485	89910	89930	20	12	12	24
1486	89930	89970	40	12	12	24
1487	89970	89980	10	100	12	112
1488	89980	89990	10	12	12	24
1489	89990	90030	40	100	30	130
1490	90030	90050	20	100	15	115
1491	90050	90070	20	12	12	24
1492	90070	90110	40	100	12	112
1493	90110	90130	20	100	45	145
1494	90130	90150	20	12	12	24
1495	90150	90170	20	12	12	24
1496	90170	90190	20	12	12	24
1497	90190	90210	20	75	75	150
1498	90210	90230	20	100	50	150
1499	90230	90250	20	12	12	24
1500	90250	90270	20	12	12	24

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1501	90270	90290	20	12	12	24
1502	90290	90310	20	100	15	115
1503	90310	90330	20	12	40	52
1504	90330	90350	20	12	45	57
1505	90350	90370	20	65	85	150
1506	90370	90390	20	130	20	150
1507	90390	90410	20	12	12	24
1508	90410	90530	120	132	18	150
1509	90530	90550	20	104	46	150
1510	90550	90570	20	120	30	150
1511	90570	90590	20	130	20	150
1512	90590	90610	20	125	12	137
1513	90610	90630	20	135	15	150
1514	90630	90650	20	130	15	145
1515	90650	90670	20	12	12	24
1516	90670	90690	20	135	15	150
1517	90690	90710	20	12	30	42
1518	90710	90730	20	12	40	52
1519	90730	90750	20	12	60	72
1520	90750	90770	20	12	12	24
1521	90770	90790	20	12	12	24
1522	90790	90810	20	12	12	24
1523	90810	90830	20	12	65	77
1524	90830	90850	20	30	30	60
1525	90850	90870	20	55	12	67
1526	90870	90890	20	55	12	67
1527	90890	90910	20	12	12	24

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1528	90910	90930	20	60	12	72
1529	90930	90950	20	40	12	52
1530	90950	90970	20	12	50	62
1531	90970	90980	10	25	12	37
1532	90980	90990	10	12	12	24
1533	90990	91010	20	12	12	24
1534	91010	91030	20	12	65	77
1535	91030	91050	20	12	60	72
1536	91050	91070	20	12	55	67
1537	91070	91090	20	12	40	52
1538	91090	91110	20	12	40	52
1539	91110	91130	20	12	50	62
1540	91130	91150	20	12	25	37
1541	91150	91170	20	35	12	47
1542	91170	91180	10	55	12	67
1543	91180	91190	10	12	12	24
1544	91190	91210	20	65	12	77
1545	91210	91230	20	50	12	62
1546	91230	91250	20	12	12	24
1547	91250	91270	20	12	12	24
1548	91270	91290	20	12	25	37
1549	91290	91310	20	12	35	47
1550	91310	91330	20	12	35	47
1551	91330	91350	20	15	35	50
1552	91350	91370	20	15	30	45
1553	91370	91390	20	12	25	37
1554	91390	91410	20	12	12	24

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1555	91410	91420	10	95	12	107
1556	91420	91430	10	12	12	24
1557	91430	91450	20	105	20	125
1558	91450	91470	20	110	12	122
1559	91470	91490	20	100	50	150
1560	91490	91510	20	12	45	57
1561	91510	91530	20	12	35	47
1562	91530	91550	20	12	12	24
1563	91550	91560	10	12	12	24
1564	91560	91570	10	12	12	24
1565	91570	91590	20	85	12	97
1566	91590	91610	20	12	18	30
1567	91610	91630	20	30	18	48
1568	91630	91650	20	12	26	38
1569	91650	91670	20	12	26	38
1570	91670	91690	20	12	26	38
1571	91690	91710	20	12	36	48
1572	91710	91730	20	12	12	24
1573	91730	91750	20	12	65	77
1574	91750	91770	20	20	25	45
1575	91770	91790	20	12	30	42
1576	91790	91810	20	12	60	72
1577	91810	91830	20	15	70	85
1578	91830	91850	20	12	12	24
1579	91850	91870	20	12	12	24
1580	91870	91890	20	12	12	24
1581	91890	91910	20	12	12	24

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1582	91910	91930	20	12	12	24
1583	91930	91950	20	25	12	37
1584	91950	91970	20	12	30	42
1585	91970	91990	20	12	15	27
1586	91990	91995	5	12	12	24
1587	91995	92010	15	12	12	24
1588	92010	92030	20	12	90	102
1589	92030	92050	20	12	100	112
1590	92050	92070	20	15	85	100
1591	92070	92110	40	12	95	107
1592	92110	92130	20	55	95	150
1593	92130	92150	20	12	95	107
1594	92150	92210	60	70	80	150
1595	92210	92250	40	12	12	24
1596	92250	92270	20	12	12	24
1597	92270	92290	20	12	12	24
1598	92290	92310	20	12	85	97
1599	92310	92330	20	12	70	82
1600	92330	92350	20	12	75	87
1601	92350	92370	20	12	85	97
1602	92370	92390	20	12	12	24
1603	92390	92410	20	12	12	24
1604	92410	92430	20	12	12	24
1605	92430	92470	40	12	12	24
1606	92470	92490	20	125	25	150
1607	92490	92500	10	110	40	150
1608	92500	92510	10	12	12	24

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1609	92510	92530	20	95	55	150
1610	92530	92570	40	115	35	150
1611	92570	92590	20	75	75	150
1612	92590	92610	20	12	12	24
1613	92610	92630	20	12	12	24
1614	92630	92650	20	12	12	24
1615	92650	92670	20	12	60	72
1616	92670	92690	20	12	18	30
1617	92690	92710	20	12	18	30
1618	92710	92730	20	12	18	30
1619	92730	92750	20	12	18	30
1620	92750	92770	20	12	18	30
1621	92770	92790	20	12	51	63
1622	92790	92810	20	80	70	150
1623	92810	92830	20	12	12	24
1624	92830	92850	20	65	85	150
1625	92850	92870	20	80	70	150
1626	92870	92890	20	12	70	82
1627	92890	92910	20	12	60	72
1628	92910	92930	20	12	65	77
1629	92930	92950	20	12	12	24
1630	92950	92970	20	12	12	24
1631	92970	92990	20	12	12	24
1632	92990	93000	10	60	20	80
1633	93000	93010	10	12	12	24
1634	93010	93030	20	45	12	57
1635	93030	93050	20	12	12	24

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1636	93050	93060	10	12	12	24
1637	93060	93070	10	12	12	24
1638	93070	93090	20	12	12	24
1639	93090	93110	20	12	12	24
1640	93110	93130	20	12	12	24
1641	93130	93150	20	75	75	150
1642	93150	93170	20	12	65	77
1643	93170	93190	20	75	55	130
1644	93190	93210	20	90	55	145
1645	93210	93230	20	100	50	150
1646	93230	93250	20	105	45	150
1647	93250	93270	20	120	30	150
1648	93270	93290	20	130	20	150
1649	93290	93310	20	135	12	147
1650	93310	93320	10	12	12	24
1651	93320	93330	10	12	12	24
1652	93330	93350	20	12	12	24
1653	93350	93370	20	90	12	102
1654	93370	93390	20	90	12	102
1655	93390	93410	20	90	12	102
1656	93410	93430	20	90	12	102
1657	93430	93450	20	74	76	150
1658	93450	93470	20	12	66	78
1659	93470	93490	20	12	61	73
1660	93490	93510	20	12	46	58
1661	93510	93530	20	12	76	88
1662	93530	93550	20	12	91	103

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1663	93550	93600	50	12	12	24
1664	93600	93630	30	12	12	24
1665	93630	93650	20	12	20	32
1666	93650	93670	20	12	20	32
1667	93670	93710	40	12	90	102
1668	93710	93720	10	50	100	150
1669	93720	93730	10	12	12	24
1670	93730	93750	20	65	15	80
1671	93750	93770	20	90	30	120
1672	93770	93790	20	90	35	125
1673	93790	93810	20	110	35	145
1674	93810	93830	20	12	35	47
1675	93830	93850	20	12	35	47
1676	93850	93870	20	15	35	50
1677	93870	93890	20	15	40	55
1678	93890	93910	20	15	40	55
1679	93910	93930	20	12	35	47
1680	93930	93950	20	12	12	24
1681	93950	93970	20	12	12	24
1682	93970	93990	20	12	12	24
1683	93990	94010	20	55	95	150
1684	94010	94030	20	12	12	24
1685	94030	94050	20	12	12	24
1686	94050	94070	20	12	12	24
1687	94070	94090	20	12	12	24
1688	94090	94110	20	30	25	55
1689	94110	94130	20	12	12	24

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1690	94130	94150	20	50	25	75
1691	94150	94170	20	85	12	97
1692	94170	94190	20	85	12	97
1693	94190	94210	20	12	12	24
1694	94210	94230	20	138	12	150
1695	94230	94250	20	138	12	150
1696	94250	94270	20	138	12	150
1697	94270	94290	20	138	12	150
1698	94290	94310	20	12	12	24
1699	94310	94330	20	115	35	150
1700	94330	94350	20	65	85	150
1701	94350	94370	20	12	100	112
1702	94370	94390	20	12	25	37
1703	94390	94410	20	12	12	24
1704	94410	94430	20	12	12	24
1705	94430	94450	20	12	12	24
1706	94450	94470	20	12	12	24
1707	94470	94490	20	12	80	92
1708	94490	94510	20	12	55	67
1709	94510	94530	20	12	15	27
1710	94530	94550	20	120	12	132
1711	94550	94570	20	115	12	127
1712	94570	94590	20	12	12	24
1713	94590	94610	20	135	12	147
1714	94610	94630	20	12	30	42
1715	94630	94650	20	12	30	42
1716	94650	94670	20	12	12	24

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1717	94670	94680	10	12	12	24
1718	94680	94690	10	12	12	24
1719	94690	94710	20	12	12	24
1720	94710	94730	20	12	12	24
1721	94730	94750	20	105	45	150
1722	94750	94770	20	12	40	52
1723	94770	94790	20	12	45	57
1724	94790	94810	20	12	45	57
1725	94810	94830	20	105	45	150
1726	94830	94850	20	125	25	150
1727	94850	94870	20	12	30	42
1728	94870	94890	20	12	35	47
1729	94890	94910	20	12	20	32
1730	94910	94930	20	12	12	24
1731	94930	94950	20	35	12	47
1732	94950	94970	20	35	85	120
1733	94970	94990	20	40	12	52
1734	94990	95000	10	45	25	70
1735	95000	95010	10	12	12	24
1736	95010	95030	20	138	12	150
1737	95030	95050	20	12	25	37
1738	95050	95070	20	12	30	42
1739	95070	95090	20	12	35	47
1740	95090	95110	20	12	35	47
1741	95110	95130	20	12	12	24
1742	95130	95150	20	12	12	24
1743	95150	95170	20	12	12	24

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1744	95170	95190	20	55	95	150
1745	95190	95210	20	12	12	24
1746	95210	95230	20	12	12	24
1747	95230	95250	20	12	12	24
1748	95250	95270	20	95	12	107
1749	95270	95290	20	75	12	87
1750	95290	95310	20	45	18	63
1751	95310	95330	20	25	18	43
1752	95330	95350	20	12	41	53
1753	95350	95370	20	12	36	48
1754	95370	95390	20	12	41	53
1755	95390	95410	20	12	61	73
1756	95410	95430	20	12	70	82
1757	95430	95450	20	12	90	102
1758	95450	95470	20	12	12	24
1759	95470	95490	20	12	12	24
1760	95490	95510	20	12	12	24
1761	95510	95530	20	55	45	100
1762	95530	95550	20	12	100	112
1763	95550	95570	20	12	12	24
1764	95570	95590	20	12	40	52
1765	95590	95600	10	70	12	82
1766	95600	95610	10	12	12	24
1767	95610	95630	20	60	20	80
1768	95630	95650	20	65	12	77
1769	95650	95670	20	70	12	82
1770	95670	95690	20	12	12	24

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
1771	95690	95710	20	85	50	135
1772	95710	95730	20	70	80	150
1773	95730	95750	20	80	70	150
1774	95750	95770	20	125	12	137
1775	95770	95790	20	12	12	24
1776	95790	95810	20	138	12	150
1777	95810	95830	20	138	12	150
1778	95830	95850	20	12	65	77
1779	95850	95870	20	12	12	24
1780	95870	95890	20	12	12	24
1781	95890	95910	20	12	12	24
1782	95910	95930	20	12	12	24
1783	95930	95950	20	12	12	24
1784	95950	95970	20	12	12	24
1785	95970	95990	20	12	12	24
1786	95990	96010	20	12	12	24
1787	96010	96030	20	12	12	24
1788	96030	96050	20	12	12	24
1789	96050	96070	20	12	12	24
1790	96070	96090	20	12	12	24
1791	96090	96110	20	12	12	24
1792	96110	96130	20	12	12	24
1793	96130	96150	20	12	12	24
1794	96150	96170	20	45	12	57
1795	96170	96190	20	45	75	120
1796	96190	96210	20	50	15	65
1797	96210	96230	20	55	20	75

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
1798	96230	96250	20	65	20	85
1799	96250	96270	20	125	12	137
1800	96270	96290	20	12	12	24
1801	96290	96310	20	12	12	24
1802	96310	96330	20	12	12	24
1803	96330	96350	20	135	15	150
1804	96350	96370	20	130	12	142
1805	96370	96390	20	90	20	110
1806	96390	96410	20	12	70	82
1807	96410	96430	20	12	95	107
1808	96430	96450	20	12	75	87
1809	96450	96470	20	12	60	72
1810	96470	96490	20	12	60	72
1811	96490	96510	20	12	65	77
1812	96510	96530	20	15	50	65
1813	96530	96550	20	15	40	55
1814	96550	96570	20	12	30	42
1815	96570	96590	20	12	25	37
1816	96590	96600	10	12	12	24
1817	96600	96610	10	12	12	24
1818	96610	96630	20	100	30	130
1819	96630	96650	20	12	45	57
1820	96650	96670	20	12	70	82
1821	96670	96690	20	12	12	24
1822	96690	96695	5	40	12	52
1823	96695	96710	15	12	12	24
1824	96710	96730	20	30	31	61

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1825	96730	96750	20	12	18	30
1826	96750	96770	20	12	18	30
1827	96770	96790	20	12	18	30
1828	96790	96850	60	100	18	118
1829	96850	96870	20	12	12	24
1830	96870	96890	20	12	12	24
1831	96890	96910	20	12	12	24
1832	96910	96930	20	45	12	57
1833	96930	96935	5	35	20	55
1834	96935	96950	15	12	12	24
1835	96950	96970	20	25	12	37
1836	96970	96990	20	12	95	107
1837	96990	97010	20	12	85	97
1838	97010	97030	20	12	80	92
1839	97030	97050	20	12	75	87
1840	97050	97070	20	12	70	82
1841	97070	97090	20	12	80	92
1842	97090	97110	20	12	80	92
1843	97110	97130	20	12	75	87
1844	97130	97150	20	12	25	37
1845	97150	97170	20	12	35	47
1846	97170	97190	20	12	35	47
1847	97190	97210	20	12	40	52
1848	97210	97230	20	12	45	57
1849	97230	97250	20	15	45	60
1850	97250	97270	20	12	55	67
1851	97270	97290	20	12	70	82

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1852	97290	97310	20	12	30	42
1853	97310	97350	40	12	12	24
1854	97350	97370	20	12	12	24
1855	97370	97390	20	12	12	24
1856	97390	97410	20	12	12	24
1857	97410	97420	10	12	12	24
1858	97420	97430	10	12	12	24
1859	97430	97450	20	12	12	24
1860	97450	97470	20	55	95	150
1861	97470	97510	40	12	12	24
1862	97510	97520	10	138	12	150
1863	97520	97530	10	12	12	24
1864	97530	97550	20	110	40	150
1865	97550	97570	20	95	55	150
1866	97570	97590	20	12	12	24
1867	97590	97610	20	12	12	24
1868	97610	97630	20	12	35	47
1869	97630	97670	40	12	12	24
1870	97670	97690	20	12	12	24
1871	97690	97710	20	12	12	24
1872	97710	97730	20	12	12	24
1873	97730	97750	20	12	18	30
1874	97750	97770	20	12	18	30
1875	97770	97790	20	12	18	30
1876	97790	97810	20	12	18	30
1877	97810	97830	20	12	18	30
1878	97830	97850	20	138	12	150

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1879	97850	97870	20	130	12	142
1880	97870	97890	20	115	12	127
1881	97890	97910	20	110	12	122
1882	97910	97930	20	12	12	24
1883	97930	97950	20	12	12	24
1884	97950	97970	20	12	12	24
1885	97970	97990	20	12	12	24
1886	97990	98010	20	12	12	24
1887	98010	98030	20	12	12	24
1888	98030	98050	20	12	12	24
1889	98050	98070	20	12	12	24
1890	98070	98090	20	12	12	24
1891	98090	98110	20	12	12	24
1892	98110	98130	20	12	12	24
1893	98130	98150	20	12	12	24
1894	98150	98170	20	12	12	24
1895	98170	98190	20	12	12	24
1896	98190	98210	20	12	12	24
1897	98210	98230	20	60	12	72
1898	98230	98250	20	55	40	95
1899	98250	98270	20	12	60	72
1900	98270	98290	20	55	65	120
1901	98290	98310	20	45	28	73
1902	98310	98330	20	24	40	64
1903	98330	98350	20	12	12	24
1904	98350	98370	20	12	15	27
1905	98370	98390	20	12	12	24

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1906	98390	98410	20	24	12	36
1907	98410	98430	20	20	70	90
1908	98430	98450	20	12	70	82
1909	98450	98470	20	12	65	77
1910	98470	98490	20	12	65	77
1911	98490	98510	20	12	60	72
1912	98510	98530	20	60	60	120
1913	98530	98550	20	60	60	120
1914	98550	98570	20	60	12	72
1915	98570	98590	20	60	24	84
1916	98590	98610	20	60	28	88
1917	98610	98630	20	60	12	72
1918	98630	98650	20	60	25	85
1919	98650	98670	20	60	20	80
1920	98670	98690	20	12	30	42
1921	98690	98710	20	12	35	47
1922	98710	98730	20	12	28	40
1923	98730	98750	20	12	24	36
1924	98750	98770	20	12	20	32
1925	98770	98790	20	12	20	32
1926	98790	98810	20	12	20	32
1927	98810	98830	20	12	15	27
1928	98830	98850	20	70	12	82
1929	98850	98870	20	70	12	82
1930	98870	98890	20	70	12	82
1931	98890	98910	20	70	12	82
1932	98910	98930	20	70	20	90

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1933	98930	98950	20	70	12	82
1934	98950	98970	20	70	12	82
1935	98970	98990	20	70	12	82
1936	98990	99010	20	70	12	82
1937	99010	99030	20	70	12	82
1938	99030	99050	20	70	12	82
1939	99050	99070	20	70	12	82
1940	99070	99090	20	12	12	24
1941	99090	99110	20	12	15	27
1942	99110	99130	20	12	15	27
1943	99130	99150	20	60	12	72
1944	99150	99170	20	60	12	72
1945	99170	99190	20	12	12	24
1946	99190	99210	20	12	15	27
1947	99210	99230	20	12	15	27
1948	99230	99250	20	60	12	72
1949	99250	99270	20	60	12	72
1950	99270	99290	20	12	24	36
1951	99290	99310	20	12	65	77
1952	99310	99330	20	12	70	82
1953	99330	99350	20	12	70	82
1954	99350	99370	20	12	70	82
1955	99370	99390	20	12	60	72
1956	99390	99410	20	60	20	80
1957	99410	99430	20	12	12	24
1958	99430	99450	20	12	12	24
1959	99450	99470	20	50	50	100

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
1960	99470	99490	20	50	40	90
1961	99490	99510	20	50	24	74
1962	99510	99530	20	50	45	95
1963	99530	99550	20	50	24	74
1964	99550	99570	20	50	18	68
1965	99570	99590	20	50	18	68
1966	99590	99610	20	50	18	68
1967	99610	99630	20	50	18	68
1968	99630	99650	20	80	18	98
1969	99650	99670	20	80	12	92
1970	99670	99690	20	80	12	92
1971	99690	99710	20	80	12	92
1972	99710	99730	20	80	12	92
1973	99730	99750	20	80	20	100
1974	99750	99770	20	45	12	57
1975	99770	99790	20	12	12	24
1976	99790	99810	20	12	20	32
1977	99810	99830	20	12	24	36
1978	99830	99850	20	12	20	32
1979	99850	99870	20	12	40	52
1980	99870	99890	20	12	40	52
1981	99890	99910	20	12	40	52
1982	99910	99930	20	12	35	47
1983	99930	99950	20	12	20	32
1984	99950	99970	20	40	12	52
1985	99970	99990	20	130	12	142
1986	99990	100010	20	12	12	24

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
1987	100010	100030	20	12	12	24
1988	100030	100050	20	135	12	147
1989	100050	100070	20	12	35	47
1990	100070	100090	20	12	20	32
1991	100090	100110	20	20	30	50
1992	100110	100130	20	15	18	33
1993	100130	100150	20	55	18	73
1994	100150	100170	20	14	136	150
1995	100170	100190	20	90	18	108
1996	100190	100210	20	90	26	116
1997	100210	100230	20	85	18	103
1998	100230	100250	20	115	12	127
1999	100250	100270	20	12	24	36
2000	100270	100290	20	12	85	97
2001	100290	100310	20	12	80	92
2002	100310	100330	20	12	70	82
2003	100330	100350	20	60	65	125
2004	100350	100370	20	12	70	82
2005	100370	100390	20	12	75	87
2006	100390	100410	20	12	75	87
2007	100410	100430	20	12	75	87
2008	100430	100450	20	50	70	120
2009	100450	100470	20	50	60	110
2010	100470	100490	20	50	55	105
2011	100490	100510	20	12	45	57
2012	100510	100530	20	12	45	57
2013	100530	100550	20	12	50	62

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2014	100550	100570	20	12	60	72
2015	100570	100590	20	12	60	72
2016	100590	100610	20	12	60	72
2017	100610	100630	20	12	60	72
2018	100630	100650	20	12	65	77
2019	100650	100670	20	12	65	77
2020	100670	100690	20	12	45	57
2021	100690	100710	20	12	12	24
2022	100710	100730	20	40	12	52
2023	100730	100750	20	12	12	24
2024	100750	100770	20	12	12	24
2025	100770	100790	20	20	12	32
2026	100790	100810	20	12	12	24
2027	100810	100830	20	12	15	27
2028	100830	100850	20	12	15	27
2029	100850	100870	20	12	15	27
2030	100870	100890	20	12	15	27
2031	100890	100910	20	12	20	32
2032	100910	100930	20	12	20	32
2033	100930	100950	20	12	20	32
2034	100950	100970	20	12	20	32
2035	100970	100990	20	12	30	42
2036	100990	101010	20	12	24	36
2037	101010	101030	20	12	12	24
2038	101030	101050	20	25	12	37
2039	101050	101070	20	45	12	57
2040	101070	101090	20	45	12	57

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2041	101090	101110	20	24	12	36
2042	101110	101130	20	28	12	40
2043	101130	101150	20	100	28	128
2044	101150	101170	20	95	30	125
2045	101170	101190	20	110	30	140
2046	101190	101210	20	110	12	122
2047	101210	101230	20	85	65	150
2048	101230	101250	20	80	70	150
2049	101250	101270	20	12	12	24
2050	101270	101290	20	12	12	24
2051	101290	101310	20	20	24	44
2052	101310	101330	20	12	90	102
2053	101330	101350	20	12	95	107
2054	101350	101370	20	12	90	102
2055	101370	101390	20	70	80	150
2056	101390	101410	20	75	75	150
2057	101410	101430	20	70	80	150
2058	101430	101450	20	75	75	150
2059	101450	101470	20	12	70	82
2060	101470	101490	20	12	71	83
2061	101490	101510	20	12	66	78
2062	101510	101530	20	12	66	78
2063	101530	101550	20	12	66	78
2064	101550	101570	20	12	61	73
2065	101570	101590	20	12	61	73
2066	101590	101610	20	90	60	150
2067	101610	101630	20	95	55	150

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2068	101630	101650	20	12	50	62
2069	101650	101670	20	12	45	57
2070	101670	101690	20	12	40	52
2071	101690	101710	20	12	45	57
2072	101710	101730	20	12	45	57
2073	101730	101750	20	12	45	57
2074	101750	101770	20	12	45	57
2075	101770	101790	20	12	45	57
2076	101790	101810	20	12	45	57
2077	101810	101830	20	12	45	57
2078	101830	101850	20	12	40	52
2079	101850	101870	20	12	20	32
2080	101870	101890	20	12	12	24
2081	101890	101910	20	12	12	24
2082	101910	101930	20	12	12	24
2083	101930	101950	20	12	12	24
2084	101950	101970	20	12	12	24
2085	101970	101990	20	12	12	24
2086	101990	102010	20	12	28	40
2087	102010	102030	20	12	24	36
2088	102030	102050	20	12	24	36
2089	102050	102070	20	12	30	42
2090	102070	102090	20	12	35	47
2091	102090	102110	20	12	40	52
2092	102110	102130	20	12	45	57
2093	102130	102150	20	75	45	120
2094	102150	102170	20	75	35	110

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2095	102170	102190	20	80	28	108
2096	102190	102210	20	85	30	115
2097	102210	102230	20	90	41	131
2098	102230	102250	20	94	56	150
2099	102250	102270	20	89	61	150
2100	102270	102290	20	70	61	131
2101	102290	102310	20	70	34	104
2102	102310	102330	20	70	28	98
2103	102330	102350	20	70	50	120
2104	102350	102370	20	70	40	110
2105	102370	102390	20	70	15	85
2106	102390	102410	20	70	12	82
2107	102410	102430	20	70	12	82
2108	102430	102450	20	70	12	82
2109	102450	102470	20	70	12	82
2110	102470	102490	20	70	12	82
2111	102490	102510	20	70	12	82
2112	102510	102530	20	70	12	82
2113	102530	102550	20	70	12	82
2114	102550	102570	20	70	12	82
2115	102570	102590	20	45	12	57
2116	102590	102610	20	35	55	90
2117	102610	102630	20	45	12	57
2118	102630	102650	20	20	12	32
2119	102650	102670	20	28	12	40
2120	102670	102690	20	85	12	97
2121	102690	102710	20	100	12	112

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2122	102710	102730	20	12	15	27
2123	102730	102750	20	12	20	32
2124	102750	102770	20	12	15	27
2125	102770	102790	20	12	15	27
2126	102790	102810	20	12	15	27
2127	102810	102830	20	12	20	32
2128	102830	102850	20	12	20	32
2129	102850	102870	20	12	12	24
2130	102870	102890	20	35	12	47
2131	102890	102910	20	90	12	102
2132	102910	102930	20	95	12	107
2133	102930	102950	20	70	12	82
2134	102950	102970	20	12	35	47
2135	102970	102990	20	12	25	37
2136	102990	103010	20	80	12	92
2137	103010	103030	20	80	12	92
2138	103030	103050	20	80	12	92
2139	103050	103070	20	80	12	92
2140	103070	103090	20	80	15	95
2141	103090	103110	20	80	12	92
2142	103110	103130	20	80	12	92
2143	103130	103150	20	80	12	92
2144	103150	103170	20	80	12	92
2145	103170	103190	20	80	12	92
2146	103190	103210	20	80	12	92
2147	103210	103230	20	28	12	40
2148	103230	103250	20	20	12	32

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2149	103250	103270	20	24	12	36
2150	103270	103290	20	30	12	42
2151	103290	103310	20	20	12	32
2152	103310	103330	20	12	12	24
2153	103330	103350	20	40	12	52
2154	103350	103370	20	40	12	52
2155	103370	103390	20	12	12	24
2156	103390	103410	20	12	35	47
2157	103410	103430	20	12	28	40
2158	103430	103450	20	12	25	37
2159	103450	103470	20	12	25	37
2160	103470	103490	20	12	28	40
2161	103490	103510	20	12	28	40
2162	103510	103530	20	12	28	40
2163	103530	103550	20	12	25	37
2164	103550	103570	20	12	12	24
2165	103570	103590	20	12	25	37
2166	103590	103610	20	12	30	42
2167	103610	103630	20	110	26	136
2168	103630	103650	20	20	18	38
2169	103650	103670	20	12	18	30
2170	103670	103690	20	12	26	38
2171	103690	103710	20	12	30	42
2172	103710	103730	20	12	41	53
2173	103730	103750	20	12	40	52
2174	103750	103770	20	12	45	57
2175	103770	103790	20	12	40	52

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2176	103790	103810	20	12	35	47
2177	103810	103830	20	12	12	24
2178	103830	103850	20	12	12	24
2179	103850	103870	20	20	15	35
2180	103870	103890	20	12	55	67
2181	103890	103910	20	12	55	67
2182	103910	103930	20	12	50	62
2183	103930	103950	20	12	45	57
2184	103950	103970	20	12	30	42
2185	103970	103990	20	35	12	47
2186	103990	104010	20	80	15	95
2187	104010	104030	20	80	12	92
2188	104030	104050	20	12	15	27
2189	104050	104070	20	12	15	27
2190	104070	104090	20	12	20	32
2191	104090	104110	20	12	35	47
2192	104110	104130	20	12	28	40
2193	104130	104150	20	35	20	55
2194	104150	104170	20	55	12	67
2195	104170	104190	20	55	12	67
2196	104190	104210	20	65	15	80
2197	104210	104230	20	12	15	27
2198	104230	104250	20	100	12	112
2199	104250	104270	20	12	15	27
2200	104270	104290	20	12	20	32
2201	104290	104310	20	90	12	102
2202	104310	104330	20	105	12	117

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2203	104330	104350	20	105	12	117
2204	104350	104370	20	65	12	77
2205	104370	104390	20	60	12	72
2206	104390	104410	20	12	45	57
2207	104410	104430	20	12	55	67
2208	104430	104450	20	12	61	73
2209	104450	104470	20	12	56	68
2210	104470	104490	20	12	46	58
2211	104490	104510	20	12	36	48
2212	104510	104530	20	95	34	129
2213	104530	104550	20	90	60	150
2214	104550	104570	20	12	55	67
2215	104570	104590	20	110	12	122
2216	104590	104610	20	110	12	122
2217	104610	104630	20	105	12	117
2218	104630	104650	20	95	12	107
2219	104650	104670	20	95	12	107
2220	104670	104690	20	100	12	112
2221	104690	104710	20	105	20	125
2222	104710	104730	20	115	20	135
2223	104730	104750	20	115	12	127
2224	104750	104770	20	115	24	139
2225	104770	104790	20	35	12	47
2226	104790	104810	20	105	12	117
2227	104810	104830	20	110	15	125
2228	104830	104850	20	110	12	122
2229	104850	104870	20	100	30	130

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2230	104870	104890	20	12	30	42
2231	104890	104910	20	12	30	42
2232	104910	104930	20	12	45	57
2233	104930	104950	20	12	45	57
2234	104950	104970	20	12	40	52
2235	104970	104990	20	12	12	24
2236	104990	105010	20	12	12	24
2237	105010	105030	20	12	12	24
2238	105030	105050	20	65	20	85
2239	105050	105070	20	12	28	40
2240	105070	105090	20	12	24	36
2241	105090	105110	20	12	20	32
2242	105110	105130	20	12	20	32
2243	105130	105150	20	12	20	32
2244	105150	105170	20	12	12	24
2245	105170	105190	20	12	12	24
2246	105190	105210	20	24	12	36
2247	105210	105230	20	12	12	24
2248	105230	105250	20	12	12	24
2249	105250	105270	20	28	12	40
2250	105270	105290	20	12	12	24
2251	105290	105310	20	12	35	47
2252	105310	105330	20	12	30	42
2253	105330	105350	20	20	20	40
2254	105350	105370	20	50	12	62
2255	105370	105390	20	12	12	24
2256	105390	105410	20	12	12	24

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2257	105410	105430	20	12	12	24
2258	105430	105450	20	12	12	24
2259	105450	105470	20	12	15	27
2260	105470	105490	20	12	20	32
2261	105490	105510	20	12	24	36
2262	105510	105530	20	12	20	32
2263	105530	105550	20	45	12	57
2264	105550	105570	20	65	12	77
2265	105570	105590	20	65	12	77
2266	105590	105610	20	20	12	32
2267	105610	105630	20	12	12	24
2268	105630	105650	20	12	12	24
2269	105650	105670	20	12	15	27
2270	105670	105690	20	12	15	27
2271	105690	105710	20	28	12	40
2272	105710	105730	20	40	12	52
2273	105730	105750	20	12	12	24
2274	105750	105770	20	24	15	39
2275	105770	105790	20	12	12	24
2276	105790	105810	20	12	12	24
2277	105810	105830	20	12	51	63
2278	105830	105850	20	12	51	63
2279	105850	105870	20	12	56	68
2280	105870	105890	20	12	61	73
2281	105890	105910	20	12	61	73
2282	105910	105930	20	12	61	73
2283	105930	105950	20	12	50	62

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2284	105950	105970	20	12	30	42
2285	105970	105990	20	12	28	40
2286	105990	106010	20	12	24	36
2287	106010	106030	20	12	24	36
2288	106030	106050	20	12	28	40
2289	106050	106070	20	12	30	42
2290	106070	106090	20	12	35	47
2291	106090	106110	20	12	30	42
2292	106110	106130	20	12	28	40
2293	106130	106150	20	12	24	36
2294	106150	106170	20	65	20	85
2295	106170	106190	20	12	35	47
2296	106190	106210	20	12	35	47
2297	106210	106230	20	12	40	52
2298	106230	106250	20	12	40	52
2299	106250	106270	20	12	40	52
2300	106270	106290	20	12	35	47
2301	106290	106310	20	12	35	47
2302	106310	106330	20	12	28	40
2303	106330	106350	20	12	28	40
2304	106350	106370	20	12	30	42
2305	106370	106390	20	12	24	36
2306	106390	106410	20	12	15	27
2307	106410	106430	20	105	12	117
2308	106430	106450	20	85	12	97
2309	106450	106470	20	70	12	82
2310	106470	106490	20	110	12	122

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2311	106490	106510	20	110	12	122
2312	106510	106530	20	120	12	132
2313	106530	106550	20	130	20	150
2314	106550	106570	20	125	20	145
2315	106570	106590	20	110	12	122
2316	106590	106610	20	110	12	122
2317	106610	106630	20	12	12	24
2318	106630	106650	20	12	24	36
2319	106650	106670	20	12	20	32
2320	106670	106690	20	40	12	52
2321	106690	106710	20	70	12	82
2322	106710	106730	20	70	18	88
2323	106730	106750	20	70	21	91
2324	106750	106770	20	12	26	38
2325	106770	106790	20	12	34	46
2326	106790	106810	20	12	34	46
2327	106810	106830	20	12	30	42
2328	106830	106850	20	110	12	122
2329	106850	106870	20	12	12	24
2330	106870	106890	20	12	12	24
2331	106890	106910	20	115	12	127
2332	106910	106930	20	12	20	32
2333	106930	106950	20	12	20	32
2334	106950	106970	20	12	20	32
2335	106970	106990	20	12	20	32
2336	106990	107010	20	60	12	72
2337	107010	107030	20	12	24	36

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2338	107030	107050	20	12	24	36
2339	107050	107070	20	12	24	36
2340	107070	107090	20	12	20	32
2341	107090	107110	20	12	12	24
2342	107110	107130	20	12	12	24
2343	107130	107150	20	12	12	24
2344	107150	107170	20	12	12	24
2345	107170	107190	20	12	12	24
2346	107190	107210	20	12	12	24
2347	107210	107230	20	12	12	24
2348	107230	107250	20	12	20	32
2349	107250	107270	20	12	15	27
2350	107270	107290	20	24	12	36
2351	107290	107310	20	12	12	24
2352	107310	107330	20	20	12	32
2353	107330	107350	20	24	12	36
2354	107350	107370	20	12	35	47
2355	107370	107390	20	12	40	52
2356	107390	107410	20	12	50	62
2357	107410	107430	20	12	56	68
2358	107430	107450	20	12	56	68
2359	107450	107470	20	12	18	30
2360	107470	107490	20	12	56	68
2361	107490	107510	20	12	51	63
2362	107510	107530	20	12	36	48
2363	107530	107550	20	20	24	44
2364	107550	107570	20	50	12	62

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2365	107570	107590	20	70	12	82
2366	107590	107610	20	75	12	87
2367	107610	107630	20	12	45	57
2368	107630	107650	20	12	50	62
2369	107650	107670	20	12	20	32
2370	107670	107690	20	30	12	42
2371	107690	107710	20	12	15	27
2372	107710	107730	20	12	24	36
2373	107730	107750	20	12	30	42
2374	107750	107770	20	12	28	40
2375	107770	107790	20	12	24	36
2376	107790	107810	20	12	20	32
2377	107810	107830	20	12	12	24
2378	107830	107850	20	110	40	150
2379	107850	107870	20	130	20	150
2380	107870	107890	20	130	12	142
2381	107890	107910	20	115	35	150
2382	107910	107930	20	120	30	150
2383	107930	107950	20	126	24	150
2384	107950	107970	20	12	12	24
2385	107970	107990	20	12	12	24
2386	107990	108010	20	24	15	39
2387	108010	108030	20	20	12	32
2388	108030	108050	20	12	12	24
2389	108050	108070	20	12	12	24
2390	108070	108090	20	12	20	32
2391	108090	108110	20	12	20	32

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2392	108110	108130	20	20	20	40
2393	108130	108150	20	35	12	47
2394	108150	108170	20	50	12	62
2395	108170	108190	20	120	12	132
2396	108190	108210	20	120	24	144
2397	108210	108230	20	120	12	132
2398	108230	108250	20	120	12	132
2399	108250	108270	20	12	28	40
2400	108270	108290	20	120	28	148
2401	108290	108310	20	95	55	150
2402	108310	108330	20	100	50	150
2403	108330	108350	20	120	12	132
2404	108350	108370	20	120	12	132
2405	108370	108390	20	105	45	150
2406	108390	108410	20	115	35	150
2407	108410	108430	20	120	28	148
2408	108430	108450	20	120	24	144
2409	108450	108470	20	120	24	144
2410	108470	108490	20	12	24	36
2411	108490	108510	20	120	24	144
2412	108510	108530	20	12	24	36
2413	108530	108550	20	12	20	32
2414	108550	108570	20	12	20	32
2415	108570	108590	20	12	12	24
2416	108590	108610	20	95	12	107
2417	108610	108630	20	90	12	102
2418	108630	108650	20	70	12	82

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2419	108650	108670	20	12	12	24
2420	108670	108690	20	12	12	24
2421	108690	108710	20	100	12	112
2422	108710	108730	20	12	12	24
2423	108730	108750	20	12	12	24
2424	108750	108770	20	100	12	112
2425	108770	108790	20	12	12	24
2426	108790	108810	20	12	15	27
2427	108810	108830	20	12	20	32
2428	108830	108850	20	75	35	110
2429	108850	108870	20	90	30	120
2430	108870	108890	20	12	28	40
2431	108890	108910	20	12	30	42
2432	108910	108930	20	12	50	62
2433	108930	108950	20	12	55	67
2434	108950	108970	20	120	30	150
2435	108970	108990	20	95	55	150
2436	108990	109010	20	12	55	67
2437	109010	109030	20	95	55	150
2438	109030	109050	20	12	55	67
2439	109050	109070	20	12	60	72
2440	109070	109090	20	12	60	72
2441	109090	109110	20	50	60	110
2442	109110	109130	20	12	65	77
2443	109130	109150	20	12	60	72
2444	109150	109170	20	12	45	57
2445	109170	109190	20	12	35	47

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2446	109190	109210	20	12	35	47
2447	109210	109230	20	12	35	47
2448	109230	109250	20	120	30	150
2449	109250	109270	20	12	20	32
2450	109270	109290	20	12	15	27
2451	109290	109310	20	105	45	150
2452	109310	109330	20	95	55	150
2453	109330	109350	20	90	60	150
2454	109350	109370	20	90	60	150
2455	109370	109390	20	24	60	84
2456	109390	109410	20	12	60	72
2457	109410	109430	20	12	60	72
2458	109430	109450	20	12	60	72
2459	109450	109470	20	115	28	143
2460	109470	109490	20	105	12	117
2461	109490	109510	20	95	12	107
2462	109510	109530	20	100	12	112
2463	109530	109550	20	120	24	144
2464	109550	109570	20	12	28	40
2465	109570	109590	20	120	30	150
2466	109590	109610	20	115	35	150
2467	109610	109630	20	90	60	150
2468	109630	109650	20	90	60	150
2469	109650	109670	20	12	60	72
2470	109670	109690	20	20	65	85
2471	109690	109710	20	85	18	103
2472	109710	109730	20	85	18	103

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2473	109730	109750	20	90	18	108
2474	109750	109770	20	12	21	33
2475	109770	109790	20	12	21	33
2476	109790	109810	20	12	15	27
2477	109810	109830	20	12	12	24
2478	109830	109850	20	24	12	36
2479	109850	109870	20	28	12	40
2480	109870	109890	20	25	12	37
2481	109890	109910	20	20	12	32
2482	109910	109930	20	12	20	32
2483	109930	109950	20	55	20	75
2484	109950	109970	20	45	12	57
2485	109970	109990	20	35	12	47
2486	109990	110010	20	50	12	62
2487	110010	110030	20	50	12	62
2488	110030	110050	20	55	18	73
2489	110050	110070	20	70	18	88
2490	110070	110090	20	65	18	83
2491	110090	110110	20	65	18	83
2492	110110	110130	20	80	18	98
2493	110130	110150	20	75	21	96
2494	110150	110170	20	12	15	27
2495	110170	110190	20	12	12	24
2496	110190	110210	20	60	12	72
2497	110210	110230	20	12	12	24
2498	110230	110250	20	45	15	60
2499	110250	110270	20	45	20	65

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2500	110270	110290	20	45	50	95
2501	110290	110310	20	35	55	90
2502	110310	110330	20	24	12	36
2503	110330	110350	20	12	45	57
2504	110350	110370	20	15	12	27
2505	110370	110390	20	12	12	24
2506	110390	110410	20	12	12	24
2507	110410	110430	20	12	12	24
2508	110430	110450	20	12	12	24
2509	110450	110470	20	12	12	24
2510	110470	110490	20	12	12	24
2511	110490	110510	20	12	12	24
2512	110510	110530	20	12	12	24
2513	110530	110550	20	20	12	32
2514	110550	110570	20	24	12	36
2515	110570	110590	20	28	12	40
2516	110590	110610	20	40	12	52
2517	110610	110630	20	45	12	57
2518	110630	110650	20	12	15	27
2519	110650	110670	20	12	20	32
2520	110670	110690	20	12	20	32
2521	110690	110710	20	12	20	32
2522	110710	110730	20	70	15	85
2523	110730	110750	20	35	12	47
2524	110750	110770	20	12	12	24
2525	110770	110790	20	12	20	32
2526	110790	110810	20	12	20	32

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2527	110810	110830	20	12	24	36
2528	110830	110850	20	12	24	36
2529	110850	110870	20	12	20	32
2530	110870	110890	20	24	12	36
2531	110890	110910	20	24	12	36
2532	110910	110930	20	12	12	24
2533	110930	110950	20	12	20	32
2534	110950	110970	20	12	24	36
2535	110970	110990	20	12	20	32
2536	110990	111010	20	20	12	32
2537	111010	111030	20	85	12	97
2538	111030	111050	20	80	12	92
2539	111050	111070	20	80	12	92
2540	111070	111090	20	80	12	92
2541	111090	111110	20	105	12	117
2542	111110	111130	20	105	12	117
2543	111130	111150	20	100	12	112
2544	111150	111170	20	100	12	112
2545	111170	111190	20	100	25	125
2546	111190	111210	20	12	20	32
2547	111210	111230	20	12	15	27
2548	111230	111250	20	12	28	40
2549	111250	111270	20	12	60	72
2550	111270	111290	20	50	65	115
2551	111290	111310	20	12	65	77
2552	111310	111330	20	12	60	72
2553	111330	111350	20	12	60	72

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2554	111350	111370	20	12	55	67
2555	111370	111390	20	12	30	42
2556	111390	111410	20	12	20	32
2557	111410	111430	20	12	20	32
2558	111430	111450	20	20	12	32
2559	111450	111470	20	24	12	36
2560	111470	111490	20	110	12	122
2561	111490	111510	20	120	12	132
2562	111510	111530	20	115	15	130
2563	111530	111550	20	50	12	62
2564	111550	111570	20	35	12	47
2565	111570	111590	20	12	12	24
2566	111590	111610	20	12	12	24
2567	111610	111630	20	12	12	24
2568	111630	111650	20	30	12	42
2569	111650	111670	20	40	12	52
2570	111670	111690	20	12	12	24
2571	111690	111710	20	12	12	24
2572	111710	111730	20	45	24	69
2573	111730	111750	20	60	12	72
2574	111750	111770	20	70	12	82
2575	111770	111790	20	12	12	24
2576	111790	111810	20	20	12	32
2577	111810	111830	20	25	25	50
2578	111830	111850	20	70	12	82
2579	111850	111870	20	70	65	135
2580	111870	111890	20	70	12	82

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2581	111890	111910	20	70	12	82
2582	111910	111930	20	45	12	57
2583	111930	111950	20	15	45	60
2584	111950	111970	20	24	40	64
2585	111970	111990	20	12	35	47
2586	111990	112010	20	60	35	95
2587	112010	112030	20	60	12	72
2588	112030	112050	20	12	20	32
2589	112050	112070	20	12	25	37
2590	112070	112090	20	12	20	32
2591	112090	112110	20	40	12	52
2592	112110	112130	20	12	12	24
2593	112130	112150	20	12	20	32
2594	112150	112170	20	12	28	40
2595	112170	112190	20	12	24	36
2596	112190	112210	20	50	12	62
2597	112210	112230	20	105	12	117
2598	112230	112250	20	12	15	27
2599	112250	112270	20	12	12	24
2600	112270	112290	20	120	12	132
2601	112290	112310	20	125	18	143
2602	112310	112330	20	125	18	143
2603	112330	112350	20	30	18	48
2604	112350	112370	20	60	18	78
2605	112370	112390	20	65	18	83
2606	112390	112410	20	12	18	30
2607	112410	112430	20	28	15	43

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2608	112430	112450	20	24	15	39
2609	112450	112470	20	28	12	40
2610	112470	112490	20	35	12	47
2611	112490	112510	20	45	20	65
2612	112510	112530	20	12	15	27
2613	112530	112550	20	100	15	115
2614	112550	112570	20	95	12	107
2615	112570	112590	20	100	12	112
2616	112590	112610	20	105	12	117
2617	112610	112630	20	20	12	32
2618	112630	112650	20	110	12	122
2619	112650	112670	20	35	12	47
2620	112670	112690	20	12	12	24
2621	112690	112710	20	12	45	57
2622	112710	112730	20	12	45	57
2623	112730	112750	20	12	50	62
2624	112750	112770	20	75	12	87
2625	112770	112790	20	95	20	115
2626	112790	112810	20	105	20	125
2627	112810	112830	20	110	35	145
2628	112830	112850	20	105	12	117
2629	112850	112870	20	105	12	117
2630	112870	112890	20	105	45	150
2631	112890	112910	20	85	45	130
2632	112910	112930	20	50	45	95
2633	112930	112950	20	12	45	57
2634	112950	112970	20	12	45	57

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2635	112970	112990	20	55	24	79
2636	112990	113010	20	55	12	67
2637	113010	113030	20	35	12	47
2638	113030	113050	20	35	12	47
2639	113050	113070	20	12	12	24
2640	113070	113090	20	24	12	36
2641	113090	113110	20	35	12	47
2642	113110	113130	20	28	12	40
2643	113130	113150	20	12	12	24
2644	113150	113170	20	12	12	24
2645	113170	113190	20	35	12	47
2646	113190	113210	20	35	12	47
2647	113210	113230	20	50	12	62
2648	113230	113250	20	12	12	24
2649	113250	113270	20	12	12	24
2650	113270	113290	20	12	12	24
2651	113290	113310	20	105	12	117
2652	113310	113330	20	110	12	122
2653	113330	113350	20	105	12	117
2654	113350	113370	20	85	12	97
2655	113370	113390	20	12	12	24
2656	113390	113410	20	12	12	24
2657	113410	113430	20	12	15	27
2658	113430	113450	20	12	20	32
2659	113450	113470	20	12	20	32
2660	113470	113490	20	12	20	32
2661	113490	113510	20	40	12	52

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2662	113510	113530	20	45	12	57
2663	113530	113550	20	12	12	24
2664	113550	113570	20	12	12	24
2665	113570	113590	20	125	12	137
2666	113590	113610	20	120	12	132
2667	113610	113630	20	12	15	27
2668	113630	113650	20	12	15	27
2669	113650	113670	20	12	20	32
2670	113670	113690	20	60	24	84
2671	113690	113710	20	110	12	122
2672	113710	113730	20	12	20	32
2673	113730	113750	20	12	18	30
2674	113750	113770	20	12	18	30
2675	113770	113790	20	80	18	98
2676	113790	113810	20	40	18	58
2677	113810	113830	20	20	18	38
2678	113830	113850	20	15	12	27
2679	113850	113870	20	15	15	30
2680	113870	113890	20	24	12	36
2681	113890	113910	20	20	12	32
2682	113910	113930	20	12	12	24
2683	113930	113950	20	12	20	32
2684	113950	113970	20	12	20	32
2685	113970	113990	20	12	28	40
2686	113990	114010	20	12	35	47
2687	114010	114030	20	12	28	40
2688	114030	114050	20	12	30	42

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2689	114050	114070	20	12	35	47
2690	114070	114090	20	12	30	42
2691	114090	114110	20	12	28	40
2692	114110	114130	20	12	12	24
2693	114130	114150	20	12	12	24
2694	114150	114170	20	12	12	24
2695	114170	114190	20	12	12	24
2696	114190	114210	20	12	12	24
2697	114210	114230	20	50	20	70
2698	114230	114250	20	100	15	115
2699	114250	114270	20	115	12	127
2700	114270	114290	20	100	12	112
2701	114290	114310	20	12	12	24
2702	114310	114330	20	12	24	36
2703	114330	114350	20	12	12	24
2704	114350	114370	20	30	12	42
2705	114370	114390	20	30	12	42
2706	114390	114410	20	65	18	83
2707	114410	114430	20	12	26	38
2708	114430	114450	20	24	18	42
2709	114450	114470	20	12	18	30
2710	114470	114490	20	12	18	30
2711	114490	114510	20	12	18	30
2712	114510	114530	20	12	12	24
2713	114530	114550	20	12	12	24
2714	114550	114570	20	20	12	32
2715	114570	114590	20	20	12	32

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2716	114590	114610	20	12	12	24
2717	114610	114630	20	12	12	24
2718	114630	114650	20	12	12	24
2719	114650	114670	20	12	12	24
2720	114670	114690	20	12	15	27
2721	114690	114710	20	12	20	32
2722	114710	114730	20	12	24	36
2723	114730	114750	20	12	24	36
2724	114750	114770	20	12	24	36
2725	114770	114790	20	12	20	32
2726	114790	114810	20	15	12	27
2727	114810	114830	20	12	12	24
2728	114830	114850	20	35	20	55
2729	114850	114870	20	15	12	27
2730	114870	114890	20	12	12	24
2731	114890	114910	20	12	20	32
2732	114910	114930	20	12	12	24
2733	114930	114950	20	15	12	27
2734	114950	114970	20	12	12	24
2735	114970	114990	20	15	12	27
2736	114990	115010	20	12	12	24
2737	115010	115030	20	12	12	24
2738	115030	115050	20	12	12	24
2739	115050	115070	20	12	60	72
2740	115070	115090	20	12	35	47
2741	115090	115110	20	12	28	40
2742	115110	115130	20	40	12	52

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2743	115130	115150	20	50	12	62
2744	115150	115170	20	35	15	50
2745	115170	115190	20	20	20	40
2746	115190	115210	20	20	12	32
2747	115210	115230	20	28	12	40
2748	115230	115250	20	25	18	43
2749	115250	115270	20	12	18	30
2750	115270	115290	20	12	18	30
2751	115290	115310	20	12	18	30
2752	115310	115330	20	12	18	30
2753	115330	115350	20	12	12	24
2754	115350	115370	20	28	12	40
2755	115370	115390	20	30	12	42
2756	115390	115410	20	28	12	40
2757	115410	115430	20	28	12	40
2758	115430	115450	20	24	12	36
2759	115450	115470	20	12	12	24
2760	115470	115490	20	12	12	24
2761	115490	115510	20	12	12	24
2762	115510	115530	20	12	12	24
2763	115530	115550	20	12	12	24
2764	115550	115570	20	60	12	72
2765	115570	115590	20	70	28	98
2766	115590	115610	20	12	35	47
2767	115610	115630	20	12	30	42
2768	115630	115650	20	12	28	40
2769	115650	115670	20	12	28	40

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2770	115670	115690	20	70	28	98
2771	115690	115710	20	125	12	137
2772	115710	115730	20	55	12	67
2773	115730	115750	20	125	12	137
2774	115750	115770	20	40	12	52
2775	115770	115790	20	40	12	52
2776	115790	115810	20	125	12	137
2777	115810	115830	20	12	12	24
2778	115830	115850	20	12	12	24
2779	115850	115870	20	12	12	24
2780	115870	115890	20	24	12	36
2781	115890	115910	20	28	15	43
2782	115910	115930	20	30	15	45
2783	115930	115950	20	20	12	32
2784	115950	115970	20	12	24	36
2785	115970	115990	20	12	24	36
2786	115990	116010	20	12	12	24
2787	116010	116030	20	12	12	24
2788	116030	116050	20	12	12	24
2789	116050	116070	20	12	12	24
2790	116070	116090	20	12	15	27
2791	116090	116110	20	60	15	75
2792	116110	116130	20	12	20	32
2793	116130	116150	20	12	15	27
2794	116150	116170	20	12	20	32
2795	116170	116190	20	12	20	32
2796	116190	116210	20	120	12	132

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2797	116210	116230	20	12	15	27
2798	116230	116250	20	12	15	27
2799	116250	116270	20	12	12	24
2800	116270	116290	20	30	12	42
2801	116290	116310	20	95	18	113
2802	116310	116330	20	12	21	33
2803	116330	116350	20	12	18	30
2804	116350	116370	20	12	21	33
2805	116370	116390	20	110	18	128
2806	116390	116410	20	110	18	128
2807	116410	116430	20	115	12	127
2808	116430	116450	20	105	12	117
2809	116450	116470	20	95	12	107
2810	116470	116490	20	105	12	117
2811	116490	116510	20	110	12	122
2812	116510	116530	20	40	12	52
2813	116530	116550	20	95	12	107
2814	116550	116570	20	105	12	117
2815	116570	116590	20	30	12	42
2816	116590	116610	20	12	12	24
2817	116610	116630	20	12	12	24
2818	116630	116650	20	12	12	24
2819	116650	116670	20	110	12	122
2820	116670	116690	20	105	12	117
2821	116690	116710	20	105	20	125
2822	116710	116730	20	110	12	122
2823	116730	116750	20	115	12	127

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2824	116750	116770	20	55	20	75
2825	116770	116790	20	12	20	32
2826	116790	116810	20	12	20	32
2827	116810	116830	20	12	20	32
2828	116830	116850	20	12	20	32
2829	116850	116870	20	12	20	32
2830	116870	116890	20	12	20	32
2831	116890	116910	20	12	20	32
2832	116910	116930	20	12	20	32
2833	116930	116950	20	12	20	32
2834	116950	116970	20	12	15	27
2835	116970	116990	20	115	12	127
2836	116990	117010	20	110	12	122
2837	117010	117030	20	110	12	122
2838	117030	117050	20	95	12	107
2839	117050	117070	20	100	12	112
2840	117070	117090	20	105	12	117
2841	117090	117110	20	50	12	62
2842	117110	117130	20	45	12	57
2843	117130	117150	20	12	12	24
2844	117150	117170	20	12	12	24
2845	117170	117190	20	12	12	24
2846	117190	117210	20	115	12	127
2847	117210	117230	20	125	12	137
2848	117230	117250	20	30	20	50
2849	117250	117270	20	12	20	32
2850	117270	117290	20	12	20	32

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
2851	117290	117310	20	120	12	132
2852	117310	117330	20	130	18	148
2853	117330	117350	20	120	18	138
2854	117350	117370	20	120	26	146
2855	117370	117390	20	105	30	135
2856	117390	117410	20	100	30	130
2857	117410	117430	20	12	30	42
2858	117430	117450	20	85	12	97
2859	117450	117470	20	12	15	27
2860	117470	117490	20	12	24	36
2861	117490	117510	20	12	12	24
2862	117510	117530	20	12	12	24
2863	117530	117550	20	12	12	24
2864	117550	117570	20	12	12	24
2865	117570	117590	20	12	12	24
2866	117590	117610	20	12	12	24
2867	117610	117630	20	12	12	24
2868	117630	117650	20	65	12	77
2869	117650	117670	20	12	30	42
2870	117670	117690	20	12	35	47
2871	117690	117710	20	12	45	57
2872	117710	117730	20	12	50	62
2873	117730	117750	20	12	50	62
2874	117750	117770	20	12	55	67
2875	117770	117790	20	12	15	27
2876	117790	117810	20	85	15	100
2877	117810	117830	20	65	12	77

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS + RHS
2878	117830	117850	20	35	12	47
2879	117850	117870	20	100	12	112
2880	117870	117890	20	110	12	122
2881	117890	117910	20	105	15	120
2882	117910	117930	20	95	12	107
2883	117930	117950	20	110	12	122
2884	117950	117970	20	115	12	127
2885	117970	117990	20	125	12	137
2886	117990	118010	20	125	12	137
2887	118010	118030	20	115	12	127
2888	118030	118050	20	120	12	132
2889	118050	118070	20	45	12	57
2890	118070	118090	20	12	15	27
2891	118090	118110	20	12	12	24
2892	118110	118130	20	12	12	24
2893	118130	118150	20	30	12	42
2894	118150	118170	20	24	12	36
2895	118170	118190	20	12	12	24
2896	118190	118210	20	12	12	24
2897	118210	118230	20	12	12	24
2898	118230	118250	20	12	12	24
2899	118250	118270	20	12	12	24
2900	118270	118290	20	12	12	24
2901	118290	118310	20	50	12	62
2902	118310	118330	20	28	18	46
2903	118330	118350	20	12	18	30
2904	118350	118370	20	20	18	38

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2905	118370	118390	20	20	18	38
2906	118390	118410	20	70	18	88
2907	118410	118430	20	70	12	82
2908	118430	118450	20	70	12	82
2909	118450	118470	20	12	20	32
2910	118470	118490	20	12	28	40
2911	118490	118510	20	12	35	47
2912	118510	118530	20	70	40	110
2913	118530	118550	20	12	35	47
2914	118550	118570	20	12	15	27
2915	118570	118590	20	70	15	85
2916	118590	118610	20	12	12	24
2917	118610	118630	20	12	50	62
2918	118630	118650	20	12	65	77
2919	118650	118670	20	12	65	77
2920	118670	118690	20	12	70	82
2921	118690	118710	20	12	65	77
2922	118710	118730	20	12	65	77
2923	118730	118750	20	12	24	36
2924	118750	118770	20	12	24	36
2925	118770	118790	20	70	12	82
2926	118790	118810	20	70	12	82
2927	118810	118830	20	12	12	24
2928	118830	118850	20	70	12	82
2929	118850	118870	20	12	12	24
2930	118870	118890	20	12	15	27
2931	118890	118910	20	12	24	36

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2932	118910	118930	20	24	12	36
2933	118930	118950	20	55	12	67
2934	118950	118970	20	70	20	90
2935	118970	118990	20	45	12	57
2936	118990	119010	20	45	12	57
2937	119010	119030	20	65	12	77
2938	119030	119050	20	60	15	75
2939	119050	119070	20	12	20	32
2940	119070	119090	20	40	12	52
2941	119090	119110	20	40	12	52
2942	119110	119130	20	40	20	60
2943	119130	119150	20	40	20	60
2944	119150	119170	20	12	24	36
2945	119170	119190	20	50	20	70
2946	119190	119210	20	50	24	74
2947	119210	119230	20	35	12	47
2948	119230	119250	20	30	12	42
2949	119250	119270	20	28	12	40
2950	119270	119290	20	12	12	24
2951	119290	119310	20	12	12	24
2952	119310	119330	20	12	12	24
2953	119330	119350	20	12	12	24
2954	119350	119370	20	12	26	38
2955	119370	119390	20	12	26	38
2956	119390	119410	20	15	26	41
2957	119410	119430	20	12	30	42
2958	119430	119450	20	12	30	42

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2959	119450	119470	20	12	30	42
2960	119470	119490	20	50	24	74
2961	119490	119510	20	50	12	62
2962	119510	119530	20	50	12	62
2963	119530	119550	20	50	20	70
2964	119550	119570	20	50	24	74
2965	119570	119590	20	50	24	74
2966	119590	119610	20	12	12	24
2967	119610	119630	20	12	12	24
2968	119630	119650	20	12	12	24
2969	119650	119670	20	12	35	47
2970	119670	119690	20	50	12	62
2971	119690	119710	20	50	15	65
2972	119710	119730	20	50	20	70
2973	119730	119750	20	50	20	70
2974	119750	119770	20	50	12	62
2975	119770	119790	20	50	12	62
2976	119790	119810	20	50	20	70
2977	119810	119830	20	50	12	62
2978	119830	119850	20	50	12	62
2979	119850	119870	20	12	12	24
2980	119870	119890	20	12	12	24
2981	119890	119910	20	12	12	24
2982	119910	119930	20	12	12	24
2983	119930	119950	20	12	25	37
2984	119950	119970	20	12	20	32
2985	119970	119990	20	12	20	32

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
2986	119990	120010	20	12	12	24
2987	120010	120030	20	30	12	42
2988	120030	120050	20	28	12	40
2989	120050	120070	20	28	12	40
2990	120070	120090	20	12	12	24
2991	120090	120110	20	12	18	30
2992	120110	120130	20	40	18	58
2993	120130	120150	20	40	26	66
2994	120150	120170	20	40	18	58
2995	120170	120190	20	40	18	58
2996	120190	120210	20	40	18	58
2997	120210	120230	20	40	12	52
2998	120230	120250	20	40	12	52
2999	120250	120270	20	40	12	52
3000	120270	120290	20	40	12	52
3001	120290	120310	20	40	12	52
3002	120310	120330	20	40	15	55
3003	120330	120350	20	12	20	32
3004	120350	120370	20	40	20	60
3005	120370	120390	20	40	12	52
3006	120390	120410	20	40	12	52
3007	120410	120430	20	40	12	52
3008	120430	120450	20	40	12	52
3009	120450	120470	20	40	35	75
3010	120470	120490	20	12	55	67
3011	120490	120510	20	40	65	105
3012	120510	120530	20	40	65	105

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
3013	120530	120550	20	40	65	105
3014	120550	120570	20	12	60	72
3015	120570	120590	20	12	55	67
3016	120590	120610	20	12	60	72
3017	120610	120630	20	40	65	105
3018	120630	120650	20	40	20	60
3019	120650	120670	20	40	40	80
3020	120670	120690	20	40	12	52
3021	120690	120710	20	40	12	52
3022	120710	120730	20	40	12	52
3023	120730	120750	20	40	12	52
3024	120750	120770	20	40	12	52
3025	120770	120790	20	40	12	52
3026	120790	120810	20	40	12	52
3027	120810	120830	20	40	12	52
3028	120830	120850	20	60	12	72
3029	120850	120870	20	60	12	72
3030	120870	120890	20	60	12	72
3031	120890	120910	20	60	12	72
3032	120910	120930	20	60	12	72
3033	120930	120950	20	12	12	24
3034	120950	120970	20	60	12	72
3035	120970	120990	20	12	12	24
3036	120990	121010	20	12	12	24
3037	121010	121030	20	12	18	30

SR NO.	Chainage		Length (m.)	PROW (m)		
	From	To		LHS	RHS	LHS +RHS
3038	121030	121050	20	12	18	30
3039	121050	121070	20	12	18	30
3040	121070	121090	20	12	18	30
3041	121090	121110	20	12	18	30
3042	121110	121130	20	12	18	30
3043	121130	121150	20	12	12	24
3044	121150	121170	20	30	12	42
3045	121170	121190	20	35	12	47
3046	121190	121210	20	12	24	36
3047	121210	121230	20	12	25	37
3048	121230	121250	20	12	12	24
3049	121250	121270	20	45	12	57
3050	121270	121290	20	45	12	57
3051	121290	121310	20	20	12	32
3052	121310	121330	20	12	12	24
3053	121330	121350	20	12	12	24
3054	121350	121370	20	12	12	24
3055	121370	121390	20	12	12	24
3056	121390	121410	20	12	24	36
3057	121410	121430	20	12	24	36
3058	121430	121450	20	12	24	36
3059	121450	121470	20	12	28	40
3060	121470	121490	20	35	25	60
3061	121490	121500	10	45	12	57

Annex - III

(Schedule-A)

Alignment Plans

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

- (i) Updated Plan & Profile to be enclosed with the Schedule. 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)

Environment Clearances

The proposed project does not require Environmental clearance as per the MoEF&CC Notification No S.O. 3194(E) dated 14th July, 2022 which states that “All Highway projects are exempted upto 100 km from line of control or border subject to compliance of Standard Operating Procedure notified in this regard from time to time”.

The proposed greenfield alignment does not pass through any protected/reserved forest land; Forest clearance, MoEF & CC clearance is not required.

Schedule B

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. Construction of Intermediate Lane with Earthen Shoulder

Intermediate laning shall include construction of the Intermediate Lane with earthen shoulder 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 INTERMEDIATE LANE WITH EARTHEN SHOULDER

[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 [Intermediate Laning of Highways (Hill roads - IRC: 52-2019 and Hill Road manual IRC: SP 48 - 1998 and IRC SP 73-2018 referred to as the Manual, and MORTH Specifications for Road and Bridge Works 5th Revision 2013 or latest version), 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 particulars, 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 is greenfield alignment shown in the alignment plans specified in Annexure 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/Mountainous terrain to the extent possible within the available land available with the authority.

(ii) Width of Carriageway

- (a) The paved carriageway shall be Intermediate Lane with hard shoulder in accordance with IRC: SP: 73-2018. The paved carriageway shall be 5.5 m wide having 1.45 m hard shoulders on both sides.

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

S. No.	Built-up Section Township	Design Chainage		Width of Paved carriageway (m)	TCS Type
		From	To		
Nil					

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

2 Geometric Design and General Features

(i) General

Geometric design and general features of the Project Highway shall be in accordance with “Guidelines for Alignment survey and Geometric design of Hill roads- IRC: 52-2019 and Hill Road manual IRC: SP 48 - 1998 and IRC - SP 73-2018”and relevant Manual.

(ii) Design speed

The design speed shall be the minimum design speed of 40-60 Km per hr.

(iii) Improvement of the existing road geometrics

S. No.	Stretch Design Chainage (from km to Km)	Length (Km)	Remarks
Nil			

(iv) Right of Way

The details of the proposed ROW are given in **Annex-II of Schedule-A.**

(v) Type of shoulders

- (a) In built-up sections, footpaths/covered drains shall be provided in the following stretches:

Sl. No	Left side			Right side		
	From	To	Length (m)	From	To	Length (m)
NIL						

- (b) In open country, hard shoulders of **1.45 m width** shall be provided with 150 mm thick compacted layer of granular material.

- (c) Design and specifications of earthen shoulders and granular material shall conform to the requirements specified in the relevant 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 the provision of relevant Manual.
- (b) Lateral clearance: The width of the opening at the underpasses shall be as per provision of relevant manual:

(x) **Cattle and pedestrian under pass / over pass**

Cattle and pedestrian underpass/ overpass shall be constructed as follows:

Sl. No.	Location	Type of crossing
NIL		

(xi) **Typical cross-sections of the Project Highway**

The schedule of typical cross-sections is given in the table below. Drawings of typical cross-sections are given in **Appendix B-I**.

Summary of TCS

Type	Total Length	Road Length	TCS Type (Package-03)
TCS 01	0.248	0.248	Intermediate-Lane in Fill Section (Banking Ht. less than 3m)
TCS 02	0.148	0.148	Intermediate-Lane with both side toe wall in Fill Section (Banking Ht. more than 3m)
TCS 03	0.080	0.080	Intermediate-Lane in Cut Section (Ht. less than 1m)
TCS 04	1.396	1.396	Intermediate-Lane with both side drain in Cut Section (Cutting Ht. >1m & less than 7m)
TCS 05	6.277	6.277	Intermediate-Lane with one side drain in Cut Section (Cutting Ht. >1m & less than 7m)
TCS 06	8.133	8.133	Intermediate-Lane with one side Breast with drain in Cut Section (Cutting Ht. >7m)
TCS 07	11.936	11.936	Intermediate-Lane with one side Breast wall and both sides drain in Cut Section (Cutting Ht. > 7m)
TCS 08	8.162	8.162	Intermediate-Lane with both side Breast wall and both sides Drain in Cut Section (Cutting Ht. > 7m)
TCS 09	2.351	2.351	Intermediate-Lane in Fill Section (with Left side Retaining wall (Banking ht. more than 3m)
TCS 10	2.322	2.322	Intermediate-Lane in Fill Section (with Left side Retaining wall offset from Shoulder/ Banking ht. more than 3m)
TCS 11	0.178	0.178	Intermediate-Lane in Fill Section (with Right side Retaining wall (Banking ht. more than 3m)
TCS 12	1.258	1.258	Intermediate-Lane in Fill Section (with Right side Retaining wall offset from Shoulder/ Banking ht. more than 3m)

Type	Total Length	Road Length	TCS Type (Package-03)
TCS 13	10.501	10.501	Intermediate-Lane in Fill Section (with both side Retaining wall Banking ht. more than 3m)
TCS 14	2.712	2.712	Intermediate-Lane in Fill Section (with both side Retaining wall offset from Shoulder/ Banking ht. more than 3m)
CD Length	5.798	5.798	CD Structure
Total	61.500	61.500	

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.

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

(I) At grade Intersections

Sl. No	CHAINAGE	TYPE	SIDE	CONNECTING PLACES
1	121.500	x		Profile to matched with NH-113 at Tidding Bridge

(ii) Grade Separated Intersection With/Without Ramps

S. 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 IRC: 52-2019 and IRC: SP 48 - 1998 and the specified typical cross section. Deficiencies in the plan and profile of the existing road shall be corrected.
- (ii) Raising of the existing road/New carriageway

The existing road shall be raised in the following sections:

Sr. No.	Section (From km to Km)	Length	Extent of raising [Top of finished road level]
Nil			

5 Pavement Design

(i) Pavement with following composition shall be adopted for the project road: 20 mm- MSS, 50 mm -DBM, 150 mm- WMM, 100 mm- GSB as drainage layer.

(ii) **Type of pavement**

Flexible pavement shall be provided for the entire length of project highway.

(iii) **Design requirements**

Deleted.

(a) **Design Period and strategy**

Deleted.

(b) **Design Traffic**

Deleted.

(iv) **Reconstruction of Stretches**

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

Sl. No.	Stretch From km to km	Remarks	TCS Type
Nil			

6 Road Side Drainage

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

(a) Lined drain shall be provided in the following stretches

LEFT			RIGHT		
FROM CHAINAGE (M)	TO CHAINAGE (M)	LENGTH (M)	FROM CHAINAGE	TO CHAINAGE	LENGTH (M)
60000	60005	5	60016	60060	44
60016	60073	57	60160	60260	100
60080	60138	58	60320	60340	20

LEFT			RIGHT		
FROM CHAINAGE (M)	TO CHAINAGE (M)	LENGTH (M)	FROM CHAINAGE	TO CHAINAGE	LENGTH (M)
60160	60284	124	60380	60523	143
60320	60616	296	60580	60616	36
60620	60777	157	60620	60625	5
60800	60880	80	60650	60740	90
60900	60907	7	60800	60880	80
60934	61035	101	60980	61035	55
61060	61257	197	61120	61135	15
61284	61414	130	61220	61257	37
61420	61480	60	61320	61340	20
61517	61694	177	61380	61414	34
61707	61747	40	61420	61437	17
61774	61854	80	61560	61580	20
61860	62084	224	61740	61747	7
62120	62188	68	61820	61840	20
62197	62332	135	61940	62080	140
62369	62510	141	62160	62188	28
62527	62705	178	62220	62332	112
62716	62816	100	62369	62480	111
62825	62891	66	62527	62600	73
62900	63009	109	62660	62680	20
63046	63117	71	62780	62800	20
63154	63209	55	62880	62891	11
63236	63334	98	62960	63000	40
63340	63506	166	63080	63117	37
63515	63595	80	63280	63334	54
63605	63658	53	63380	63420	40
63673	63760	87	63440	63480	40
63780	63853	73	63580	63595	15
63900	63994	94	63640	63658	18
63997	64142	145	63673	63853	180
64169	64300	131	63920	63940	20
64360	64400	40	63960	63994	34
64420	64440	20	64040	64142	102
64540	64600	60	64200	64300	100
64740	64824	84	64360	64400	40
64880	64900	20	64420	64440	20
64917	65116	199	64540	64600	60
65125	65275	150	64960	65000	40
65286	65332	46	65020	65060	40
65345	65516	171	65160	65260	100
65525	65676	151	65320	65332	12
65685	65907	222	65360	65480	120
65934	66034	100	65620	65660	40

LEFT			RIGHT		
FROM CHAINAGE (M)	TO CHAINAGE (M)	LENGTH (M)	FROM CHAINAGE	TO CHAINAGE	LENGTH (M)
66061	66178	117	65740	65780	40
66187	66380	193	65934	66034	100
66400	66615	215	66100	66140	40
66625	66920	295	66220	66380	160
66930	67104	174	66420	66560	140
67140	67185	45	66600	66615	15
67196	67254	58	66680	66720	40
67267	67795	528	66760	66920	160
67806	67986	180	66960	67080	120
67995	68156	161	67340	67420	80
68180	68434	254	67460	67795	335
68447	68616	169	67900	67980	80
68625	68826	201	68040	68156	116
68835	69026	191	68200	68240	40
69040	69364	324	68260	68320	60
69377	69675	298	68500	68540	40
69686	69700	14	68680	68760	80
69720	69887	167	68880	68900	20
69940	70004	64	68920	69000	80
70040	70140	100	69080	69360	280
70200	70260	60	69377	69400	23
70300	70357	57	69500	69520	20
70404	70554	150	69620	69660	40
70567	70664	97	69780	69880	100
70677	70825	148	69960	69980	20
70838	70950	112	70080	70100	20
70960	71036	76	70320	70357	37
71045	71214	169	70404	70400	-4
71227	71494	267	70600	70660	60
71507	71994	487	70740	70760	20
72007	72077	70	70900	70920	20
72124	72120	-4	71160	71180	20
72140	72176	36	71280	71400	120
72185	72200	15	71440	71480	40
72220	72432	212	71560	71660	100
72469	72714	245	71700	71740	40
72740	72961	221	71860	71960	100
72970	72978	8	72020	72040	20
72993	73084	91	72124	72140	16
73097	73335	238	72220	72240	20
73346	73494	148	72820	72940	120
73507	73520	13	72993	73020	27
73580	73760	180	73140	73160	20

LEFT			RIGHT		
FROM CHAINAGE (M)	TO CHAINAGE (M)	LENGTH (M)	FROM CHAINAGE	TO CHAINAGE	LENGTH (M)
73789	73920	131	73180	73300	120
73940	74046	106	73460	73494	34
74060	74133	73	73760	73772	12
74140	74160	20	73840	73860	20
74200	74245	45	73880	73900	20
74280	74740	460	73920	74046	126
74780	74840	60	74240	74245	5
74860	74877	17	74300	74360	60
74940	75000	60	74380	74440	60
75040	75226	186	74540	74720	180
75235	75500	265	75100	75200	100
75604	75860	256	75280	75480	200
75920	76139	219	75760	75840	80
76200	76337	137	75960	75980	20
76364	76360	-4	76060	76139	79
76380	76674	294	76220	76260	40
76687	76875	188	76320	76337	17
76886	77148	262	76400	76480	80
77200	77304	104	76500	76540	40
77317	77685	368	76560	76660	100
77720	77754	34	76720	76840	120
77780	77940	160	76940	77148	208
78040	78080	40	77200	77300	100
78090	78292	202	77420	77500	80
78360	78565	205	77540	77580	40
78575	78741	166	77620	77685	65
78750	78889	139	78140	78240	100
78920	79156	236	78620	78680	60
79165	79426	261	78960	79000	40
79440	79725	285	79040	79156	116
79736	79784	48	79220	79260	40
79797	79896	99	79300	79340	40
79905	79983	78	79380	79420	40
80020	80080	60	79540	79700	160
80120	80160	40	79860	79896	36
80280	80300	20	79940	79983	43
80320	80360	40	80020	80254	234
80380	80420	40	80267	80680	413
80460	80500	40	80740	80900	160
80580	80600	20	80920	80955	35
80620	80640	20	80966	80980	14
81030	81130	100	81000	81175	175
81210	81230	20	81185	81289	104

LEFT			RIGHT		
FROM CHAINAGE (M)	TO CHAINAGE (M)	LENGTH (M)	FROM CHAINAGE	TO CHAINAGE	LENGTH (M)
81250	81289	39	81302	81310	8
81302	81310	8	81350	81370	20
81430	81470	40	81410	81487	77
81570	81590	20	81530	81664	134
81710	81790	80	81677	82044	367
81850	81950	100	82057	82110	53
82070	82090	20	82130	82821	691
82150	82350	200	82830	82990	160
82430	82550	120	83049	83090	41
82590	82710	120	83149	83244	95
82890	82990	100	83257	83290	33
83150	83190	40	83330	83596	266
83330	83410	80	83605	83670	65
83470	83570	100	83697	83790	93
83710	83790	80	83817	83981	164
83830	83950	120	83990	84110	120
84030	84110	80	84210	84270	60
84230	84250	20	84770	84798	28
84270	84305	35	84890	84970	80
84315	84600	285	85110	85230	120
84611	84664	53	85270	85410	140
84677	84690	13	85690	85730	40
84710	84798	88	85770	85830	60
84870	85052	182	86270	86350	80
85110	85455	345	86450	86550	100
85510	85536	26	86950	86970	20
85545	85550	5	87050	87150	100
85570	85616	46	87470	87530	60
85625	85885	260	87710	87790	80
85895	85980	85	87910	87970	60
85990	86110	120	88010	88070	60
86250	86374	124	88130	88150	20
86387	86390	3	88290	88350	60
86410	86610	200	88510	88610	100
86730	86767	37	89070	89090	20
86810	86857	47	89890	89950	60
86904	87184	280	90690	90810	120
87197	87285	88	91010	91130	120
87296	87370	74	91250	91370	120
87450	87577	127	91490	91554	64
87610	87630	20	91650	91745	95
87710	87817	107	91770	91848	78
87890	87981	91	91950	91984	34

LEFT			RIGHT		
FROM CHAINAGE (M)	TO CHAINAGE (M)	LENGTH (M)	FROM CHAINAGE	TO CHAINAGE	LENGTH (M)
87990	88090	100	92050	92090	40
88130	88174	44	92270	92430	160
88187	88222	35	92670	92770	100
88270	88417	147	92890	92970	80
88470	88725	255	93090	93130	40
88735	88875	140	93450	93490	40
88885	89250	365	93510	93570	60
89290	89424	134	93830	93927	97
89437	89450	13	94010	94090	80
89470	89595	125	94370	94392	22
89605	89665	60	94470	94510	40
89675	89716	41	94610	94657	47
89725	89804	79	94750	94790	40
89817	89969	152	94850	94910	60
89982	90044	62	95050	95117	67
90070	90127	57	95230	95250	20
90170	90227	57	95350	95447	97
90290	90384	94	95550	95590	40
90410	90644	234	95830	96130	300
90670	90870	200	96390	96589	199
90930	90985	55	96630	96690	60
90995	91150	155	96730	96790	60
91210	91424	214	96850	96910	60
91450	91554	104	96970	97050	80
91590	91745	155	97090	97170	80
91755	91848	93	97190	97290	100
91930	91984	54	97370	97390	20
91997	92205	208	97470	97490	20
92215	92494	279	97570	97610	40
92550	92602	52	97670	97710	40
92650	92834	184	97750	97810	60
92847	92984	137	98330	98370	40
93010	93042	32	98410	98490	80
93079	93290	211	98670	98710	40
93370	93595	225	98730	98810	80
93606	93716	110	99050	99110	60
93725	93927	202	99270	99390	120
93990	94104	114	99770	99850	80
94150	94184	34	99870	99930	60
94197	94270	73	100230	100310	80
94310	94392	82	100350	100410	60
94439	94550	111	100510	100570	60
94610	94657	47	100594	100690	96

LEFT			RIGHT		
FROM CHAINAGE (M)	TO CHAINAGE (M)	LENGTH (M)	FROM CHAINAGE	TO CHAINAGE	LENGTH (M)
94710	94994	284	100790	101010	220
95007	95117	110	101450	101550	100
95170	95447	277	101650	101870	220
95510	95600	90	101970	102110	140
95610	95669	59	102710	102770	60
95682	95750	68	102810	102850	40
95810	96210	400	102930	102970	40
96370	96589	219	103390	103430	40
96602	96806	204	103450	103557	107
96815	96929	114	103650	103790	140
96950	97306	356	103870	103950	80
97315	97412	97	104010	104110	100
97429	97430	1	104250	104270	20
97450	97512	62	104370	104470	100
97529	97917	388	104870	104970	100
98210	98295	85	105050	105110	60
98310	98576	266	105150	105197	47
98590	98874	284	105270	105330	60
98887	98970	83	105410	105530	120
99050	99130	80	105610	105630	20
99250	99390	140	105650	105670	20
99490	99570	80	105790	106010	220
99670	99690	20	106030	106090	60
99750	99970	220	106110	106130	20
100030	100070	40	106170	106230	60
100090	100170	80	106610	106650	40
100190	100210	20	106750	106810	60
100230	100326	96	106890	106970	80
100335	100434	99	107010	107110	100
100447	100581	134	107170	107250	80
100594	100727	133	107350	107430	80
100770	101010	240	107450	107530	80
101070	101187	117	107610	107650	40
101204	101366	162	107690	107810	120
101375	101596	221	108030	108090	60
101605	101894	289	108510	108570	60
101970	102392	422	108650	108670	20
102409	102490	81	108770	108810	40
102539	102570	31	108850	108950	100
102610	102672	62	109030	109070	40
102689	102890	201	109130	109164	34
102930	102990	60	109177	109210	33
103170	103230	60	109390	109430	40

LEFT			RIGHT		
FROM CHAINAGE (M)	TO CHAINAGE (M)	LENGTH (M)	FROM CHAINAGE	TO CHAINAGE	LENGTH (M)
103250	103331	81	109650	109670	20
103350	103557	207	109730	109810	80
103630	103802	172	110150	110170	20
103849	103972	123	110490	110510	20
104010	104330	320	110650	110690	40
104350	104565	215	110770	110850	80
104575	104590	15	110910	110990	80
104670	104790	120	111190	111250	60
104830	104970	140	111290	111410	120
105030	105197	167	112030	112070	40
105270	105530	260	112129	112170	41
105590	105690	100	112210	112250	40
105770	106152	382	112510	112530	20
106169	106410	241	112650	112730	80
106470	106524	54	112910	112924	14
106537	106570	33	112937	112950	13
106590	106674	84	113130	113150	20
106710	106837	127	113230	113290	60
106884	106984	100	113370	113390	20
107010	107125	115	113427	113470	43
107150	107307	157	113530	113550	20
107330	107530	200	113630	113650	20
107590	107660	70	113710	113750	40
107670	107810	140	113910	114130	220
107870	107970	100	114290	114330	40
108010	108130	120	114470	114530	60
108170	108219	49	114610	114797	187
108230	108290	60	114850	114910	60
108330	108485	155	115050	115090	40
108495	108592	97	115290	115310	20
108650	108690	40	115430	115470	40
108750	108825	75	115590	115650	60
108835	108964	129	115810	115850	40
108977	109164	187	115950	116070	120
109177	109335	158	116090	116130	40
109345	109450	105	116310	116350	40
109510	109684	174	116610	116650	40
109697	109810	113	116750	116770	20
109890	109950	60	116790	116950	160
110050	110070	20	117130	117170	40
110090	110114	24	117230	117270	40
110127	110447	320	117450	117467	17
110490	110550	60	117674	117770	96

LEFT			RIGHT		
FROM CHAINAGE (M)	TO CHAINAGE (M)	LENGTH (M)	FROM CHAINAGE	TO CHAINAGE	LENGTH (M)
110570	110590	20	118070	118090	20
110610	110704	94	118170	118230	60
110717	110877	160	118470	118490	20
110904	110990	86	118530	118550	20
111110	111130	20	118590	118716	126
111159	111430	271	118730	118750	20
111450	111490	40	118810	118830	20
111550	111650	100	118850	118890	40
111730	111797	67	119030	119050	20
111830	111890	60	119330	119450	120
111910	111954	44	119850	119910	60
111986	112010	24	119930	119950	20
112030	112112	82	120070	120110	40
112129	112194	65	120550	120570	20
112210	112250	40	120970	121010	40
112290	112330	40	121050	121137	87
112370	112430	60	121190	121230	40
112477	112530	53	121410	121450	40
112590	112630	40			
112650	112750	100			
112810	112924	114			
112937	113070	133			
113110	113150	40			
113217	113310	93			
113370	113414	44			
113427	113569	142			
113590	113684	94			
113697	113874	177			
113887	114130	243			
114150	114190	40			
114270	114330	60			
114390	114530	140			
114590	114797	207			
114850	114960	110			
114970	115110	140			
115190	115210	20			
115230	115470	9580			
115550	115684	134			
115730	115749	19			
115790	115870	80			
115930	116180	250			
116190	116390	200			
116430	116470	40			

LEFT			RIGHT		
FROM CHAINAGE (M)	TO CHAINAGE (M)	LENGTH (M)	FROM CHAINAGE	TO CHAINAGE	LENGTH (M)
116490	116514	24			
116590	116670	80			
116730	116970	240			
117050	117070	20			
117130	117200	70			
117210	117290	80			
117310	117467	157			
117674	117834	160			
117850	117975	125			
117985	118136	151			
118145	118390	245			
118430	118567	137			
118594	118716	122			
118725	118776	51			
118785	118932	147			
119017	119075	58			
119090	119210	120			
119270	119310	40			
119330	119489	159			
119502	119597	95			
119630	119644	14			
119650	119665	15			
119690	119767	77			
119790	120010	220			
120055	120130	75			
120270	120355	85			
120365	120514	149			
120527	120636	109			
120645	120712	67			
120729	120730	1			
120750	120955	205			
120965	121030	65			
121050	121137	87			
121184	121250	66			
121370	121380	10			
121390	121500	110			
Total		56189.00	Total		23207.00

7

Designs of Structures

(i) General

- (a) All bridges, culverts and other structures shall be designed and constructed in accordance with section 7 of the Manual and shall conform 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 the provision of relevant Manual and specify the width of carriageway of new bridges and structures of more than 60(sixty) meter length, if the carriageway width is different from 7.5(seven point five) meters in the table below.]

Sl. No.	Bridge at km	Width of carriageway and cross-sectional features
1	98+060	Deck width of bridge: 9.0m, Railing: 500mm RCC on both side
2	101+935	
3	117+560	

***GAD attached.**

- (C) The following structures shall be provided with footpaths:

Sl. No.	Location at Km	Remarks
NIL		

- (d) All bridges shall be high level bridges.
- (e) The structures shall be designed to carry utility services like electric cable, water pipeline, OFC etc. as per the requirement of site.

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

- (f) Cross-section of the new culverts and bridges at deck level shall conform to the typical cross-sections given in section 7 of the Manual.

(ii) Culverts

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

(b) Reconstruction of culverts:

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

Sl. No.	Design Chainage (km)	Size (m)
Nil		

(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 section 7 of the 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
Nil			

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

Sr. No.	Culvert Location	Span Arrangement (m)	Overall Width (m)
1	60+010	1x4	9
2	60+290	1x5	9
3	60+374	1x4	9
4	60+527	1x2	9
5	60+770	1x5	9
6	61+030	1x5	9
7	61+140	1x4	9
8	61+420	1x5	9
9	60+620	1x2	9
10	61+860	1x5	9
11	62+090	1x5	9
12	62+192	1x2	9
13	62+710	1x4	9
14	62+820	1x2	9
15	62+895	1x2	9
16	63+340	1x5	9
17	63+510	1x2	9
18	63+600	1x3	9
19	63+990	1x5	9
20	64+310	1x5	9
21	64+660	1x5	9
22	64+830	1x5	9
23	64+910	1x5	9
24	65+120	1x2	9
25	65+280	1x4	9
26	65+338	1x5	9
27	65+520	1x2	9
28	65+680	1x2	9
29	66+182	1x2	9
30	66+620	1x3	9
31	66+925	1x3	9
32	67+110	1x5	9
33	67+190	1x4	9
34	67+260	1x5	9
35	67+800	1x4	9

Sr. No.	Culvert Location	Span Arrangement (m)	Overall Width (m)
36	67+990	1x2	9
37	68+160	1x2	9
38	68+440	1x5	9
39	68+620	1x2	9
40	68+830	1x2	9
41	69+030	1x2	9
42	69+370	1x5	9
43	69+680	1x4	9
44	70+010	1x5	9
45	70+165	1x5	9
46	70+560	1x5	9
47	70+670	1x5	9
48	70+831	1x5	9
49	70+955	1x3	9
50	71+040	1x2	9
51	71+220	1x5	9
52	71+500	1x5	9
53	72+000	1x5	9
54	72+180	1x2	9
55	72+720	1x5	9
56	72+965	1x2	9
57	73+090	1x5	9
58	73+340	1x4	9
59	73+500	1x5	9
60	74+050	1x2	9
61	74+250	1x3	9
62	75+005	1x4	9
63	75+230	1x2	9
64	75+530	1x5	9
65	75+870	1x5	9
66	76+145	1x5	9
67	76+680	1x5	9
68	76+880	1x4	9
69	77+310	1x5	9
70	77+690	1x3	9
71	77+760	1x5	9
72	77+980	1x5	9
73	78+085	1x3	9
74	78+570	1x3	9
75	78+745	1x2	9
76	78+895	1x5	9
77	79+160	1x2	9
78	79+430	1x2	9
79	79+730	1x4	9

Sr. No.	Culvert Location	Span Arrangement (m)	Overall Width (m)
80	79+790	1x5	9
81	79+900	1x2	9
82	80+260	1x5	9
83	80+700	1x5	9
84	80+960	1x4	9
85	81+180	1x3	9
86	81+295	1x5	9
87	81+670	1x5	9
88	82+050	1x5	9
89	82+825	1x2	9
90	83+250	1x5	9
91	83+320	1x5	9
92	83+600	1x2	9
93	83+690	1x5	9
94	83+810	1x5	9
95	83+985	1x2	9
96	84+170	1x5	9
97	84+310	1x3	9
98	84+605	1x4	9
99	84+670	1x5	9
100	85+460	1x4	9
101	85+540	1x2	9
102	85+620	1x2	9
103	85+890	1x3	9
104	85+985	1x3	9
105	86+380	1x5	9
106	86+670	1x5	9
107	87+190	1x5	9
108	87+290	1x4	9
109	87+400	1x5	9
110	87+670	1x5	9
111	87+985	1x2	9
112	88+180	1x5	9
113	88+730	1x3	9
114	88+880	1x3	9
115	89+275	1x5	9
116	89+430	1x5	9
117	89+600	1x3	9
118	89+670	1x3	9
119	89+720	1x2	9
120	89+810	1x5	9
121	89+975	1x5	9
122	90+050	1x5	9
123	90+390	1x5	9

Sr. No.	Culvert Location	Span Arrangement (m)	Overall Width (m)
124	90+650	1x5	9
125	90+990	1x3	9
126	91+180	1x5	9
127	91+430	1x5	9
128	91+560	1x5	9
129	91+750	1x3	9
130	91+990	1x5	9
131	92+210	1x3	9
132	92+500	1x5	9
133	92+840	1x5	9
134	92+990	1x5	9
135	93+600	1x4	9
136	93+720	1x2	9
137	94+110	1x5	9
138	94+190	1x5	9
139	94+290	1x5	9
140	94+570	1x5	9
141	95+000	1x5	9
142	95+605	1x3	9
143	95+675	1x5	9
144	96+595	1x5	9
145	96+695	1x3	9
146	96+810	1x2	9
147	96+935	1x5	9
148	97+310	1x2	9
149	98+300	1x4	9
150	98+580	1x2	9
151	98+880	1x5	9
152	100+330	1x2	9
153	100+440	1x5	9
154	100+587	1x5	9
155	101+370	1x2	9
156	101+600	1x2	9
157	103+090	1x5	9
158	103+335	1x2	9
159	104+175	1x3	9
160	104+350	1x3	9
161	104+650	1x3	9
162	104+570	1x3	9
163	106+450	1x3	9
164	106+530	1x5	9
165	106+680	1x5	9
166	106+990	1x5	9
167	107+130	1x3	9

Sr. No.	Culvert Location	Span Arrangement (m)	Overall Width (m)
168	107+665	1x3	9
169	108+155	1x3	9
170	108+225	1x5	9
171	108+320	1x5	9
172	108+490	1x3	9
173	108+830	1x3	9
174	108+970	1x5	9
175	109+170	1x5	9
176	109+340	1x3	9
177	109+690	1x5	9
178	109+870	1x5	9
179	109+985	1x5	9
180	110+120	1x5	9
181	110+710	1x5	9
182	112+200	1x5	9
183	112+470	1x5	9
184	112+780	1x5	9
185	112+930	1x5	9
186	113+090	1x5	9
187	113+210	1x5	9
188	113+420	1x5	9
189	113+575	1x5	9
190	113+690	1x5	9
191	113+880	1x5	9
192	114+375	1x5	9
193	114+965	1x3	9
194	115+375	1x3	9
195	115+690	1x5	9
196	116+185	1x3	9
197	116+410	1x5	9
198	117+000	1x3	9
199	117+100	1x3	9
200	117+205	1x3	9
201	117+295	1x3	9
202	117+840	1x5	9
203	117+980	1x3	9
204	118+140	1x2	9
205	118+720	1x2	9
206	118+780	1x2	9
207	118+940	1x3	9
208	119+010	1x5	9
209	119+080	1x3	9
210	119+495	1x5	9
211	119+670	1x3	9

Sr. No.	Culvert Location	Span Arrangement (m)	Overall Width (m)
212	120+050	1x3	9
213	120+360	1x3	9
214	120+520	1x5	9
215	120+640	1x2	9
216	120+960	1x3	9
217	121+280	1x3	9
218	121+385	1x3	9

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

S. no.	Location	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:

S. No.	Bridge Location	Salient details of existing bridge	Adequacy or otherwise of the existing waterway, vertical clearance, etc*	Remarks
Nil				

- (ii) The following narrow bridges shall be widened:

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

(b) Additional New bridges

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

Sr. No.	Design Chainage	Proposed Span Arrangement (m)	Proposed width (m)	Remarks
1.	60+105	1x40	9	
2.	60+663	1x10	9	
3.	60+920	1x10	9	
4.	61+270	1x10	9	
5.	61+498	1x20	9	
6.	61+700	1x8	9	
7.	61+760	1x10	9	
8.	62+350	1x20	9	
9.	62+518	1x20	9	
10.	63+027	1x20	9	
11.	63+135	1x20	9	
12.	63+222	1x10	9	
13.	63+665	1x8	9	
14.	63+876	1x30	9	
15.	64+155	1x10	9	
16.	64+480	1x20	9	
17.	65+920	1x10	9	
18.	66+047	1x10	9	
19.	69+900	1x10	9	
20.	70+270	1x8	9	
21.	70+380	1x30	9	
22.	72+100	1x40	9	

Sr. No.	Design Chainage	Proposed Span Arrangement (m)	Proposed width (m)	Remarks
23.	72+450	1x10	9	
24.	72+985	1x20	9	
25.	73+780	1x20	9	
26.	74+140	1x20	9	
27.	74+750	1x8	9	
28.	74+890	1x10	9	
29.	75+580	1x30	9	
30.	76+350	1x10	9	
31.	77+155	1x8	9	
32.	78+300	1x8	9	
33.	79+990	1x20	9	
34.	81+510	1x20	9	
35.	83+025	1x20	9	
36.	83+125	1x30	9	
37.	84+830	1x40	9	
38.	85+060	1x8	9	
39.	86+210	1x8	9	
40.	86+790	1x40	9	
41.	86+880	1x20	9	
42.	87+590	1x10	9	
43.	87+840	1x20	9	
44.	88+110	1x8	9	

Sr. No.	Design Chainage	Proposed Span Arrangement (m)	Proposed width (m)	Remarks
45.	88+245	1x20	9	
46.	88+440	1x20	9	
47.	90+150	1x30	9	
48.	90+250	1x30	9	
49.	90+900	1x8	9	
50.	91+880	1x40	9	
51.	92+620	1x20	9	
52.	93+060	1x20	9	
53.	93+320	1x10	9	
54.	93+950	1x20	9	
55.	94+415	1x20	9	
56.	94+680	1x20	9	
57.	95+135	1x20	9	
58.	95+470	1x20	9	
59.	95+780	1x8	9	
60.	96+235	1x10	9	
61.	96+300	1x20	9	
62.	97+420	1x8	9	
63.	97+520	1x8	9	
64.	98+060	1x 70 +1x 140+ 1x70	9	
65.	99+000	1x8	9	
66.	99+192	1x40	9	

Sr. No.	Design Chainage	Proposed Span Arrangement (m)	Proposed width (m)	Remarks
67.	99+430	1x30	9	
68.	99+735	1x10	9	
69.	100+005	1x20	9	
70.	100+750	1x30	9	
71.	101+035	1x10	9	
72.	101+195	1x8	9	
73.	101+935	1x76	9	
74.	102+400	1x8	9	
75.	102+530	1x8	9	
76.	102+590	1x8	9	
77.	102+680	1x8	9	
78.	102+920	1x10	9	
79.	103+580	1x30	9	
80.	103+825	1x20	9	
81.	103+980	1x8	9	
82.	104+820	1x10	9	
83.	105+005	1x40	9	
84.	105+220	1x30	9	
85.	105+555	1x8	9	
86.	105+740	1x20	9	
87.	106+160	1x8	9	
88.	106+860	1x40	9	

Sr. No.	Design Chainage	Proposed Span Arrangement (m)	Proposed width (m)	Remarks
89.	107+320	1x10	9	
90.	107+565	1x10	9	
91.	107+840	1x8	9	
92.	107+995	1x8	9	
93.	108+605	1x10	9	
94.	108+730	1x20	9	
95.	109+490	1x8	9	
96.	110+470	1x30	9	
97.	110+890	1x10	9	
98.	111+150	1x8	9	
99.	111+510	1x8	9	
100.	111+700	1x40	9	
101.	111+805	1x8	9	
102.	111+970	1x10	9	
103.	112+120	1x8	9	
104.	112+560	1x8	9	
105.	114+240	1x8	9	
106.	114+560	1x8	9	
107.	114+820	1x30	9	
108.	115+140	1x8	9	
109.	115+520	1x20	9	
110.	115+765	1x10	9	

Sr. No.	Design Chainage	Proposed Span Arrangement (m)	Proposed width (m)	Remarks
111.	115+900	1x10	9	
112.	116+530	1x10	9	
113.	116+700	1x8	9	
114.	117+560	1x30+1x65+1x30	9	
115.	118+415	1x10	9	
116.	118+580	1x10	9	
117.	118+940	1x8	9	
118.	119+230	1x8	9	
119.	119+620	1x40	9	
120.	119+775	1x8	9	
121.	120+240	1x10	9	
122.	120+720	1x8	9	
123.	121+160	1x30	9	

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

Sl. No.	Location at Chainage	Remarks
NIL		

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

Sr. 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 the Manual.

(f) Structures in marine environment

[Refer to the provision of 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 section 7 of the Manual.

(b) Road over-bridges

Road over-bridges (road over rail) shall be provided at the following locations:

Sl. No.	Location of Level crossing (Ch)	Length of span(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 (Ch)	Number and length of span(m)
NIL		

(v) Grade separated structures

The grade separated structures shall be provided at the locations and of the type and length specified in paragraphs 2 (vi), 2 (vii) and 2 (ix) of this Annex-I.

(vi) Repairs and strengthening of bridges and structures

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

(a) Bridges

Sl. No.	Location	Nature and extent of repairs to be carried out
NIL		

(b) ROB / RUB

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

(c) Overpasses/Underpasses and other structures

Sl. No.	Location of Structure (Ch)	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)
1	98+060
2	101+935
3	117+560

8. Traffic Control Devices and Road Safety Works

- (i) Traffic control devices and road safety devices and road furniture shall be provided in accordance with Section 9 of the Manual.
- (ii) Specifications of the reflecting sheeting as per Section 9 of the Manual.

9. Roadside Furniture

- a) Roadside furniture shall be provided in accordance with the provisions of the Manual.
- b) Overhead traffic signs: - 01 nos.

10. COMPULSORY AFFORESTATION

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

11. HAZARDOUS LOCATIONS

The safety measures shall be provided at all hazardous/sinking/land slide locations as per the manual in consultation with the Authority's Engineer.

(a) Safety Barrier:

Thrie-beam crash barriers shall be installed all along the project highway on earthen shoulders on either side of main carriageway in a minimum length of 12886 m.

Sr. No.	From Km	To Km	Length (m)	Side
1.	60073	60080	7	LHS
2.	60073	60160	87	RHS

3.	60138	60160	22	LHS
4.	60284	60320	72	BOTH
5.	60340	60380	40	RHS
6.	60532	60560	28	RHS
7.	60625	60650	25	RHS
8.	60777	60800	46	BOTH
9.	60880	60900	40	BOTH
10.	60907	60934	54	BOTH
11.	61035	61060	50	BOTH
12.	61080	61100	20	RHS
13.	61146	61180	34	RHS
14.	61360	61380	20	RHS
15.	61437	61480	43	RHS
16.	61640	61680	40	RHS
17.	61774	61820	46	RHS
18.	61860	61940	80	RHS
19.	62097	62120	46	BOTH
20.	62140	62160	20	RHS
21.	62197	62220	23	RHS
22.	62500	62510	10	RHS
23.	62600	62620	20	RHS
24.	62680	62705	25	RHS
25.	62860	62880	20	RHS
26.	63236	63260	24	RHS
27.	63340	63380	40	RHS
28.	63480	63500	20	RHS
29.	63605	63620	15	RHS
30.	63900	63920	20	RHS
31.	63940	63960	20	RHS
32.	63997	64040	43	RHS
33.	64169	64200	31	RHS
34.	64300	64304	8	BOTH
35.	64317	64360	86	BOTH
36.	64460	64473	26	BOTH
37.	64488	64540	104	BOTH
38.	64620	64654	68	BOTH
39.	64667	64694	54	BOTH
40.	64707	64740	66	BOTH
41.	64760	64780	20	RHS
42.	64837	64880	86	BOTH
43.	64900	64904	4	RHS
44.	65286	65296	10	RHS
45.	65500	65516	16	RHS
46.	65525	65560	35	RHS
47.	65600	65620	20	RHS
48.	65685	65720	35	RHS
49.	65780	65840	60	RHS

50.	66061	66080	19	RHS
51.	67117	67140	23	RHS
52.	67806	67840	34	RHS
53.	67980	67986	6	RHS
54.	67995	68040	45	RHS
55.	68180	68200	20	RHS
56.	68625	68660	35	RHS
57.	68820	68826	6	RHS
58.	68835	68845	10	RHS
59.	69040	69060	20	RHS
60.	69420	69480	60	RHS
61.	69520	69580	60	RHS
62.	69600	69620	20	RHS
63.	69686	69720	34	RHS
64.	69700	69720	20	LHS
65.	69914	69940	26	LHS
66.	69914	69960	46	RHS
67.	70000	70004	4	RHS
68.	70017	70040	23	LHS
69.	70017	70060	43	RHS
70.	70120	70159	39	RHS
71.	70140	70159	19	LHS
72.	70172	70200	56	BOTH
73.	70260	70262	4	BOTH
74.	70279	70300	42	BOTH
75.	70420	70440	20	RHS
76.	70500	70540	40	RHS
77.	70580	70600	20	RHS
78.	70660	70664	4	RHS
79.	70677	70720	43	RHS
80.	70780	70825	45	RHS
81.	70838	70880	42	RHS
82.	70940	70950	10	RHS
83.	71060	71080	20	RHS
84.	71200	71214	14	RHS
85.	71507	71520	13	RHS
86.	71980	71994	14	RHS
87.	72007	72020	13	RHS
88.	72040	72077	37	RHS
89.	72140	72176	36	RHS
90.	72185	72220	35	RHS
91.	72200	72220	20	LHS
92.	72240	72260	20	RHS
93.	72300	72432	132	RHS
94.	72469	72480	11	RHS
95.	72500	72560	60	RHS
96.	72620	72660	40	RHS

97.	72700	72714	14	RHS
98.	72727	72740	13	LHS
99.	72727	72800	73	RHS
100.	73020	73060	40	RHS
101.	73097	73140	43	RHS
102.	73160	73180	20	RHS
103.	73320	73335	15	RHS
104.	73360	73400	40	RHS
105.	73520	73580	60	LHS
106.	73520	73760	240	RHS
107.	73789	73800	11	RHS
108.	73860	73880	20	RHS
109.	74060	74080	20	RHS
110.	74100	74133	33	RHS
111.	74160	74200	40	LHS
112.	74160	74240	80	RHS
113.	74260	74280	20	LHS
114.	74260	74300	40	RHS
115.	74740	74742	4	BOTH
116.	74760	74780	40	BOTH
117.	74840	74860	20	RHS
118.	74904	74940	72	BOTH
119.	74960	74980	20	RHS
120.	75011	75040	58	BOTH
121.	75220	75226	6	RHS
122.	75235	75260	25	RHS
123.	75480	75524	44	RHS
124.	75500	75524	24	LHS
125.	75537	75557	40	BOTH
126.	75840	75864	24	RHS
127.	75860	75864	4	LHS
128.	75877	75920	43	LHS
129.	75877	75940	63	RHS
130.	76152	76200	96	BOTH
131.	76300	76320	20	RHS
132.	76360	76380	20	RHS
133.	76687	76700	13	RHS
134.	76860	76875	15	RHS
135.	76886	76900	14	RHS
136.	77163	77200	74	BOTH
137.	77580	77600	20	RHS
138.	77695	77720	25	LHS
139.	77695	77740	45	RHS
140.	77767	77780	13	LHS
141.	77767	77800	33	RHS
142.	77880	77974	94	RHS
143.	77940	77974	34	LHS

144.	77987	78040	53	LHS
145.	77987	78060	73	RHS
146.	78280	78292	12	RHS
147.	78309	78360	102	BOTH
148.	78380	78400	20	RHS
149.	78575	78600	25	RHS
150.	78750	78780	30	RHS
151.	78840	78860	20	RHS
152.	78880	78889	9	RHS
153.	78902	78920	36	BOTH
154.	79175	79200	25	RHS
155.	79720	79725	5	RHS
156.	79736	79784	48	RHS
157.	79820	79860	40	RHS
158.	79905	79940	35	RHS
159.	79998	80020	44	BOTH
160.	80680	80694	28	BOTH
161.	80707	80740	33	LHS
162.	80707	80720	13	RHS
163.	80900	80920	20	LHS
164.	81310	81350	40	LHS
165.	81330	81350	20	RHS
166.	81370	81410	40	LHS
167.	82110	82130	40	BOTH
168.	82990	83002	24	BOTH
169.	83090	83102	24	BOTH
170.	83290	83314	48	BOTH
171.	83327	83330	6	BOTH
172.	83670	83684	28	BOTH
173.	83790	83804	28	BOTH
174.	84110	84164	54	LHS
175.	84130	84164	34	RHS
176.	84177	84210	33	LHS
177.	84690	84710	20	RHS
178.	84863	84870	14	BOTH
179.	85069	85110	82	BOTH
180.	85466	85490	24	RHS
181.	85470	85490	20	LHS
182.	86110	86202	92	RHS
183.	86190	86202	12	LHS
184.	86219	86250	62	BOTH
185.	86390	86410	40	BOTH
186.	86610	86664	54	RHS
187.	86630	86664	34	LHS
188.	86677	86730	106	BOTH
189.	87370	87394	48	BOTH
190.	87407	87450	86	BOTH

191.	87604	87610	12	BOTH
192.	87630	87664	34	RHS
193.	87650	87664	14	LHS
194.	87677	87690	13	LHS
195.	87677	87710	33	RHS
196.	87864	87890	52	BOTH
197.	88090	88102	12	RHS
198.	88119	88130	22	BOTH
199.	88464	88470	12	BOTH
200.	89250	89269	38	BOTH
201.	89282	89290	16	BOTH
202.	89450	89470	40	BOTH
203.	90057	90070	26	BOTH
204.	90274	90290	32	BOTH
205.	90397	90410	26	BOTH
206.	90657	90670	26	BOTH
207.	90870	90892	44	BOTH
208.	90909	90930	42	BOTH
209.	91150	91174	24	RHS
210.	91187	91210	23	RHS
211.	91190	91210	20	LHS
212.	91437	91450	13	RHS
213.	91567	91590	23	RHS
214.	91570	91590	20	LHS
215.	91910	91930	20	LHS
216.	91913	91930	17	RHS
217.	92507	92530	23	LHS
218.	92507	92550	43	RHS
219.	92639	92650	22	BOTH
220.	92997	93010	26	BOTH
221.	93290	93307	34	BOTH
222.	93334	93350	16	LHS
223.	93334	93370	36	RHS
224.	93974	93990	32	BOTH
225.	94117	94150	66	BOTH
226.	94270	94284	28	BOTH
227.	94297	94310	26	BOTH
228.	94550	94564	14	RHS
229.	94577	94610	66	BOTH
230.	94704	94710	12	BOTH
231.	95154	95170	32	BOTH
232.	95494	95510	16	RHS
233.	95750	95772	44	BOTH
234.	95789	95810	42	BOTH
235.	96210	96222	24	BOTH
236.	96249	96277	56	BOTH
237.	96324	96370	92	BOTH

238.	96942	96950	8	RHS
239.	97430	97450	40	BOTH
240.	98204	98210	12	BOTH
241.	98306	98310	8	BOTH
242.	98585	98590	10	BOTH
243.	98970	98992	44	BOTH
244.	99009	99050	82	BOTH
245.	99130	99169	78	BOTH
246.	99216	99250	68	BOTH
247.	99390	99407	34	BOTH
248.	99454	99470	16	LHS
249.	99454	99490	36	RHS
250.	99570	99670	200	BOTH
251.	99690	99722	32	RHS
252.	99710	99722	12	LHS
253.	99970	99982	24	BOTH
254.	100070	100090	20	RHS
255.	100170	100190	20	RHS
256.	100210	100230	20	RHS
257.	101010	101022	24	BOTH
258.	101049	101070	21	RHS
259.	102490	102522	32	RHS
260.	102570	102582	12	RHS
261.	102599	102610	11	RHS
262.	102890	102907	17	RHS
263.	102990	103084	94	RHS
264.	103050	103084	34	LHS
265.	103097	103110	13	LHS
266.	103097	103170	73	RHS
267.	103230	103250	20	RHS
268.	103330	103350	20	RHS
269.	103604	103610	6	LHS
270.	103604	103630	26	RHS
271.	103989	104010	21	RHS
272.	104330	104345	15	RHS
273.	104590	104645	55	RHS
274.	104610	104645	35	LHS
275.	104655	104670	30	BOTH
276.	104790	104807	34	BOTH
277.	104970	104982	12	RHS
278.	105244	105270	52	BOTH
279.	105530	105547	34	BOTH
280.	105564	105570	6	LHS
281.	105564	105590	26	RHS
282.	105690	105717	27	RHS
283.	106410	106445	35	RHS
284.	106455	106470	15	RHS

285.	106570	106590	20	RHS
286.	106687	106710	23	RHS
287.	106997	107010	13	RHS
288.	107530	107552	22	RHS
289.	107579	107590	22	BOTH
290.	107810	107832	22	RHS
291.	107849	107870	42	BOTH
292.	107970	107987	17	RHS
293.	108004	108010	12	BOTH
294.	108130	108150	20	RHS
295.	108160	108170	20	BOTH
296.	108290	108314	48	BOTH
297.	108327	108330	6	BOTH
298.	108619	108630	11	LHS
299.	108619	108650	31	RHS
300.	108690	108707	34	BOTH
301.	109450	109482	64	BOTH
302.	109499	109510	22	BOTH
303.	109810	109864	54	RHS
304.	109877	109890	13	RHS
305.	109950	109979	29	RHS
306.	109992	110050	58	RHS
307.	110070	110090	20	RHS
308.	110550	110570	20	RHS
309.	110590	110610	20	RHS
310.	110990	111110	120	RHS
311.	111010	111030	20	LHS
312.	111070	111110	40	LHS
313.	111130	111142	24	BOTH
314.	111430	111450	20	RHS
315.	111490	111502	24	BOTH
316.	111519	111530	11	LHS
317.	111519	111550	31	RHS
318.	111650	111677	27	RHS
319.	111724	111730	12	BOTH
320.	111814	111830	32	BOTH
321.	111890	111910	20	RHS
322.	112010	112030	20	RHS
323.	112207	112210	3	RHS
324.	112250	112270	20	LHS
325.	112250	112290	40	RHS
326.	112330	112370	40	RHS
327.	112430	112464	34	RHS
328.	112530	112552	22	RHS
329.	112569	112590	42	BOTH
330.	112630	112650	20	RHS
331.	112750	112774	48	BOTH

332.	112787	112790	3	LHS
333.	112787	112810	23	RHS
334.	113070	113084	14	RHS
335.	113097	113110	13	RHS
336.	113150	113204	54	RHS
337.	113310	113350	40	LHS
338.	113310	113370	60	RHS
339.	113582	113590	8	RHS
340.	114190	114232	42	RHS
341.	114210	114232	22	LHS
342.	114249	114270	42	BOTH
343.	114330	114369	39	RHS
344.	114382	114390	8	RHS
345.	114530	114552	22	RHS
346.	114569	114590	21	RHS
347.	114844	114850	12	BOTH
348.	115110	115132	44	BOTH
349.	115149	115170	21	LHS
350.	115149	115190	41	RHS
351.	115210	115230	40	BOTH
352.	115544	115550	12	BOTH
353.	115697	115710	13	LHS
354.	115697	115730	33	RHS
355.	115781	115790	18	BOTH
356.	115870	115884	28	BOTH
357.	115916	115930	28	BOTH
358.	116390	116404	14	RHS
359.	116417	116430	26	BOTH
360.	116470	116490	20	RHS
361.	116546	116570	24	LHS
362.	116546	116590	44	RHS
363.	116670	116692	44	BOTH
364.	116709	116730	42	BOTH
365.	116970	116995	25	RHS
366.	117005	117030	25	LHS
367.	117005	117050	45	RHS
368.	117070	117095	25	RHS
369.	117105	117110	5	RHS
370.	117290	117310	40	BOTH
371.	117847	117850	6	BOTH
372.	118390	118402	12	RHS
373.	118935	118945	20	BOTH
374.	118949	118970	21	LHS
375.	118949	119004	55	RHS
376.	119085	119090	5	RHS
377.	119210	119222	24	BOTH
378.	119239	119250	11	LHS

379.	119239	119270	31	RHS
380.	119597	119630	66	BOTH
381.	119675	119690	30	BOTH
382.	119784	119790	12	BOTH
383.	120010	120045	35	RHS
384.	120130	120227	97	RHS
385.	120150	120227	77	LHS
386.	120254	120270	32	BOTH
387.	120730	120750	20	RHS
388.	121250	121275	25	RHS
389.	121285	121310	25	RHS
390.	121290	121310	20	LHS

(b) Parapet wall

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
63760	63780	20	60000	60005	5
72120	72140	20	60060	60073	13
73760	73772	12	60080	60138	58
73920	73940	20	60260	60284	24
80080	80120	40	60340	60380	40
80160	80254	94	60523	60580	57
80267	80280	13	60625	60650	25
80300	80320	20	60740	60777	37
80360	80380	20	60900	60907	7
80420	80460	40	60934	60980	46
80500	80580	80	61060	61120	60
80600	80620	20	61135	61220	85
80640	80680	40	61284	61320	36
80740	80900	160	61340	61380	40
80920	81000	80	61437	61480	43
81000	81030	30	61517	61560	43
81130	81175	45	61580	61694	114
81185	81210	25	61707	61740	33
81230	81250	20	61774	61820	46
81350	81370	20	61840	61854	14
81410	81430	20	61860	61940	80
81470	81487	17	62080	62084	4
81530	81570	40	62120	62160	40
81590	81664	74	62197	62220	23
81677	81710	33	62480	62510	30
81790	81850	60	62600	62660	60
81950	82044	94	62680	62705	25
82057	82070	13	62716	62780	64
82090	82110	20	62800	62816	16
82130	82150	20	62825	62880	55
82350	82430	80	62900	62960	60
82550	82590	40	63000	63009	9

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
82710	82821	111	63046	63080	34
82830	82890	60	63154	63209	55
83049	83090	41	63236	63280	44
83190	83244	54	63340	63380	40
83257	83290	33	63420	63440	20
83410	83470	60	63480	63506	26
83570	83596	26	63515	63580	65
83605	83670	65	63605	63640	35
83697	83710	13	63900	63920	20
83817	83830	13	63940	63960	20
83950	83981	31	63997	64040	43
83990	84030	40	64169	64200	31
84210	84230	20	64740	64824	84
84250	84270	20	64880	64900	20
			64917	64960	43
			65000	65020	20
			65060	65116	56
			65125	65160	35
			65260	65275	15
			65286	65320	34
			65345	65360	15
			65480	65516	36
			65525	65620	95
			65660	65676	16
			65685	65740	55
			65780	65907	127
			66061	66100	39
			66140	66178	38
			66187	66220	33
			66400	66420	20
			66560	66600	40
			66625	66680	55

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
			66720	66760	40
			66930	66960	30
			67080	67104	24
			67140	67185	45
			67196	67254	58
			67267	67340	73
			67420	67460	40
			67806	67900	94
			67980	67986	6
			67995	68040	45
			68180	68200	20
			68240	68260	20
			68320	68434	114
			68447	68500	53
			68540	68616	76
			68625	68680	55
			68760	68826	66
			68835	68880	45
			68900	68920	20
			69000	69026	26
			69040	69080	40
			69360	69364	4
			69400	69500	100
			69520	69620	100
			69660	69675	15
			69686	69700	14
			69720	69780	60
			69880	69887	7
			69940	69960	20
			69980	70004	24
			70040	70080	40
			70100	70140	40
			70200	70260	60
			70300	70320	20
			70400	70554	154
			70567	70600	33
			70660	70664	4
			70677	70740	63
			70760	70825	65
			70838	70900	62
			70920	70950	30
			70960	71036	76
			71045	71160	115
			71180	71214	34
			71227	71280	53
			71400	71440	40

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
			71480	71494	14
			71507	71560	53
			71660	71700	40
			71740	71860	120
			71960	71994	34
			72007	72020	13
			72040	72077	37
			72140	72176	36
			72185	72200	15
			72240	72432	192
			72469	72714	245
			72740	72820	80
			72940	72961	21
			72970	72978	8
			73020	73084	64
			73097	73140	43
			73160	73180	20
			73300	73335	35
			73346	73460	114
			73507	73520	13
			73580	73760	180
			73789	73840	51
			73860	73880	20
			73900	73920	20
			74060	74133	73
			74140	74160	20
			74200	74240	40
			74280	74300	20
			74360	74380	20
			74440	74540	100
			74720	74740	20
			74780	74840	60
			74860	74877	17
			74940	75000	60
			75040	75100	60
			75200	75226	26
			75235	75280	45
			75480	75500	20
			75604	75760	156
			75840	75860	20
			75920	75960	40
			75980	76060	80
			76200	76220	20
			76260	76320	60
			76364	76360	-4
			76380	76400	20

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
			76480	76500	20
			76540	76560	20
			76660	76674	14
			76687	76720	33
			76840	76875	35
			76886	76940	54
			77300	77304	4
			77317	77420	103
			77500	77540	40
			77580	77620	40
			77720	77754	34
			77780	77940	160
			78040	78080	40
			78090	78140	50
			78240	78292	52
			78360	78565	205
			78575	78620	45
			78680	78741	61
			78750	78889	139
			78920	78960	40
			79000	79040	40
			79165	79220	55
			79260	79300	40
			79340	79380	40
			79420	79426	6
			79440	79540	100
			79700	79725	25
			79736	79784	48
			79797	79860	63
			79905	79940	35
			84270	84305	35
			84315	84600	285
			84611	84664	53
			84677	84690	13
			84710	84770	60
			84870	84890	20
			84990	85010	20
			85230	85270	40
			85430	85455	25
			85590	85616	26
			85625	85670	45
			85870	85885	15
			85895	85910	15
			85970	85980	10
			85990	86010	20
			86090	86110	20

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
			86350	86374	24
			86387	86390	3
			86410	86450	40
			86550	86610	60
			86730	86767	37
			86810	86857	47
			86904	86950	46
			86970	87050	80
			87150	87184	34
			87197	87285	88
			87296	87370	74
			87450	87470	20
			87610	87630	20
			87890	87910	20
			87970	87981	11
			88150	88174	24
			88187	88222	35
			88270	88290	20
			88350	88417	67
			88470	88510	40
			88610	88725	115
			88735	88875	140
			88885	89070	185
			89090	89250	160
			89290	89424	134
			89437	89450	13
			89470	89595	125
			89605	89665	60
			89675	89716	41
			89725	89804	79
			89817	89890	73
			89950	89969	19
			89982	90044	62
			90070	90127	57
			90170	90227	57
			90290	90384	94
			90410	90644	234
			90670	90690	20
			90810	90870	60
			90930	90950	20
			90970	90985	15
			90995	91010	15
			91210	91230	20
			91370	91424	54
			91450	91490	40
			91630	91650	20

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
			91755	91770	15
			91930	91950	20
			91997	92050	53
			92090	92205	115
			92215	92270	55
			92430	92494	64
			92550	92602	52
			92650	92670	20
			92770	92834	64
			92847	92890	43
			92970	92984	14
			93010	93042	32
			93079	93090	11
			93130	93290	160
			93370	93450	80
			93490	93510	20
			93570	93595	25
			93606	93630	24
			93650	93716	66
			93725	93830	105
			93990	94010	20
			94090	94104	14
			94150	94184	34
			94197	94230	33
			94310	94370	60
			94439	94470	31
			94530	94550	20
			94710	94750	40
			94790	94830	40
			94930	94994	64
			95007	95030	23
			95170	95230	60
			95250	95330	80
			95510	95550	40
			95590	95600	10
			95610	95669	59
			95682	95750	68
			95810	95830	20
			96130	96210	80
			96370	96390	20
			96602	96630	28
			96690	96730	40
			96790	96806	16
			96815	96850	35
			96910	96929	19
			96950	96970	20

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
			97050	97090	40
			97170	97190	20
			97290	97306	16
			97315	97370	55
			97390	97412	22
			97450	97470	20
			97490	97512	22
			97529	97570	41
			97610	97670	60
			97710	97750	40
			97810	97917	107
			98210	98295	85
			98310	98330	20
			98390	98410	20
			98510	98576	66
			98590	98670	80
			98710	98730	20
			98810	98874	64
			98887	98970	83
			99110	99130	20
			99250	99270	20
			99490	99570	80
			99670	99690	20
			99750	99770	20
			99850	99870	20
			99950	99970	20
			100050	100070	20
			100090	100170	80
			100190	100210	20
			100310	100326	16
			100335	100350	15
			100410	100434	24
			100447	100510	63
			100570	100581	11
			100710	100727	17
			101070	101187	117
			101204	101230	26
			101290	101366	76
			101375	101450	75
			101550	101596	46
			101605	101650	45
			102110	102392	282
			102409	102490	81
			102539	102570	31
			102770	102810	40
			102850	102890	40

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
			102970	102990	20
			103170	103230	60
			103250	103290	40
			103430	103450	20
			103630	103650	20
			103790	103802	12
			103849	103870	21
			104110	104210	100
			104310	104330	20
			104350	104370	20
			104470	104565	95
			104575	104590	15
			104670	104790	120
			104830	104870	40
			105110	105130	20
			105330	105350	20
			105770	105790	20
			106010	106030	20
			106230	106290	60
			106330	106390	60
			106470	106524	54
			106537	106570	33
			106810	106837	27
			106884	106890	6
			106970	106984	14
			107590	107610	20
			107650	107660	10
			107670	107690	20
			107870	107950	80
			108090	108130	40
			108170	108219	49
			108230	108290	60
			108330	108485	155
			108495	108510	15
			108750	108770	20
			108810	108825	15
			108835	108850	15
			108950	108964	14
			108977	109030	53
			109090	109130	40
			109210	109335	125
			109345	109390	45
			109430	109450	20
			109510	109650	140
			109670	109684	14
			109697	109730	33

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
			109890	109950	60
			110050	110070	20
			110090	110114	24
			110127	110130	3
			110250	110310	60
			110330	110370	40
			110510	110550	40
			110570	110590	20
			110630	110650	20
			110690	110704	14
			110717	110730	13
			110850	110877	27
			110904	110910	6
			111110	111130	20
			111159	111190	31
			111250	111270	20
			111450	111490	40
			111630	111650	20
			111730	111770	40
			111830	111890	60
			111910	111954	44
			111986	112010	24
			112090	112112	22
			112290	112330	40
			112390	112430	40
			112477	112510	33
			112610	112630	20
			112730	112750	20
			112810	112910	100
			112950	112990	40
			113010	113030	20
			113217	113230	13
			113290	113310	20
			113390	113414	24
			113470	113510	40
			113590	113630	40
			113650	113684	34
			113770	113810	40
			113830	113874	44
			113887	113910	23
			114270	114290	20
			114390	114410	20
			114430	114450	20
			114910	114930	20
			114950	114960	10
			114970	114990	20

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
			115190	115210	20
			115350	115430	80
			115550	115590	40
			115650	115684	34
			115730	115749	19
			115790	115810	20
			115850	115870	20
			115930	115950	20
			116070	116090	20
			116130	116180	50
			116210	116250	40
			116270	116290	20
			116350	116390	40
			116430	116470	40
			116490	116514	24
			116590	116610	20
			116650	116670	20
			116730	116750	20
			116770	116790	20
			116950	116970	20
			117050	117070	20
			117170	117200	30
			117210	117230	20
			117270	117290	20
			117310	117410	100
			117790	117834	44
			117850	117975	125
			117985	118070	85
			118145	118150	5
			118270	118310	40
			118350	118390	40
			118430	118470	40

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
			118490	118510	20
			118550	118567	17
			118725	118730	5
			118785	118810	25
			118890	118932	42
			119017	119030	13
			119090	119150	60
			119170	119210	40
			119450	119489	39
			119502	119597	95
			119630	119644	14
			119650	119665	15
			119690	119767	77
			119790	119810	20
			119830	119850	20
			119910	119930	20
			119970	119990	20
			120055	120070	15
			120110	120130	20
			120270	120355	85
			120365	120390	25
			120410	120514	104
			120527	120550	23
			120590	120636	46
			120645	120712	67
			120750	120910	160
			120965	120970	5
			121370	121380	10
			121390	121410	20
			121450	121500	50
		1917			22145

(a) Gabion wall

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
60016	60073	57	60420	60440	20
60160	60280	120	60440	60460	20
60380	60480	100	60580	60600	20
60500	60532	32	60600	60616	16
60560	60616	56	60620	60625	5
60620	60625	5	60650	60677	27
60650	60764	114	60677	60700	23

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
60800	60880	80	60820	60840	20
60934	60960	26	60840	60860	20
60980	61025	45	61000	61025	25
61100	61135	35	61220	61240	20
61180	61257	77	61240	61257	17
61284	61360	76	61740	61747	7
61380	61414	34	61960	61980	20

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
61420	61437	17	61980	62000	20
61517	61640	123	62000	62020	20
61680	61694	14	62020	62040	20
61707	61747	40	62220	62240	20
61840	61854	14	62240	62260	20
61940	62084	144	62260	62280	20
62160	62188	28	62280	62300	20
62220	62332	112	62300	62320	20
62369	62500	131	62369	62400	31
62527	62600	73	62400	62420	20
62660	62680	20	62420	62440	20
62780	62816	36	62440	62460	20
62840	62860	20	62460	62480	20
62900	63009	109	62527	62580	53
63080	63117	37	62580	62600	20
63154	63209	55	62960	62980	20
63260	63334	74	63280	63300	20
63380	63480	100	63300	63320	20
63580	63595	15	63440	63460	20
63620	63658	38	63460	63480	20
63673	63760	87	63740	63760	20
63780	63853	73	63780	63800	20
63920	63940	20	64100	64120	20
63960	63994	34	64120	64140	20
64060	64142	82	64140	64142	2
64200	64300	100	64200	64220	20
64360	64400	40	64220	64240	20
64780	64820	40	64240	64260	20
64960	65080	120	64260	64280	20
65125	65275	150	64280	64300	20
65320	65332	12	64360	64380	20
65360	65500	140	64380	64400	20
65560	65600	40	65020	65040	20
65620	65676	56	65040	65060	20
65720	65780	60	65200	65220	20
65934	66034	100	65220	65240	20
66080	66178	98	65240	65260	20
66220	66380	160	65380	65400	20
66400	66615	215	65400	65420	20
66640	66660	20	65420	65440	20
66680	66720	40	65440	65460	20
66760	66880	120	65980	66000	20
66900	66920	20	66000	66020	20
66930	67100	170	66240	66260	20
67160	67180	20	66260	66280	20
67360	67795	435	66280	66300	20

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
67880	67980	100	66300	66320	20
68040	68156	116	66320	66340	20
68200	68420	220	66500	66520	20
68480	68540	60	66520	66540	20
68560	68580	20	66780	66800	20
68660	68800	140	66800	66820	20
68845	69026	181	66820	66840	20
69060	69320	260	66840	66860	20
69340	69364	24	66960	66980	20
69377	69420	43	66980	67000	20
69480	69520	40	67000	67020	20
69580	69600	20	67020	67040	20
69620	69675	55	67040	67060	20
69740	69880	140	67360	67380	20
69960	70000	40	67380	67400	20
70060	70120	60	67580	67600	20
70320	70357	37	67600	67620	20
70404	70420	16	67620	67640	20
70440	70500	60	67640	67660	20
70540	70554	14	67660	67680	20
70567	70580	13	67680	67700	20
70600	70660	60	67700	67720	20
70720	70780	60	68080	68100	20
70880	70940	60	68100	68120	20
71080	71200	120	68120	68140	20
71280	71494	214	68280	68300	20
71560	71960	400	68300	68320	20
72020	72040	20	68700	68720	20
72124	72120	-4	68720	68740	20
72220	72240	20	69280	69300	20
72260	72300	40	69300	69320	20
72480	72500	20	69320	69340	20
72560	72620	60	69340	69360	20
72660	72700	40	69500	69520	20
72800	72961	161	69860	69880	20
72993	73020	27	70340	70357	17
73060	73084	24	71320	71340	20
73140	73160	20	71340	71360	20
73180	73320	140	71360	71380	20
73400	73494	94	71920	71940	20
73507	73520	13	72124	72120	-4
73820	73860	40	72220	72240	20
73880	73920	40	73200	73220	20
73940	74046	106	73220	73240	20
74080	74100	20	73240	73260	20
74240	74245	5	73260	73280	20

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
74300	74380	80	73280	73300	20
74400	74420	20	73760	73772	12
74480	74500	20	73920	73940	20
74520	74740	220	73940	73960	20
74800	74820	20	73960	73980	20
74940	74960	20	73980	74000	20
75080	75220	140	74000	74020	20
75260	75480	220	74020	74040	20
75760	75840	80	74620	74640	20
75940	76020	80	74640	74660	20
76060	76139	79	74660	74680	20
76200	76300	100	74680	74700	20
76320	76337	17	74700	74720	20
76364	76360	-4	75100	75120	20
76380	76674	294	75120	75140	20
76720	76860	140	75160	75180	20
76940	77140	200	75320	75340	20
77200	77300	100	75340	75360	20
77360	77580	220	75360	75380	20
77600	77685	85	75780	75800	20
77800	77880	80	75800	75820	20
78060	78080	20	76080	76100	20
78120	78280	160	76100	76120	20
78440	78480	40	76220	76240	20
78600	78741	141	76740	76760	20
78780	78840	60	76760	76780	20
78860	78880	20	76780	76800	20
78940	79156	216	76960	76980	20
79165	79175	10	76980	77000	20
79200	79340	140	77100	77120	20
79380	79420	40	77120	77140	20
79460	79480	20	77440	77460	20
79520	79720	200	77460	77480	20
79860	79896	36	77640	77660	20
79940	79983	43	77660	77680	20
80280	80300	20	77680	77685	5
80320	80340	20	79860	79880	20
80460	80500	40	80020	80040	20
80620	80640	20	80040	80060	20
80980	81000	20	80100	80120	20
81070	81090	20	80120	80140	20
81270	81289	19	80160	80180	20
81302	81310	8	80180	80200	20
81430	81470	40	80200	80220	20
81710	81770	60	80220	80240	20
81870	81910	40	80280	80300	20

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
82150	82210	60	80300	80320	20
82290	82330	40	80320	80340	20
82430	82530	100	80340	80360	20
82630	82690	60	80360	80380	20
82930	82990	60	80380	80400	20
83350	83390	40	80400	80420	20
83710	83770	60	80420	80440	20
83830	83870	40	80440	80460	20
84050	84090	40	80460	80480	20
84270	84305	35	80480	80500	20
84330	84600	270	80500	80520	20
84630	84664	34	80520	80540	20
84750	84798	48	80540	80560	20
84890	84970	80	80560	80580	20
85130	85390	260	80580	80600	20
86270	86374	104	80600	80620	20
86430	86550	120	80620	80640	20
86730	86750	20	80740	80760	20
86830	86857	27	80860	80880	20
86950	87184	234	80980	81000	20
87210	87285	75	81000	81150	150
87470	87530	60	81190	81230	40
87710	87790	80	81250	81289	39
87910	87981	71	81302	81310	8
88010	88070	60	81410	81470	60
88130	88174	44	81550	81630	80
88210	88222	12	81690	81790	100
88290	88370	80	81830	81990	160
88510	88710	200	82057	82110	53
88770	88875	105	82130	82370	240
88885	89190	305	82430	82790	360
89330	89390	60	82850	82990	140
89510	89595	85	83050	83090	40
89610	89665	55	83149	83210	61
89725	89730	5	83270	83290	20
89750	89790	40	83330	83390	60
89850	89969	119	83430	83596	166
90090	90110	20	83610	83650	40
90310	90370	60	83710	83770	60
90430	90490	60	83830	83950	120
90690	90830	140	83990	84110	120
91010	91130	120	84230	84270	40
91270	91390	120	84910	84950	40
91490	91554	64	84970	84990	20
91630	91650	20	85010	85052	42
91670	91745	75	85190	85210	20

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
91770	91848	78	85290	85390	100
91930	91984	54	85410	85430	20
92010	92205	195	85510	85536	26
92230	92450	220	85545	85550	5
92550	92590	40	85570	85590	20
92650	92770	120	85670	85690	20
92850	92984	134	85730	85770	40
93030	93042	12	85830	85870	40
93090	93270	180	85910	85970	60
93390	93430	40	86010	86090	80
93450	93595	145	86250	86310	60
93650	93670	20	86510	86530	20
93790	93927	137	87050	87130	80
93990	94090	100	87490	87510	20
94350	94392	42	87530	87577	47
94450	94510	60	87790	87817	27
94610	94657	47	87910	87950	40
94750	94790	40	87990	88010	20
94850	94910	60	88030	88050	20
94930	94950	20	88070	88090	20
95050	95117	67	88130	88150	20
95170	95330	160	88290	88330	40
95350	95447	97	88530	88550	20
95510	95590	80	89910	89930	20
95710	95750	40	90710	90730	20
95830	96150	320	90750	90790	40
96390	96589	199	90950	90970	20
96630	96690	60	91010	91050	40
96730	96806	76	91090	91110	20
96815	96929	114	91130	91150	20
96970	97290	320	91230	91250	20
97330	97412	82	91290	91370	80
97450	97512	62	91510	91530	20
97570	97890	320	91590	91630	40
98230	98270	40	91710	91730	20
98330	98370	40	91790	91848	58
98410	98490	80	91950	91970	20
98650	98830	180	92050	92070	20
99070	99110	40	92290	92330	40
99270	99390	120	93090	93110	20
99490	99530	40	93510	93570	60
99770	99930	160	93630	93650	20
100050	100070	20	93830	93927	97
100230	100326	96	94050	94070	20
100335	100434	99	94230	94270	40
100447	100581	134	94470	94490	20

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
100594	100690	96	94510	94530	20
100790	101010	220	94830	94850	20
101130	101170	40	94870	94890	20
101210	101230	20	94910	94930	20
101310	101366	56	95030	95090	60
101375	101596	221	95330	95350	20
101605	101870	265	95430	95447	17
101970	102130	160	95850	95890	40
102190	102230	40	95970	96110	140
102330	102350	20	96410	96570	160
102710	102850	140	96650	96670	20
102930	102990	60	96750	96770	20
103390	103557	167	96850	96890	40
103650	103802	152	96990	97050	60
103850	103950	100	97110	97130	20
104010	104130	120	97210	97270	60
104190	104210	20	98370	98390	20
104250	104270	20	98430	98470	40
104370	104510	140	98490	98510	20
104530	104565	35	98750	98790	40
104690	104710	20	99070	99110	40
104850	104970	120	99290	99370	80
105050	105130	80	99770	99830	60
105270	105350	80	99890	99950	60
105410	105530	120	100030	100050	20
105610	105630	20	100250	100310	60
105650	105670	20	100350	100410	60
105790	106090	300	100530	100570	40
106110	106130	20	100630	100670	40
106170	106290	120	100690	100710	20
106330	106390	60	100770	100790	20
106610	106650	40	100890	100930	40
106750	106837	87	100950	101010	60
106890	106970	80	101230	101290	60
107010	107090	80	101670	101750	80
107170	107250	80	101770	101850	80
107350	107430	80	101870	101894	24
107450	107530	80	101990	102010	20
107590	107650	60	102030	102110	80
107690	107810	120	102610	102672	62
107930	107950	20	102690	102710	20
108030	108110	80	103290	103331	41
108190	108219	29	103350	103390	40
108250	108270	20	103470	103530	60
108370	108390	20	103670	103790	120
108430	108485	55	103910	103972	62

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
108495	108570	75	104210	104250	40
108650	108670	20	104270	104310	40
108770	108825	55	104410	104450	40
108835	108950	115	104910	104950	40
108977	109070	93	105030	105070	40
109090	109164	74	105130	105150	20
109177	109290	113	105270	105290	20
109370	109430	60	105350	105510	160
109530	109590	60	105590	105610	20
109650	109670	20	105630	105650	20
109730	109810	80	105670	105690	20
109890	109930	40	105790	105930	140
110150	110170	20	106090	106110	20
110490	110510	20	106130	106152	22
110630	110704	74	106290	106330	40
110770	110877	107	106390	106410	20
110910	110990	80	106590	106674	84
111170	111270	100	106710	106750	40
111290	111410	120	107010	107090	80
111930	111954	24	107110	107125	15
111986	111990	4	107150	107170	20
112030	112070	40	107190	107210	20
112129	112170	41	107250	107307	57
112210	112250	40	107330	107350	20
112390	112410	20	107390	107450	60
112490	112530	40	107470	107510	40
112670	112730	60	107610	107630	20
112850	112890	40	107710	107790	80
112910	112924	14	107950	107970	20
112937	112990	53	108010	108070	60
113230	113290	60	108510	108592	82
113370	113414	44	108670	108690	20
113427	113490	63	108790	108810	20
113590	113670	80	108910	108930	20
113710	113750	40	109070	109090	20
113830	113874	44	109150	109164	14
113890	114090	200	109770	109790	20
114290	114330	40	110130	110150	20
114390	114410	20	110170	110250	80
114470	114510	40	110310	110330	20
114650	114770	120	110370	110447	77
114870	114910	40	110610	110630	20
115050	115090	40	110650	110670	20
115550	115670	120	110730	110770	40
115810	115850	40	110910	110970	60
115930	116010	80	111270	111290	20

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
116030	116170	140	111350	111430	80
116210	116250	40	111550	111630	80
116310	116370	60	111770	111797	27
116590	116650	60	112070	112090	20
116750	116970	220	112130	112194	64
117130	117170	40	112370	112390	20
117230	117270	40	112590	112610	20
117390	117410	20	112670	112710	40
117450	117467	17	112990	113010	20
117674	117770	96	113030	113070	40
117890	117910	20	113110	113130	20
118050	118090	40	113510	113530	20
118170	118210	40	113550	113569	19
118430	118510	80	113697	113770	73
118530	118567	37	113810	113830	20
118610	118716	106	113990	114030	40
118725	118750	25	114150	114190	40
118810	118830	20	114290	114310	20
118870	118910	40	114410	114430	20
119030	119050	20	114450	114470	20
119110	119150	40	114590	114610	20
119330	119470	140	114690	114770	80
119530	119597	67	114870	114890	20
119650	119665	15	114930	114950	20
119830	119930	100	114990	115050	60
119970	119990	20	115090	115110	20
120090	120110	20	115230	115290	60
120310	120355	45	115310	115350	40
120370	120390	20	116190	116210	20
120410	120430	20	116250	116270	20
120450	120514	64	116290	116350	60
120530	120570	40	116790	116830	40
120590	120610	20	116930	116950	20
121070	121110	40	117250	117270	20
121190	121210	20	117410	117467	57
121390	121470	80	117670	117730	60
			117770	117790	20
			118090	118136	46
			118150	118170	20
			118230	118270	40
			118310	118350	40
			118510	118530	20
			118630	118670	40
			118730	118776	46
			118830	118850	20
			119050	119075	25

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
			119150	119170	20
			119270	119310	40
			119330	119450	120
			119810	119830	20
			119950	119970	20
			119990	120010	20
			120390	120410	20
			120570	120590	20

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
			120910	120955	45
			121010	121030	20
			121070	121110	40
			121184	121190	6
			121230	121250	20
			121430	121450	20
	Total	289 57		Total	134 40

(b) Retaining wall

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
60073	60080	7	60000	60005	5
61035	61060	25	60073	60080	7
64300	64304	4	60284	60320	36
64317	64340	23	60777	60800	23
64460	64473	13	60880	60900	20
64488	64540	52	60907	60934	27
64640	64654	14	61035	61060	25
64667	64694	27	61135	61146	11
69914	69940	26	62097	62120	23
70260	70262	2	64300	64304	4
72200	72220	20	64317	64340	23
73540	73580	40	64460	64473	13
74160	74180	20	64488	64540	52
74760	74780	20	64640	64654	14
74904	74920	16	64667	64694	27
75877	75900	23	64707	64740	33
76152	76180	28	64820	64824	4
77163	77180	17	64837	64880	43
79998	80020	22	64900	64904	4
80240	80254	14	64917	64960	43
80267	80280	13	67100	67104	4
80660	80694	34	67117	67140	23
80707	80740	33	67267	67300	33
80880	80920	40	68447	68480	33
80940	80955	15	69700	69720	20
80966	80980	14	69914	69940	26
81150	81175	25	70017	70040	23
81185	81190	5	70140	70159	19
81310	81410	100	70172	70220	48
81470	81487	17	70260	70262	2
81534	81550	16	70279	70300	21
81630	81664	34	70960	70980	20
81677	81690	13	71045	71060	15

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
81790	81810	20	71227	71260	33
81990	82044	54	71520	71540	20
82110	82130	20	72200	72220	20
82790	82821	31	72727	72740	13
82830	82850	20	73346	73360	14
82990	83002	12	73520	73580	60
83090	83102	12	73800	73820	20
83210	83244	34	74140	74200	60
83257	83270	13	74260	74280	20
83290	83314	24	74740	74742	2
83327	83330	3	74760	74800	40
83410	83430	20	74820	74877	57
83650	83684	34	74904	74940	36
83790	83804	14	75011	75040	29
84110	84164	54	75500	75524	24
84177	84210	33	75537	75557	20
85069	85090	21	75604	75620	16
86190	86202	12	75860	75864	4
86219	86250	31	75877	75920	43
86690	86710	20	76152	76200	48
87650	87664	14	76360	76380	20
87677	87690	13	76700	76720	20
87864	87890	26	76900	76920	20
88119	88130	11	77163	77200	37
88464	88470	6	77317	77340	23
90274	90290	16	77695	77720	25
90909	90930	21	77740	77754	14
91910	91930	20	77767	77780	13
93334	93350	16	77940	77974	34
94117	94130	13	77987	78040	53
94297	94310	13	78090	78120	30
94577	94590	13	78309	78380	71
94704	94710	6	78902	78940	38

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
96210	96222	12	79440	79460	20
96249	96277	28	79797	79820	23
96324	96350	26	79998	80020	22
98204	98210	6	81330	81350	20
99150	99169	19	82990	83002	12
99216	99230	14	83090	83102	12
99454	99470	16	83790	83804	14
99590	99610	20	84130	84150	20
99710	99722	12	84290	84305	15
103050	103084	34	84315	84430	115
103097	103110	13	84450	84600	150
103604	103610	6	84611	84664	53
104790	104807	17	84677	84750	73
105244	105250	6	84863	84890	27
105564	105570	6	85069	85090	21
107849	107870	21	85430	85455	25
108004	108010	6	85466	85470	4
108619	108630	11	85870	85885	15
108690	108707	17	85895	85910	15
111490	111502	12	86110	86202	92
111519	111530	11	86219	86250	31
111810	111830	20	86350	86374	24
112569	112590	21	86387	86430	43
113330	113350	20	86550	86664	114
114210	114232	22	86677	86767	90
114249	114270	21	86814	86857	43
114844	114850	6	86904	86950	46
115149	115170	21	87010	87030	20
115870	115884	14	87150	87184	34
116670	116692	22	87197	87285	88
116709	116730	21	87296	87394	98
119610	119630	20	87407	87470	63
120150	120170	20	87604	87664	60
			87677	87710	33
			87864	87890	26
			88090	88102	12
			88119	88130	11
			88150	88174	24
			88187	88222	35
			88269	88290	21
			88350	88417	67
			88464	88510	46
			88610	88630	20
			88690	88725	35

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
			88735	88790	55
			88890	88910	20
			88990	89010	20
			89110	89170	60
			89190	89269	79
			89282	89424	142
			89437	89550	113
			89605	89610	5
			89650	89665	15
			89675	89716	41
			89725	89750	25
			89770	89804	34
			89817	89890	73
			89950	89969	19
			89982	90044	62
			90057	90127	70
			90174	90227	53
			90274	90310	36
			90370	90384	14
			90397	90610	213
			90630	90644	14
			90657	90690	33
			90830	90892	62
			90909	90950	41
			90995	91010	15
			91150	91174	24
			91187	91230	43
			91390	91424	34
			91437	91490	53
			91567	91590	23
			91755	91770	15
			91913	91950	37
			91997	92050	53
			92090	92130	40
			92190	92205	15
			92215	92250	35
			92450	92494	44
			92507	92550	43
			92590	92602	12
			92639	92650	11
			92770	92834	64
			92847	92870	23
			92997	93042	45
			93079	93090	11

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
			93190	93250	60
			93270	93307	37
			93334	93390	56
			93606	93610	4
			93690	93716	26
			93725	93790	65
			93974	93990	16
			94090	94104	14
			94117	94184	67
			94197	94230	33
			94270	94284	14
			94297	94350	53
			94439	94450	11
			94530	94564	34
			94577	94610	33
			94704	94750	46
			94790	94810	20
			94930	94994	64
			95007	95030	23
			95154	95190	36
			95250	95290	40
			95494	95510	16
			95590	95600	10
			95650	95669	19
			95682	95772	90
			95789	95830	41
			96150	96222	72
			96249	96277	28
			96324	96390	66
			96602	96630	28
			96690	96730	40
			96790	96806	16
			96815	96850	35
			96942	96970	28
			97290	97306	16
			97315	97350	35
			97429	97450	21
			97529	97570	41
			97830	97917	87
			98204	98230	26
			98270	98295	25
			98306	98330	24
			98390	98410	20
			98530	98576	46

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
			98585	98650	65
			98830	98874	44
			98887	98992	105
			99009	99050	41
			99110	99169	59
			99216	99270	54
			99390	99407	17
			99454	99490	36
			99510	99722	212
			99950	99982	32
			100070	100090	20
			100130	100190	60
			100210	100230	20
			100410	100434	24
			100447	100470	23
			100710	100727	17
			101049	101130	81
			101150	101187	37
			101204	101230	26
			101290	101310	20
			101350	101366	16
			101375	101390	15
			101410	101430	20
			101570	101596	26
			101605	101630	25
			102130	102392	262
			102430	102522	92
			102539	102582	43
			102599	102610	11
			102870	102907	37
			102990	103084	94
			103097	103290	193
			103330	103350	20
			103604	103630	26
			103989	104010	21
			104130	104190	60
			104310	104345	35

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
			104355	104370	15
			104575	104645	70
			104655	104807	152
			104834	104870	36
			104970	104982	12
			105244	105270	26
			105330	105350	20
			105530	105547	17
			105564	105590	26
			105690	105717	27
			105770	105790	20
			106410	106445	35
			106455	106524	69
			106537	106590	53
			106687	106710	23
			106884	106890	6
			106970	106984	14
			106997	107010	13
			107530	107552	22
			107579	107590	11
			107650	107660	10
			107810	107832	22
			107849	107930	81
			107970	107987	17
			108004	108010	6
			108110	108150	40
			108160	108190	30
			108232	108250	18
			108270	108314	44
			108327	108450	123
			108619	108650	31
			108690	108707	17
			108754	108770	16
			108835	108850	15
			108950	10896	14

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
				4	
			108977	108990	13
			109290	109335	45
			109345	109370	25
			109430	109482	52
			109499	109530	31
			109570	109650	80
			109670	109684	14
			109697	109730	33
			109810	109864	54
			109877	109890	13
			109930	109979	49
			109992	110114	122
			110127	110130	3
			110250	110310	60
			110510	110610	100
			110690	110704	14
			110717	110730	13
			110904	110910	6
			110990	111142	152
			111159	111170	11
			111250	111270	20
			111430	111502	72
			111519	111550	31
			111630	111677	47
			111724	111730	6
			111750	111770	20
			111814	111954	140
			111990	112030	40
			112090	112112	22
			112207	112210	3
			112250	112370	120
			112410	112464	54
			112477	112490	13
			112530	112552	22

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
			112569	112590	21
			112610	112650	40
			112730	112774	44
			112787	112910	123
			113010	113030	20
			113070	113084	14
			113097	113110	13
			113150	113204	54
			113217	113230	13
			113290	113370	80
			113582	113590	8
			113670	113684	14
			113770	113790	20
			114190	114232	42
			114249	114290	41
			114330	114369	39
			114382	114390	8
			114530	114552	22
			114569	114590	21
			114844	114850	6
			114950	114960	10
			115110	115132	22
			115149	115230	81
			115350	115430	80
			115544	115570	26
			115650	115684	34
			115697	115749	52
			115781	115790	9
			115870	115884	14
			115916	115930	14
			116170	116180	10
			116370	116404	34
			116417	116514	97
			116546	116590	44
			116650	11669	42

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
				2	
			116709	116750	41
			116970	116995	25
			117005	117095	90
			117105	117110	5
			117190	117200	10
			117210	117230	20
			117270	117390	120
			117790	117834	44
			117847	117890	43
			117910	117975	65
			117985	118050	65
			118145	118150	5
			118290	118310	20
			118390	118402	12
			118429	118450	21
			118785	118810	25
			118910	118932	22
			118935	118945	10
			118949	119004	55
			119017	119030	13
			119085	119130	45
			119170	119222	52
			119239	119270	31
			119470	119489	19
			119502	119530	28
			119550	119644	94
			119650	119665	15
			119675	119767	92
			119784	119810	26
			120010	120045	35
			120130	120227	97
			120254	120310	56
			120365	120370	5
			120410	120470	60

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
			120490	120514	24
			120527	120550	23
			120610	120636	26
			120645	120712	67
			120729	120890	161

<u>Left Side</u>			<u>Right Side</u>		
From	To	Length	From	To	Length
			121250	121275	25
			121285	121290	5
			121370	121380	10
			121470	121500	30
	Total	1983	Total		14643

12. SPECIAL REQUIREMENTS FOR HILL ROADS

Refer to the provision of relevant manual and provide details where relevant and required.

13. CHANGE OF SCOPE

The length of Structures, bridges, culverts, underpasses, flyovers etc. specified hereinabove shall be treated as an approximate assessment. The actual lengths as required based on 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.

14. UTILITY SHIFTING

Shifting of obstructing existing utilities indicated in Schedule A to an appropriate location in accordance with the standards and specification of concerned Utility Owning Department is part of the scope of work of the Contractor/Concessionaire.

The bidders may visit the site and assess the quantum of shifting of utilities for the projects before submission of their bid. Copy of utility relocation plan is enclosed. The specification of concerned Utility Owning Department shall be applicable and followed.

Note-I:

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

department. The assistance of the Authority is limited to giving forwarding letter on the proposal of contractor/concessionaire to utility owning department whenever asked by the contractor/concessionaire. The decision/ approval of utility owning department shall be on the contractor/concessionaire.

b) The supervision charges at the rates/charges applicable of the utility owning department shall be paid directly by the Authority to the utility Owing department as and when contractor/concessionaire furnishes demand of utility Owing Department along with a copy of estimated cost given by later.

c) 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 unless the contractor/concessionaire is required to deposit the dismantled material may be availed by the contractor/concessionaire as per estimate agreed between them.

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

Schedule-C

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. The Project Facilities shall include:

- (a) Toll plazas;
- (b) Roadside furniture;
- (c) Pedestrian facilities;
- (d) Tree Plantation;
- (e) Truck lay-byes;
- (f) Bus-bays and Passenger shelters;
- (g) Rest Area;
- (h) Others;

2 Description of Project Facilities

Each of the Project Facilities is described below:

- (a) Toll Plazas -NIL
- (b) Roadside furniture;

The roadside furniture shall include the provisions of:

1. Traffic Signs

Traffic signs include roadside signs, overhead signs and kerb-mounted signs along the entire Project Highway as per the manual of specifications.

2. Pavement Markings

Pavement markings shall cover road marking as per the manual of specifications.

3. LED Traffic Blinkers

LED Traffic Blinkers for the entire project highway at the locations as suggested in Manual.

4. Parapet wall

The parapet wall shall be provided along the project highway of minimum length of 24062 m

5. Seeding & Mulching

The seeding & mulching shall be provided along the project highway of minimum length of 295602 Sqm.

6. Delineators

Delineators for the entire Project Highway at the locations as suggested in Manual.

7. Kilometre stones

Kilometer Stones for the entire Project Highway at the locations as suggested in Manual.

8. Solar studs

The Solar Studs shall be provided throughout the project highway in accordance with table 5.2 of IRC: 35 and clause 9.5 of IRC: SP:73. Color of road studs shall be provided as per clause 5.4 of IRC 35.

(c) Pedestrian facilities;

Pedestrian Guard rails shall be provided at junctions, Truck lay byes, bus bays and near schools and hospitals as per provisions in section 9.8 of the Manual.

(d) Tree Plantation;

Land Scaping and tree plantation of the highway shall be provided as per section 11 of the manual.

(e) Truck lay-byes

Truck Lay bye shall be provided at the following locations in accordance with section 12.5 of the manual at 1 location.

(f) Bus bay and Bus- shelters

Minimum 02 nos. of Bus Shelter shall be provided along the project highway. Tentative locations for Bus shelters are indicated below, however, the same shall be finalized as per suitability of location and site requirement in consultation with the Authority's Engineer/ Authority. As stipulated in section 12.6 of the Manual, Bus- shelters shall be provided at below indicative locations.

(g) Rest Areas: NIL

(h) Others

(i) Street Lighting

Street lighting shall be provided at the junction.

(ii) Passing palaces

The passing palaces shall be provided along the project highway of minimum No. of 52.

Schedule-D

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 Manual of Guidelines for Alignment survey and Geometric design of Hill roads - IRC: 52-2019, Hill Road manual IRC: SP 48 - 1998, IRC SP 73-2018 referred to as the Manual, MORTH Specifications for Road and Bridge Works 5th Revision 2013 or latest version and All relevant Manuals. Where the specification for a work is not given, Good Industry Practice shall be adopted to the satisfaction of the Authority's Engineer.

Annex - I

(Schedule-D)

Specifications and Standards for Construction

1 Specifications and Standards

All Materials, works and construction operations shall conform to the Guidelines All Materials, works and construction operations shall conform to the Manual of Specifications and Standards for [Guidelines for Alignment survey and Geometric design of Hill roads - IRC: 52-2019 and Hill Road manual IRC: SP 48 -1998 and IRC SP 73-2018], 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:]
- (iii) [Note 1: 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.]

Sl. No.	Item	Description of Deviation	As per manual	Clause Reference
1	Typical Cross Section	Formation Width of 8.40 m for Intermediate Lane carriageway (Open Country-Mountainous Terrain) as mentioned in Appendix B-I, Fig. 1 to 13	Guidelines for Alignment survey and Geometric design of Hill roads - IRC: 52-2019 and Hill Road manual IRC: SP 48 - 1998 and IRC SP 73-2018	Clause 2.16 fig. 2.9 & 2.10 of IRC SP:73-2018 / NH-11065/2/20 22-Office of DG
2	Width of Structures	Proposed Structure width is 9m. for Intermediate Lane.	Guidelines for Alignment survey and Geometric design of Hill roads - IRC: 52-2019 and Hill Road manual IRC: SP 48 - 1998 and IRC SP 73-2018	NH-11065/2/20 22-Office of DG

Schedule - E

(See Clauses 2.1 and 14.2)

Maintenance Requirements

1. Maintenance Requirements

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

[Specify all the relevant documents]

2. Repair/rectification of Defects and deficiencies

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

3. Other Defects and deficiencies

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

4. Extension of time limit

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

5. Emergency repairs/restoration

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

6. Daily inspection by the Contractor

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

7. Pre-monsoon inspection / post-monsoon inspection

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

8. Repairs on account of natural calamities

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

Asset Types of Grade structure, approaches of connecting roads, slip roads, lay byes etc. as applicable)	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/Repair	Maintenance Specifications
		Desirable	Acceptable					
	Cracking	Nil	< 5 % subject to limit of 0.5 sqm for any 50 m length	Daily			7-15 days	MORT&H Specification 3004.3
	Rutting	Nil	< 5 mm	Daily	Straight Edge		15 -30 days	MORT&H Specification 3004.2
	Corrugations and Shoving	Nil	< 0.1 % of area	Daily	Length Measurement Unit like		2-7 days	IRC:82-2015

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/ Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	Acceptable					
	Bleeding	Nil	< 1 % of area	Daily	Scale, Tape, odometer etc.		3-7 days	MORT&H Specification 3004.4
	Ravelling / Stripping	Nil	< 1 % of area	Daily			7-15 days	IRC:82-2015 read with IRC SP81
	Edge Deformation/ Breaking	Nil	< 1 m for any 100 m section and width < 0.1 m at any location, restricted	Daily			7- 15 days	IRC:82-2015

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/Repair	Maintenance Specifications
		Desirable	Acceptable					
			to 30 cm from the edge					
	RoughnessBI	2000 mm/km	2400 mm/km	Bi-Annually	Class I Profilometer	Class I Profilometer: ASTM E950 (98) :2004 –Standard Test Method for measuring Longitudinal Profile of Travelled Surfaces with Accelerometer Established Inertial Profiling Reference ASTM E1656 -94: 2000- Standard Guide for Classification of Automatic Pavement Condition Survey Equipment	180 days	IRC:82-2015
	Skid Number	60SN	50SN	Bi-Annually	SCRIM (Sideway- force Coefficient Routine Investigation Machine or equivalent)		180 days	BS: 7941-1: 2006
	Pavement Condition Index	3	2.1	Bi-Annually			180 days	IRC:82-2015

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/Repair	Maintenance Specifications
		Desirable	Acceptable					
	Other Pavement Distresses			Bi-Annually			2-7 days	IRC:82-2015
	Deflection/Remaining Life			Annually	Falling Weight Deflectometer	IRC 115: 2014	180 days	IRC:115-2014
Rigid Pavement	RoughnessBI	2200m m/km	2400mm /km	Bi-Annually	Class I Profilometer	ASTM E950 (98) :2004 and ASTM E1656 -94: 2000	180 days	IRC:SP:83-2008
(Pavement of MCW,Service Road, Grade structure,	Skid	Skid Resistance no. at different speed of vehicles		Bi-Annually	SCRIM (Sideway-force	IRC: SP:83-2008	180 days	IRC: SP:83-2008

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	Acceptable					
approaches of connecting roads, slip roads, lay bys etc. as applicable)		Minimum SN	Traffic Speed (Km/h)		Coefficient Routine Investigation Machine or equivalent)			
		36	50					
		33	65					
		32	80					
		31	95					
		31	110					

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/Repair	Maintenance Specifications
		Desirable	Acceptable					
Embankment/ Slope	Edge drop at shoulders	Nil	40mm	Daily	Length Measurement Unit like Scale, Tape, odometer etc.	IRC	7-15 days	MORT&H Specification 408.4
	Slope of camber/cross fall	Nil	<2% variation in prescribed slope of camber /Crossfall	Daily			7-15 days	MORT&H Specification 408.4
	Embankment Slopes	Nil	<15 % variation in prescribe	Daily			7-15 days	MORT&H Specification 408.4

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification /Repair	Maintenance Specifications
		Desirable	Acceptable					
			side slope					
	Embankment Protection	Nil	Nil	Daily	NA		7-15 days	MORT&H Specification
	Rain Cuts/ Gullies in slope	Nil	Nil	Daily Specially During Rainy Season	NA		7-15 days	MORT&H Specification

In addition to the above performance criterion, the contractor shall strictly maintain the rigid pavements as per requirements in the following table

Table -2: **Maintenance Criteria for Rigid Pavements:**

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
CRACKING						
1	Single Discrete Cracks Not intersecting with any joint	w = width of crack L = length of crack d = depth of crack D = depth of slab	0	Nil, not discernible	No Action	Not applicable
			1	$w < 0.2$ mm. hair cracks		
			2	$w = 0.2 - 0.5$ mm, discernible from slow-moving car	Seal without delay	Seal, and stitch if $L > 1$ m. Within 7days
			3	$w = 0.5 - 1.5$ mm, discernible from fast-moving car		

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
2	Single Transverse (or Diagonal) Crack intersecting with one or more joints	w = width of crack L = length of crack d = depth of crack D = depth of slab	4	$w = 1.5 - 3.0$ mm	Seal, and stitch if $L > 1$ m.	Staple or Dowel Bar Retrofit, FDR for affected portion.
			5	$w > 3$ mm.	Within 7 days	Within 15days
			0	Nil, not discernible	No Action	
			1	$w < 0.2$ mm, hair cracks	Route and seal with epoxy.	Staple or Dowel Bar Retrofit.
			2	$w = 0.2 - 0.5$ mm, discernible from slow vehicle	Within 7 days	Within 15days
			3	$w = 0.5 - 3.0$ mm, discernible from fast vehicle	Route, seal and stitch, if $L > 1$ m. Within 7 days	

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
			4	$w = 3.0 - 6.0 \text{ mm}$	Dowel Bar Retrofit. Within 15 days	Full Depth Repair Dismantle and reconstruct affected. Portion with norms and specifications - See Para 5.5 & 9.2
			5	$w > 6 \text{ mm}$, usually associated with spalling, and/or slab rocking under traffic	Not Applicable, as it may be full depth	Within 15days
			0	Nil, not discernible	No Action	
3	Single Longitudinal Crack intersecting with one or more joints	w = width of crack L = length of crack d = depth of crack D = depth of slab	1	$w < 0.5 \text{ mm}$, discernable from slow moving vehicle	Seal with epoxy, if $L > 1 \text{ m}$. Within 7 days	Staple or dowel bar retrofit. Within 15days

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
			2	$w = 0.5 - 3.0$ mm, discernible from fast vehicle	Route seal and stitch, if $L > 1$ m. Within 15 days	-
			3	$w = 3.0 - 6.0$ mm	Staple, if $L > 1$ m. Within 15 days	Partial Depth Repair with stapling. Within 15 days
			4	$w = 6.0 - 12.0$ mm, usually associated with spalling	Not Applicable, as it may be full depth	
			5	$w > 12$ mm, usually associated with spalling, and/or slab rocking under traffic		Full Depth Repair Dismantle and reconstruct affected portion as per norms and specifications -

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
						See Para 5.6.4 Within 15 days
4	Multiple Cracks intersecting with one or more joints	w = width of crack	0	Nil, not discernible	No Action	-
			1	$w < 0.2$ mm, hair cracks	Seal, and stitch if $L > 1$ m.	
			2	$w = 0.2 - 0.5$ mm. discernible from slow vehicle	Within 15 days	
			3	$w = 0.5 - 3.0$ mm, discernible from fast vehicle	Full depth repair within 15 days	Dismantle, Reinstatement subbase, Reconstruct whole slab as per specifications within 30 days
			4	$w = 3.0 - 6.0$ mm panel broken into 2 or 3 pieces		
			5	$w > 6$ mm and/or panel broken		

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
				into more than 4 pieces		
5	Corner Break	w = width of crack L = length of crack	0	Nil, not discernible	No Action	-
			1	w < 0.5 mm; only 1 corner broken	Seal with low viscosity epoxy to	Seal with epoxy seal with epoxy Within 7 days
			2	w < 1.5 mm; L < 0.6 m, only one corner broken	secure broken parts Within 7 days	
			3	w < 1.5 mm; L < 0.6 m, two corners broken	Partial Depth (Refer Figure 8.3 of IRC: SP: 83-2008) Within 15 days	Full depth repair
			4	w > 1.5 mm; L > 0.6 m or three corners broken		
			5	ree or four corners broken		Reinstate sub-base, and reconstruct the

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
						slab as per norms and specifications within 30days
6	Punchout (Applicable to Continuous Reinforced Concrete Pavement (CRCP) only)	w = width of crack L = length (m/m ²)	0	Nil, not discernible		No Action
			1	$w < 0.5$ mm; $L < 3$ m/m ²	Not Applicable, as it may be full depth	Seal with low viscosity epoxy to secure broken parts.
			2	either $w > 0.5$ mm or $L < 3$ m/m ²		Within 15days
			3	$w > 1.5$ mm and $L < 3$ m/m ²		
			4	$w > 3$ mm, $L < 3$ m/m ² and deformation		Full depth repair - Cut out and replace damaged area taking care not to damage reinforcement.
			5	$w > 3$ mm, $L > 3$ m/m ² and deformation		Within 30days

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
Surface Defects						
7	Ravelling Honeycomb surface	r = area damaged or surface/total surface of slab (%) h = maximum depth of damage	0	Nil, not discernible	Short Term	Long Term
					No action.	Not Applicable
			1	$r < 2 \%$	Local repair of areas damaged	
			2	$r = 2 - 10 \%$	and liable to be damaged. Within 15 days	
			3	$r = 10-25\%$	Bonded Inlay, 2 or 3 slabs if	
			4	$r = 25 - 50 \%$	affecting.	

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
					Within 30 days	
			5	$r > 50\%$ and $h > 25\text{ mm}$	Reconstruct slabs, 4 or more slabs if affecting. Within 30 days	
8	Scaling	$r = \frac{\text{damaged surface}}{\text{total surface of slab}} (\%)$ $h = \text{maximum depth of damage}$	0	Nil, not discernible	Short Term	Long Term
					No action.	Not Applicable
			1	$r < 2\%$	Local repair of areas damaged	
			2	$r = 2 - 10\%$	and liable to be damaged. Within 7 days	

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
			3	$r = 10 - 20\%$	Bonded Inlay within 15 days	
			4	$r = 20 - 30 \%$		
			5	$r > 30 \%$ and $h > 25 \text{ mm}$	Reconstruct slab within 30 days	
9	Polished Surface/Glazing	t = texture depth, sand patch test	0		No action.	Not Applicable
			1	$t > 1 \text{ mm}$		
			2 '	$t = 1 - 0.6 \text{ mm}$	Monitor rate of deterioration	
			3	$t = 0.6 - 0.3 \text{ mm}$		
			4	$t = 0.3 - 0.1 \text{ mm}$		

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
			5	$t < 0.1 \text{ mm}$	Diamond Grinding if affecting 50% or more slabs in a continuous stretch of minimum 5 km. Within 30 days	
10	Popout (Small Hole), Pothole Refer Para 8.4	n = number/ m^2 d = diameter h = maximum depth	0	$d < 50 \text{ mm}$; $h < 25 \text{ mm}$; $n < 1$ per 5 m^2	No action.	Not Applicable
			1	$d = 50 - 100 \text{ mm}$; $h < 50 \text{ mm}$; $n < 1$ per 5 m^2	Partial depth repair 65 mm deep.	
			2	$d = 50 - 100 \text{ mm}$; $h > 50 \text{ mm}$; $n < 1$ per 5 m^2	Within 15 days	

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
			3	$d = 100 - 300 \text{ mm}; h < 100 \text{ mm}$ $n < 1$ per 5 m^2	Partial depth repair 110mm	
			4	$d = 100 - 300 \text{ mm}; h > 100 \text{ mm}; n < 1$ per 5 m^2	i.e.10 mm more than the depth of the hole. Within 30 days	
			5	$d > 300 \text{ mm}; h > 100 \text{ mm}; n > 1$ per 5 m^2	Full depth repair. Within 30 days	

Joint Defects						
11	Joint Seal Defects	loss or damage L = Length as % total joint length	0	Difficult to discern.	Short Term	Long Term
					No action.	Not Applicable
			1	Discernible, $L < 25\%$ but of little immediate consequence with regard to ingress of water or trapping incompressible material.	Clean joint, inspect later.	
			3	Notable. $L > 25\%$ insufficient protection against ingress of water and trapping incompressible material.	Clean and reapply sealant in selected locations. Within 7 days	
			5	Severe; $w > 3$ mm negligible protection against ingress of water	Clean, widen and reseal the joint. Within 7 days	

				and trapping incompressible material.		
12	Spalling of Joints	w = width on either side of the joint L = length of spalled portion (as % joint length)	0	Nil, not discernible	No action.	Not Applicable
			1	w < 10 mm	Apply low viscosity epoxy resin/ mortar in cracked portion.	
			2	w = 10 - 20 mm, L < 25%	Within 7 days	
			3	w = 20 - 40 mm, L > 25%	Partial Depth Repair. Within 15 days	
			4	w = 40 - 80 mm, L > 25%	30 - 50 mm deep, h = w + 20% of w, within 30 days	
			5	w > 80 mm, and L > 25%	50 - 100 mm deep repair. H = w + 20% of w. Within 30 days	
13	Faulting (or stepping) in Cracks or Joints	f = difference of level	0	not discernible, < 1 mm	No action.	No action.

			1	$f < 3 \text{ mm}$		
			2	$f = 3 - 6 \text{ mm}$	Determine cause and observe, take action for diamond grinding	Replace the slab as appropriate.
			3	$f = 6 - 12 \text{ mm}$	Diamond Grinding	Within 30days
			4	$f = 12 - 18 \text{ mm}$	Raise sunken slab.	Replace the slab as appropriate. Within 30days
			5	$f > 18 \text{ mm}$	Strengthen subgrade and sub-base by grouting and raising sunken slab	
14	Blowup or buckling	h = vertical displacement from normal profile	0	Nil, not discernible	Short Term	Long Term
					No Action	
			1	$h < 6 \text{ mm}$		
			2	$h = 6 - 12 \text{ mm}$	Install Signs to Warn Traffic	

			3	h = 12 - 25 mm	within 7 days	
			4	h > 25 mm	Full Depth Repair. Within 30 days	
			5	shattered slabs, ie 4 or more pieces	Replace broken slabs. Within 30 days	
15	Depression	h = negative vertical displacement from normal profile L=length	0	Not discernible, h < 5 mm	No action.	Not Applicable
			1	h = 5 - 15 mm		
			2	h = 15-30 mm, Nos <20% joints	Install Signs to Warn Traffic within 7 days	
			3	h = 30 - 50 mm		
			4	h > 50 mm or > 20% joints	Strengthen subgrade. Reinstate pavement at normal level	

			5	h > 100 mm	if L < 20 m. Within 30 days	
16	Heave	h = positive vertical displacement from normal profile. L = length	0	Not discernible. h < 5 mm	Short Term	Long Term
					No action.	scrabble
			1	h = 5 - 15 mm	Follow up.	
			2	h = 15 - 30 mm, Nos <20% joints	Install Signs to Warn Traffic within 7 days	
			3	h = 30 - 50 mm		
			4	h > 50 mm or > 20% joints	Stabilise subgrade. Reinstate pavement at normal level if length < 20 m. Within 30 days	
			5	h > 100 mm		
17	Bump	h = vertical	0	h < 4 mm	No action	

		displacement from normal profile	1	$h = 4 - 7 \text{ mm}$	Grind, in case of new construction within 7 days	Construction Limit for New Construction.
			3	$h = 7 - 15 \text{ mm}$	Grind, in case of ongoing Maintenance within 15 days	Replace in case of new construction. Within 30days
			5	$h > 15 \text{ mm}$	Full Depth Repair. Within 30 days	Full Depth Repair. Within 30days
18	Lane Shoulder Dropoff	to f = difference of level	0	Nil, not discernible $< 3\text{mm}$	Short Term	Long Term
					No action.	
			1	$f = 3 - 10 \text{ mm}$	Spot repair of shoulder within 7 days	
			2	$f = 10 - 25 \text{ mm}$		
			3	$f = 25 - 50 \text{ mm}$	Fill up shoulder	

			4	f = 50 - 75 mm	within 7 dayss	For any 100 m stretch Reconstruct shoulder, if affecting 25% or more of stretch. Within 30days
			5	f > 75 mm		
Drainage						
19	Pumping	quantity of fines and water expelled through open joints and cracks Nos	0	not discernible	No Action	
			1 to 2	slight/ occasional Nos < 10%	Repair cracks and joints Without delay.	Inspect and repair sub-drainage at distressed sections and upstream.
			3 to 4	appreciable/ Frequent 10 - 25%	Lift or jack slab within 30 days.	
		Nos/100 m stretch	5	abundant, crack development > 25%	Repair distressed pavement sections. Strengthen subgrade and subbase. Replace slab. Within 30 days	

20	Ponding	Ponding on slabs due to blockage of drains	0-2	No discernible problem	No action.	Action required to stop water damaging foundation within 30 days.
			3 to 4	Blockages observed in drains, but water flowing	Clean drains etc within 7 days, Follow up	
			5	Ponding, accumulation of water observed	-do-	

Table -3: Maintenance Criteria for Safety Related Items and Other Furniture Items:

Asset Type	Performance Parameter	Level of Service (LOS)			Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Highway	Availability of Safe Sight Distance	As per IRC SP :84-2014, a minimum of safe stopping sight distance shall be available throughout.			Monthly	Manual Measurements with Odometer along with video/ image backup	Removal of obstruction within 24 hours, in case of sight line affected by temporary objects such as trees, temporary encroachments. In case of permanent structure or design deficiency: Removal of obstruction/improvement of deficiency at the earliest Speed Restriction boards and suitable traffic calming measures such as transverse bar marking, blinkers, etc. shall be applied during the period of rectification.		IRC:SP 84-2014
		Design Speed, kmph	Desirable Minimum Sight Distance (m)	Safe Stopping Sight Distance (m)					
		100	360	180					
		80	260	130					
Pavement Marking	Wear	<70% of marking remaining			Bi-Annually	Visual Assessment as per Annexure-F of IRC:35-2015	Re - painting	Cat-1 Defect – within 24 hours Cat-2 Defect – within 2 months	IRC:35-2015

Asset Type	Performance Parameter	Level of Service (LOS)			Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	Day time Visibility	During expected life Service Time Cement Road - 130mcd/m ² /lux Bituminous Road - 100mcd/m ² /lux			Monthly	As per Annexure-D of IRC:35-2015	Re - painting	Cat-1 Defect – within 24 hours Cat-2 Defect – within 2 months	IRC:35-2015
	Night Time Visibility	<u>Initial and Minimum Performance for Dry Retro reflectivity during night time:</u>			Bi-Annually	As per Annexure-E of IRC:35-2015	Re - painting	Cat-1 Defect – within 24 hours Cat-2 Defect – within 2 months	IRC:35-2015
		Design Speed	(RL) Retro Reflectivity (mcd/m ² /lux)						
			Initial (7 days)	Minimum Threshold level (TL) & warranty period required up to 2 years					
		Up to 65	200	80					
		65 - 100	250	120					
		Above 100	350	150					
		<u>Initial and Minimum Performance for Night Visibility under wet condition (Retro reflectivity):</u>							

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
		Initial 7 days Retro reflectivity: 100 mcd/m ² /lux Minimum Threshold Level: 50 mcd/m ² /lux					
	Skid Resistance	Initial and Minimum performance for Skid Resistance: Initial (7days): 55BPN Min. Threshold: 44BPN *Note: shall be considered under urban/city traffic condition encompassing the locations like pedestrian crossings, bus bay, bus stop, cycle track intersection delineation, transverse bar markings etc	Bi-Annually	As per Annexure-G of IRC:35-2015		Within 24 hours	IRC:35-2015
Road Signs	Shape and Position	Shape and Position as per IRC:67-2012. Signboard should be clearly visible for the design speed of the section.	Daily	Visual with video/image backup	Improvement of shape, in case if shape is damaged. Relocation as per requirement	48 hours in case of Mandatory Signs, Cautionary and Informatory Signs (Single and Dual post signs) 15 Days in case of Gantry/Cantilever Sign boards	IRC:67-2012
	Retro reflectivity	As per specifications in IRC:67-2012	Bi-Annually	Testing of each	Change of signboard	48 hours in case of Mandatory	IRC:67-2012

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
				signboard using Retro Reflectivity Measuring Device. In accordance with ASTM D 4956-09.		Signs, Cautionary and Informatory Signs (Single and Dual post signs) 1 Month in case of Gantry/Cantilever Sign boards	
Kerb	Kerb Height	As per IRC 86:1983 depending upon type of Kerb	Bi-Annually	Use of distance measuring tape	Raising Kerb Height	Within 1 Month	RC 86:1983
	Kerb Painting	<u>Functionality:</u> Functioning of Kerb painting as intended	Daily	Visual with video/image backup	Kerb Repainting	Within 7-days	RC 35:2015
Other Road Furniture	Reflective Pavement Markers (Road Studs)	Numbers and Functionality as per specifications in IRC:SP:84-2014 and IRC:35-2015, unless specified in Schedule-B.	Daily	Counting	New Installation	Within 2 months	IRC:SP:84-2014, IRC:35-2015
	Pedestrian Guardrail	<u>Functionality:</u> Functioning of guardrail as intended	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC:SP:84-2014
	Traffic Safety Barriers	<u>Functionality:</u> Functioning of Safety Barriers as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP:84-2014, IRC:119-2015
	End Treatment of	<u>Functionality:</u> Functioning of End Treatment as intended	Daily	Visual with video/image	Rectification	Within 7 days	IRC:SP:84-2014,

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	Traffic Safety Barriers			backup			IRC:119-2015
	Attenuators	Functionality: Functioning of Attenuators as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP-2014, IRC:119-2015
	Guard Posts and Delineators	Functionality: Functioning of Guard Posts and Delineators as intended	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC: 79 - 1981
	Overhead Sign Structure	Overhead sign structure shall be structurally adequate	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC:67-2012
	Traffic Blinkers	Functionality: Functioning of Traffic Blinkers as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP:84-2014
Highway Lighting System	Highway Lights	Illumination: Minimum 40 Lux illumination on the road surface	Daily	The illumination level shall be measured with luxmeter	Improvement in Lighting System	24 hours	IRC:SP:84-2014
		No major failure in the lighting system	Daily	-	Rectification of failure	24 hours	IRC:SP:84-2014
		No minor failure in the lighting system	Monthly	-	Rectification of failure	8 hours	IRC:SP:84-2014
	Toll Plaza Canopy Lights	Minimum 40 Lux illumination on the road surface	Daily	The illumination level shall be measured with luxmeter	Improvement in Lighting System	24 hours	IRC:SP:84-2014
		No major/minor failure in the lighting system	Daily	-	Rectification of failure	8 hours	IRC:SP:84-2014

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Trees and Plantation including median plantation	Obstruction in a minimum head-room of 5.5 m above carriageway or obstruction in visibility of road signs	No obstruction due to trees	Monthly	Visual with video/image backup	Removal of trees	Immediate	IRC:SP:84-2014
	Deterioration in health of trees and bushes	Health of plantation shall be as per requirement of specifications & instructions issued by Authority from time to time	Daily	Visual with video/image backup	Timely watering and treatment. Or Replacement of Trees and Bushes.	Within 90 days	IRC:SP:84-2014
	Vegetation affecting sight line and road structures	Sight line shall be free from obstruction by vegetation	Daily	Visual with video/image backup	Removal of Trees	Immediate	IRC:SP 84-2014
Rest Areas	Cleaning of toilets	-	Daily	-	-	Every 4 hours	
	Defects in electrical, water and sanitary installations	-	Daily	-	Rectification	24 hours	

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Other Project Facilities and Approach roads	Damage or deterioration in Approach Roads, pedestrian facilities, truck lay-bys, bus-bays, bus-shelters, cattle crossings, Traffic Aid Posts, Medical Aid Posts and other works		Daily	-	Rectification	15 days	IRC: SP 84-2014

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Pipe/box/slab culverts	Free waterway/unobstructed flow section	85% of culvert normal flow area to available.	2 times in a year (before and after rainy season)	Inspection by Bridge Engineer as per IRC SP: 35-1990 and recording of depth of silting and area of vegetation.	Cleaning silt up soils and debris in culvert barrel after rainy season, removal of bushes and vegetation, U/s of barrel, under barrel and D/s of barrel before rainy season.	15 days before onset of monsoon and within 30 days after end of rainy season.	IRC 5-2015, IRC SP:40-1993 and IRC SP:13-2004
	Leak-proof expansion joints if any	No leakage through expansion joints	Bi-Annually	Physical inspection of expansion joints as per IRC SP: 35-1990 if any, for leakage strains on walls at joints.	Fixing with sealant suitably	30 days or before onset of rains whichever comes earlier	IRC SP:40-1993 and IRC SP:69-2011
	Structurally sound	Spalling of concrete not more than 0.25 sqm	Bi-Annually	Detailed inspection of all components of culvert as per IRC SP:35-1990 and recording the defects	Repairs to spalling, cracking, delamination, rusting shall be followed as per IRC:SP:40-1993.	15 days	IRC SP 40-1993 and MORTH Specifications clause 2800
		Delamination of concrete not more than 0.25 sq.m.					
		Cracks wider than 0.3 mm not more than 1m aggregate length					

	Protection works in good condition	Damaged of rough stone apron or bank revetment not more than 3 sqm, damage to solid apron (concrete apron) not more than 1 sqm	2 times in a year (before and after rainy season)	Condition survey as per IRC SP:35-1990	Repairs to damaged aprons and pitching	30 days after defect observation or 2 weeks before onset of rainy season whichever is earlier.	IRC: SP 40-1993 and IRC:SP:13-2004.
Bridges including ROBs Flyover etc. as applicable	Riding quality or user comfort	No pothole in wearing coat on bridge deck	Daily	Visual inspection as per IRC SP:35-1990	Repairs to BC or wearing coat	15 days	MORT&H Specification 2811
Bridge -Super Structure	Bumps	No bump at expansion joint	Daily	Visual inspection as per IRC SP:35-1990	Repairs to BC on either side of expansion joints, profile correction course on approach slab in case of settlement to approach embankment	15 days	MORT&H Specification 3004.2 & 2811.
	User safety (condition of crash barrier and guard rail)	No damaged or missing stretch of crash barrier or pedestrian hand railing	Daily	Visual inspection and detailed condition survey as per IRC SP: 35-1990.	Repairs and replacement of safety barriers as the case may be	3days	IRC: 5-1998, IRC SP: 84-2014 and IRC SP: 40-1993.

Rusted reinforcement	Not more than 0.25 sq.m	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	All the corroded reinforcement shall need to be thoroughly cleaned from rusting and applied with anti-corrosive coating before carrying out the repairs to affected concrete portion with epoxy mortar / concrete.	15 days	IRC SP: 40-1993 and MORTH Specification 1600.
Spalling of concrete	Not more than 0.50 sq.m					
Delamination	Not more than 0.50 sq.m					
Cracks wider than 0.30 mm	Not more than 1m total length	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	Grouting with epoxy mortar, investigating causes for cracks development and carry out necessary rehabilitation.	48 Hours	IRC SP: 40-1993 and MORTH Specification 2800.
Rainwater seepage through deck slab	Leakage - nil	Quarterly	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	Grouting of deck slab at leakage areas, waterproofing, repairs to drainage spouts	1 months	MORTH specifications 2600 & 2700.
Deflection due to permanent loads and	Within design limits.	Once in every 10 years for spans more	Load test method	Carry out major rehabilitation works on bridge to retain original design loads capacity	6 months	IRC SP: 51-1999.

	live loads		than 40 m				
	Vibrations in bridge deck due to moving trucks	Frequency of vibrations shall not be more than 5 Hz	Once in every 5 years for spans more than 30m and every 10 years for spans between 15 to 30 m	Laser displacement sensors or laser vibro-meters	Strengthening of super structure	4 months	AASHTO LRFD specifications
	Leakage in Expansion joints	No damage to elastomeric sealant compound in strip seal expansion joint, no leakage of rain water through expansion joint in case of buried and asphalt plug and copper strip joint.	Bi-Annually	Detailed condition survey as per IRC SP:35-1990 using Mobile Bridge Inspection Unit	Replace of seal in expansion joint	15 days	MORTH specifications 2600 and IRC SP: 40-1993.
	Debris and dust in strip seal	No dust or debris in expansion joint	Monthly	Detailed condition survey as per IRC SP:35-1990 using	Cleaning of expansion joint gaps thoroughly	3 days	MORTH specifications 2600 and

	expansion joint	gap.		Mobile Bridge Inspection Unit			IRC SP: 40-1993.
	Drainage spouts	No down take pipe missing/broken below soffit of the deck slab. No silt, debris, clogging of drainage spout collection chamber.	Monthly	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	Cleaning of drainage spouts thoroughly. Replacement of missing/broken down take pipes with a minimum pipe extension of 500mm below soffit of slab. Providing sealant around the drainage spout if any leakages observed.	3 days	MORTH specification 2700.
Bridge-substructure	Cracks/spalling of concrete/rusted steel	No cracks, spalling of concrete and rusted steel	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	All the corroded reinforcement shall need to be thoroughly cleaned from rusting and applied with anti-corrosive coating before carrying out repairs to substructure by grouting/guniting and micro concreting depending on type of defect noticed	30 days	IRC SP: 40-1993 and MORTH specification 2800.

	Bearings	Delamination of bearing reinforcement not more than 5%, cracking or tearing of rubber not more than 2 locations per side, no rupture of reinforcement or rubber	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	In case of failure of even one bearing on any pier/abutment, all the bearings on that pier/abutment shall be replaced, in order to get uniform load transfer on to bearings.	3 months	MORTH specification 2810 and IRC SP: 40-199.
Bridge Foundations	Scouring around foundations	Scouring shall not be lower than maximum scour level for the bridge	Bi-Annually	Condition survey and visual inspection as per IRC SP:35-1990 using Mobile Bridge Inspection Unit. In case of doubt, use Underwater camera for inspection of deep wells in major Rivers.	Suitable protection works around pier/abutment	1 month	IRC SP: 40-1993, IRC 83-2014, MORTH specification 2500
	Protection works in good condition	Damaged of rough stone apron or bank revetment not more than 3	2 times in a year (before and after rainy season)	Condition survey as per IRC SP:35-1990	Repairs to damaged aprons and pitching.	30 days after defect observation or 2	IRC: SP 40-1993 and IRC:SP:13-2004.

		sq.m, damage to solid apron (concrete apron) not more than 1 sq.m				weeks before onset of rainy season whichever is earlier.	
Note: Any Structure during the entire contract period which is found that does not complies with all requirements of this Table will be prepared, rehabilitated or even reconstructed under the scope of the contractor.							

Table 4: Maintenance Criteria for Structures and Culverts:

Table 5: Maintenance Criteria for Hill Roads

In addition to above, for hill roads the following provisions for maintenance is also to done.

Hill Roads		
(i)	Damage to Retaining wall/ Breast wall	7 (Seven) days
(ii)	Landslides requiring clearance	12 (Twelve) hours
(iii)	Snow requiring clearance	24 (Twenty-Four) hours

Note: For all tables 1 to 5 above, latest BIS & IRC standards (even those not indicated herewith) along with MoRTH specifications shall be binding for all maintenance activities.

A. Flexible Pavement

Nature of Defect or deficiency		Time limit for repair/ rectification
(b) Granular earth shoulders, side slopes, drains and culverts		
(i)	Variation by more than 1 % in the prescribed slope of camber/cross fall (shall not be less than the camber on the main carriageway)	7 (seven) days
(ii)	Edge drop at shoulders exceeding 40 mm	7 (seven) days
(iii)	Variation by more than 15% in the prescribed side (embankment) slopes	30 (thirty) days
(iv)	Rain cuts/gullies in slope	7 (seven) days
(v)	Damage to or silting of culverts and side drains	7 (seven) days
(vi)	Desilting of drains in urban/semi- urban areas	24 (twenty four) hours
(vii)	Railing, parapets, crash barriers	7 (seven) days (Restore immediately if causing safety hazard)
(c) Road side furniture including road sign and pavement marking		
(i)	Damage to shape or position, poor visibility or loss of retro- reflectivity	48 (forty eight) hours
(ii)	Painting of km stone, railing, parapets, crash barriers	As and when required/ Once every year
(iii)	Damaged/missing signs road requiring replacement	7 (seven) days
(iv)	Damage to road mark ups	7 (seven) days
(d) Road lighting		
(i)	Any major failure of the system	24 (twenty four) hours
(ii)	Faults and minor failures	8 (eight) hours
(e) Trees and plantation		

Nature of Defect or deficiency		Time limit for repair/rectification
(i)	Obstruction in a minimum head- room of 5 m above carriageway or obstruction in visibility of road signs	24 (twenty four) hours
(ii)	Removal of fallen trees from carriageway	4 (four) hours
(iii)	Deterioration in health of trees and bushes	Timely watering and treatment
(iv)	Trees and bushes requiring replacement	30 (thirty) days
(v)	Removal of vegetation affecting sight line and road structures	15 (fifteen) days
(f) Rest area		
(i)	Cleaning of toilets	Every 4 (four) hours
(ii)	Defects in electrical, water and sanitary installations	24 (twenty four) hours
(g) [Toll Plaza]		
(h) Other Project Facilities and Approach roads		
(i)	Damage in approach roads, pedestrian facilities, truck lay- byes, bus-bays, bus-shelters, cattle crossings, [Traffic Aid Posts, Medical Aid Posts] and service roads	15 (fifteen) days
(ii)	Damaged vehicles or debris on the road	4 (four) hours
(iii)	Malfunctioning of the mobile crane	4 (four) hours
Bridges		
(a) Superstructure		
(i)	Any damage, cracks, spalling/ scaling Temporary measures Permanent measures	within 48 (forty eight) hours within 15 (fifteen) days or as specified by the Authority's Engineer
(b) Foundations		

Nature of Defect or deficiency		Time limit for repair/ rectification
(i)	Scouring and/or cavitation	15 (fifteen) days
(c) Piers, abutments, return walls and wing walls		
(i)	Cracks and damages including settlement and tilting, spalling, scaling	30 (thirty) days
(d) Bearings (metallic) of bridges		
(i)	Deformation, damages, tilting or shifting of bearings	15 (fifteen) days Greasing of metallic bearings once in a year
(e) Joints		
(i)	Malfunctioning of joints	15 (fifteen) days
(f) Other items		
(i)	Deforming of pads in elastomeric bearings	7 (seven) days
(ii)	Gathering of dirt in bearings and joints; or clogging of spouts, weep holes and vent-holes	3 (three) days
(iii)	Damage or deterioration in kerbs, parapets, handrails and crash barriers	3 (three) days (immediately within 24 hours if posing danger to safety)
(iv)	Rain-cuts or erosion of banks of the side slopes of approaches	7 (seven) days
(v)	Damage to wearing coat	15 (fifteen) days
(vi)	Damage or deterioration in approach slabs, pitching, apron, toes, floor or guide bunds	30 (thirty) days
(vii)	Growth of vegetation affecting the structure or obstructing the waterway	15 (fifteen) days
(g) Hill Roads		
(i)	Damage to retaining wall/breast wall	7 (seven) days
(ii)	Landslides requiring clearance	12 (twelve) hours

Nature of Defect or deficiency		Time limit for repair/ rectification
(iii)	Snow requiring clearance	24 (twenty-four) hours

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

Schedule - F

(See Clause 4.1 (vii)(a))

Applicable Permits

1. Applicable Permits

- (i) The Contractor shall obtain, as required under the Applicable Laws, the following Applicable Permits:
 - (a) Permission of the State Government for extraction of boulders from quarry;
 - (b) Permission of Village Panchayats and Pollution Control Board for installation of crushers;
 - (c) Licence for use of explosives;
 - (d) Permission of the State Government for drawing water from river/reservoir;
 - (e) Licence from inspector of factories or other competent Authority for setting up batching plant;
 - (f) Clearance of Pollution Control Board for setting up batching plant;
 - (g) Clearance of Village Panchayats and Pollution Control Board for setting up asphalt plant;
 - (h) Permission of Village Panchayats and State Government for borrow earth; and
 - (i) Any other permits or clearances required under Applicable Laws.
- (ii) Applicable Permits, as required, relating to environmental protection and conservation shall have been procured by the Authority in accordance with the provisions of this Agreement.

Schedule - G

(See Clauses 7.1 and 19.2)

Annex-I: Form of Bank Guarantee

(See Clause 7.1)

[Performance Security /Additional Performance Security]

To

_____ [name of Authority]
_____ [address of Authority]

WHEREAS _____ [name and address of Contractor] (hereafter called the "Contractor") has undertaken, in pursuance of Letter of Acceptance (LOA) No. _____ Dated _____ for construction of [name of the Project] (hereinafter called the "Contract")

AND WHEREAS the Contract requires the Contractor to furnish an {Performance Security/ Additional Performance Security} for due and faithful performance of its obligations, under and in accordance with the Contract, during the {Construction Period/ Defects Liability Period and Maintenance Period} in a sum of Rs..... cr. (Rupees crore) (the "**Guarantee Amount**"¹).

AND WHEREAS we, through our branch at
.....(the "**Bank**") have agreed to furnish this Bank Guarantee (hereinafter called the "**Guarantee**") by way of Performance Security.

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

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

2. A letter from the Authority, under the hand of an officer not below the rank of [General Manager of National Highways & Infrastructure Development Corporation Limited], that the Contractor has committed default in the due and faithful performance of all or any of its obligations under and in accordance with the Contract shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is

in default in due and faithful performance of its obligations during and under the Contract and its decision that the Contractor is in default shall be final and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.

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

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

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

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

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

Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.

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

9. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and

declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.

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

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

12. This Guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

13. This guarantee shall also be operatable at our Branch at New Delhi, from whom,

confirmation regarding the issue of this guarantee or extension / renewal thereof shall be made available on demand. In the contingency of this guarantee being invoked and payment thereunder claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation.

14. The guarantor/bank hereby confirms that it is on the SFMS (Structural Finance Messaging System) platform & shall invariably send an advice of this Bank Guarantee to the designated bank of NHIDCL, details of which is as under:

Insert date at least 2 (two) years from the date of issuance of this Guarantee (in accordance with Clause 2.21 of the RFP). The Contractors can submit the BG for periods of two years at one time and keep on renewing the same till the DLP is over if they have problems in getting the BG in one go for the entire DLP.

S.No.	Particulars	Details
1	Name of Beneficiary	National Highways & Infrastructure Development Corporation Limited
2	Beneficiary Bank Account No.	90621010002659
3	Beneficiary Bank Branch IFSC	CNRB0019062
4	Beneficiary Bank Branch Name	Transport Bhawan, New Delhi
5	Beneficiary Bank Address	Canara Bank (erstwhile Syndicate Bank) transport Bhawan, 1st Parliament Street, New Delhi-110001

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

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

NOTES:

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

Annex - II
(Schedule - G)
(See Clause 19.2)

Annex - II: Form for Guarantee for Advance Payment

To

_____ [name of Authority]
_____ [address of Authority]

WHEREAS:

- (A) [name and address of contractor] (hereinafter called the "**Contractor**") has executed an agreement (hereinafter called the "**Agreement**") with the [name and address of the authority], (hereinafter called the "**Authority**") for the construction of the ***** section of [National Highway No. **] on Engineering, Procurement and Construction (the "**EPC**") basis, subject to and in accordance with the provisions of the Agreement.
- (B) In accordance with Clause 19.2 of the Agreement, the Authority shall make to the Contractor an interest bearing @Bank Rate + 3% advance payment (herein after called "**Advance Payment**") equal to 10% (ten per cent) of the Contract Price; and that the Advance Payment shall be made in two installments subject to the Contractor furnishing an irrevocable and unconditional guarantee by a scheduled bank for an amount equivalent to 110% (one hundred and ten percent) of such installment to remain effective till the complete and full repayment of the installment of the Advance Payment as security for compliance with its obligations in accordance with the Agreement. The amount of {first/second} installment of the Advance Payment is Rs. _____cr. (Rupees _____ crore) and the amount of this Guarantee is Rs. _____cr. (Rupees _____ crore) (the "**Guarantee Amount**")².
- (C) We, through our branch at (the "Bank") have agreed to furnish this bank guarantee (hereinafter called the "Guarantee") for the Guarantee Amount.

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

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful repayment on time of the aforesaid instalment of the Advance Payment under and in accordance with the Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.

A letter from the Authority, under the hand of an officer not below the rank of [General Manager in the National Highways Authority of India], that the Contractor has committed default in the due and faithful performance

of all or any of its obligations for the repayment of the instalment of the Advance Payment under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever

2. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.
3. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.
4. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Advance Payment or to extend the time or period of its repayment or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.
5. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Advance Payment.
6. Notwithstanding anything contained herein before, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.
7. The Guarantee shall cease to be in force and effect on ****³ Unless a demand or claim under this Guarantee is made in writing on or before the aforesaid date, the Bank shall be discharged from its liabilities hereunder.

8. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.
9. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorised to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.
10. This Guarantee shall come into force with immediate effect and shall remain in force and effect up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.
11. This Guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.
12. This guarantee shall also be operatable at our..... Branch at New Delhi, from whom, confirmation regarding the issue of this guarantee or extension / renewal thereof shall be made available on demand. In the contingency of this guarantee being invoked and payment thereunder claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation.
13. The guarantor/bank hereby confirms that it is on the SFMS (Structural Finance Messaging System) platform & shall invariably send an advice of this Bank Guarantee to the designated bank of NHIDCL, details of which is as under:

S.No.	Particulars	Details
1	Name of Beneficiary	National Highways & Infrastructure Development Corporation Limited
2	Beneficiary Bank Account No.	90621010002659
3	Beneficiary Bank Branch IFSC	CNRB0019062
4	Beneficiary Bank Branch Name	Transport Bhawan, New Delhi
5	Beneficiary Bank Address	Canara Bank (erstwhile Syndicate Bank) transport Bhawan, 1st Parliament Street, New Delhi-110001

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

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

NOTES:

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

Annex-III

(Schedule - G)

(See Clause 7.1)

Form of Surety Bond

[Performance Security/Additional Performance Security]

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

- (A) _____ [name and address of contractor] (hereinafter called the “**Contractor**”) and [name and address of the authority], (hereinafter called the “**Authority**”) have entered into an agreement (hereinafter called the “**Agreement**”) for the “***** EPC Mode” subject to and in accordance with the provisions of the Agreement
- (B) The Agreement requires the Contractor to furnish a Performance Security for due and faithful performance of its obligations, under and in accordance with the Agreement, during the {Construction Period/ Defects Liability Period and MaintenancePeriod}{asdefinedintheAgreement)inasumofRs.....cr.(Rupees crore) (the “**Surety Bond Amount**”).
- (C) We, through our branch at..... (the “**Surety Insurer**”) have agreed to furnish this bank guarantee (*hereinafter called the “**Surety Bond**”*) by way of Performance Security.

NOW, THEREFORE, the **Surety Insurer** hereby, unconditionally and irrevocably, guarantees and affirms as follows:

1. The **Surety Insurer** hereby unconditionally and irrevocably guarantees the due and faithful performance of the Contractor’s obligations during the {Construction Period/ Defects Liability Period and Maintenance Period} under and in accordance with the Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the **Surety Bond Amount** as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.
2. A letter from the Authority, under the hand of an officer not below the rank of [General Manager in the National Highways Infrastructure Development Corporation Limited], that the Contractor has committed default in the due and faithful performance of all or any of its obligations under and in accordance with the Agreement shall be conclusive, final and binding on the **Surety Insurer**. The

Surety Insurer further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final and binding on the **Surety Insurer**, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.

3. In order to give effect to this **Surety Bond**, the Authority shall be entitled to act as if the **Surety Insurer** were the principal debtor and any change in the constitution of the Contractor and/or the **Surety Insurer**, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the **Surety Insurer** under this **Surety Bond**.
4. It shall not be necessary, and the **Surety Insurer** hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this **Surety Bond**.
5. The Authority shall have the liberty, without affecting in any manner the liability of the **Surety Insurer** under this **Surety Bond**, to vary at any time, the terms and conditions of the Agreement or to extend the time or period for the compliance with, fulfilment and/ or performance of all or any of the obligations of the Contractor contained in the Agreement or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the **Surety Insurer** shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the **Surety Insurer** from its liability and obligation under this **Surety Bond** and the **Surety Insurer** hereby waives all of its rights under any such law.
6. This **Surety Bond** is in addition to and not in substitution of any other **Surety Bond** or security now or which may hereafter be held by the Authority in respect of or relating to the Agreement or for the fulfilment, compliance and/or performance of all or any of the obligations of the Contractor under the Agreement.
7. Notwithstanding anything contained hereinbefore, the liability of the **Surety Insurer** under this **Surety Bond** is restricted to the **Surety Bond** Amount and this **Surety Bond** will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the **Surety Insurer** under this **Surety Bond** all rights of the Authority under this **Surety Bond** shall be forfeited and the **Surety Insurer** shall be relieved from its liabilities hereunder.
8. The **Surety Bond** shall cease to be in force and effect on ****\$. Unless a demand or claim under this **Surety Bond** is made in writing before expiry of the **Surety**

Bond, the **Surety Insurer** shall be discharged from its liabilities hereunder.

9. The **Surety Insurer** undertakes not to revoke this **Surety Bond** during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this **Surety Bond** and the undersigned has full powers to do so on behalf of the **Surety Insurer** .
10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the **Surety Insurer** at its above referred branch, which shall be deemed to have been duly authorized to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.
11. This **Surety Bond** shall come into force with immediate effect and shall remain in force and effect for up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.
12. This **Surety Bond** is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.
13. This **Surety Bond** shall also be operatable at our Branch at New Delhi, from whom confirmation regarding the issue of this **Surety Bond** or extension / renewal thereof shall be made available on demand. In the contingency of this Surety Bond being invoked and payment thereunder claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation.
14. The Insurance Surety Bond shall be verified from the branch concerned/ specific portal created for this purpose.

Signed and sealed this day of, 20..... at
SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by:
(Signature)

(Name)

(Designation)

(Code

Number)

(Address)

NOTES:

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

Schedule-H

(See Clauses 10.1 (iv) and 19.3)

1 Contract Price Weightages

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

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

S. No.	Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4	5
1	Road works including culverts, widening and repair of culverts.	43.12%	A - Widening and strengthening of existing road	
			(1) Earthwork up to top of the subgrade	0.00%
			(2) Subbase course (GSB)	0.00%
			(3) Non-bituminous base course (WMM)	0.00%
			(4) Bituminous base	0.00%
			(5) wearing coat	0.00%
			(6) widening and repair of culverts	0.00%
			B.1 - Reconstruction / New Intermediate Lane Realignment/ Bypass (Flexible pavement)	
			(1) Earthwork up to top of the subgrade	60.01%
			(2) Subbase course	2.13%
			(3) Non-bituminous base course	3.68%
			(4) Bituminous base course	5.55%
			(5) wearing coat	2.83%
			B.2 - Reconstruction / New Intermediate Lane Realignment/ Bypass (Rigid Pavement)	
			(1) Earthwork up to top of the subgrade	0.00%
			(2) Subbase course	0.00%
			(3) Dry lean concrete (DLC)	0.00%
			(4) Pavement quality concrete (PQC) course	0.00%
			C.1 - Reconstruction/ New Service road (flexible Pavement)	
			(1) Earthwork up to top of the subgrade	0.00%

S. No.	Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4	5
			(2) Subbase course	0.00%
			(3) Non-bituminous base course	0.00%
			(4) Bituminous base	0.00%
			(5) wearing coat	0.00%
			C.2 - Reconstruction/ New Service Road (Rigid Pavement)	
			(1) Earthwork up to top of the subgrade	0.00%
			(2) Subbase course	0.00%
			(3) Dry lean concrete (DLC)	0.00%
			(4) Pavement quality concrete (PQC) course	0.00%
			D. - Reconstruction/ New culverts on existing road, realignment, bypasses: Culvert (length <6m)	25.80%
2	Minor Bridges/ Underpasses/ Overpasses	21.22%	A.1 - Widening and repairs of Minor Bridges (length >6m and <60m)	
			Widening of existing bridges	0.00%
			rehabilitation of existing bridges	0.00%
			A.2 - New of Minor Bridges (length >6m and <60m)	
			(1) Foundation + Substructure: On completion of the foundation work including foundations for wing and return walls, abutments, piers up to the abutment/pier cap	49.65%
			(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.	48.48%
			(3) Approaches: On completion of approaches including Retaining walls, stone pitching, protection works complete in all respect and fit for use.	1.87%
			(4) Guide Bunds and River Training works: (On completion of Guide Bunds and river training works complete in all respects.)	0.00%
			B.1 - Widening and repairs of Underpasses/Overpasses	

S. No.	Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4	5
			Underpasses/ Overpasses	0.00%
			B.2 - New Underpasses / Overpasses	
			(1) Foundation + Substructure: On completion of the foundation work including foundations for wing and return walls, abutments, piers up to the abutment/pier cap	0.00%
			(2) Super-structure: On completion of the super-structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road signs & markings, tests on completion etc. complete in all respect. Wearing Coat (a) in case of Overpass- wearing coat including expansion joints complete in all respects as specified and (b) in case of underpass- rigid pavement including drainage facility complete in all respects as specified as specified.	0.00%
			(3) Approaches: On completion of approaches including Retaining walls, stone pitching, protection works complete in all respect and fit for use.	0.00%
3	Major Bridge works and ROB/RUB/elevated sections/flyovers including viaducts, if any	9.52%	A.1 - Widening and repairs of existing major bridges	
			(1) Foundation:	0.00%
			(2) Sub-structure:	0.00%
			(3) Super-structure: (including bearings.)	0.00%
			(4) Wearing Coat including expansion joints	0.00%
			(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	0.00%
			(6) Wing walls/return walls	0.00%
			(7) Guide bunds, river training works etc.	0.00%
			(8) Approaches (including retaining walls, stone pitching, protection works).	0.00%
			A.2 - New major bridges	
			(1) Foundation:	13.23%
			(2) Sub-structure:	45.94%

S. No.	Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4	5
			(3) Super-structure: (including bearings.)	38.38%
			(4) Wearing Coat including expansion joints	0.98%
			(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	1.47%
			(6) Wing walls/return walls	0.00%
			(7) Guide bunds, river training works etc.	0.00%
			(8) Approaches (including retaining walls, stone pitching, protection works).	0.00%
			B.1 - Widening and repairs of (a) ROB and (b) RUB	
			(1) Foundation	0.00%
			(2) Sub structure	0.00%
			(3) Superstructure (including bearing)	0.00%
			(4) wearing coat: (a) in case of ROB - wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB - rigid pavement under RUB including drainage facility complete in all respect as specified.	0.00%
			(5) Miscellaneous items (like hand rails, crash barriers, road markings etc.)	0.00%
			(6) wing walls/return walls	0.00%
			(7) Approaches (including retaining walls, stone pitching, protection works).	0.00%
			B.2 - New ROB / RUB	
			(1) Foundation	0.00%
			(2) Sub structure	0.00%
			(3) Superstructure (including bearing)	0.00%
			(4) wearing coat: (a) in case of ROB - wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB - rigid pavement under RUB including drainage facility complete in all respect as specified.	0.00%
			(5) Miscellaneous items (like hand rails, crash barriers, road markings etc.)	0.00%

S. No.	Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4	5
			(6) wing walls/return walls	0.00%
			(7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	0.00%
			C.1 - Widening and repairs of Elevated section/Flyover/Grade Separators	
			(1) Foundation	0.00%
			(2) Sub structure	0.00%
			(3) Superstructure (including bearing)	0.00%
			(4) wearing coat including expansion joint	0.00%
			(5) Miscellaneous items (like hand rails, crash barriers, road markings etc.)	0.00%
			(6) wing walls/return walls	0.00%
			(7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	0.00%
			C.2 - New Elevated section/Flyover/Grade Separators/Viaduct	
			(1) Foundation:	0.00%
			(2) Sub-structure:	0.00%
			(3) Superstructure (including bearing)	0.00%
			(4) wearing coat including expansion joint	0.00%
			(5) Miscellaneous items (like hand rails, crash barriers, road markings etc.)	0.00%
			(6) wing walls/return walls	0.00%
			(7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	0.00%
4	Other works	25.91%	(i) Toll plaza	0.00%
			(ii) Road side covered drains	0.00%
			(iii) Road side open drains	9.53%
			(iv) Road signs, markings, km stones safety Devices etc.	1.93%
			(v) Project facilities	0.00%
			(a) Bus Bays / Passenger shelter	0.03%
			(b) Truck Lay-Bays	0.13%
			(c) Junctions (Major & Minor)	0.29%

S. No.	Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4	5
			(d) Rest areas	0.04%
			(e) Diversion Work	0.00%
			(f) Others (Passing Place, Utility Duct & Street Light)	1.93%
			(v) Road Side plantation	2.26%
			(vi) Repair of protection work other than approaches to the bridges, elevated section / flyover/ grade separators and ROBs/ RUBs	0.00%
			(vii) Safety and traffic management during construction	0.40%
			(viii) Protection work	0.00%
			(a) Retaining Wall	44.48%
			(b) Breast Wall/ Gabion Wall	27.35%
			(c) Parapet Wall	2.88%
			(d) Seeding Mulching and Thrie-Beam Crash Barrier	7.88%
			(ix) Site clearance & Dismantling	0.88%
5	Utility shifting	0.23%	i)PHE	50.00%
			ii)MECL	50.00%
		100.00%	Total	

1.3 Procedure of estimating the value of work done.

1.3.1 Road works

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

Table 1.3.1

Stage of Payment	Percentage -weightage	Payment Procedure
A - Widening and strengthening of existing road		
(1) Earthwork up to top of the sub-grade	0.00%	Unit of measurement is linear length. Payment of each stage shall be made on pro-rata basis on completion of a stage in a 2 lane carriageway length of not less than 500m.
(2) Sub-base Course	0.00%	
(3) Non bituminous Base course	0.00%	

Stage of Payment	Percentage -weightage	Payment Procedure
(4) Bituminous Base course	0.00%	Cost of completed culverts shall be determined on pro rata basis with respect to the total no. of culverts. The payment shall be made on the completion of at least five culverts.
(5) Wearing Coat	0.00%	
(6) widening and repair of culverts	0.00%	
B.1 - Reconstruction / New Intermediate Lane Realignment/ Bypass (Flexible pavement)		Unit of measurement is linear length. Payment of each stage shall be made on pro-rata basis on completion of a stage in a 2-lane carriageway length of not less than 500m.
(1) Earthwork up to top of the subgrade	60.01%	
(2) Subbase course	2.13%	
(3) Non-bituminous base course	3.68%	
(4) Bituminous base course	5.55%	
(5) wearing coat	2.83%	
B.2 - Reconstruction/ realignment/bypass (Rigid Pavement)		Unit of measurement is linear length. Payment of each stage shall be made on pro-rata basis on completion of a stage in a 2-lane carriageway length of not less than 500m.
(1) Earthwork up to top of the sub-grade	0.00%	
(2) Sub-base Course	0.00%	
(3) Dry lean concrete (DLC)	0.00%	
(4) Pavement quality concrete (PQC) course	0.00%	
C.1 - Reconstruction/ New Service Road (flexible Pavement)		Unit of measurement is linear length. Payment of each stage shall be made on pro-rata basis on completion of a stage in a 2-lane carriageway length of not less than 500m.
(1) Earthwork up to Subgrade top	0.00%	
(2) Subbase course (GSB)	0.00%	
(3) Non-bituminous base course (WMM)	0.00%	
(4) Bituminous base	0.00%	
(5) wearing coat	0.00%	
C.2 - Reconstruction/ New Service Road (Rigid Pavement)		Unit of measurement is linear length. Payment of each stage shall be made on pro-rata basis on completion of a stage in a 2 lane carriageway length of not less than 500m.
(1) Earthwork up to Subgrade top	0.00%	
(2) Subbase course (GSB)	0.00%	
(3) Dry lean concrete (DLC)	0.00%	
(4) Pavement quality concrete (PQC) course	0.00%	
D. - Reconstruction/ New culverts on existing road, realignment, bypasses : Culvert (length <6m)	25.80%	Cost of completed culverts shall be determined on pro rata basis with respect to the total no. of culverts. The payment shall be made on the completion of at least five culverts.

@. 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. And 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
A.1 - Widening and repairs of Minor Bridges		Cost of each minor bridge shall be determined on pro rata basis with respect to the total linear length of the minor bridges. Payment shall be made on completion of widening and repair works of a minor bridge..
Widening of existing bridges	0.00%	
rehabilitation of existing bridges	0.00%	
A.2 - New of Minor Bridges (length >6m and <60m)		
(1) Foundation + Substructure: On completion of the foundation work including foundations for wing and return walls, abutments, piers up to the abutment/pier cap	49.65%	(i) Foundation: Payment against Foundation shall be made on pro rata basis on completion of atleast two foundations. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified. (ii) Substructure: Payment sub structure shall be made on pro-rata basis on completion of at least two substructure upto abutment / pier cap level of each bridge.
(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.	48.48%	(iii) Super structure: Payment shall be made on pro rata basis on completion of a stage i.e. completion of super structure of atleast one span in all respect as specified in the column of " Stage of Payment" in this Sub-clause..
(3) Approaches: On completion of approaches including Retaining walls, stone pitching, protection works complete in all respect and fit for use.	1.87%	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.

Stage of Payment	Weightage	Payment Procedure
(4) Guide Bunds and River Training works: (On completion of Guide Bunds and river training works complete in all respects.)	0.00%	Guide bunds and river training works: Payment shall be made on pro rata basis on completion of a stage i.e. Completion of guide bunds and river training works in all respect as specified.
B.1 - Widening and repairs of Underpasses/Overpasses	0.00%	Cost of each underpass/overpass shall be determined on pro rata basis with respect to the total linear length of the underpass/overpasses. Payment shall be made on the completion of widening & repair works of an underpass/overpasses.
B.2 - New Underpasses/Overpasses		
(1) Foundation + Substructure: On completion of the foundation work including foundations for wing and return walls, abutments, piers upto the abutment/pier cap	0.00%	Foundation + Substructure: Cost of each Underpass/ Overpass shall be determined on pro- rata basis with respect to the total linear length (m) of the Underpasses/ Overpasses. Payment against foundation + Sub structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation + Sub Structure of each Underpasses/ Overpasses subject to completion of at least two foundations along with sub-structure up to abutment/pier cap level each underpass/overpass. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(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	0.00%	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.

Stage of Payment	Weightage	Payment Procedure
specified and (b) in case of underpass- rigid pavement including drainage facility complete in all respects as specified as specified.		
(3) Approaches: On completion of approaches including Retaining walls, stone pitching, protection works complete in all respect and fit for use..	0.00%	Payment shall be made on pro-rata basis on completion of a stage i.e. completion of approaches 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 structure work 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 existing major bridges		
(1) Foundation:	0.00%	Foundation: Cost of each Major Bridge shall be determined on pro rata basis with respect to the total linear length (m) of the Major Bridge. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the major Bridge subject to completion of at least two foundations of the major bridge. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2) Sub-structure:	0.00%	Payment against Substructure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub- structure of the major bridge subject to completion of at least two sub-structures of abutments/piers up to abutment/pier cap level of the major bridge.
(3) Super-structure: (including bearings.)	0.00%	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.
(4) Wearing Coat including expansion joints	0.00%	Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	0.00%	Miscellaneous: Payments shall be made on completion of all miscellaneous works like hand

Stage of payment	Weightage	Payment procedure
		rails, crash barriers, road markings etc. complete in all respects as specified.
(6) Wing walls/return walls	0.00%	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.	0.00%	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)	0.00%	Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified.
A.2 - New major bridges		
(1) Foundation:	13.23%	(i) Foundation: Cost of each Major Bridge shall be determined on prorata basis with respect to the total linear length (m) of the Major Bridge. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the major Bridge subject to completion of atleast two foundations of the major bridge. In case where load testing is required for foundation, the trigger of first payment shall include load testing also were specified.
(2) Sub-structure:	45.94%	(ii) Sub-Structure: Payment sub structure shall be made on pro-rata basis on completion of at least two substructure upto abutment / pier cap level of each bridge.
(3) Super-structure: (including bearings.)	38.38%	Super structure (casting of girder): Unit of measurement is numbers. Payment against casting of girders shall be made on pro rata basis with respect to total numbers of girders required in the structure on completion of a stage i.e. not less than completion of casting of at least five girders of the structure. (b) Super structure (Casting of segments): Unit measurement is numbers. Payment against casting of segments shall be made on pro rata basis with respect of total numbers of segments required in the structure on completion of a stage i.e. not less than completion of casting at least 10 (ten) segments of the structure. Super structure (Erection of girders, deck slab and bearing): Payment shall be made on pro rata basis on completion of a stage i.e. completion of supers structure including bearings of at least one span in all respects as specified. (iv) Other Ancillary works : wearing coat, expansion joints hand rails, crash barriers, tests on completion etc. completion in all respect.-Payment shall be made on pro-rata basis on completion of the stage in all respect as specified, for each structure.

Stage of payment	Weightage	Payment procedure
(4) Wearing Coat including expansion joints	0.98%	Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	1.47%	Miscellaneous: Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.
(6) Wing walls/return walls	0.00%	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.	0.00%	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, protection works).	0.00%	Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified.
B.1 - Widening and repairs of (a) ROB and (b) RUB		
(1) Foundation	0.00%	Foundation: Cost of each ROB/RUB shall be determined on pro rata basis with respect to the total linear length (m) of the ROB/RUB. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the ROB/RUB subject to completion of at least two foundations of the ROB/RUB In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2) Sub-structure	0.00%	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 subject to completion of at least two sub-structures of abutments/piers up to abutment/pier cap level of the ROB/RUB.
(3) Super-structure (including bearing)	0.00%	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.
(4) Wearing Coat including expansion joints in case of ROB. In case of RUB-rigid pavement under RUB including drainage facility as specified	0.00%	Wearing Coat: Payment shall be made on completion of (a) in case of ROB- wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified.

Stage of payment	Weightage	Payment procedure
(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	0.00%	Miscellaneous: Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.
(6) Wing walls/return walls	0.00%	Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(7) Approaches (including retaining walls, stone pitching, protection works).	0.00%	Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified
B.2 - New ROB / RUB		
(1) Foundation	0.00%	Foundation: Cost of each ROB/RUB shall be determined on pro rata basis with respect to the total linear length (m) of the ROB/RUB. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the ROB/RUB subject to completion of at least two foundations of the ROB/RUB In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2) Sub-structure	0.00%	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 bridge subject to completion of at least two sub-structures of abutments/piers up to abutment/pier cap level of the ROB/RUB.
(3) Super-structure (including bearing)	0.00%	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.
(4) Wearing Coat including expansion joints in case of ROB. In case of RUB-rigid pavement under RUB including drainage facility as specified	0.00%	Wearing Coat: Payment shall be made on completion of (a) in case of ROB- wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified.
(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	0.00%	Miscellaneous: Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.
(6) Wing walls/return walls	0.00%	Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.

Stage of payment	Weightage	Payment procedure
(7) Approaches (including Retaining walls /Reinforced Earth wall, stone pitching and protection works)	0.00%	Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified
C.1 - Widening and repairs of Elevated section/Flyover/Grade Separators		
(1) Foundation	0.00%	Foundation: Cost of each structure shall be determined on pro rata basis with respect to the total linear length (m) of the structure. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the structure. subject to completion of at least two foundations of the Structure. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2) Sub-structure	0.00%	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 subject to completion of at least two sub-structures of abutments/piers up to abutment/pier cap level of the structure.
(3) Super-structure (including bearing)	0.00%	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.
(4) Wearing Coat including expansion joints	0.00%	Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	0.00%	Miscellaneous: Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.
(6) Wing walls/return walls	0.00%	Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	0.00%	Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified
C.2 - New Elevated section/Flyover/Grade Separators/Viaduct		

Stage of payment	Weightage	Payment procedure
(1) Foundation	0.00%	Foundation: Cost of each structure shall be determined on pro rata basis with respect to the total linear length (m) of the structure. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the structure. subject to completion of at least two foundations of the Structure. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2) Sub-structure	0.00%	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 subject to completion of at least two sub-structures of abutments/piers up to abutment/pier cap level of the structure.
(3) Super-structure (including bearing)	0.00%	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.
(4) Wearing Coat including expansion joints	0.00%	Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	0.00%	Miscellaneous: Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.
(6) Wing walls/return walls	0.00%	Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	0.00%	Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified

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
(i) Toll plaza	0.00%	Unit of measurement is each completed toll plaza. Payment of each toll plaza shall be made on pro rata basis with respect to the total of all toll plazas.

Stage of Payment	Weightage	Payment Procedure
(ii) Road side covered drains	0.00%	Unit of measurement is linear length in km. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 5 % (five per cent) of the total length.
(iii) Road side open drains	9.53%	
(iv) Road signs, markings, km stones safety Devices etc.	1.93%	
(v) Project facilities		Payment shall be made on pro rata basis for completed facilities.
(a) Bus Bays / Passenger shelter	0.03%	
(b) Truck Lay-Bays	0.13%	
(c) Junctions (Major & Minor)	0.29%	
(d) Rest areas	0.04%	
(e) Diversion Work	0.00%	
(f) Others (Passing Place, Utility Duct & Street Light)	1.93%	
(v) Road Side plantation	2.26%	Unit of measurement is linear length.
(vi) Repair of protection work other than approaches to the bridges, elevated section / flyover/ grade separators and ROBs/ RUBs	0.00%	Payment shall be made on pro rata basis on completion of a stage in a length of not less than 10 (ten per cent) of the totallength.
(vii) Safety and traffic management during construction	0.40%	Payment shall be made on pro rata basisevery six months.
(viii) Protection work	0.00%	
(a) Retaining Wall	44.48%	Payment shall be made on pro rata basis on completion of a stage in a length of notless than 100 m of length.
(b)Breast Wall/ Gabion Wall	27.35%	
(c) Parapet Wall	2.88%	
(d) Seeding Mulching with jute net, Hydro seeding, Thrie-Beam Crash Barrier and Soil Nailing	7.88%	
(ix) Site clearance & Dismantling	0.88%	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage ina length of not less than 10 (ten) percent of the total length.

1.3.5 Utility Shifting

Procedure for estimating the value of utility shifting works done shall be as stated in Table 1.3.5:

Table 1.3.5

Table 1.3.5		
STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
Electrical utilities and public Health Utilities (water pipe lines and sewage lines)		
(i) EHT Lines	11.92%	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 of EHT line. Payment shall be made for completed activity. (The average weightage of major activities (Only for payment purpose) in shifting work is (i) Erection of Poles - 20% (ii) Conductor stringing including laying of cable-30%, (iii) DTR erection (if involved)-15% and (iv) Charging of line including dismantling and site clearance -35% (with DTR) and 50% without DTR.
(ii) EHT crossings	50%	Cost of each crossing shall be determined on pro rata basis with reference to total no. of crossings. Payment shall be made for not less than 25% of the crossings subject to a minimum of 4 crossings
(iii) HT/LT Lines		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 of LT/HT line. Payment shall be made for completed activity. (The average weightage of major activities (Only for payment purpose) in shifting work is (i) Erection of Poles - 20% (ii) Conductor stringing including laying of cable-30%, (iii) DTR erection (if involved)-10% and (iv) Charging of line including dismantling and site clearance -40% (with DTR) and 50% without DTR.
(iv) HT/LT Crossings		Cost of each crossing shall be determined on pro rata basis with reference to total no. of crossings. Payment shall be made for not less than 25% of the crossings subject to a minimum of 10 crossings
(v) Transformer		Cost of each transformer shall be determined on pro rata basis with reference to total no. of transformers. Payment shall be made for completion of each unit shifting.

(v) Water pipelines	50%	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 of pipe line. Payment shall be made for completed activity. (The average weightage of major activities (Only for payment purpose) in shifting work is laying pipe - 50%, charging of line including all miscellaneous works and dismantling and site clearance -50%)
(vi) Water pipeline crossings		Cost of each crossing shall be determined on pro rata basis with reference to total no. of crossings. Payment shall be made for not less than 25% of the crossings subject to a minimum of 8 crossings.
(viii) BSNL	0.00%	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 of pipe line. Payment shall be made for completed activity. (The average weightage of major activities (Only for payment purpose) in shifting work is laying pipe - 50%, charging of line including all miscellaneous works and dismantling and site clearance -50%)

2. Procedure for payment for Maintenance.

2.1 The cost for maintenance shall be as stated in Clause 14.1.(i)

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

Schedule - I

(See Clause 10.2 (iv))

Drawings

1. Drawings

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

2. Additional Drawings

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

Annex - I

(Schedule - I)

List of Drawings

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

Schedule - J

(See Clause 10.3 (ii))

Project Completion Schedule

1. Project Completion Schedule

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

2. Project Milestone-I

- (i) Project Milestone-I shall occur on the date falling on the [35% of the Scheduled Construction Period] day **from the Appointed Date (the “Project Milestone- I”)**.
- (ii) Prior to the occurrence of Project Milestone-I, the Contractor shall have commenced construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 10% (ten per cent) of the Contract Price.

3. Project Milestone-II

- (i) Project Milestone-II shall occur on the date falling on the the [60 % of the Scheduled Construction Period] day **from the Appointed Date (the “Project Milestone- II”)** (the “Project Milestone- II”).
- (ii) Prior to the occurrence of Project Milestone-II, the Contractor shall have continued with construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 35% (thirty-five per cent) of the Contract Price **and should have started construction of all bridges**

4. Project Milestone-III

- (i) Project Milestone-III shall occur on the date falling on the the [85% of the Scheduled Construction Period] day **from the Appointed Date (the “Project Milestone- III”)**.
- (ii) Prior to the occurrence of Project Milestone-III, the Contractor shall have continued with construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 70% (seventy per cent) of the Contract Price and **should have started construction of all project facilities**.

5. Scheduled Completion Date

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

6. Extension of time

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

Schedule - K

(See Clause 12.1 (ii))

Tests on Completion

1. Schedule for Tests

- (i) The Contractor shall, no later than 30 (thirty) days prior to the likely completion of construction, notify the Authority's Engineer and the Authority of its intent to subject the Project Highway to Tests, and no later than 10(ten) days prior to the actual date of Tests, furnish to the Authority's Engineer and the Authority detailed inventory and particulars of all works and equipment forming part of Works.
- (ii) The Contractor shall notify the Authority's Engineer of its readiness to subject the Project Highway to Tests at any time after 10 (ten) days from the date of such notice, and upon receipt of such notice, the Authority's Engineer shall, in consultation with the Contractor, determine the date and time for each Test and notify the same to the Authority who may designate its representative to witness the Tests. The Authority's Engineer shall thereupon conduct the Tests itself or cause any of the Tests to be conducted in accordance with Article 12 and this Schedule-K.

2. Tests

- (i) Visual and physical test: The Authority's Engineer shall conduct a visual and physical check of construction to determine that all works and equipment forming part thereof conform to the provisions of this Agreement. The physical tests shall include [***].
- (ii) Riding quality test: Riding quality of each lane of the carriageway shall be checked with the help of a Network Survey Vehicle (NSV) fitted with latest equipments and the maximum permissible roughness for purposes of this Test shall be [2,000 (two thousand)] mm for each kilometre.
- (iii) Tests for bridges: All major and minor bridges shall be subjected to the rebound hammer and ultrasonic pulse velocity tests, to be conducted in accordance with the procedure described in Special Report No. 17: 1996 of the IRC Highway Research Board on Nondestructive Testing Techniques, at two spots in every span, to be chosen at random by the Authority's Engineer. Bridges with a span of 15 (fifteen) metres or more shall also be subjected to load testing.
- (iv) Other tests: The Authority's Engineer may require the Contractor to carry out or cause to be carried additional tests, in accordance with Good Industry Practice, for determining the compliance of the Project Highway with Specifications and Standards, except tests as specified in clause 5, but shall include measuring the reflectivity of road markings and road signs; and measuring the illumination level (lux) of lighting using requisite testing equipment.
- (v) Environmental audit: The Authority's Engineer shall carry out a check to determine conformity of the Project Highway with the environmental requirements set forth in

Applicable Laws and Applicable Permits.

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

3. Agency for conducting Tests

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

4. Completion Certificate

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

5. The Authority Engineer will carry out tests with following equipment at his own cost in the presence of contractor's representative.

Sr. No.	Key metrics of Asset	Equipment to be used	Frequency of condition survey
1	Surface defects of pavement	Network Vehicle Survey (NSV)	At least twice a year (As per survey months defined for the state basis rainy season)
2	Roughness of pavement	Network Vehicle Survey (NSV)	At least twice a year (As per survey months defined for the state basis rainy season)
3	Strength of pavement	Falling Weight Deflectometer (FWD)	At least once a year
4	Bridges	Mobile Bridge Inspection Unit (MBU)	At least twice a year (As per survey months defined for the state basis rainy season)
5	Road signs	Retro-reflectometer	At least twice a year (As per survey months defined for the state basis rainy season)

The first testing with the help of NSV shall be conducted at the time of issue of Completion Certificate.

Schedule - L
(See Clause 12.2)
Completion Certificate

- 1 I, (Name of the Authority's Engineer), acting as the Authority's Engineer, under and in accordance with the Agreement dated (the **"Agreement"**), for **Project Name** (the **"Project Highway"**) on Engineering, Procurement and Construction (EPC) basis through (Name of Contractor), hereby certify that the Tests in accordance with Article 12 of the Agreement have been successfully undertaken to determine compliance of the Project Highway with the provisions of the Agreement, and I am satisfied that the Project Highway can be safely and reliably placed in service of the Users thereof.
- 2 It is certified that, in terms of the aforesaid Agreement, all works forming part of Project Highway have been completed, and the Project Highway is hereby declared fit for entry into operation on this the day of 20..., Scheduled Completed Date for which was the day of20....

SIGNED, SEALED AND DELIVERED

For and on behalf of the Authority's Engineer by:
(Signature)
(Name) (Designation) (Address)

Schedule - M

(See Clauses 14.6, 15.2 and 19.7)

Payment Reduction for Non-Compliance

1. Payment reduction for non-compliance with the Maintenance Requirements
 - (i) Monthly lump sum payments for maintenance shall be reduced in the case of non-compliance with the Maintenance Requirements set forth in Schedule-E.
 - (ii) Any deduction made on account of non-compliance with the Maintenance Requirements shall not be paid even after compliance subsequently. The deductions shall continue to be made every month until compliance is done.
 - (iii) The Authority's Engineer shall calculate the amount of payment reduction on the basis of weightage in percentage assigned to non-conforming items as given in Paragraph 2.
2. Percentage reductions in lump sum payments on monthly basis
 - (i) The following percentages shall govern the payment reduction:

S. No.	Item/Defect/Deficiency	Percentage
(a) Carriageway/Pavement		
(i)	Potholes, cracks, other surface defects	15%
(ii)	Repairs of Edges, Rutting	5%
(b) Road, Embankment, Cuttings, Shoulders		
(i)	Edge drop, inadequate cross fall, undulations, settlement, potholes, ponding, obstructions	10%
(ii)	Deficient slopes, raincuts, disturbed pitching, vegetation growth, pruning of trees	5%
(c) Bridges and Culverts		
(i)	Desilting, cleaning, vegetation growth, damaged pitching, flooring, parapets, wearing course, footpaths, any damage to foundations	20%
(ii)	Any Defects in superstructures, bearings and sub-structures	10%
S. No.	Item/Defect/Deficiency	Percentage
(iii)	Painting, repairs/replacement kerbs, railings, parapets, guideposts/crash barriers	5%

(d)	Roadside Drains	
(i)	Cleaning and repair of drains	5%
(e)	Road Furniture	
(i)	Cleaning, painting, replacement of road signs, delineators, road markings, 200 m/km/5 th km stones	5%
(f)	Miscellaneous Items	
(i)	Removal of dead animals, broken down/accidented vehicles, fallen trees, road blockades or malfunctioning of mobile crane	10%
(ii)	Any other Defects in accordance with paragraph 1.	5%
(g)	Defects in Other Project Facilities	5%

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

$$R = \frac{P}{100} \times (M1 \text{ or } M2) \times \frac{L1}{L}$$

Where,

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

M1= Monthly lump-sum payment in accordance para 1.2 above of this Schedule

M2= Monthly lump-sum payment in accordance para 1.2 above of this Schedule

L1= non-complying length L = Total length of the road,

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

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

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

Schedule - N

(See Clause 18.1 (i))

Selection of Authority's Engineer

1. Selection of Authority's Engineer

- (i) The provisions of the Model Request for Proposal for Selection of Technical Consultants, issued by the Ministry of Finance in May 2009, or any substitute thereof shall apply for selection of an experienced firm to discharge the functions and duties of an Authority's Engineer.
- (ii) In the event of termination of the Technical Consultants appointed in accordance with the provisions of Paragraph 1.1, the Authority shall appoint another firm of Technical Consultants forthwith and may engage a government-owned entity in accordance with the provisions of Paragraph 3 of this Schedule-N.

2. Terms of Reference

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

3. Appointment of Government entity as Authority's Engineer

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

Annex - I

(Schedule - N)

Terms of Reference for Authority's Engineer

1. Scope

(i) These Terms of Reference (the “**TOR**”) for the Authority's Engineer are being specified pursuant to the EPC Agreement dated (the “**Agreement**”), which has been entered into between the **National Highways & Infrastructure Development Corporation Ltd., Third Floor, PTI Building, 4 Sansad Marg, New Delhi-110001** (the “**Authority**”) and (the “**Contractor**”) for **Project Name**, and a copy of which is annexed hereto and marked as Annex-A to form part of this TOR.

(ii) The TOR shall apply to construction and maintenance of the Project Highway.

2. Definitions and interpretation

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

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

(iii) The rules of interpretation stated in Article 1 of the Agreement shall apply, mutatis mutandis, to this TOR.

3. General

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

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

(a) any Time Extension;

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

(c) the Termination Payment; or

(d) issuance of Completion Certificate or

(e) any other matter which is not specified in (a), (b), (c) or (d) above and which creates a financial liability on either Party.

- (iii) The Authority's Engineer shall submit regular periodic reports, at least once every month, to the Authority in respect of its duties and functions under this Agreement. Such reports shall be submitted by the Authority's Engineer within 10 (ten) days of the beginning of every month.
- (iv) The Authority's Engineer shall inform the Contractor of any delegation of its duties and responsibilities to its suitably qualified and experienced personnel; provided, however, that it shall not delegate the authority to refer any matter for the Authority's prior approval in accordance with the provisions of Clause 18.2.
- (v) The Authority's Engineer shall aid and advise the Authority on any proposal for Change of Scope under Article 13.
- (vi) In the event of any disagreement between the Parties regarding the meaning, scope and nature of Good Industry Practice, as set forth in any provision of the Agreement, the Authority's Engineer shall specify such meaning, scope and nature by issuing a reasoned written statement relying on good industry practice and authentic literature.

4. Construction Period

- (i) During the Construction Period, the Authority's Engineer shall review and approve the Drawings furnished by the Contractor along with supporting data, including the geo-technical and hydrological investigations, characteristics of materials from borrow areas and quarry sites, topographical surveys, and the recommendations of the Safety Consultant in accordance with the provisions of Clause 10.1 (vi). The Authority's Engineer shall complete such review and approval and send its observations to the Authority and the Contractor within 15 (fifteen) days of receipt of such Drawings; provided, however that in case of a Major Bridge or Structure, the aforesaid period of 15 (fifteen) days may be extended upto 30 (thirty) days. In particular, such comments shall specify the conformity or otherwise of such Drawings with the Scope of the Project and Specifications and Standards.
- (ii) The Authority's Engineer shall review and approve any revised Drawings sent to it by the Contractor and furnish its comments within 10 (ten) days of receiving such Drawings.
- (iii) The Authority's Engineer shall review and approve the Quality Assurance Plan submitted by the Contractor and shall convey its comments to the Contractor within a period of 21 (twenty-one) days stating the modifications, if any, required thereto.
- (iv) The Authority's Engineer shall complete the review and approve of the methodology proposed to be adopted by the Contractor for executing the

Works, and convey its comments to the Contractor within a period of 10 (ten) days from the date of receipt of the proposed methodology from the Contractor.

- (v) The Authority's Engineer shall grant written approval to the Contractor, where necessary, for interruption and diversion of the flow of traffic in the existing lane(s) of the Project Highway for purposes of maintenance during the Construction Period in accordance with the provisions of Clause 10.4.
- (vi) The Authority's Engineer shall review the monthly progress report furnished by the Contractor and send its comments thereon to the Authority and the Contractor within 7 (seven) days of receipt of such report.
- (vii) The Authority's Engineer shall inspect the Construction Works and the Project Highway and shall submit a monthly Inspection Report bringing out the results of inspections and the remedial action taken by the Contractor in respect of Defects or deficiencies. In particular, the Authority's Engineer shall include in its Inspection Report, the compliance of the recommendations made by the Safety Consultant.
- (viii) The Authority's Engineer shall conduct the pre-construction review of manufacturer's test reports and standard samples of manufactured Materials, and such other Materials as the Authority's Engineer may require.
- (ix) For determining that the Works conform to Specifications and Standards, the Authority's Engineer shall require the Contractor to carry out, or cause to be carried out, tests at such time and frequency and in such manner as specified in the Agreement and in accordance with Good Industry Practice for quality assurance. For purposes of this Paragraph 4 (ix), the tests specified in the IRC Special Publication-11 (Handbook of Quality Control for Construction of Roads and Runways) and the Specifications for Road and Bridge Works issued by MORTH (the "Quality Control Manuals") or any modification/substitution thereof shall be deemed to be tests conforming to Good Industry Practice for quality assurance.
- (x) The Authority's Engineer shall test check at least 50 (fifty) percent of the quantity or number of tests prescribed for each category or type of test for quality control by the Contractor.
- (xi) The timing of tests referred to in Paragraph 4 (ix), and the criteria for acceptance/ rejection of their results shall be determined by the Authority's Engineer in accordance with the Quality Control Manuals. The tests shall be undertaken on a random sample basis and shall be in addition to, and independent of, the tests that may be carried out by the Contractor for its own quality assurance in accordance with Good Industry Practice.

- (xii) In the event that results of any tests conducted under Clause 11.10 establish any Defects or deficiencies in the Works, the Authority's Engineer shall require the Contractor to carry out remedial measures.
- (xiii) The Authority's Engineer may instruct the Contractor to execute any work which is urgently required for the safety of the Project Highway, whether because of an accident, unforeseeable event or otherwise; provided that in case of any work required on account of a Force Majeure Event, the provisions of Clause 21.6 shall apply.
- (xiv) In the event that the Contractor fails to achieve any of the Project Milestones, the Authority's Engineer shall undertake a review of the progress of construction and identify potential delays, if any. If the Authority's Engineer shall determine that completion of the Project Highway is not feasible within the time specified in the Agreement, it shall require the Contractor to indicate within 15 (fifteen) days the steps proposed to be taken to expedite progress, and the period within which the Project Completion Date shall be achieved. Upon receipt of a report from the Contractor, the Authority's Engineer shall review the same and send its comments to the Authority and the Contractor forthwith.
- (xv) The Authority's Engineer shall obtain from the Contractor a copy of all the Contractor's quality control records and documents before the Completion Certificate is issued pursuant to Clause 12.2.
- (xvi) Authority's Engineer may recommend to the Authority suspension of the whole or part of the Works if the work threatens the safety of the Users and pedestrians. After the Contractor has carried out remedial measure, the Authority's Engineer shall inspect such remedial measures forthwith and make a report to the Authority recommending whether or not the suspension hereunder may be revoked.
- (xvii) In the event that the Contractor carries out any remedial measures to secure the safety of suspended works and Users, and requires the Authority's Engineer to inspect such works, the Authority's Engineer shall inspect the suspended works within 3 (three) days of receiving such notice, and make a report to the Authority forthwith, recommending whether or not such suspension may be revoked by the Authority.
- (xviii) The Authority's Engineer shall carry out, or cause to be carried out, all the Tests specified in Schedule-K and issue a Completion Certificate, as the case may be. For carrying out its functions under this Paragraph 4 (xviii) and all matters incidental thereto, the Authority's Engineer shall act under and in accordance with the provisions of Article 12 and Schedule-K.

5. Maintenance Period

- (i) The Authority's Engineer shall aid and advise the Contractor in the preparation of its monthly Maintenance Programme and for this purpose carry out a joint monthly inspection with the Contractor.
- (ii) The Authority's Engineer shall undertake regular inspections, at least once every month, to evaluate compliance with the Maintenance Requirements and submit a Maintenance Inspection Report to the Authority and the Contractor.
- (iii) The Authority's Engineer shall specify the tests, if any, that the Contractor shall carry out, or cause to be carried out, for the purpose of determining that the Project Highway is in conformity with the Maintenance Requirements. It shall monitor and review the results of such tests and the remedial measures, if any, taken by the Contractor in this behalf.
- (iv) In respect of any defect or deficiency referred to in Paragraph 3 of Schedule-E, the Authority's Engineer shall, in conformity with Good Industry Practice, specify the permissible limit of deviation or deterioration with reference to the Specifications and Standards and shall also specify the time limit for repair or rectification of any deviation or deterioration beyond the permissible limit.
- (v) The Authority's Engineer shall examine the request of the Contractor for closure of any lane(s) of the Project Highway for undertaking maintenance/repair thereof, and shall grant permission with such modifications, as it may deem necessary, within 5 (five) days of receiving a request from the Contractor. Upon expiry of the permitted period of closure, the Authority's Engineer shall monitor the reopening of such lane(s), and in case of delay, determine the Damages payable by the Contractor to the Authority under Clause 14.5.

6. Determination of costs and time

- (i) The Authority's Engineer shall determine the costs, and/or their reasonableness, that are required to be determined by it under the Agreement.
- (ii) The Authority's Engineer shall determine the period of Time Extension that is required to be determined by it under the Agreement.
- (iii) The Authority's Engineer shall consult each Party in every case of determination in accordance with the provisions of Clause 18.5.

7. Payments

- (i) The Authority's Engineer shall withhold payments for the affected works for which the Contractor fails to revise and resubmit the Drawings to the Authority's Engineer in accordance with the provisions of Clause 10.2 (iv) (d).
- (ii) Authority's Engineer shall -
 - (a) within 10 (ten) days of receipt of the Stage Payment Statement from the Contractor pursuant to Clause 19.4, determine the amount due to the Contractor and recommend the release of 90 (ninety) percent of the amount so determined as part payment, pending issue of the Interim Payment Certificate; and
 - (b) within 15 (fifteen) days of the receipt of the Stage Payment Statement referred to in Clause 19.4, deliver to the Authority and the Contractor an Interim Payment Certificate certifying the amount due and payable to the

Contractor, after adjustments in accordance with the provisions of Clause 19.10.

- (iii) The Authority's Engineer shall, within 15 (fifteen) days of receipt of the Monthly Maintenance Statement from the Contractor pursuant to Clause 19.6, verify the Contractor's monthly statement and certify the amount to be paid to the Contractor in accordance with the provisions of the Agreement.
- (iv) The Authority's Engineer shall certify final payment within 30 (thirty) days of the receipt of the final payment statement of Maintenance in accordance with the provisions of Clause 19.16.

8. Other duties and functions

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

9. Miscellaneous

- (i) A copy of all communications, comments, instructions, Drawings or Documents sent by the Authority's Engineer to the Contractor pursuant to this TOR, and a copy of all the test results with comments of the Authority's Engineer thereon, shall be furnished by the Authority's Engineer to the Authority forthwith.
- (ii) The Authority's Engineer shall retain at least one copy each of all Drawings and Documents received by it, including 'as-built' Drawings, and keep them in its safe custody.
- (iii) Within 90 (ninety) days of the Project Completion Date, the Authority's Engineer shall obtain a complete set of as-built Drawings, in 2 (two) hard copies and in

micro film form or in such other medium as may be acceptable to the Authority, reflecting the Project Highway as actually designed, engineered and constructed, including an as- built survey illustrating the layout of the Project Highway and setback lines, if any, of the buildings and structures forming part of Project Facilities; and shall hand them over to the Authority against receipt thereof.

- (iv) The Authority's Engineer, if called upon by the Authority or the Contractor or both, shall mediate and assist the Parties in arriving at an amicable settlement of any Dispute between the Parties.
- (v) The Authority's Engineer shall inform the Authority and the Contractor of any event of Contractor's Default within one week of its occurrence.

Schedule - O

(See Clauses 19.4 (i), 19.6 (i), and 19.8 (i))

Forms of Payment Statements

1. Stage Payment Statement for Works

The Stage Payment Statement for Works shall state:

- (a) the estimated amount for the Works executed in accordance with Clause 19.3
 - (i) subsequent to the last claim;
- (b) amounts reflecting adjustments in price for the aforesaid claim;
- (c) the estimated amount of each Change of Scope Order executed subsequent to the last claim;
- (d) amounts reflecting adjustment in price, if any, for (c) above in accordance with the provisions of Clause 13.2 (iii) (a);
- (e) total of (a), (b), (c) and (d) above;
- (f) Deductions:
 - i. Any amount to be deducted in accordance with the provisions of the Agreement except taxes;
 - ii. Any amount towards deduction of taxes; and
 - iii. Total of (i) and (ii) above.
- (g) Net claim: (e) - (f) (iii);
- (h) The amounts received by the Contractor upto the last claim:
 - i. For the Works executed (excluding Change of Scope orders);
 - ii. For Change of Scope Orders, and
 - iii. Taxes deducted

2. Monthly Maintenance Payment Statement

The monthly Statement for Maintenance Payment shall state:

- (a) the monthly payment admissible in accordance with the provisions of the Agreement;
- (b) the deductions for maintenance work not done;
- (c) net payment for maintenance due, (a) minus (b);
- (d) amounts reflecting adjustments in price under Clause 19.12; and
- (e) amount towards deduction of taxes

3. Contractor's claim for Damages

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

Schedule - P
(See Clause 20.1)
Insurance

1. Insurance during Construction Period

- (i) The Contractor shall effect and maintain at its own cost, from the Appointed Date till the date of issue of the Completion Certificate, the following insurances for any loss or damage occurring on account of Non Political Event of Force Majeure, malicious act, accidental damage, explosion, fire and terrorism:
 - (a) insurance of Works, Plant and Materials and an additional sum of [15 (fifteen)] per cent of such replacement cost to cover any additional costs of and incidental to the rectification of loss or damage including professional fees and the cost of demolishing and removing any part of the Works and of removing debris of whatsoever nature; and
 - (b) insurance for the Contractor's equipment and Documents brought onto the Site by the Contractor, for a sum sufficient to provide for their replacement at the Site.
- (ii) The insurance under sub para (a) and (b) of paragraph 1(i) above shall cover the Authority and the Contractor against all loss or damage from any cause arising under paragraph 1.1 other than risks which are not insurable at commercial terms.

2. Insurance for Contractor's Defects Liability

The Contractor shall effect and maintain insurance cover of not less than 15% of the Contract Price for the Works from the date of issue of the Completion Certificate until the end of the Defects Liability Period for any loss or damage for which the Contractor is liable and which arises from a cause occurring prior to the issue of the Completion Certificate. The Contractor shall also maintain other insurances for maximum sums as may be required under the Applicable Laws and in accordance with Good Industry Practice.

3. Insurance against injury to persons and damage to property

- (i) The Contractor shall insure against its liability for any loss, damage, death or bodily injury, or damage to any property (except things insured under Paragraphs 1 and 2 of this Schedule or to any person (except persons insured under Clause 20.9), which may arise out of the Contractor's performance of this Agreement. This insurance shall be for a limit per occurrence of not less than the amount stated below with no limit on the number of occurrences.

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

- (ii) The insurance shall be extended to cover liability for all loss and damage to the

Authority's property arising out of the Contractor's performance of this Agreement excluding:

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

4. Insurance to be in joint names

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

Schedule-Q

(See Clause 14.10)

Tests on Completion of Maintenance Period

1. Riding Quality test:

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

2. Visual and physical test:

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

Schedule-R

(See Clause 14.10)

Taking Over Certificate

I, (Name and designation of the Authority's Representative) under and in accordance with the Agreement dated (the "**Agreement**"), for "**Project Name**" the "**Project Highway**" on Engineering, Procurement and Construction (EPC) basis through (Name of Contractor), hereby certify that the Tests on completion of Maintenance Period in accordance with Article 14 of the Agreement have been successfully undertaken to determine compliance of the Project Highway with the provisions of the Agreement and I hereby certify that the Authority has taken over the Project highway from the Contractor on this day.....

SIGNED, SEALED AND DELIVERED

(Signature) (Name and designation of Authority's Representative)

(Address)

***** End of the Document *****