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Schedules

SCHEDULE - A

(See Clauses 2.1 and 8.1)

SITE OF THE PROJECT

1. The Site

1.1 2-lane/2-lane with paved Shoulder shall include the land, buildings, structures and road works as described in Annex-I of this Schedule-A.

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

1.3 An inventory of the Site including the land, buildings, structures, road works, trees and any other immovable property on, or attached to, the Site shall be prepared jointly by the Authority Representative and the Contractor, and such inventory shall form part of the memorandum referred to in Clause 8.2.1 of this Agreement.

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

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

Annexure - I

(Schedule-A)

Site

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

1. Site

The Site of the Two-Lane with paved shoulder Project Highway comprises the section of National Highway – 07 (Old NH-58) from Chamoli to Paini at Km 430.000 to km. 468.000 (Excluding Km 437.625 to Km 437.775, Km 458.900 to Km 459.475 and Km 464.425 to Km 464.525) in the state of Uttarakhand. The land, carriageway and structures comprises the Site are described below.

2. Land

The Site of the Project Highway comprises the land (existing right of way) as described below:

S. No.	Existing Chainage (km)		ROW	
	From	To	Left	Right
1	430+000	430+050	3.4	3.4
2	430+050	430+100	3.75	3.75
3	430+100	430+150	2.4	2.4
4	430+150	430+200	3.5	3.5
5	430+200	430+250	3.5	3.5
6	430+250	430+300	3.5	3.5
7	430+300	430+350	3.65	3.65
8	430+350	430+400	3.75	3.75
9	430+400	430+450	3.9	3.9
10	430+450	430+500	2.8	2.8
11	430+500	430+550	3.5	3.5
12	430+550	430+600	4	4
13	430+600	430+650	4.5	4.5
14	430+650	430+700	3.5	3.5
15	430+700	430+750	3.1	3.1
16	430+750	430+800	3.6	3.6
17	430+800	430+850	3.5	3.5
18	430+850	430+900	4	4
19	430+900	430+950	3.6	3.6
20	430+950	431+000	3.15	3.15
21	431+000	431+050	3	3
22	431+050	431+100	3.5	3.5
23	431+100	431+150	4.45	4.45
24	431+150	431+200	3.6	3.6

S. No.	Existing Chainage (km)		ROW	
	From	To	Left	Right
25	431+200	431+250	3.6	3.6
26	431+250	431+300	3.75	3.75
27	431+300	431+350	3.4	3.4
28	431+350	431+400	4	4
29	431+400	431+450	4.6	4.6
30	431+450	431+500	4.5	4.5
31	431+500	431+550	4	4
32	431+550	431+600	4.25	4.25
33	431+600	431+650	4	4
34	431+650	431+700	4.25	4.25
35	431+700	431+750	3.9	3.9
36	431+750	431+800	2.75	2.75
37	431+800	431+850	4	4
38	431+850	431+900	3.1	3.1
39	431+900	431+950	4.1	4.1
40	432+000	432+050	3.8	3.8
41	432+050	432+100	4.75	4.75
42	432+100	432+150	3.4	3.4
43	432+150	432+200	4.7	4.7
44	432+200	432+250	4	4
45	432+250	432+300	3.75	3.75
46	432+300	432+350	4	4
47	432+350	432+400	2.45	2.45
48	432+400	432+450	5	5
49	432+450	432+500	2.45	2.45
50	432+500	432+550	2.35	2.35
51	432+550	432+600	3.75	3.75
52	432+600	432+650	3.6	3.6
53	432+650	432+700	2.45	2.45
54	432+700	432+750	3.75	3.75
55	432+750	432+800	3.5	3.5
56	432+800	432+850	4.4	4.4
57	432+850	432+900	3.5	3.5
58	432+900	432+925	3.4	3.4
59	433+000	433+050	3.4	3.4
60	433+050	433+100	3.9	3.9
61	433+100	433+150	4	4
62	433+150	433+200	3.5	3.5
63	433+200	433+250	3.5	3.5
64	433+250	433+300	4.25	4.25
65	433+300	433+350	4	4
66	433+350	433+400	2.35	2.35
67	433+400	433+450	2.55	2.55

S. No.	Existing Chainage (km)		ROW	
	From	To	Left	Right
68	433+450	433+500	3.9	3.9
69	433+500	433+550	3.4	3.4
70	433+550	433+600	3.5	3.5
71	433+600	433+650	3.6	3.6
72	433+650	433+700	3.6	3.6
73	433+700	433+750	4.25	4.25
74	433+750	433+800	3.9	3.9
75	433+800	433+850	3.75	3.75
76	433+850	433+900	4.5	4.5
77	433+900	433+950	4.5	4.4
78	433+950	434+000	4.5	4.5
79	434+000	434+050	3.9	3.9
80	434+050	434+100	4.1	4.1
81	434+100	434+150	3.75	3.75
82	434+150	434+200	3.5	3.5
83	434+200	434+250	3.75	3.75
84	434+250	434+300	4.45	4.45
85	434+300	434+350	3.75	3.75
86	434+350	434+400	3.1	3.1
87	434+400	434+450	3	3
88	434+450	434+500	3.9	3.9
89	434+500	434+550	4.25	4.25
90	434+550	434+600	5.5	5.5
91	434+600	434+650	5.85	5.85
92	434+650	434+700	5.8	5.8
93	434+700	434+750	6	6
94	434+750	434+800	6.05	6.05
95	434+800	434+850	6	6
96	434+850	434+900	6.1	6.1
97	434+900	434+925	7.3	7.3
98	435+000	435+050	3.5	3.5
99	435+050	435+100	7	7
100	435+100	435+150	7.25	7.25
101	435+150	435+200	2.45	2.45
102	435+200	435+250	3.9	3.9
103	435+250	435+300	4.25	4.25
104	435+300	435+350	4.1	4.1
105	435+350	435+400	4.5	4.5
106	435+400	435+450	4.6	4.6
107	435+450	435+500	4.5	4.5
108	435+500	435+550	4	4
109	435+550	435+600	4	4
110	435+600	435+650	2.65	2.65

S. No.	Existing Chainage (km)		ROW	
	From	To	Left	Right
111	435+650	435+700	2.95	2.95
112	435+700	435+750	2.65	2.65
113	435+750	435+800	2.65	2.65
114	435+800	435+850	2.95	2.95
115	435+850	435+900	2.75	2.75
116	435+900	435+950	5.75	5.75
117	435+950	436+000	2.75	2.75
118	436+000	436+050	2.75	2.75
119	436+050	436+100	2.55	2.55
120	436+100	436+150	2.75	2.75
121	436+150	436+200	2.75	2.75
122	436+200	436+250	2.75	2.75
123	436+250	436+300	2.85	2.85
124	436+300	436+350	2.75	2.75
125	436+350	436+400	5.15	5.15
126	436+400	436+450	5.5	5.5
127	436+450	436+500	7.15	7.15
128	436+500	436+550	7.3	7.3
129	436+550	436+600	7	7
130	436+600	436+650	6.65	6.65
131	436+650	436+700	2.8	2.8
132	436+700	436+750	3.25	3.25
133	436+750	436+800	3.35	3.35
134	436+800	436+850	4.9	4.9
135	436+850	436+900	4.75	4.75
136	436+900	436+925	6	6
137	437+000	437+050	2.95	2.95
138	437+050	437+100	2.65	2.65
139	437+100	437+150	2.35	2.35
140	437+150	437+200	6.5	6.5
141	437+200	437+250	6.5	6.5
142	437+250	437+300	6.4	6.4
143	437+300	437+350	5.5	5.5
144	437+350	437+400	2.65	2.65
145	437+400	437+450	2.95	2.95
146	437+450	437+500	5.75	5.75
147	437+500	437+550	5.5	5.5
148	437+550	437+600	2.75	2.75
149	437+600	437+650	2.55	2.55
150	437+650	437+700	5.5	5.5
151	437+700	437+750	4	4
152	437+750	437+800	5	5
153	437+800	437+850	2.65	2.65

S. No.	Existing Chainage (km)		ROW	
	From	To	Left	Right
154	437+850	437+900	2.95	2.95
155	437+900	437+950	4.2	4.2
156	437+950	438+000	4	4
157	438+000	438+050	4.5	4.5
158	438+050	438+100	2.75	2.75
159	438+100	438+150	2.95	2.95
160	438+150	438+200	2.55	2.55
161	438+200	438+250	4.6	4.6
162	438+250	438+300	4.5	4.5
163	438+300	438+350	4.75	4.75
164	438+350	438+400	4.5	4.5
165	438+400	438+450	6.25	6.25
166	438+450	438+500	5.5	5.5
167	438+500	438+550	6.5	6.5
168	438+550	438+600	6.25	6.25
169	438+600	438+650	5.5	5.5
170	438+650	438+700	7	7
171	438+700	438+750	6.25	6.25
172	438+750	438+800	6.5	6.5
173	438+800	438+850	4	4
174	438+850	438+900	3.25	3.25
175	438+900	438+950	3.5	3.5
176	438+950	439+000	3.4	3.4
177	439+000	439+050	3.5	3.5
178	439+050	439+100	3.65	3.65
179	439+100	439+150	3.65	3.65
180	439+150	439+200	3.4	3.4
181	439+200	439+250	3.5	3.5
182	439+250	439+300	3.75	3.75
183	439+300	439+350	4	4
184	439+350	439+400	4.7	4.7
185	439+400	439+450	4.75	4.75
186	439+450	439+500	4.15	4.15
187	439+500	439+550	3.75	3.75
188	439+550	439+600	3	3
189	439+600	439+650	3.9	3.9
190	439+650	439+700	3.5	3.5
191	439+700	439+750	3.25	3.25
192	439+750	439+800	3.75	3.75
193	439+800	439+850	3.5	3.5
194	439+850	439+900	3.5	3.5
195	439+900	439+950	2.6	2.6
196	440+000	440+050	4.25	4.25

S. No.	Existing Chainage (km)		ROW	
	From	To	Left	Right
197	440+050	440+100	4	4
198	440+100	440+150	4	4
199	440+150	440+200	3.75	3.75
200	440+200	440+250	4.5	4.5
201	440+250	440+300	3.9	3.9
202	440+300	440+350	4	4
203	440+350	440+400	4	4
204	440+400	440+450	2.45	2.45
205	440+450	440+500	4.5	4.5
206	440+500	440+550	4.5	4.5
207	440+550	440+600	4.25	4.25
208	440+600	440+650	2.55	2.55
209	440+650	440+700	4	4
210	440+700	440+750	4.75	4.75
211	440+750	440+800	3.9	3.9
212	440+800	440+850	3.25	3.25
213	440+850	440+900	4.25	4.25
214	441+000	441+050	4	4
215	441+050	441+100	5.5	5.5
216	441+100	441+150	3.5	3.5
217	441+150	441+200	3.5	3.5
218	441+200	441+250	3.5	3.5
219	441+250	441+300	3.4	3.4
220	441+300	441+350	3.1	3.1
221	441+350	441+400	2.65	2.65
222	441+400	441+450	4	4
223	441+450	441+500	3.9	3.9
224	441+500	441+550	4	4
225	441+550	441+600	4.1	4.1
226	441+600	441+650	4.25	4.25
227	441+650	441+700	3.75	3.75
228	441+700	441+750	2.55	2.55
229	441+750	441+800	5.65	5.65
230	441+800	441+850	3.75	3.75
231	441+850	441+900	4	4
232	441+900	441+930	4.5	4.5
233	442+000	442+050	2.55	2.55
234	442+050	442+100	2.45	2.45
235	442+100	442+150	5.9	5.9
236	442+150	442+200	5.9	5.9
237	442+200	442+250	5	5
238	442+250	442+300	3.8	3.8
239	442+300	442+350	3.9	3.9

S. No.	Existing Chainage (km)		ROW	
	From	To	Left	Right
240	442+350	442+400	2.25	2.25
241	442+400	442+450	4.25	4.25
242	442+450	442+500	4.5	4.5
243	442+500	442+550	3.5	3.5
244	442+550	442+600	3.5	3.5
245	442+600	442+650	3.75	3.75
246	442+650	442+700	4.1	4.1
247	442+700	442+750	4.15	4.15
248	442+750	442+800	3.9	3.9
249	442+800	442+850	4	4
250	442+850	442+900	3.85	3.85
251	442+900	442+950	2.75	2.75
252	442+950	443+000	2.75	2.75
253	443+000	443+050	3.9	3.9
254	443+050	443+100	3.6	3.6
255	443+100	443+150	3.8	3.8
256	443+150	443+200	3.8	3.9
257	443+200	443+250	5.5	5.5
258	443+250	443+300	4	4
259	443+300	443+350	3.75	3.75
260	443+350	443+400	5	5
261	443+400	443+450	2.45	2.45
262	443+450	443+500	5.75	5.75
263	443+500	443+550	5.5	5.5
264	443+550	443+600	5.5	5.5
265	443+600	443+650	4.9	4.9
266	443+650	443+700	3.75	3.75
267	443+700	443+750	5.75	5.75
268	443+750	443+800	4.45	4.45
269	443+800	443+850	3.9	3.9
270	443+850	443+900	3.75	3.75
271	443+900	443+950	3.5	3.5
272	443+950	443+975	3.5	3.5
273	444+000	444+050	3.75	3.75
274	444+050	444+100	5	5
275	444+100	444+150	3.65	3.65
276	444+150	444+200	5.9	5.9
277	444+200	444+250	5.3	5.3
278	444+250	444+300	2.75	2.75
279	444+300	444+350	6	6
280	444+350	444+400	4.25	4.25
281	444+400	444+450	3.75	3.75
282	444+450	444+500	4	4

S. No.	Existing Chainage (km)		ROW	
	From	To	Left	Right
283	444+500	444+550	4.1	4.1
284	444+550	444+600	4.25	4.25
285	444+600	444+650	4	4
286	444+650	444+700	4.5	4.5
287	444+700	444+750	3.5	3.5
288	444+750	444+800	5	5
289	444+800	444+850	3.75	3.75
290	444+850	444+900	3.5	3.5
291	444+900	444+950	4	4
292	444+950	444+975	4.6	4.6
293	445+000	445+050	4	4
294	445+050	445+100	4.65	4.65
295	445+100	445+150	4.5	4.5
296	445+150	445+200	4.3	4.3
297	445+200	445+250	4.5	4.5
298	445+250	445+300	6	6
299	445+300	445+350	4	4
300	445+350	445+400	4.25	4.25
301	445+400	445+450	4.25	4.25
302	445+450	445+500	3.5	3.5
303	445+500	445+550	4	4
304	445+550	445+600	3	3
305	445+600	445+650	3.75	3.75
306	445+650	445+700	4	4
307	445+700	445+750	4	4
308	445+750	445+800	7	7
309	445+800	445+850	4	4
310	445+850	445+900	4	4
311	445+900	445+950	5	5
312	445+950	445+975	3.25	3.25
313	446+000	446+050	5.25	5.25
314	446+050	446+100	5	5
315	446+100	446+150	5	5
316	446+150	446+200	5	5
317	446+200	446+250	5.4	5.4
318	446+250	446+300	4.6	4.6
319	446+300	446+350	5.85	5.85
320	446+350	446+400	4.75	4.75
321	446+400	446+450	5.7	5.7
322	446+450	446+500	7	7
323	446+500	446+550	7.1	7.1
324	446+550	446+600	6	6
325	446+600	446+650	6.5	6.5

S. No.	Existing Chainage (km)		ROW	
	From	To	Left	Right
326	446+650	446+700	6.6	6.6
327	446+700	446+750	6.75	6.75
328	446+750	446+800	4.5	4.5
329	446+800	446+850	6.25	6.25
330	446+850	446+900	5.5	5.5
331	446+900	446+950	6	6
332	446+950	447+000	3.65	3.65
333	447+000	447+050	6	6
334	447+050	447+100	6	6
335	447+100	447+150	6.25	6.25
336	447+150	447+200	6	6
337	447+200	447+250	5.75	5.75
338	447+250	447+300	7	7
339	447+300	447+350	5.5	5.5
340	447+350	447+400	4.6	4.6
341	447+400	447+450	5	5
342	447+450	447+500	4.1	4.1
343	447+500	447+550	5.75	5.75
344	447+550	447+600	3.5	3.5
345	447+600	447+650	6	6
346	447+650	447+700	4.5	4.5
347	447+700	447+750	5.6	5.6
348	447+750	447+800	6.5	6.5
349	447+800	447+850	6	6
350	447+850	447+900	4.75	4.75
351	447+900	447+950	3.45	3.45
352	447+950	447+980	5.5	5.5
353	448+000	448+050	6	6
354	448+050	448+100	4.5	4.5
355	448+100	448+150	5.5	5.5
356	448+150	448+200	4.6	4.6
357	448+200	448+250	5.5	5.5
358	448+250	448+300	4.5	4.5
359	448+300	448+350	5.75	5.75
360	448+350	448+400	5.75	5.75
361	448+400	448+450	4	4
362	448+450	448+500	4.65	4.65
363	448+500	448+550	2.65	2.65
364	448+550	448+600	5.4	5.4
365	448+600	448+650	5.5	5.5
366	448+650	448+700	5.4	5.4
367	448+700	448+750	6	6
368	448+750	448+800	4.5	4.5

S. No.	Existing Chainage (km)		ROW	
	From	To	Left	Right
369	448+800	448+850	6.1	6.1
370	448+850	448+900	6	6
371	448+900	448+950	5.5	5.5
372	448+950	449+000	6	6
373	449+000	449+050	4.5	4.5
374	449+050	449+100	5.4	5.4
375	449+100	449+150	5.5	5.5
376	449+150	449+200	5.5	5.5
377	449+200	449+250	5.25	5.25
378	449+250	449+300	4.9	4.9
379	449+300	449+350	5.5	5.5
380	449+350	449+400	5.5	5.5
381	449+400	449+450	4.1	4.1
382	449+450	449+500	4.25	4.25
383	449+500	449+550	5	5
384	449+550	449+600	5.5	5.5
385	449+600	449+650	5.4	5.4
386	449+650	449+700	9.8	4.9
387	449+700	449+750	5	5
388	449+750	449+800	5.9	5.9
389	449+800	449+850	5.65	5.65
390	449+850	449+900	5.1	5.1
391	449+900	449+950	5.1	5.1
392	450+000	450+050	5.75	5.75
393	450+050	450+100	2.9	2.9
394	450+100	450+150	5.5	5.5
395	450+150	450+200	6.5	6.5
396	450+200	450+250	5	5
397	450+250	450+300	5.5	5.5
398	450+300	450+350	4.9	4.9
399	450+350	450+400	5.5	5.5
400	450+400	450+450	5.75	5.75
401	450+450	450+500	5.5	5.5
402	450+500	450+550	5.6	5.6
403	450+550	450+600	6.1	6.1
404	450+600	450+650	5	5
405	450+650	450+700	5.35	5.35
406	450+700	450+750	5.25	5.25
407	450+750	450+800	5.9	5.9
408	450+800	450+850	5.9	5.9
409	450+850	450+900	5.25	5.25
410	450+900	450+950	5	5
411	450+950	451+000	6.1	6.1

S. No.	Existing Chainage (km)		ROW	
	From	To	Left	Right
412	451+000	451+050	5.5	5.5
413	451+050	451+100	5.5	5.5
414	451+100	451+150	6.25	6.25
415	451+150	451+200	5.5	5.5
416	451+200	451+250	6	6
417	451+250	451+300	5.25	5.25
418	451+300	451+350	5.3	5.3
419	451+350	451+400	6.25	6.25
420	451+400	451+450	5	5
421	451+450	451+500	4.6	4.6
422	451+500	451+550	4	4
423	451+550	451+600	3.6	3.6
424	451+600	451+650	6.9	6.9
425	451+650	451+700	7.5	7.5
426	451+700	451+750	7.5	7.5
427	451+750	451+800	5.5	5.5
428	451+800	451+850	4	4
429	451+850	451+900	5.9	5.9
430	451+900	451+950	4.9	4.9
431	451+950	451+975	6	6
432	452+000	452+050	6	6
433	452+050	452+100	6.25	6.25
434	452+100	452+150	6.25	6.25
435	452+150	452+200	7	7
436	452+200	452+250	5.75	5.75
437	452+250	452+300	5.5	5.5
438	452+300	452+350	5.5	5.5
439	452+350	452+400	5.5	5.5
440	452+400	452+450	4.75	4.75
441	452+450	452+500	6	6
442	452+500	452+550	5.25	5.25
443	452+550	452+600	4.75	4.75
444	452+600	452+650	6.5	6.5
445	452+650	452+700	6.25	6.25
446	452+700	452+750	6	6
447	452+750	452+800	6.25	6.25
448	452+800	452+850	6.75	6.75
449	452+850	452+900	7	7
450	452+900	452+950	6.25	6.25
451	452+950	453+000	6.25	6.25
452	453+000	453+050	6.5	6.5
453	453+050	453+100	7	7
454	453+100	453+150	6	6

S. No.	Existing Chainage (km)		ROW	
	From	To	Left	Right
455	453+150	453+200	9.25	9.25
456	453+200	453+250	6	6
457	453+250	453+300	6.5	6.5
458	453+300	453+350	6	6
459	453+350	453+400	5.7	5.7
460	453+400	453+450	5.1	5.1
461	453+450	453+500	6.75	6.75
462	453+500	453+550	4.75	4.75
463	453+550	453+600	4.5	4.5
464	453+600	453+650	6.5	6.5
465	453+650	453+700	6.5	6.5
466	453+700	453+750	5	5
467	453+750	453+800	5	5
468	453+800	453+850	7.5	7.5
469	453+850	453+900	5	5
470	453+900	453+950	6.5	6.5
471	453+950	453+960	6.5	6.5
472	454+000	454+050	3.95	3.95
473	454+050	454+100	4	4
474	454+100	454+150	3.75	3.75
475	454+150	454+200	3.55	3.55
476	454+200	454+250	4.5	4.5
477	454+250	454+300	5.5	5.5
478	454+300	454+350	5.75	5.75
479	454+350	454+400	6	6
480	454+400	454+450	5.75	5.75
481	454+450	454+500	7	7
482	454+500	454+550	3.75	3.75
483	454+550	454+600	6	6
484	454+600	454+650	7	7
485	454+650	454+700	7	7
486	454+700	454+750	7	7
487	454+750	454+800	7	7
488	454+800	454+850	5	5
489	454+850	454+900	5.5	5.5
490	454+900	454+940	6.25	6.25
491	455+000	455+050	6	6
492	455+050	455+100	7.5	7.5
493	455+100	455+150	7	7
494	455+150	455+200	7	7
495	455+200	455+250	7.1	7.1
496	455+250	455+300	5	5
497	455+300	455+350	5.75	5.75

S. No.	Existing Chainage (km)		ROW	
	From	To	Left	Right
498	455+350	455+400	5.6	5.6
499	455+400	455+450	6.5	6.5
500	455+450	455+500	5.5	5.5
501	455+500	455+550	6	6
502	455+550	455+600	5.5	5.5
503	455+600	455+650	3.75	3.75
504	455+650	455+700	6.5	6.5
505	455+700	455+750	7	7
506	455+750	455+800	6.25	6.25
507	455+800	455+850	5	5
508	455+850	455+900	6	6
509	455+900	455+950	6.1	6.1
510	456+000	456+050	5.5	5.5
511	456+050	456+100	4.25	4.25
512	456+100	456+150	5.9	5.9
513	456+150	456+200	6	6
514	456+200	456+250	6.5	6.5
515	456+250	456+300	6	6
516	456+300	456+350	5.75	5.75
517	456+350	456+400	6	6
518	456+400	456+450	6.5	6.5
519	456+450	456+500	4	4
520	456+500	456+550	5.75	5.75
521	456+550	456+600	7	7
522	456+600	456+650	6	6
523	456+650	456+700	7	7
524	456+700	456+750	6	6
525	456+750	456+800	3.5	3.5
526	456+800	456+850	3.75	3.75
527	456+850	456+900	3.95	3.95
528	456+900	456+925	5	5
529	457+000	457+050	6	6
530	457+050	457+100	5.5	5.5
531	457+100	457+150	5	5
532	457+150	457+200	5	5
533	457+200	457+250	4.75	4.75
534	457+250	457+300	5	5
535	457+300	457+350	4.5	4.5
536	457+350	457+400	4.25	4.25
537	457+400	457+450	6.5	6.5
538	457+450	457+500	5.75	5.75
539	457+500	457+550	4.25	4.25
540	457+550	457+600	6	6

S. No.	Existing Chainage (km)		ROW	
	From	To	Left	Right
541	457+600	457+650	4.5	4.5
542	457+650	457+700	6	6
543	457+700	457+750	5.5	5.5
544	457+750	457+800	5.5	5.5
545	457+800	457+850	7.5	7.5
546	457+850	457+900	5.4	5.4
547	457+900	457+950	6.5	6.5
548	458+000	458+050	5.5	5.5
549	458+050	458+100	7	7
550	458+100	458+150	4	4
551	458+150	458+200	4	4
552	458+200	458+250	7	7
553	458+250	458+300	4.4	4.4
554	458+300	458+350	4.4	4.4
555	458+350	458+400	6.75	6.75
556	458+400	458+450	6	6
557	458+450	458+500	7	7
558	458+500	458+550	6.5	6.5
559	458+550	458+600	5.25	5.25
560	458+600	458+650	6.5	6.5
561	458+650	458+700	6.5	6.5
562	458+700	458+750	7.5	7.5
563	458+750	458+800	6	6
564	458+800	458+850	3.95	3.95
565	458+850	458+900	4	4
566	458+900	458+950	4.25	4.25
567	459+000	459+050	3.9	3.9
568	459+050	459+100	4	4
569	459+100	459+150	4.5	4.5
570	459+150	459+200	4.5	4.5
571	459+200	459+250	3.75	3.75
572	459+250	459+300	3.5	3.5
573	459+300	459+350	3.5	3.5
574	459+350	459+400	3.5	3.5
575	459+400	459+450	3.5	3.5
576	459+450	459+500	3.25	3.25
577	459+500	459+550	3.5	3.5
578	459+550	459+600	4	4
579	459+600	459+650	5.5	5.5
580	459+650	459+700	5.5	5.5
581	459+700	459+750	7	7
582	459+750	459+800	5.5	5.5
583	459+800	459+850	5.65	5.65

S. No.	Existing Chainage (km)		ROW	
	From	To	Left	Right
584	459+850	459+900	5.6	5.6
585	459+900	459+950	5.7	5.7
586	460+000	460+050	5.7	5.7
587	460+050	460+100	5.75	5.75
588	460+100	460+150	7.5	7.5
589	460+150	460+200	5.25	5.25
590	460+200	460+250	4.6	4.6
591	460+250	460+300	6.6	6.6
592	460+300	460+350	7.5	7.5
593	460+350	460+400	5.35	5.35
594	460+400	460+450	5.25	5.25
595	460+450	460+500	5.25	5.25
596	460+500	460+550	5.4	5.4
597	460+550	460+600	6.25	6.25
598	460+600	460+650	6	6
599	460+650	460+700	6.5	6.5
600	460+700	460+750	6.6	6.6
601	460+750	460+800	6.5	6.5
602	460+800	460+850	6.5	6.5
603	460+850	460+900	7	7
604	460+900	460+950	7	7
605	460+950	460+960	7	7
606	461+000	461+050	7	7
607	461+050	461+100	6	6
608	461+100	461+150	6.1	6.1
609	461+150	461+200	7	7
610	461+200	461+250	7.5	7.5
611	461+250	461+300	5.25	5.25
612	461+300	461+350	7	7
613	461+350	461+400	6.25	6.25
614	461+400	461+450	6.5	6.5
615	461+450	461+500	6.9	6.9
616	461+500	461+550	4.1	4.1
617	461+550	461+600	3.9	3.9
618	461+600	461+650	4.75	4.75
619	461+650	461+700	5.1	5.1
620	461+700	461+750	6	6
621	461+750	461+800	7.25	7.25
622	461+800	461+850	5.25	5.25
623	461+850	461+900	7.75	7.75
624	461+900	461+950	5	5
625	461+950	461+975	5	5
626	462+000	462+050	5.6	5.6

S. No.	Existing Chainage (km)		ROW	
	From	To	Left	Right
627	462+050	462+100	6	6
628	462+100	462+150	4.75	4.75
629	462+150	462+200	6.5	6.5
630	462+200	462+250	4.25	4.25
631	462+250	462+300	4.75	4.75
632	462+300	462+350	4.25	4.25
633	462+350	462+400	4.25	4.25
634	462+400	462+450	4.6	4.6
635	462+450	462+500	5.1	5.1
636	462+500	462+550	5.25	5.25
637	462+550	462+600	5	5
638	462+600	462+650	4.9	4.9
639	462+650	462+700	5.6	5.6
640	462+700	462+750	5.75	5.75
641	462+750	462+800	6	6
642	462+800	462+850	5	5
643	462+850	462+900	6	6
644	462+900	462+950	5.5	5.5
645	462+950	463+000	5.25	5.25
646	463+000	463+050	6.5	6.5
647	463+050	463+100	5	5
648	463+100	463+150	3.75	3.75
649	463+150	463+200	6	6
650	463+200	463+250	6	6
651	463+250	463+300	6.5	6.5
652	463+300	463+350	6.5	6.5
653	463+350	463+400	6.25	6.25
654	463+400	463+450	5.75	5.75
655	463+450	463+500	4.9	4.9
656	463+500	463+550	5.4	5.4
657	463+550	463+600	5.5	5.5
658	463+600	463+650	5.75	5.75
659	463+650	463+700	6.75	6.75
660	463+700	463+750	4.75	4.75
661	463+750	463+800	4.75	4.75
662	463+800	463+850	4.75	4.75
663	463+850	463+900	5.25	5.25
664	463+900	463+950	6.5	6.5
665	463+950	464+000	5.25	5.25
666	464+000	464+050	5.25	5.25
667	464+050	464+100	5.5	5.5
668	464+100	464+150	5	5
669	464+150	464+200	4.5	4.5

S. No.	Existing Chainage (km)		ROW	
	From	To	Left	Right
670	464+200	464+250	6	6
671	464+250	464+300	5.7	5.7
672	464+300	464+350	4.5	4.5
673	464+350	464+400	4	4
674	464+400	464+450	5	5
675	464+450	464+500	5.25	5.25
676	464+500	464+550	5	5
677	464+550	464+600	5.5	5.5
678	464+600	464+650	5	5
679	464+650	464+700	3.4	3.4
680	464+700	464+750	4.25	4.25
681	464+750	464+800	4.6	4.6
682	464+800	464+850	4.75	4.75
683	464+850	464+900	4.6	4.6
684	464+900	464+950	5.9	5.9
685	465+000	465+050	6.4	6.4
686	465+050	465+100	5.6	5.6
687	465+100	465+150	5.75	5.75
688	465+150	465+200	6.25	6.25
689	465+200	465+250	5.5	5.5
690	465+250	465+300	6.1	6.1
691	465+300	465+350	5.5	5.5
692	465+350	465+400	5	5
693	465+400	465+450	5.75	5.75
694	465+450	465+500	4.6	4.6
695	465+500	465+550	6	6
696	465+550	465+600	4.9	4.9
697	465+600	465+650	3.6	3.6
698	465+650	465+700	4.5	4.5
699	465+700	465+750	3.5	3.5
700	465+750	465+800	3.9	3.9
701	465+800	465+850	2.15	2.15
702	465+850	465+900	5.1	5.1
703	465+900	465+950	5	5
704	465+950	466+000	5.5	5.5
705	466+000	466+050	6.5	6.5
706	466+050	466+100	5.75	5.75
707	466+100	466+150	5.5	5.5
708	466+150	466+200	4.75	4.75
709	466+200	466+250	3.6	3.6
710	466+250	466+300	4.9	4.9
711	466+300	466+350	4.75	4.75
712	466+350	466+400	4.4	4.4

S. No.	Existing Chainage (km)		ROW	
	From	To	Left	Right
713	466+400	466+450	5.25	5.25
714	466+450	466+500	4	4
715	466+500	466+550	3.6	3.6
716	466+550	466+600	4	4
717	466+600	466+650	2	2
718	466+650	466+700	4.6	4.6
719	466+700	466+750	5.5	5.5
720	466+750	466+800	4.1	4.1
721	466+800	466+850	4.9	4.9
722	466+850	466+900	5.5	5.5
723	467+000	467+050	5.9	5.9
724	467+050	467+100	3.4	3.4
725	467+100	467+150	5	5
726	467+150	467+200	5	5
727	467+200	467+250	4.5	4.5
728	467+250	467+300	5	5
729	467+300	467+350	4.75	4.75
730	467+350	467+400	4.25	4.25
731	467+400	467+450	4.75	4.75
732	467+450	467+500	4.75	4.75
733	467+500	467+550	3.45	3.45
734	467+550	467+600	3.85	3.85
735	467+600	467+650	3.75	3.75
736	467+650	467+700	3.75	3.75
737	467+700	467+750	3.35	3.35
738	467+750	467+800	3.45	3.45
739	467+800	467+850	3.65	3.65
740	467+850	467+900	4	4
741	467+900	467+950	3.95	3.95
742	467+950	468+000	3.75	3.75

3. Carriageway

The present carriageway of the Project Highway is of. Single Lane/Intermediate lane/two lane. The type of the existing pavement is flexible as per following details;

S .No.	Existing Chainage (km)		Width (m)
	From	To	
1	430+000	430+050	2.80
2	430+050	430+100	3.00
3	430+100	430+150	2.70
4	430+150	430+200	4.00
5	430+200	430+250	4.40
6	430+250	430+300	4.20
7	430+300	430+350	4.50

S .No.	Existing Chainage (km)		Width (m)
	From	To	
8	430+350	430+400	4.40
9	430+400	430+450	4.50
10	430+450	430+500	4.80
11	430+500	430+550	4.60
12	430+550	430+600	4.80
13	430+600	430+650	4.70
14	430+650	430+700	5.00
15	430+700	430+750	5.20
16	430+750	430+800	4.80
17	430+800	430+850	4.90
18	430+850	430+900	5.50
19	430+900	430+950	4.80
20	430+950	431+000	4.50
21	431+000	431+050	3.00
22	431+050	431+100	3.00
23	431+100	431+150	4.80
24	431+150	431+200	4.60
25	431+200	431+250	4.00
26	431+250	431+300	4.00
27	431+300	431+350	4.00
28	431+350	431+400	5.00
29	431+400	431+450	4.80
30	431+450	431+500	5.21
31	431+500	431+550	4.80
32	431+550	431+600	5.10
33	431+600	431+650	5.00
34	431+650	431+700	5.50
35	431+700	431+750	4.80
36	431+750	431+800	4.80
37	431+800	431+850	4.80
38	431+850	431+900	4.80
39	431+900	431+950	4.50
40	432+000	432+050	5.20
41	432+050	432+100	4.80
42	432+100	432+150	4.00
43	432+150	432+200	4.80
44	432+200	432+250	4.80
45	432+250	432+300	4.20
46	432+300	432+350	4.60
47	432+350	432+400	4.60
48	432+400	432+450	5.50
49	432+450	432+500	5.50
50	432+500	432+550	5.50
51	432+550	432+600	4.50
52	432+600	432+650	4.00
53	432+650	432+700	4.00
54	432+700	432+750	4.80
55	432+750	432+800	4.00
56	432+800	432+850	4.50
57	432+850	432+900	4.00
58	432+900	432+925	4.80
59	433+000	433+050	4.50

S .No.	Existing Chainage (km)		Width (m)
	From	To	
60	433+050	433+100	4.40
61	433+100	433+150	4.50
62	433+150	433+200	4.20
63	433+200	433+250	4.20
64	433+250	433+300	5.00
65	433+300	433+350	4.00
66	433+350	433+400	4.00
67	433+400	433+450	4.00
68	433+450	433+500	5.20
69	433+500	433+550	4.50
70	433+550	433+600	4.50
71	433+600	433+650	4.40
72	433+650	433+700	5.00
73	433+700	433+750	4.80
74	433+750	433+800	4.60
75	433+800	433+850	4.50
76	433+850	433+900	4.20
77	433+900	433+950	4.50
78	433+950	434+000	4.60
79	434+000	434+050	5.20
80	434+050	434+100	4.80
81	434+100	434+150	4.50
82	434+150	434+200	4.20
83	434+200	434+250	4.20
84	434+250	434+300	4.40
85	434+300	434+350	4.50
86	434+350	434+400	4.20
87	434+400	434+450	4.20
88	434+450	434+500	4.20
89	434+500	434+550	4.50
90	434+550	434+600	5.70
91	434+600	434+650	5.50
92	434+650	434+700	5.50
93	434+700	434+750	5.50
94	434+750	434+800	5.60
95	434+800	434+850	5.50
96	434+850	434+900	5.50
97	434+900	434+925	4.80
98	435+000	435+050	4.80
99	435+050	435+100	5.00
100	435+100	435+150	4.20
101	435+150	435+200	4.80
102	435+200	435+250	4.30
103	435+250	435+300	4.30
104	435+300	435+350	4.00
105	435+350	435+400	4.20
106	435+400	435+450	4.20
107	435+450	435+500	4.20
108	435+500	435+550	4.20
109	435+550	435+600	4.30
110	435+600	435+650	4.80
111	435+650	435+700	4.80

S .No.	Existing Chainage (km)		Width (m)
	From	To	
112	435+700	435+750	4.80
113	435+750	435+800	4.80
114	435+800	435+850	4.80
115	435+850	435+900	4.80
116	435+900	435+950	4.40
117	435+950	436+000	4.00
118	436+000	436+050	4.00
119	436+050	436+100	4.00
120	436+100	436+150	4.00
121	436+150	436+200	4.00
122	436+200	436+250	5.20
123	436+250	436+300	5.20
124	436+300	436+350	5.20
125	436+350	436+400	5.20
126	436+400	436+450	5.20
127	436+450	436+500	5.20
128	436+500	436+550	5.20
129	436+550	436+600	5.20
130	436+600	436+650	5.20
131	436+650	436+700	5.20
132	436+700	436+750	5.20
133	436+750	436+800	4.00
134	436+800	436+850	4.40
135	436+850	436+900	4.40
136	436+900	436+925	3.50
137	437+000	437+050	5.20
138	437+050	437+100	5.20
139	437+100	437+150	5.20
140	437+150	437+200	4.50
141	437+200	437+250	4.50
142	437+250	437+300	4.20
143	437+300	437+350	4.20
144	437+350	437+400	5.20
145	437+400	437+450	5.20
146	437+450	437+500	3.00
147	437+500	437+550	4.00
148	437+550	437+600	4.00
149	437+600	437+650	4.00
150	437+650	437+700	4.00
151	437+700	437+750	3.50
152	437+750	437+800	4.00
153	437+800	437+850	4.00
154	437+850	437+900	4.00
155	437+900	437+950	4.00
156	437+950	438+000	5.00
157	438+000	438+050	5.00
158	438+050	438+100	5.00
159	438+100	438+150	5.00
160	438+150	438+200	5.00
161	438+200	438+250	5.00
162	438+250	438+300	5.00
163	438+300	438+350	5.00

S .No.	Existing Chainage (km)		Width (m)
	From	To	
164	438+350	438+400	5.00
165	438+400	438+450	5.00
166	438+450	438+500	5.00
167	438+500	438+550	5.50
168	438+550	438+600	5.00
169	438+600	438+650	5.00
170	438+650	438+700	5.00
171	438+700	438+750	5.00
172	438+750	438+800	5.50
173	438+800	438+850	5.00
174	438+850	438+900	4.50
175	438+900	438+950	4.50
176	438+950	439+000	4.40
177	439+000	439+050	4.80
178	439+050	439+100	5.00
179	439+100	439+150	5.00
180	439+150	439+200	4.60
181	439+200	439+250	4.80
182	439+250	439+300	5.00
183	439+300	439+350	5.00
184	439+350	439+400	4.80
185	439+400	439+450	4.80
186	439+450	439+500	4.80
187	439+500	439+550	4.20
188	439+550	439+600	3.80
189	439+600	439+650	4.00
190	439+650	439+700	4.80
191	439+700	439+750	4.00
192	439+750	439+800	4.50
193	439+800	439+850	4.80
194	439+850	439+900	4.80
195	439+900	439+950	4.80
196	440+000	440+050	5.00
197	440+050	440+100	5.00
198	440+100	440+150	4.80
199	440+150	440+200	5.00
200	440+200	440+250	4.80
201	440+250	440+300	4.80
202	440+300	440+350	5.00
203	440+350	440+400	5.00
204	440+400	440+450	5.00
205	440+450	440+500	5.00
206	440+500	440+550	5.00
207	440+550	440+600	4.00
208	440+600	440+650	5.00
209	440+650	440+700	5.00
210	440+700	440+750	4.50
211	440+750	440+800	4.00
212	440+800	440+850	4.00
213	440+850	440+900	4.50
214	441+000	441+050	4.60
215	441+050	441+100	4.20

S .No.	Existing Chainage (km)		Width (m)
	From	To	
216	441+100	441+150	4.80
217	441+150	441+200	4.80
218	441+200	441+250	5.00
219	441+250	441+300	5.00
220	441+300	441+350	5.00
221	441+350	441+400	5.00
222	441+400	441+450	4.80
223	441+450	441+500	4.80
224	441+500	441+550	4.80
225	441+550	441+600	4.80
226	441+600	441+650	4.50
227	441+650	441+700	4.50
228	441+700	441+750	5.00
229	441+750	441+800	5.00
230	441+800	441+850	4.50
231	441+850	441+900	5.00
232	441+900	441+930	4.80
233	442+000	442+050	5.00
234	442+050	442+100	5.00
235	442+100	442+150	5.00
236	442+150	442+200	5.00
237	442+200	442+250	4.80
238	442+250	442+300	4.20
239	442+300	442+350	4.80
240	442+350	442+400	5.00
241	442+400	442+450	4.50
242	442+450	442+500	5.00
243	442+500	442+550	5.00
244	442+550	442+600	5.00
245	442+600	442+650	4.80
246	442+650	442+700	4.60
247	442+700	442+750	4.80
248	442+750	442+800	4.80
249	442+800	442+850	4.80
250	442+850	442+900	4.80
251	442+900	442+950	4.80
252	442+950	443+000	5.80
253	443+000	443+050	4.80
254	443+050	443+100	4.80
255	443+100	443+150	4.80
256	443+150	443+200	4.80
257	443+200	443+250	5.30
258	443+250	443+300	4.50
259	443+300	443+350	4.60
260	443+350	443+400	4.80
261	443+400	443+450	4.50
262	443+450	443+500	4.80
263	443+500	443+550	4.30
264	443+550	443+600	4.80
265	443+600	443+650	4.00
266	443+650	443+700	4.40
267	443+700	443+750	4.50

S .No.	Existing Chainage (km)		Width (m)
	From	To	
268	443+750	443+800	4.80
269	443+800	443+850	4.80
270	443+850	443+900	4.60
271	443+900	443+950	4.60
272	443+950	443+975	4.50
273	444+000	444+050	4.20
274	444+050	444+100	4.80
275	444+100	444+150	4.20
276	444+150	444+200	5.00
277	444+200	444+250	5.00
278	444+250	444+300	5.00
279	444+300	444+350	5.00
280	444+350	444+400	4.80
281	444+400	444+450	4.50
282	444+450	444+500	4.80
283	444+500	444+550	4.40
284	444+550	444+600	5.00
285	444+600	444+650	5.00
286	444+650	444+700	5.00
287	444+700	444+750	5.00
288	444+750	444+800	5.00
289	444+800	444+850	5.00
290	444+850	444+900	5.00
291	444+900	444+950	5.00
292	444+950	444+975	5.00
293	445+000	445+050	5.00
294	445+050	445+100	5.00
295	445+100	445+150	5.00
296	445+150	445+200	5.00
297	445+200	445+250	5.00
298	445+250	445+300	4.50
299	445+300	445+350	5.00
300	445+350	445+400	4.20
301	445+400	445+450	4.20
302	445+450	445+500	5.00
303	445+500	445+550	4.50
304	445+550	445+600	4.00
305	445+600	445+650	4.00
306	445+650	445+700	5.00
307	445+700	445+750	4.00
308	445+750	445+800	8.00
309	445+800	445+850	5.00
310	445+850	445+900	4.80
311	445+900	445+950	4.80
312	445+950	445+975	5.20
313	446+000	446+050	6.30
314	446+050	446+100	6.30
315	446+100	446+150	6.30
316	446+150	446+200	6.30
317	446+200	446+250	6.20
318	446+250	446+300	6.00
319	446+300	446+350	6.50

S .No.	Existing Chainage (km)		Width (m)
	From	To	
320	446+350	446+400	7.00
321	446+400	446+450	7.00
322	446+450	446+500	12.00
323	446+500	446+550	12.00
324	446+550	446+600	6.00
325	446+600	446+650	7.00
326	446+650	446+700	7.20
327	446+700	446+750	7.50
328	446+750	446+800	7.00
329	446+800	446+850	6.50
330	446+850	446+900	7.00
331	446+900	446+950	7.00
332	446+950	447+000	7.00
333	447+000	447+050	6.50
334	447+050	447+100	7.00
335	447+100	447+150	7.00
336	447+150	447+200	7.00
337	447+200	447+250	7.00
338	447+250	447+300	7.50
339	447+300	447+350	5.50
340	447+350	447+400	6.40
341	447+400	447+450	6.80
342	447+450	447+500	6.00
343	447+500	447+550	7.20
344	447+550	447+600	7.00
345	447+600	447+650	7.00
346	447+650	447+700	7.00
347	447+700	447+750	6.50
348	447+750	447+800	7.00
349	447+800	447+850	4.00
350	447+850	447+900	7.00
351	447+900	447+950	5.00
352	447+950	447+980	4.80
353	448+000	448+050	6.50
354	448+050	448+100	5.00
355	448+100	448+150	6.50
356	448+150	448+200	7.00
357	448+200	448+250	7.00
358	448+250	448+300	6.80
359	448+300	448+350	6.50
360	448+350	448+400	6.50
361	448+400	448+450	5.80
362	448+450	448+500	6.80
363	448+500	448+550	5.00
364	448+550	448+600	6.00
365	448+600	448+650	7.00
366	448+650	448+700	6.80
367	448+700	448+750	7.00
368	448+750	448+800	7.00
369	448+800	448+850	7.00
370	448+850	448+900	7.00
371	448+900	448+950	7.00

S .No.	Existing Chainage (km)		Width (m)
	From	To	
372	448+950	449+000	6.50
373	449+000	449+050	6.30
374	449+050	449+100	6.50
375	449+100	449+150	6.50
376	449+150	449+200	6.00
377	449+200	449+250	6.50
378	449+250	449+300	6.80
379	449+300	449+350	6.80
380	449+350	449+400	7.00
381	449+400	449+450	7.00
382	449+450	449+500	7.00
383	449+500	449+550	6.80
384	449+550	449+600	6.80
385	449+600	449+650	6.80
386	449+650	449+700	6.80
387	449+700	449+750	6.80
388	449+750	449+800	7.00
389	449+800	449+850	6.80
390	449+850	449+900	6.80
391	449+900	449+950	6.80
392	450+000	450+050	7.00
393	450+050	450+100	4.80
394	450+100	450+150	6.80
395	450+150	450+200	6.80
396	450+200	450+250	6.50
397	450+250	450+300	6.80
398	450+300	450+350	6.80
399	450+350	450+400	6.80
400	450+400	450+450	7.00
401	450+450	450+500	7.00
402	450+500	450+550	6.80
403	450+550	450+600	7.00
404	450+600	450+650	6.80
405	450+650	450+700	6.50
406	450+700	450+750	6.80
407	450+750	450+800	6.80
408	450+800	450+850	6.80
409	450+850	450+900	6.80
410	450+900	450+950	6.80
411	450+950	451+000	7.00
412	451+000	451+050	7.00
413	451+050	451+100	7.00
414	451+100	451+150	7.00
415	451+150	451+200	7.00
416	451+200	451+250	7.20
417	451+250	451+300	6.80
418	451+300	451+350	6.80
419	451+350	451+400	7.00
420	451+400	451+450	7.00
421	451+450	451+500	6.30
422	451+500	451+550	6.50
423	451+550	451+600	5.80

S .No.	Existing Chainage (km)		Width (m)
	From	To	
424	451+600	451+650	7.00
425	451+650	451+700	6.40
426	451+700	451+750	6.40
427	451+750	451+800	6.80
428	451+800	451+850	6.80
429	451+850	451+900	7.00
430	451+900	451+950	7.00
431	451+950	451+975	7.00
432	452+000	452+050	7.00
433	452+050	452+100	7.00
434	452+100	452+150	6.80
435	452+150	452+200	7.00
436	452+200	452+250	7.00
437	452+250	452+300	7.30
438	452+300	452+350	6.60
439	452+350	452+400	6.80
440	452+400	452+450	6.80
441	452+450	452+500	7.00
442	452+500	452+550	7.00
443	452+550	452+600	7.00
444	452+600	452+650	7.00
445	452+650	452+700	7.00
446	452+700	452+750	7.00
447	452+750	452+800	7.00
448	452+800	452+850	7.00
449	452+850	452+900	7.00
450	452+900	452+950	7.00
451	452+950	453+000	7.00
452	453+000	453+050	7.00
453	453+050	453+100	7.00
454	453+100	453+150	7.00
455	453+150	453+200	7.00
456	453+200	453+250	7.00
457	453+250	453+300	7.00
458	453+300	453+350	7.00
459	453+350	453+400	6.80
460	453+400	453+450	6.80
461	453+450	453+500	6.80
462	453+500	453+550	6.80
463	453+550	453+600	6.80
464	453+600	453+650	7.00
465	453+650	453+700	7.00
466	453+700	453+750	7.00
467	453+750	453+800	7.00
468	453+800	453+850	7.00
469	453+850	453+900	6.80
470	453+900	453+950	6.80
471	453+950	453+960	6.80
472	454+000	454+050	6.40
473	454+050	454+100	4.80
474	454+100	454+150	6.40
475	454+150	454+200	6.40

S .No.	Existing Chainage (km)		Width (m)
	From	To	
476	454+200	454+250	5.00
477	454+250	454+300	6.00
478	454+300	454+350	4.00
479	454+350	454+400	4.00
480	454+400	454+450	5.00
481	454+450	454+500	4.00
482	454+500	454+550	6.40
483	454+550	454+600	6.00
484	454+600	454+650	6.80
485	454+650	454+700	6.80
486	454+700	454+750	5.00
487	454+750	454+800	7.00
488	454+800	454+850	6.80
489	454+850	454+900	6.80
490	454+900	454+940	6.90
491	455+000	455+050	6.80
492	455+050	455+100	6.50
493	455+100	455+150	6.80
494	455+150	455+200	6.80
495	455+200	455+250	7.00
496	455+250	455+300	6.50
497	455+300	455+350	6.00
498	455+350	455+400	6.80
499	455+400	455+450	6.80
500	455+450	455+500	6.60
501	455+500	455+550	6.80
502	455+550	455+600	6.50
503	455+600	455+650	6.50
504	455+650	455+700	6.80
505	455+700	455+750	6.80
506	455+750	455+800	6.50
507	455+800	455+850	6.50
508	455+850	455+900	6.80
509	455+900	455+950	7.00
510	456+000	456+050	6.80
511	456+050	456+100	7.00
512	456+100	456+150	6.80
513	456+150	456+200	7.00
514	456+200	456+250	7.00
515	456+250	456+300	6.80
516	456+300	456+350	6.80
517	456+350	456+400	6.20
518	456+400	456+450	6.80
519	456+450	456+500	6.00
520	456+500	456+550	7.00
521	456+550	456+600	6.80
522	456+600	456+650	6.50
523	456+650	456+700	7.00
524	456+700	456+750	6.00
525	456+750	456+800	6.40
526	456+800	456+850	6.40
527	456+850	456+900	6.40

S .No.	Existing Chainage (km)		Width (m)
	From	To	
528	456+900	456+925	4.50
529	457+000	457+050	6.80
530	457+050	457+100	6.50
531	457+100	457+150	6.80
532	457+150	457+200	6.50
533	457+200	457+250	6.80
534	457+250	457+300	5.50
535	457+300	457+350	6.80
536	457+350	457+400	7.00
537	457+400	457+450	6.50
538	457+450	457+500	6.80
539	457+500	457+550	6.40
540	457+550	457+600	6.50
541	457+600	457+650	6.80
542	457+650	457+700	6.80
543	457+700	457+750	6.80
544	457+750	457+800	6.80
545	457+800	457+850	6.80
546	457+850	457+900	6.80
547	457+900	457+950	6.80
548	458+000	458+050	6.80
549	458+050	458+100	6.80
550	458+100	458+150	6.80
551	458+150	458+200	6.80
552	458+200	458+250	6.80
553	458+250	458+300	6.80
554	458+300	458+350	6.80
555	458+350	458+400	6.80
556	458+400	458+450	6.80
557	458+450	458+500	7.00
558	458+500	458+550	6.80
559	458+550	458+600	7.00
560	458+600	458+650	6.80
561	458+650	458+700	6.80
562	458+700	458+750	6.20
563	458+750	458+800	6.80
564	458+800	458+850	6.40
565	458+850	458+900	6.40
566	458+900	458+950	6.40
567	459+000	459+050	6.20
568	459+050	459+100	6.00
569	459+100	459+150	6.00
570	459+150	459+200	6.50
571	459+200	459+250	5.40
572	459+250	459+300	6.00
573	459+300	459+350	5.60
574	459+350	459+400	5.80
575	459+400	459+450	5.80
576	459+450	459+500	5.80
577	459+500	459+550	4.00
578	459+550	459+600	6.00
579	459+600	459+650	6.80

S .No.	Existing Chainage (km)		Width (m)
	From	To	
580	459+650	459+700	6.00
581	459+700	459+750	6.00
582	459+750	459+800	6.50
583	459+800	459+850	6.50
584	459+850	459+900	6.80
585	459+900	459+950	6.80
586	460+000	460+050	6.80
587	460+050	460+100	6.80
588	460+100	460+150	6.20
589	460+150	460+200	6.40
590	460+200	460+250	6.50
591	460+250	460+300	6.80
592	460+300	460+350	6.80
593	460+350	460+400	7.00
594	460+400	460+450	6.80
595	460+450	460+500	6.80
596	460+500	460+550	6.80
597	460+550	460+600	6.80
598	460+600	460+650	6.80
599	460+650	460+700	7.20
600	460+700	460+750	7.20
601	460+750	460+800	7.40
602	460+800	460+850	7.00
603	460+850	460+900	7.00
604	460+900	460+950	7.00
605	460+950	460+960	7.00
606	461+000	461+050	7.00
607	461+050	461+100	7.00
608	461+100	461+150	7.00
609	461+150	461+200	7.00
610	461+200	461+250	7.00
611	461+250	461+300	7.00
612	461+300	461+350	7.00
613	461+350	461+400	7.00
614	461+400	461+450	7.00
615	461+450	461+500	7.80
616	461+500	461+550	6.80
617	461+550	461+600	5.20
618	461+600	461+650	7.00
619	461+650	461+700	6.80
620	461+700	461+750	6.80
621	461+750	461+800	6.90
622	461+800	461+850	6.80
623	461+850	461+900	7.00
624	461+900	461+950	7.00
625	461+950	461+975	7.00
626	462+000	462+050	7.00
627	462+050	462+100	7.00
628	462+100	462+150	7.00
629	462+150	462+200	7.00
630	462+200	462+250	7.00
631	462+250	462+300	7.00

S .No.	Existing Chainage (km)		Width (m)
	From	To	
632	462+300	462+350	7.00
633	462+350	462+400	7.00
634	462+400	462+450	7.00
635	462+450	462+500	7.00
636	462+500	462+550	7.00
637	462+550	462+600	6.80
638	462+600	462+650	6.80
639	462+650	462+700	6.80
640	462+700	462+750	7.00
641	462+750	462+800	7.00
642	462+800	462+850	6.80
643	462+850	462+900	7.00
644	462+900	462+950	6.50
645	462+950	463+000	7.00
646	463+000	463+050	7.00
647	463+050	463+100	7.00
648	463+100	463+150	6.40
649	463+150	463+200	6.40
650	463+200	463+250	6.80
651	463+250	463+300	6.80
652	463+300	463+350	7.00
653	463+350	463+400	7.00
654	463+400	463+450	7.00
655	463+450	463+500	7.00
656	463+500	463+550	7.00
657	463+550	463+600	5.80
658	463+600	463+650	4.00
659	463+650	463+700	6.80
660	463+700	463+750	6.80
661	463+750	463+800	6.00
662	463+800	463+850	7.00
663	463+850	463+900	6.80
664	463+900	463+950	5.50
665	463+950	464+000	7.00
666	464+000	464+050	6.50
667	464+050	464+100	7.00
668	464+100	464+150	7.00
669	464+150	464+200	6.80
670	464+200	464+250	7.80
671	464+250	464+300	7.00
672	464+300	464+350	7.00
673	464+350	464+400	6.50
674	464+400	464+450	7.00
675	464+450	464+500	6.80
676	464+500	464+550	6.80
677	464+550	464+600	7.00
678	464+600	464+650	6.50
679	464+650	464+700	4.00
680	464+700	464+750	5.70
681	464+750	464+800	6.00
682	464+800	464+850	6.00
683	464+850	464+900	6.80

S .No.	Existing Chainage (km)		Width (m)
	From	To	
684	464+900	464+950	7.00
685	465+000	465+050	7.00
686	465+050	465+100	7.00
687	465+100	465+150	7.00
688	465+150	465+200	7.00
689	465+200	465+250	7.00
690	465+250	465+300	7.00
691	465+300	465+350	6.80
692	465+350	465+400	6.80
693	465+400	465+450	7.00
694	465+450	465+500	7.00
695	465+500	465+550	7.00
696	465+550	465+600	7.00
697	465+600	465+650	4.60
698	465+650	465+700	6.80
699	465+700	465+750	6.00
700	465+750	465+800	6.00
701	465+800	465+850	6.40
702	465+850	465+900	6.00
703	465+900	465+950	6.50
704	465+950	466+000	7.00
705	466+000	466+050	7.00
706	466+050	466+100	7.00
707	466+100	466+150	6.20
708	466+150	466+200	6.60
709	466+200	466+250	6.00
710	466+250	466+300	6.80
711	466+300	466+350	6.50
712	466+350	466+400	6.60
713	466+400	466+450	6.10
714	466+450	466+500	5.20
715	466+500	466+550	6.50
716	466+550	466+600	6.80
717	466+600	466+650	6.80
718	466+650	466+700	6.80
719	466+700	466+750	7.00
720	466+750	466+800	5.80
721	466+800	466+850	6.80
722	466+850	466+900	6.80
723	467+000	467+050	6.80
724	467+050	467+100	4.80
725	467+100	467+150	8.00
726	467+150	467+200	6.40
727	467+200	467+250	7.00
728	467+250	467+300	7.00
729	467+300	467+350	7.00
730	467+350	467+400	7.00
731	467+400	467+450	7.00
732	467+450	467+500	7.00
733	467+500	467+550	7.00
734	467+550	467+600	7.00
735	467+600	467+650	7.00

S .No.	Existing Chainage (km)		Width (m)
	From	To	
736	467+650	467+700	7.00
737	467+700	467+750	7.00
738	467+750	467+800	7.00
739	467+800	467+850	7.00
740	467+850	467+900	7.00
741	467+900	467+950	7.00
742	467+950	468+000	7.00

4. Major Bridges

The Site includes the following Major Bridges:

S. No.	Existing Chainage (km)	Type of Structure			No. of Spans with span length (m)	Width (m)
		Foundation	Sub-Structure	Super-Structure		
1	436+800	open	RCC	PSC girder	2x60	8.5

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		No. of Spans with span length (m)	Width (m)	ROB/ RUB
		Foundation	Super Structure			
NIL						

6. Grade separators

The Site includes the following grade separators:

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

7. Minor Bridges

The Site includes the following minor bridges

S. No.	Existing Chainage (km)	Type of Structure			No. of Spans with span length (c/c of exp gap)	Total Width (m)
		Foundation	Sub-Structure	Super-Structure		
1	433+370	Open	RCC Wall	CC Arch	1X12	5

S. No.	Existing Chainage (km)	Type of Structure			No. of Spans with span length (c/c of exp gap)	Total Width (m)
		Foundation	Sub-Structure	Super-Structure		
2	442+470	Open	RCC	RCC Girder	1X21	12
3	451+745	Open	RCC	PSC Girder	1X33	8.5
4	454+575	Open	RCC	PSC Girder	1X35	11.5
5	457+550	Open	RCC	RCC Girder	1X17	6
6	460+250	Open	RCC	PSC Girder	1X 40	8.5

8. Railway level crossings

The Site includes the following level crossing:

S. No.	Existing Chainage (km)	Remarks
NIL		

9. Underpasses (Vehicular, Non Vehicular)

The Site includes the following underpasses:

S. No.	Existing Chainage (Km)	Type of Structure	No. of Spans with span length (m)	Width (m)
NIL				

10. Culverts

The Site has the following culverts:

S. No.	Existing Chainage (km)	Type of Culvert	Span/Opening with span length(m)
1	430+225	Pipe	0.6
2	430+475	Slab	1.8
3	430+700	Slab	3.0
4	431+175	Slab	1.6
5	431+225	Slab	2.2
6	431+350	Scooper	0.8

S. No.	Existing Chainage (km)	Type of Culvert	Span/Opening with span length(m)
7	433+050	Slab	2.0
8	434+760	Slab	3.0
9	434+950	Slab	1.8
10	435+225	Slab	2.8
11	435+875	Slab	4.0
12	436+140	Slab	2.7
13	436+650	Slab	3.1
14	437+050	Slab	2.2
15	437+550	Slab	2.6
16	437+925	Slab	1.4
17	438+470	Slab	2.2
18	439+560	Slab	1.4
19	439+775	Slab	1.2
20	439+950	Slab	1.3
21	440+600	Slab	1.2
22	441+050	Slab	1.6
23	441+525	Slab	1.2
24	441+550	Pipe	0.6
25	441+800	Slab	2.6
26	442+150	Slab	2.6
27	442+300	Scooper	0.6

S. No.	Existing Chainage (km)	Type of Culvert	Span/Opening with span length(m)
28	442+320	Slab	1.6
29	443+225	Scooper	0.7
30	443+775	Scooper	0.8
31	444+010	Slab	4.0
32	444+275	Slab	2.1
33	444+525	Slab	2.0
34	445+340	Slab	3.7
35	445+500	Slab	1.7
36	445+825	Slab	1.5
37	446+125	Slab	1.0
38	446+290	Slab	1.2
39	446+870	Slab	1.2
40	446+880	Slab	2.6
41	447+060	Slab	1.7
42	447+275	Slab	1.2
43	448+430	Slab	2.9
44	448+830	Slab	2.6
45	449+050	Slab	3.0
46	449+800	slab	4.7
47	450+230	Slab	2.6
48	450+470	Slab	3.1

S. No.	Existing Chainage (km)	Type of Culvert	Span/Opening with span length(m)
49	451+200	Slab	2.8
50	451+450	Slab	2.8
51	451+900	Slab	4.0
52	452+050	Slab	3.5
53	453+350	Slab	2.3
54	453+460	Slab	3.6
55	454+000	Slab	3.0
56	454+325	Slab	3.4
57	455+025	Slab	3.5
58	455+080	Slab	2.6
59	455+240	Slab	2.7
60	455+620	Slab	3.3
61	456+500	Slab	1.2
62	457+020	Slab	4.8
63	457+775	Slab	2.8
64	457+940	Slab	3.0
65	458+425	Slab	3.5
66	460+950	Slab	3.2
67	461+915	Slab	1.7
68	462+740	Slab	3.6
69	462+980	Slab	4.0

S. No.	Existing Chainage (km)	Type of Culvert	Span/Opening with span length(m)
70	463+420	Slab	2.3
71	463+820	Slab	1.2
72	463+980	Slab	2.4
73	465+070	Slab	2.4
74	465+310	Slab	2.6
75	466+500	Slab	5.1
76	467+370	Pipe	2.0
77	467+560	Slab	2.7
78	468+260	Slab	3.0

11. Bus bays/Bus Shelters

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

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

12. Truck Lay byes

The details of truck lay byes are as follows:

S. No.	Existing Chainage (Km)	Length (m)	Left Hand Side	Right Hand Side
NIL				

13. Road side drains

The details of the roadside drains are as follows:

S. No.	Location		Type	
	From km	To km	Masonry/cc (Pucca)	Earthen (Kutcha)
NIL				

14. Major junctions

The details of major junctions are as follows:

S. No	Existing Chainage (km)	At Grade	Grade Separated	Category of Cross Road+			
				NH	SH	MDR	Others
1	430+200	At grade			✓		

+ NH= National Highway, SH= State Highway, MDR= Major District Road.

15. Minor junctions

The details of the minor junctions are as follows:

SI. No.	Existing Chainage (km)	Type	
		T-Junction	Cross Road
1	430+600	Y	MDR
2	439+600	Y	Village Road
3	439+700	Y	MDR
4	446+100	Y	Village Road

16. Bypasses

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

S. No	Name of bypass (Town)	Existing Chainage (Km)		Length (Km)
		From	To	
NIL				

17. Other Structures : Nil

18. Existing Chainages corresponding to Design Chainage

The relationship between the “Existing Chainage” and the “Design Chainage” as per field surveys is given below in Table-

S No	Existing Chainage(km)	Design Chainage (km)
	Start	Start
1	430+000	427+650
2	431+000	428+250
3	432+000	429+760
4	433+000	430+760
5	434+000	431+760
6	435+000	432+720
7	436+000	433+710
8	437+000	434+700
9	438+000	435+700
10	439+000	436+700
11	440+000	437+700
12	441+000	438+670
13	442+000	439+640
14	443+000	440+540
15	444+000	441+560
16	445+000	442+575
17	446+000	443+490
18	447+000	444+460
19	448+000	445+425
20	449+000	446+450
21	450+000	447+380
22	451+000	448+420
23	452+000	449+420
24	453+000	450+475
25	454+000	451+460
26	455+000	452+460
27	456+000	453+410
28	457+000	454+350
29	458+000	455+300
30	459+000	456+310
31	460+000	457+210
32	461+000	458+230
33	462+000	459+120
34	463+000	460+190
35	464+000	461+240
36	465+000	462+260
37	466+000	463+290
38	467+000	464+200
39	468+000	465+175

Annex - II

(Schedule-A)

Dates for providing Right of Way

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

S.no	Existing Chainage (km)		Design Chainage (km)		Length (m)	PROW	Date of providing ROW*
	From	To	From	To			
(i)	**Full Right of Way (Full Width)**						
	430+000	430+240	427+700	428+100	400	12	90% land will be available at the time of appointed date and balance 10% land after 150 (one hundred and fifty) days from Appointed Date.
	430+240	436+785	428+100	434+600	6500	18	
	436+875	437+600	434+600	435+310	710	15	
	437+600	437+650	435+310	435+365	55	15	
	437+650	439+550	435+365	437+575	2210	18	
	439+550	439+850	437+575	438+100	525	15	
	439+850	440+310	438+100	438+640	540	18	
	440+310	440+950	438+640	438+640	000	15	
	440+950	443+500	438+640	441+040	2400	18	
	443+500	443+820	441+040	441+390	350	12	
	443+820	445+650	441+390	443+150	1760	18	
	445+650	446+025	443+150	443+525	375	12	
	446+025	466+150	443+525	463+445	19920	18	
	446+150	466+675	463+445	463+950	505	15	
	466+675	468+000	463+950	465+150	1200	18	

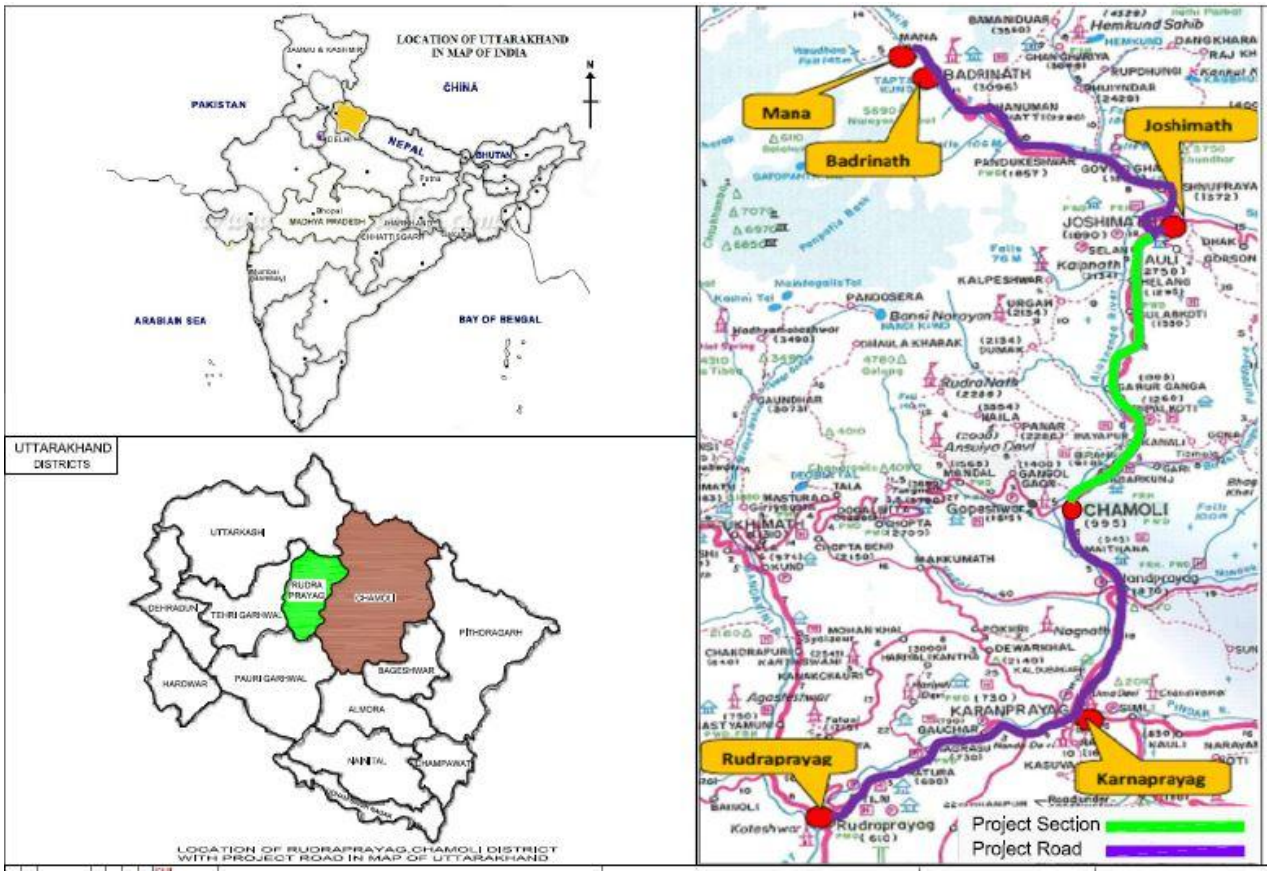
* The dates specified herein shall in no case be beyond 150 (one hundred and fifty) days after the Appointed Date.

Annex-III

(Schedule-A)

Alignment Plans

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



The alignment plan of the Project Highway is available on e-Portal.

Annex - IV

(Schedule-A)

Environment Clearances

Not Applicable for this section.

SCHEDULE - B

(See Clause 2.1)

Development of the Project Highway

1. Development of the Project Highway

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

2. Rehabilitation and Upgradation

Rehabilitation and Upgradation shall include Two-Laning with paved shoulder of the Project Highway as described in Annex-I of this Schedule-B and in Schedule-C.

3. Specifications and Standards

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

Annex - I

(Schedule-B)

Description of Two-Laning

1. WIDENING OF THE EXISTING HIGHWAY

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

1.2 WIDTH OF CARRIAGEWAY

1.2.1 Two-Laning with paved shoulders shall be undertaken. The paved carriageway shall be [10(Ten) m] wide in (Type-I to Type-IV-D) and [9 m wide in (Type-V to Type-V-D)] accordance with the typical cross sections drawings in the Manual.

Provided that in the built-up areas [The typical cross section approved by ministry for Chardham Project]: the width of the carriageway shall be as specified in the following table:

S. No	Built-up stretch (Township)	Design Chainage(km)		Length(m)	Width of Carriage way (m)	Ref. Typical cross section
		From	To			
1	Chamoli	427+650	428+075	425	9	TYPE-V, V-A, V-B,V-C
2	Mangal Gadhera	429+500	430+000	500	9	TYPE-V, V-A, V-B, V-C,V-D
3	Bhimatala	430+900	431+425	525	9	TYPE-V,V-A,V-B
4	Birahi	434+600	435+325	725	9	TYPE-V, V-A, V-B, V-C,V-D
5	Kaudiya	437+175	437+575	400	9	TYPE-V, V-A,V-C
6	Tartoli	437+850	438+650	800	9	TYPE-V, V-A, V-B,V-C
7	Mayapur	439+600	439+750	150	9	TYPE-V, V-B
8	Agthala	441+000	441+450	450	9	TYPE-V, V-B
9	Pipalkoti	441+900	444+500	2600	9	TYPE-V, V-A, V-B,V-C
10	Helang	463+450	463+950	500	9	TYPE-V, V-A, V-B

1.2.2 Except as otherwise provided in this Agreement, the width of the paved carriageway and cross-sectional features shall conform to paragraph 1.1 above.

2. GEOMETRIC DESIGN AND GENERAL FEATURES

2.1 General

Geometric design and general features of the Project Highway shall be in accordance with section 2 as per IRC: SP: 73-2015 and IRC: SP: 48-1998.

2.2 Design Speed

The design speed 20-40 km as per IRC: SP: 73-2015 and IRC: SP: 48-1998 for Mountainous/Steep terrain shall be adopted.

2.3 Improvement of the existing road geometry

[Refer to paragraph 2.1(vi) of the Manual IRC: SP 73:2015 and provide details]

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

Deficient Curves:-

S. No.	Design Chainage (km)		Design radius	Existing Radius (m)	Grade In	Grade Out	Remarks
	From	To					
1	434+871	434+908	20	17.5	4.00%	4.00%	Hair Pin Bend
2	435+125	435+160	20	17.5	4.00%	4.00%	
3	449+552	449+599	20	17.5	4.00%	4.00%	Hair Pin Bend
4	450+074	450+122	20	17.5	4.00%	4.00%	Hair Pin Bend
5	450+341	450+389	20	17.5	4.00%	4.00%	
6	450+565	450+607	20	17.5	4.00%	4.00%	Hair Pin Bend
7	457+831	457+870	20	17.5	4.00%	4.00%	Hair Pin Bend
8	458+105	458+144	20	17.5	4.00%	4.00%	Hair Pin Bend

2.4 Right of Way

The Site of the Project Highway comprises the land as described in Annexure-II of Schedule-A.

2.5 Type of Shoulders

a) In built up section, footpaths/fully paved shoulders shall be provided in the following stretches:

S. No	Design Chainage (km)		Length (m)	Fully Paved shoulder / Footpath	Reference to Cross Section
	From	To			
1	427+650	428+075	425	Footpath cum drainage	TYPE-V, V-A, V-B,V-C
2	429+500	430+000	500	Footpath cum drainage	TYPE-V, V-A, V-B, V-C,V-D
3	430+900	431+425	525	Footpath cum drainage	TYPE-V,V-A,V-B
4	434+600	435+325	725	Footpath cum drainage	TYPE-V, V-A, V-B, V-C,V-D

S. No	Design Chainage (km)		Length (m)	Fully Paved shoulder / Footpath	Reference to Cross Section
	From	To			
5	437+175	437+575	400	Footpath cum drainage	TYPE-V, V-A,V-C
6	437+850	438+650	800	Footpath cum drainage	TYPE-V, V-A, V-B,V-C
7	439+600	439+750	150	Footpath cum drainage	TYPE-V, V-B
8	441+000	441+450	450	Footpath cum drainage	TYPE-V, V-B
9	441+900	444+500	2600	Footpath cum drainage	TYPE-V, V-A, V-B,V-C
10	463+450	463+950	500	Footpath cum drainage	TYPE-V, V-A, V-B

(b) In open country, [paved shoulders of 1.5 m width shall be provided and balance 1.0m width shall be covered with 150 mm thick compacted layer of granular / hard material].

(c) Design and specifications of paved shoulders and granular material shall conform to the requirements specified in paragraphs 5.9.8 and 5.9.9 of the Manual IRC: SP 73:2015.

2.6 Lateral and vertical clearances at underpasses

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

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

S. No.	Design Chainage (Km)	Span/opening (m)	Remarks
NIL			

2.7 Lateral and vertical clearances at overpasses

2.7.1 Lateral and vertical clearances at overpasses and provision of guardrails/crash barriers shall be as per paragraph 2.11 of the Manual.

2.7.2 Lateral clearance: The width of the opening at the overpasses shall be as follows:

S. No.	Design Chainage (Km)	Span/opening (m)	Remarks
NIL			

2.8 Service roads

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

S. No	Design Chainage (Km)	RHS/LHS	Length of the Service Road (m)
NIL			

2.9 Grade separated structures

2.9.1 Grade separated structures shall be provided as per paragraph 2.14 of the Manual. The requisite particulars are given below:

S. No.	Design Chainage (Km)	Length (m)	Number and length of spans	Approach gradient	Remarks, if any
NIL					

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

S. No.	Design Chainage (Km)	Type of structure Length (m)	Cross road at		
			Existing level	Raised Level	Lowered Level
NIL					

2.10 Cattle and pedestrian under pass / over pass

Cattle and pedestrian underpass shall be constructed as follows:

S. No.	Design Chainage (Km)	Type of Crossing
NIL		

2.11 Typical cross-sections of the Project Highway

The typical cross section has been developed as Type-I to Type-VI-D (Total 29) as included in Appendix-I, Annex-I of this Schedule-B confirming to the Manual.

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 table below:

(a) At-grade intersections

S. No.	Location of Intersection	Type of Intersection	Leading to
NIL			

(b) 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 structure
NIL				

4. ROAD EMBANKMENT AND CUT SECTION

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

4.2 Raising of the existing road
The existing road shall be raised at the required locations as per proposed plan and profile including the following sections:

S. No	Design Chainage (Km)		Length (Km)	Extent of raising (Top of finished road level)
	From	To		
As per profile attached in Annexure-III of Schedule A				

5. PAVEMENT DESIGN

5.1 Pavement design shall be carried out in accordance with IRC: 37-2012.

5.2 Type of pavement

The project highway is proposed to provide flexible pavement in built-up section. The composition of proposed pavement and their corresponding minimum thickness is given in the table below confirming with IRC: 37-2012 of the manual:

S No	Pavement composition	Min. Thickness (mm)
1	Bituminous Concrete	40
2	Treated RAP/BSM	100
3	CT Sub Base	200
Total		**340**

5.3 Design Requirements

As per typical cross section attached in Annex-I of this Schedule-B.

5.3.1 **Design Period and strategy**

Flexible pavement for new pavement or for widening and strengthening of the existing pavement shall be designed for a minimum design period of 15 years. Stage construction shall not be permitted.

5.3.2 **Design Traffic**

The pavement has been designed for design traffic of 20 million standard axles as per IRC: 37-2012.

5.4 Reconstruction of stretches

Reconstruction of stretches for matching the proposed plan & profile shall be taken up as per actual requirements.

Sl. No.	Existing Chainage (Km)		Design Chainage (Km)		Remarks
	From	To	From	To	
1	430+000	468+000	427+650	465+150	Reconstruction and Widening

6. ROADSIDE DRAINAGE

Drainage system including surface and subsurface drains for the Project Highway shall be provided as per Hill Road manual IRC: SP: 48-1998.

Design Chainage (km)		Length (m)	Side	Lined
from	to			
427+650	428+075	425	Both Side	U Shaped Drain
428+075	429+500	1425	One Side	(KC) Kerb and Channel Drain
429+500	430+000	500	Both Side	U Shaped Drain
430+000	430+900	900	One Side	(KC) Kerb and Channel Drain
430+900	431+425	525	Both Side	U Shaped Drain
431+425	434+600	3175	One Side	(KC) Kerb and Channel Drain
434+600	435+325	725	Both Side	U Shaped Drain
435+325	437+175	1850	One Side	(KC) Kerb and Channel Drain
437+175	437+575	400	Both Side	U Shaped Drain
437+575	437+850	275	One Side	(KC) Kerb and Channel Drain
437+850	438+650	800	Both Side	U Shaped Drain

438+650	439+600	950	One Side	(KC) Kerb and Channel Drain
439+600	439+750	150	Both Side	U Shaped Drain
439+750	441+000	1250	One Side	(KC) Kerb and Channel Drain
441+000	441+450	450	Both Side	U Shaped Drain
441+450	441+900	450	One Side	(KC) Kerb and Channel Drain
441+900	444+500	2600	Both Side	U Shaped Drain
444+500	463+450	18950	One Side	(KC) Kerb and Channel Drain
463+450	463+950	500	Both Side	U Shaped Drain
463+950	465+150	1200	One Side	(KC) Kerb and Channel Drain

7. DESIGN OF STRUCTURES

7.1 General

7.1.1 All bridges, culverts and structures shall be designed and constructed in accordance with the standards codes specifications and manual guidelines shall conform to the cross-sectional features and other details specified therein.

7.1.2 Width of the carriageway of new bridges and structures shall be as follows:

Sl. No.	Bridge at km	Width of carriageway and cross section features@
As per GAD		

7.1.3 The following structures shall be provided with footpaths:

S. No.	Design Chainage (Km)	Remarks
NIL		

7.1.4 All bridges shall be high-level bridges.
[Refer to paragraph 7.1 (iii) of the Manual IRC: SP: 73-2015 and state if there is any exception]

7.1.5 The following structures shall be designed to carry utility services specified in table below.

S. No.	Design Chainage (Km)	Utility service to be carried	Remarks
1	As per list attached in 7.3.1 and 7.3.2	Water pipeline, OFC Cable, Electric Cable, etc.	This may vary as per site condition and location identified with Authority Engineer during execution.

7.1.6 Cross-section of the new culverts and bridges at deck level for the Project Highway shall conform to the typical cross-sections for the Project Highway.

7.2 Culverts

7.2.1 The Culverts overall width shall be equal to the roadway width of the approaches.

7.2.2 ***Reconstruction of existing culverts***:

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

Sl. No.	Design Chainage (km)	Span Arrangement (m)	Remark
1	428+330	4	Box
2	428+560	4	Box
3	429+070	2	Box
4	429+140	4	Box
5	429+250	2	Box
6	430+830	2	Box
7	432+510	4	Box
8	432+695	4	Box
9	432+940	4	Box
10	433+590	4	Box
11	433+855	4	Box
12	434+380	4	Box
13	434+745	4	Box
14	435+265	4	Box
15	435+640	2	Box
16	436+180	4	Box

Sl. No.	Design Chainage (km)	Span Arrangement (m)	Remark
17	437+285	2	Box
18	437+505	2	Box
19	437+670	2	Box
20	438+300	6	Box
21	438+715	2	Box
22	439+185	2	Box
23	439+235	2	Box
24	439+460	4	Box
25	439+945	2	Box
26	439+970	2	Box
27	440+825	2	Box
28	441+350	2	Box
29	441+575	2	Box
30	441+835	4	Box
31	442+070	2	Box
32	443+033	4	Box
33	443+325	2	Box
34	443+625	2	Box
35	443+785	6	Box
36	444+395	6	Box
37	444+510	2	Box
38	444+715	2	Box
39	445+850	4	Box
40	446+245	4	Box
41	446+530	4	Box
42	447+220	4	Box
43	447+590	4	Box
44	447+820	4	Box
45	448+610	4	Box

Sl. No.	Design Chainage (km)	Span Arrangement (m)	Remark
46	448+850	4	Box
47	449+300	4	Box
48	449+450	4	Box
49	450+845	4	Box
50	450+950	4	Box
51	451+465	4	Box
52	451+785	4	Box
53	452+460	4	Box
54	452+525	4	Box
55	452+675	4	Box
56	453+050	4	Box
57	453+890	4	Box
58	455+105	4	Box
59	455+260	4	Box
60	455+740	4	Box
61	458+275	4	Box
62	459+030	4	Box
63	459+925	4	Box
64	460+190	4	Box
65	460+720	4	Box
66	461+050	4	Box
67	461+250	4	Box
68	462+335	4	Box
69	462+550	4	Box
70	463+775	6	Box

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

7.2.3 ***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.	Location of Culvert	Type, span, height and width of existing culvert (m)	Repairs to be carried out [specify]
Nil			

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

S. No.	Design Chainage (km)	Type	Span Arrangement (m)	Width (m)
1	428+750	Box	4	12
2	429+325	Box	2	12
3	429+400	Box	4	12
4	430+010	Box	2	12
5	430+200	Box	2	12
6	430+325	Box	2	12
7	430+525	Box	2	12
8	430+750	Box	2	12
9	431+215	Box	2	12
10	431+415	Box	2	12
11	431+860	Box	2	12
12	432+150	Box	2	12
13	432+350	Box	2	12
14	432+775	Box	4	12
15	433+175	Box	4	12
16	433+367	Box	4	12
17	434+020	Box	4	12
18	434+170	Box	4	12
19	434+800	Box	4	12
20	434+995	Box	4	12
21	435+100	Box	4	12
22	435+500	Box	4	12

S. No.	Design Chainage (km)	Type	Span Arrangement (m)	Width (m)
23	436+000	Box	4	12
24	436+350	Box	4	12
25	436+520	Box	4	12
26	436+755	Box	4	12
27	436+915	Box	2	12
28	437+125	Box	4	12
29	437+170	Box	2	12
30	437+850	Box	2	12
31	437+955	Box	2	12
32	438+070	Box	2	12
33	438+970	Box	2	12
34	439+330	Box	2	12
35	440+250	Box	2	12
36	441+885	Box	4	12
37	442+150	Box	2	12
38	442+700	Box	4	12
39	443+110	Box	4	12
40	444+050	Box	2	12
41	444+885	Box	2	12
42	445+185	Box	2	12
43	445+415	Box	2	12
44	445+650	Box	4	12
45	446+065	Box	4	12
46	446+700	Box	4	12
47	446+900	Box	4	12
48	447+045	Box	4	12
49	447+425	Box	4	12
50	448+050	Box	4	12
51	448+275	Box	4	12

S. No.	Design Chainage (km)	Type	Span Arrangement (m)	Width (m)
52	448+400	Box	4	12
53	448+750	Box	4	12
54	448+965	Box	4	12
55	449+705	Box	4	12
56	449+760	Box	4	12
57	449+910	Box	4	12
58	450+100	Box	2	12
59	450+270	Box	4	12
60	450+465	Box	4	12
61	450+670	Box	4	12
62	451+100	Box	4	12
63	451+275	Box	4	12
64	451+600	Box	4	12
65	452+900	Box	4	12
66	453+250	Box	4	12
67	453+425	Box	4	12
68	453+605	Box	4	12
69	453+750	Box	4	12
70	454+050	Box	4	12
71	454+410	Box	2	12
72	454+660	Box	4	12
73	455+505	Box	6	12
74	455+950	Box	4	12
75	456+175	Box	4	12
76	456+825	Box	4	12
77	456+930	Box	2	12
78	457+150	Box	4	12
79	457+300	Box	4	12
80	457+720	Box	4	12

S. No.	Design Chainage (km)	Type	Span Arrangement (m)	Width (m)
81	457+875	Box	4	12
82	457+985	Box	4	12
83	458+100	Box	4	12
84	458+750	Box	4	12
85	458+925	Box	4	12
86	459+275	Box	4	12
87	459+525	Box	4	12
88	459+675	Box	4	12
89	460+075	Box	4	12
90	460+325	Box	2	12
91	460+475	Box	4	12
92	460+925	Box	2	12
93	461+425	Box	2	12
94	461+675	Box	2	12
95	461+850	Box	6	12
96	462+200	Box	4	12
97	462+800	Box	4	12
98	462+950	Box	4	12
99	463+160	Box	4	12
100	463+495	Box	4	12
101	463+990	Box	6	12
102	464+475	Box	4	12

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

S. No.	Design Chainage (Km)	Type of repair required
NIL		

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

7.3 Bridges

7.3.1 Existing bridges to be re-constructed/widened:

(i) The Existing bridges at the following locations shall be reconstructed:

Sl. No.	Bridge Location (km)	Span	Remarks
1	431+160	1x20	RCC
2	454+890	1x20	RCC

(ii) The following narrow bridges shall be widened:

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

@ Attach cross-section

7.3.2 *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.

S. No.	Design Chainage (Km)	Total Length (m)	Remarks
1	428+925	1x20	RCC
2	429+650	1x20	RCC
3	439+775	1x10	Box
4	442+870	1x20	RCC
5	452+025	1x50	Steel Composite
6	454+300	1x80	Steel Truss

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

S. No.	Design Chainage (Km)	Total length (m)	Remarks
NIL			

7.3.4 Repairs/replacements of railing/parapets of the existing bridges shall be undertaken as follows

S. No.	Design Chainage (Km)	Existing span arrangement (m)	Remarks
NIL			

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

7.3.6 Structures in marine environment
The Project Alignment does not lie in Marine Alignment.

7.4 Rail-road bridges

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

S. No	Design Chainage (Km)	Number and length of span (m)
NIL		

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

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

S. No	Design Chainage (Km)	Number and length of span (m)
NIL		

7.5 Grade separated structures

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

7.6 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

S. No.	Design Chainage (Km)	Nature and extent of repairs /strengthening to be carried out
Nil		

B. ROB / RUB

S. No.	Design Chainage (Km)	Nature and extent of repairs /strengthening to be carried out
NIL		

C. Overpasses/Underpasses and other structures

S. No.	Design Chainage (Km)	Nature and extent of repairs /strengthening to be carried out
NIL		

7.7 List of Major Bridges and Structures

The following is the list of the Major Bridges and Structures:

S. No.	Type of Structure	Design Chainage (Km)	Remark
1	Steel Truss	454+300	1x80

7.8 W-Metal Beam Crash Barrier

S. No.	Design Chainage (m)		TCS Type	Length (m)
	From	To		
1	428+075	428+100	TYPE-I	16
2	428+100	428+125	TYPE-I	25
3	428+125	428+150	TYPE-I	25
4	428+150	428+175	TYPE-I	25
5	428+175	428+200	TYPE-I	25
6	428+200	428+225	TYPE-I	25
7	428+225	428+250	TYPE-I	25
8	428+250	428+275	TYPE-I	25
9	428+275	428+300	TYPE-I	25
10	428+300	428+325	TYPE-I	25
11	428+325	428+350	TYPE-I	14
12	428+350	428+375	TYPE-I-A	25
13	428+375	428+400	TYPE-I-A	25
14	428+400	428+425	TYPE-I-A	25
15	428+425	428+450	TYPE-I-B	25
16	428+450	428+475	TYPE-III-D	25
17	428+475	428+500	TYPE-IV-D	25
18	428+500	428+525	TYPE-IV-D	25
19	428+525	428+550	TYPE-IV-D	25
20	428+550	428+575	TYPE-IV-D	14

S. No.	Design Chainage (m)		TCS Type	Length (m)
	From	To		
21	428+575	428+600	TYPE-II-C	25
22	428+600	428+625	TYPE-II-C	25
23	428+625	428+650	TYPE-II-D	25
24	428+650	428+675	TYPE-II-D	25
25	428+675	428+700	TYPE-II-B	25
26	428+700	428+725	TYPE-II-B	25
27	428+725	428+750	TYPE-II	25
28	428+750	428+775	TYPE-II-B	14
29	428+775	428+800	TYPE-II-B	25
30	428+800	428+825	TYPE-II-B	25
31	428+825	428+850	TYPE-II-B	25
32	428+850	428+875	TYPE-II	25
33	428+875	428+900	TYPE-I	25
34	428+900	428+925	TYPE-III	25
35	428+925	428+950	TYPE-III	25
36	428+950	428+975	TYPE-III-A	25
37	428+975	429+000	TYPE-I-B	25
38	429+000	429+025	TYPE-I-B	25
39	429+025	429+050	TYPE-I-B	25
40	429+050	429+075	TYPE-I-B	16
41	429+075	429+100	TYPE-I-A	25
42	429+100	429+125	TYPE-III-E	25
43	429+125	429+150	TYPE-III-E	14
44	429+150	429+175	TYPE-I-A	25
45	429+175	429+200	TYPE-I-B	25
46	429+200	429+225	TYPE-I-A	25
47	429+225	429+250	TYPE-I-B	25
48	429+250	429+275	TYPE-I-A	16
49	429+275	429+300	TYPE-I-A	25
50	429+300	429+325	TYPE-I-B	25
51	429+325	429+350	TYPE-I-B	16
52	429+450	429+475	TYPE-II-B	25
53	429+475	429+500	TYPE-II-B	25
54	430+000	430+025	TYPE-I-B	16
55	430+025	430+050	TYPE-I-B	25
56	430+050	430+075	TYPE-I-B	25
57	430+075	430+100	TYPE-I-B	25
58	430+100	430+125	TYPE-I-B	25
59	430+125	430+150	TYPE-I-B	25
60	430+150	430+175	TYPE-I-B	25
61	430+175	430+200	TYPE-I-A	25
62	430+200	430+225	TYPE-I-A	16

S. No.	Design Chainage (m)		TCS Type	Length (m)
	From	To		
63	430+225	430+250	TYPE-I-A	25
64	430+250	430+275	TYPE-I-B	25
65	430+275	430+300	TYPE-I-B	25
66	430+300	430+325	TYPE-I	25
67	430+325	430+350	TYPE-I-A	12
68	430+350	430+375	TYPE-I-A	25
69	430+375	430+400	TYPE-I-A	25
70	430+400	430+425	TYPE-I-A	25
71	430+425	430+450	TYPE-I-A	25
72	430+450	430+475	TYPE-I-A	25
73	430+475	430+500	TYPE-I-B	25
74	430+500	430+525	TYPE-I-B	25
75	430+525	430+550	TYPE-I-B	16
76	430+550	430+575	TYPE-I-B	25
77	430+575	430+600	TYPE-I-B	25
78	430+600	430+625	TYPE-III-A	25
79	430+625	430+650	TYPE-III-A	25
80	430+650	430+675	TYPE-III-A	25
81	430+675	430+700	TYPE-I-A	25
82	430+700	430+725	TYPE-I	25
83	430+725	430+750	TYPE-I	25
84	430+750	430+775	TYPE-I	16
85	430+775	430+800	TYPE-I	25
86	430+800	430+825	TYPE-I	25
87	430+825	430+850	TYPE-I-A	16
88	430+850	430+875	TYPE-I-A	25
89	430+875	430+900	TYPE-I-A	25
90	431+425	431+450	TYPE-II	25
91	431+450	431+475	TYPE-II	25
92	431+475	431+500	TYPE-II	25
93	431+500	431+525	TYPE-II	25
94	431+525	431+550	TYPE-II	25
95	431+550	431+575	TYPE-II	25
96	431+575	431+600	TYPE-II	25
97	431+600	431+625	TYPE-II	25
98	431+625	431+650	TYPE-II	25
99	431+650	431+675	TYPE-II	25
100	431+675	431+700	TYPE-II	25
101	431+700	431+725	TYPE-I	25
102	431+725	431+750	TYPE-I	25
103	431+750	431+775	TYPE-I	25
104	431+775	431+800	TYPE-I	25

S. No.	Design Chainage (m)		TCS Type	Length (m)
	From	To		
105	431+800	431+825	TYPE-I	25
106	431+825	431+850	TYPE-III-B	25
107	431+850	431+875	TYPE-III-D	16
108	431+875	431+900	TYPE-II-B	25
109	431+900	431+925	TYPE-II	25
110	431+925	431+950	TYPE-II	25
111	431+950	431+975	TYPE-II	25
112	431+975	432+000	TYPE-II	25
113	432+000	432+025	TYPE-I	25
114	432+025	432+050	TYPE-III-E	25
115	432+050	432+075	TYPE-III-E	25
116	432+075	432+100	TYPE-III-E	25
117	432+100	432+125	TYPE-III-E	25
118	432+125	432+150	TYPE-I-B	25
119	432+150	432+175	TYPE-I-A	16
120	432+175	432+200	TYPE-I-A	25
121	432+200	432+225	TYPE-II	25
122	432+225	432+250	TYPE-II	25
123	432+250	432+275	TYPE-IV	25
124	432+275	432+300	TYPE-IV	25
125	432+300	432+325	TYPE-IV	25
126	432+325	432+350	TYPE-II	25
127	432+350	432+375	TYPE-II	16
128	432+375	432+400	TYPE-II	25
129	432+400	432+425	TYPE-II	25
130	432+425	432+450	TYPE-II-B	25
131	432+450	432+475	TYPE-II-B	25
132	432+475	432+500	TYPE-II-B	25
133	432+500	432+525	TYPE-II-B	14
134	432+525	432+550	TYPE-II-B	25
135	432+550	432+575	TYPE-II-B	25
136	432+575	432+600	TYPE-I-A	25
137	432+600	432+625	TYPE-I-A	25
138	432+625	432+650	TYPE-I-A	25
139	432+650	432+675	TYPE-I-A	25
140	432+675	432+700	TYPE-I-A	14
141	432+700	432+725	TYPE-III-A	25
142	432+725	432+750	TYPE-III-A	25
143	432+750	432+775	TYPE-I-B	25
144	432+775	432+800	TYPE-I-B	14
145	432+800	432+825	TYPE-I-B	25
146	432+825	432+850	TYPE-I-A	25

S. No.	Design Chainage (m)		TCS Type	Length (m)
	From	To		
147	432+850	432+875	TYPE-III-A	25
148	432+875	432+900	TYPE-III-A	25
149	432+900	432+925	TYPE-I-B	25
150	432+925	432+950	TYPE-I-B	14
151	432+950	432+975	TYPE-I-B	25
152	432+975	433+000	TYPE-I-B	25
153	433+000	433+025	TYPE-I	25
154	433+025	433+050	TYPE-I	25
155	433+050	433+075	TYPE-II	25
156	433+075	433+100	TYPE-II	25
157	433+100	433+125	TYPE-II	25
158	433+125	433+150	TYPE-II	25
159	433+150	433+175	TYPE-II	25
160	433+175	433+200	TYPE-II	14
161	433+200	433+225	TYPE-II	25
162	433+225	433+250	TYPE-II-B	25
163	433+250	433+275	TYPE-II	25
164	433+275	433+300	TYPE-II	25
165	433+300	433+325	TYPE-II	25
166	433+325	433+350	TYPE-II	25
167	433+350	433+375	TYPE-II	14
168	433+375	433+400	TYPE-II	25
169	433+400	433+425	TYPE-I-A	25
170	433+425	433+450	TYPE-I-A	25
171	433+450	433+475	TYPE-I-A	25
172	433+475	433+500	TYPE-I-A	25
173	433+500	433+525	TYPE-I-A	25
174	433+525	433+550	TYPE-I-A	25
175	433+550	433+575	TYPE-I-A	25
176	433+575	433+600	TYPE-I-A	14
177	433+600	433+625	TYPE-I-A	25
178	433+625	433+650	TYPE-I-B	25
179	433+650	433+675	TYPE-I-A	25
180	433+675	433+700	TYPE-I-A	25
181	433+700	433+725	TYPE-I-A	25
182	433+725	433+750	TYPE-I-A	25
183	433+750	433+775	TYPE-I-A	25
184	433+775	433+800	TYPE-I-A	25
185	433+800	433+825	TYPE-I-B	25
186	433+825	433+850	TYPE-I-B	25
187	433+850	433+875	TYPE-I-A	14
188	433+875	433+900	TYPE-I-A	25

S. No.	Design Chainage (m)		TCS Type	Length (m)
	From	To		
189	433+900	433+925	TYPE-I-A	25
190	433+925	433+950	TYPE-I-A	25
191	433+950	433+975	TYPE-I-A	25
192	433+975	434+000	TYPE-I-A	25
193	434+000	434+025	TYPE-I-A	14
194	434+025	434+050	TYPE-I	25
195	434+050	434+075	TYPE-I	25
196	434+075	434+100	TYPE-I	25
197	434+100	434+125	TYPE-I	25
198	434+125	434+150	TYPE-I-A	25
199	434+150	434+175	TYPE-I-A	14
200	434+175	434+200	TYPE-I-A	25
201	434+200	434+225	TYPE-I-A	25
202	434+225	434+250	TYPE-I-A	25
203	434+250	434+275	TYPE-I-A	25
204	434+275	434+300	TYPE-I-A	25
205	434+300	434+325	TYPE-I-A	25
206	434+325	434+350	TYPE-I-A	25
207	434+350	434+375	TYPE-I-A	25
208	434+375	434+400	TYPE-I-A	14
209	434+400	434+425	TYPE-I-A	25
210	434+425	434+450	TYPE-I	25
211	434+450	434+475	TYPE-I	25
212	435+500	435+525	TYPE-II	14
213	435+525	435+550	TYPE-II	25
214	435+550	435+575	TYPE-II-B	25
215	435+575	435+600	TYPE-IV-B	25
216	435+600	435+625	TYPE-II-B	25
217	435+625	435+650	TYPE-II-B	16
218	435+650	435+675	TYPE-II-B	25
219	435+675	435+700	TYPE-II-B	25
220	435+700	435+725	TYPE-II-B	25
221	435+725	435+750	TYPE-II	25
222	435+750	435+775	TYPE-II	25
223	435+775	435+800	TYPE-II	25
224	435+800	435+825	TYPE-II	25
225	435+825	435+850	TYPE-II	25
226	435+850	435+875	TYPE-II-B	25
227	435+875	435+900	TYPE-II-D	25
228	435+900	435+925	TYPE-II-D	25
229	435+925	435+950	TYPE-II-B	25
230	435+950	435+975	TYPE-II	25

S. No.	Design Chainage (m)		TCS Type	Length (m)
	From	To		
231	435+975	436+000	TYPE-II	25
232	436+000	436+025	TYPE-II-B	14
233	436+025	436+050	TYPE-II-B	25
234	436+050	436+075	TYPE-II-D	25
235	436+075	436+100	TYPE-II-D	25
236	436+100	436+125	TYPE-II-D	25
237	436+125	436+150	TYPE-II-D	25
238	436+150	436+175	TYPE-II-D	14
239	436+175	436+200	TYPE-II-B	25
240	436+200	436+225	TYPE-I-A	25
241	436+225	436+250	TYPE-I-B	25
242	436+250	436+275	TYPE-I-B	25
243	436+275	436+300	TYPE-I-B	25
244	436+300	436+325	TYPE-I-B	25
245	436+325	436+350	TYPE-I-B	25
246	436+350	436+375	TYPE-I-A	14
247	436+375	436+400	TYPE-I-A	25
248	436+400	436+425	TYPE-I-A	25
249	436+425	436+450	TYPE-I-A	25
250	436+450	436+475	TYPE-I-A	25
251	436+475	436+500	TYPE-I-A	25
252	436+500	436+525	TYPE-I-A	14
253	436+525	436+550	TYPE-I-A	25
254	436+550	436+575	TYPE-I-A	25
255	436+575	436+600	TYPE-I-A	25
256	436+600	436+625	TYPE-I-A	25
257	436+625	436+650	TYPE-I-B	25
258	436+650	436+675	TYPE-II-B	25
259	436+825	436+850	TYPE-II	25
260	436+850	436+875	TYPE-II	25
261	436+875	436+900	TYPE-II	25
262	436+900	436+925	TYPE-I-A	16
263	436+925	436+950	TYPE-I-A	25
264	436+950	436+975	TYPE-I-A	25
265	436+975	437+000	TYPE-I-A	25
266	437+000	437+025	TYPE-I-A	25
267	437+025	437+050	TYPE-I-A	25
268	437+050	437+075	TYPE-I-A	25
269	437+075	437+100	TYPE-I-B	25
270	437+100	437+125	TYPE-I-B	25
271	437+125	437+150	TYPE-I-A	14
272	437+150	437+175	TYPE-I	25

S. No.	Design Chainage (m)		TCS Type	Length (m)
	From	To		
273	437+575	437+600	TYPE-I	25
274	437+600	437+625	TYPE-I	25
275	437+625	437+650	TYPE-I	25
276	437+650	437+675	TYPE-I-A	25
277	437+675	437+700	TYPE-I-A	16
278	437+700	437+725	TYPE-I-A	25
279	437+725	437+750	TYPE-I-A	25
280	437+750	437+775	TYPE-I-A	25
281	437+775	437+800	TYPE-I-A	25
282	437+800	437+825	TYPE-I-A	25
283	437+825	437+850	TYPE-I-A	25
284	438+650	438+675	TYPE-I	25
285	438+675	438+700	TYPE-I-A	25
286	438+700	438+725	TYPE-I-A	16
287	438+725	438+750	TYPE-I	25
288	438+750	438+775	TYPE-I	25
289	438+775	438+800	TYPE-I-A	25
290	438+800	438+825	TYPE-I	25
291	438+825	438+850	TYPE-I-A	25
292	438+850	438+875	TYPE-I-A	25
293	438+875	438+900	TYPE-I-A	25
294	438+900	438+925	TYPE-I-A	25
295	438+925	438+950	TYPE-I-A	25
296	438+950	438+975	TYPE-I-A	25
297	438+975	439+000	TYPE-I-A	16
298	439+000	439+025	TYPE-I-A	25
299	439+025	439+050	TYPE-I-B	25
300	439+050	439+075	TYPE-I-B	25
301	439+075	439+100	TYPE-I-A	25
302	439+100	439+125	TYPE-I-A	25
303	439+125	439+150	TYPE-I-A	25
304	439+150	439+175	TYPE-I-A	25
305	439+175	439+200	TYPE-II	16
306	439+200	439+225	TYPE-II	25
307	439+225	439+250	TYPE-I-A	25
308	439+250	439+275	TYPE-I-A	16
309	439+275	439+300	TYPE-I-A	25
310	439+300	439+325	TYPE-I-A	25
311	439+325	439+350	TYPE-I-A	16
312	439+350	439+375	TYPE-I-A	25
313	439+375	439+400	TYPE-I-A	25
314	439+400	439+425	TYPE-I-A	25

S. No.	Design Chainage (m)		TCS Type	Length (m)
	From	To		
315	439+425	439+450	TYPE-I-A	25
316	439+450	439+475	TYPE-I-A	14
317	439+475	439+500	TYPE-I-A	25
318	439+500	439+525	TYPE-III-A	25
319	439+525	439+550	TYPE-III-A	25
320	439+550	439+575	TYPE-I	25
321	439+575	439+600	TYPE-I	25
322	439+800	439+825	TYPE-I-A	25
323	439+825	439+850	TYPE-I-B	25
324	439+850	439+875	TYPE-I-B	25
325	439+875	439+900	TYPE-I-B	25
326	439+900	439+925	TYPE-I-B	25
327	439+925	439+950	TYPE-I-B	16
328	439+950	439+975	TYPE-I-B	16
329	439+975	440+000	TYPE-I-B	25
330	440+000	440+025	TYPE-I-B	25
331	440+025	440+050	TYPE-I-B	25
332	440+050	440+075	TYPE-I-B	25
333	440+075	440+100	TYPE-I-B	25
334	440+125	440+150	TYPE-I-B	25
335	440+150	440+175	TYPE-I-A	25
336	440+175	440+200	TYPE-I-A	25
337	440+200	440+225	TYPE-I-A	25
338	440+225	440+250	TYPE-I-A	25
339	440+250	440+275	TYPE-I-A	16
340	440+275	440+300	TYPE-I-A	25
341	440+300	440+325	TYPE-I-A	25
342	440+325	440+350	TYPE-I-A	25
343	440+350	440+375	TYPE-I-A	25
344	440+375	440+400	TYPE-I-A	25
345	440+400	440+425	TYPE-I-A	25
346	440+425	440+450	TYPE-I-A	25
347	440+450	440+475	TYPE-I-A	25
348	440+475	440+500	TYPE-I-A	25
349	440+500	440+525	TYPE-I-A	25
350	440+525	440+550	TYPE-I-A	25
351	440+550	440+575	TYPE-I-B	25
352	440+575	440+600	TYPE-I-B	25
353	440+600	440+625	TYPE-I-B	25
354	440+625	440+650	TYPE-I-B	25
355	440+650	440+675	TYPE-I-B	25
356	440+675	440+700	TYPE-I	25

S. No.	Design Chainage (m)		TCS Type	Length (m)
	From	To		
357	440+700	440+725	TYPE-I	25
358	440+725	440+750	TYPE-I-B	25
359	440+750	440+775	TYPE-I-B	25
360	440+775	440+800	TYPE-III-B	25
361	440+800	440+825	TYPE-III-B	25
362	440+825	440+850	TYPE-III-B	16
363	440+850	440+875	TYPE-I-B	25
364	440+875	440+900	TYPE-I-B	25
365	440+900	440+925	TYPE-I-B	25
366	440+925	440+950	TYPE-I	25
367	440+950	440+975	TYPE-I	25
368	440+975	441+000	TYPE-I	25
369	441+450	441+475	TYPE-I-B	25
370	441+475	441+500	TYPE-I-B	25
371	441+500	441+525	TYPE-I-B	25
372	441+525	441+550	TYPE-I-B	25
373	441+550	441+575	TYPE-I-B	25
374	441+575	441+600	TYPE-I-A	16
375	441+600	441+625	TYPE-I-A	25
376	441+625	441+650	TYPE-I-B	25
377	441+650	441+675	TYPE-I-B	25
378	441+675	441+700	TYPE-I-B	25
379	441+700	441+725	TYPE-I-B	25
380	441+725	441+750	TYPE-I-B	25
381	441+750	441+775	TYPE-I	25
382	441+775	441+800	TYPE-I	25
383	441+800	441+825	TYPE-III-C	25
384	441+825	441+850	TYPE-III-B	14
385	441+850	441+875	TYPE-I	25
386	441+875	441+900	TYPE-I	14
387	444+500	444+525	TYPE-I-B	16
388	444+525	444+550	TYPE-III-B	25
389	444+550	444+575	TYPE-III-A	25
390	444+575	444+600	TYPE-III-A	25
391	444+600	444+625	TYPE-III-E	25
392	444+625	444+650	TYPE-III-E	25
393	444+650	444+675	TYPE-III-A	25
394	444+675	444+700	TYPE-I-A	25
395	444+700	444+725	TYPE-I	16
396	444+725	444+750	TYPE-I	25
397	444+750	444+775	TYPE-I-A	25
398	444+775	444+800	TYPE-I-A	25

S. No.	Design Chainage (m)		TCS Type	Length (m)
	From	To		
399	444+800	444+825	TYPE-II	25
400	444+825	444+850	TYPE-II	25
401	444+850	444+875	TYPE-II	25
402	444+875	444+900	TYPE-II	16
403	444+900	444+925	TYPE-II	25
404	444+925	444+950	TYPE-II	25
405	444+950	444+975	TYPE-II-B	25
406	444+975	445+000	TYPE-II-B	25
407	445+000	445+025	TYPE-II-B	25
408	445+025	445+050	TYPE-II-B	25
409	445+050	445+075	TYPE-II-B	25
410	445+075	445+100	TYPE-II-B	25
411	445+100	445+125	TYPE-II	25
412	445+125	445+150	TYPE-II-B	25
413	445+150	445+175	TYPE-IV-C	25
414	445+175	445+200	TYPE-IV-C	16
415	445+200	445+225	TYPE-II-B	25
416	445+225	445+250	TYPE-II	25
417	445+250	445+275	TYPE-II	25
418	445+275	445+300	TYPE-II-B	25
419	445+300	445+325	TYPE-II-B	25
420	445+325	445+350	TYPE-II-B	25
421	445+350	445+375	TYPE-II-B	25
422	445+375	445+400	TYPE-II-B	25
423	445+400	445+425	TYPE-II-A	16
424	445+425	445+450	TYPE-II-A	25
425	445+450	445+475	TYPE-II-A	25
426	445+475	445+500	TYPE-II-A	25
427	445+500	445+525	TYPE-II-A	25
428	445+525	445+550	TYPE-II-A	25
429	445+550	445+575	TYPE-II-A	25
430	445+575	445+600	TYPE-II-A	25
431	445+600	445+625	TYPE-II	25
432	445+625	445+650	TYPE-II	25
433	445+650	445+675	TYPE-II	14
434	445+675	445+700	TYPE-II	25
435	445+700	445+725	TYPE-II-B	25
436	445+725	445+750	TYPE-II-B	25
437	445+750	445+775	TYPE-II	25
438	445+775	445+800	TYPE-II	25
439	445+800	445+825	TYPE-II	25
440	445+825	445+850	TYPE-II	25

S. No.	Design Chainage (m)		TCS Type	Length (m)
	From	To		
441	445+850	445+875	TYPE-II	14
442	445+875	445+900	TYPE-II	25
443	445+900	445+925	TYPE-II	25
444	445+925	445+950	TYPE-II	25
445	445+950	445+975	TYPE-II	25
446	445+975	446+000	TYPE-II	25
447	446+000	446+025	TYPE-II	25
448	446+025	446+050	TYPE-II	25
449	446+050	446+075	TYPE-II-B	14
450	446+075	446+100	TYPE-IV-B	25
451	446+100	446+125	TYPE-IV	25
452	446+125	446+150	TYPE-IV	25
453	446+150	446+175	TYPE-II	25
454	446+175	446+200	TYPE-II	25
455	446+200	446+225	TYPE-I	25
456	446+225	446+250	TYPE-I	14
457	446+250	446+275	TYPE-I	25
458	446+275	446+300	TYPE-I	25
459	446+300	446+325	TYPE-I	25
460	446+325	446+350	TYPE-I	25
461	446+350	446+375	TYPE-I-A	25
462	446+375	446+400	TYPE-I-A	25
463	446+400	446+425	TYPE-I-A	25
464	446+425	446+450	TYPE-I-A	25
465	446+450	446+475	TYPE-I-B	25
466	446+475	446+500	TYPE-I-B	25
467	446+500	446+525	TYPE-I-C	25
468	446+525	446+550	TYPE-II-B	14
469	446+550	446+575	TYPE-IV-B	25
470	446+575	446+600	TYPE-IV	25
471	446+600	446+625	TYPE-I	25
472	446+625	446+650	TYPE-I-B	25
473	446+650	446+675	TYPE-I-B	25
474	446+675	446+700	TYPE-I-B	14
475	446+700	446+725	TYPE-I-B	25
476	446+725	446+750	TYPE-II	25
477	446+750	446+775	TYPE-II	25
478	446+775	446+800	TYPE-II	25
479	446+800	446+825	TYPE-II	25
480	446+825	446+850	TYPE-II	25
481	446+850	446+875	TYPE-II	25
482	446+875	446+900	TYPE-II	25

S. No.	Design Chainage (m)		TCS Type	Length (m)
	From	To		
483	446+900	446+925	TYPE-II-B	14
484	446+925	446+950	TYPE-II	25
485	446+950	446+975	TYPE-IV	25
486	446+975	447+000	TYPE-IV	25
487	447+000	447+025	TYPE-IV	25
488	447+025	447+050	TYPE-IV	14
489	447+050	447+075	TYPE-II	25
490	447+075	447+100	TYPE-II	25
491	447+100	447+125	TYPE-II	25
492	447+125	447+150	TYPE-II	25
493	447+150	447+175	TYPE-II	25
494	447+175	447+200	TYPE-II	25
495	447+200	447+225	TYPE-II-B	14
496	447+225	447+250	TYPE-I-C	25
497	447+250	447+275	TYPE-I	25
498	447+275	447+300	TYPE-I	25
499	447+300	447+325	TYPE-I	25
500	447+325	447+350	TYPE-I	25
501	447+350	447+375	TYPE-I	25
502	447+375	447+400	TYPE-II	25
503	447+400	447+425	TYPE-II	25
504	447+425	447+450	TYPE-I	14
505	447+450	447+475	TYPE-I	25
506	447+475	447+500	TYPE-I	25
507	447+500	447+525	TYPE-I	25
508	447+525	447+550	TYPE-I	25
509	447+550	447+575	TYPE-I	25
510	447+575	447+600	TYPE-I	25
511	447+600	447+625	TYPE-I	14
512	447+625	447+650	TYPE-I	25
513	447+650	447+675	TYPE-I	25
514	447+675	447+700	TYPE-I	25
515	447+700	447+725	TYPE-I	25
516	447+725	447+750	TYPE-I	25
517	447+750	447+775	TYPE-I	25
518	447+775	447+800	TYPE-I	25
519	447+800	447+825	TYPE-I	14
520	447+825	447+850	TYPE-I	25
521	447+850	447+875	TYPE-I	25
522	447+875	447+900	TYPE-I	25
523	447+900	447+925	TYPE-I	25
524	447+925	447+950	TYPE-I	25

S. No.	Design Chainage (m)		TCS Type	Length (m)
	From	To		
525	447+950	447+975	TYPE-I	25
526	447+975	448+000	TYPE-I	25
527	448+000	448+025	TYPE-I	25
528	448+025	448+050	TYPE-I	25
529	448+050	448+075	TYPE-I-B	14
530	448+075	448+100	TYPE-I	25
531	448+100	448+125	TYPE-I	25
532	448+125	448+150	TYPE-I	25
533	448+150	448+175	TYPE-I	25
534	448+175	448+200	TYPE-I	25
535	448+200	448+225	TYPE-I-B	25
536	448+225	448+250	TYPE-I-B	25
537	448+250	448+275	TYPE-I-B	25
538	448+275	448+300	TYPE-I-B	14
539	448+300	448+325	TYPE-I	25
540	448+325	448+350	TYPE-I	25
541	448+350	448+375	TYPE-I	25
542	448+375	448+400	TYPE-I	25
543	448+400	448+425	TYPE-I-B	14
544	448+425	448+450	TYPE-II-B	25
545	448+450	448+475	TYPE-II	25
546	448+475	448+500	TYPE-II	25
547	448+500	448+525	TYPE-II-B	25
548	448+525	448+550	TYPE-II-B	25
549	448+550	448+575	TYPE-II	25
550	448+575	448+600	TYPE-II	25
551	448+600	448+625	TYPE-II-B	14
552	448+625	448+650	TYPE-II-B	25
553	448+650	448+675	TYPE-II	25
554	448+675	448+700	TYPE-II	25
555	448+700	448+725	TYPE-I	25
556	448+725	448+750	TYPE-I	25
557	448+750	448+775	TYPE-I	14
558	448+775	448+800	TYPE-I	25
559	448+800	448+825	TYPE-I	25
560	448+825	448+850	TYPE-I-B	25
561	448+850	448+875	TYPE-I	14
562	448+875	448+900	TYPE-I	25
563	448+900	448+925	TYPE-I	25
564	448+925	448+950	TYPE-I	25
565	448+950	448+975	TYPE-I	14
566	448+975	449+000	TYPE-I	25

S. No.	Design Chainage (m)		TCS Type	Length (m)
	From	To		
567	449+000	449+025	TYPE-I-B	25
568	449+025	449+050	TYPE-I	25
569	449+050	449+075	TYPE-I	25
570	449+075	449+100	TYPE-I-A	25
571	449+100	449+125	TYPE-I-A	25
572	449+125	449+150	TYPE-I	25
573	449+200	449+225	TYPE-III-A	25
574	449+225	449+250	TYPE-III-A	25
575	449+250	449+275	TYPE-III-A	25
576	449+275	449+300	TYPE-III-A	25
577	449+300	449+325	TYPE-I-A	14
578	449+325	449+350	TYPE-I-A	25
579	449+350	449+375	TYPE-I-A	25
580	449+375	449+400	TYPE-I-A	25
581	449+400	449+425	TYPE-I	25
582	449+425	449+450	TYPE-I-B	25
583	449+450	449+475	TYPE-III-B	14
584	449+475	449+500	TYPE-III-B	25
585	449+500	449+525	TYPE-III-B	25
586	449+525	449+550	TYPE-III-B	25
587	449+550	449+575	TYPE-III-B	25
588	449+575	449+600	TYPE-III-B	25
589	449+600	449+625	TYPE-III-A	25
590	449+625	449+650	TYPE-III-A	25
591	449+650	449+675	TYPE-III-A	25
592	449+675	449+700	TYPE-III-A	25
593	449+700	449+725	TYPE-I	14
594	449+725	449+750	TYPE-I	25
595	449+750	449+775	TYPE-I	14
596	449+775	449+800	TYPE-I	25
597	449+800	449+825	TYPE-I	25
598	449+825	449+850	TYPE-I	25
599	449+850	449+875	TYPE-I	25
600	449+875	449+900	TYPE-I	14
601	449+900	449+925	TYPE-I	25
602	449+925	449+950	TYPE-I-A	25
603	449+950	449+975	TYPE-I-A	25
604	449+975	450+000	TYPE-III	25
605	450+000	450+025	TYPE-III-B	25
606	450+025	450+050	TYPE-III-B	25
607	450+050	450+075	TYPE-III-B	25
608	450+075	450+100	TYPE-III-B	16

S. No.	Design Chainage (m)		TCS Type	Length (m)
	From	To		
609	450+100	450+125	TYPE-III-A	25
610	450+125	450+150	TYPE-III-A	25
611	450+150	450+175	TYPE-III-A	25
612	450+175	450+200	TYPE-III-A	25
613	450+200	450+225	TYPE-III-A	25
614	450+225	450+250	TYPE-III-D	25
615	450+250	450+275	TYPE-III-D	14
616	450+275	450+300	TYPE-III-D	25
617	450+300	450+325	TYPE-III-D	25
618	450+325	450+350	TYPE-III-D	25
619	450+350	450+375	TYPE-III-D	25
620	450+375	450+400	TYPE-IV-A	25
621	450+400	450+425	TYPE-IV-A	25
622	450+425	450+450	TYPE-IV-A	25
623	450+450	450+475	TYPE-III-E	14
624	450+475	450+500	TYPE-III-B	25
625	450+500	450+525	TYPE-I	25
626	450+525	450+550	TYPE-I-A	25
627	450+550	450+575	TYPE-I-A	25
628	450+575	450+600	TYPE-I-A	25
629	450+600	450+625	TYPE-I-A	25
630	450+625	450+650	TYPE-I	25
631	450+650	450+675	TYPE-I-B	14
632	450+675	450+700	TYPE-I-B	25
633	450+700	450+725	TYPE-I-A	25
634	450+725	450+750	TYPE-I	25
635	450+750	450+775	TYPE-I	25
636	450+775	450+800	TYPE-I	25
637	450+800	450+825	TYPE-I-B	25
638	450+825	450+850	TYPE-I-B	14
639	450+850	450+875	TYPE-III-B	25
640	450+875	450+900	TYPE-III-B	25
641	450+900	450+925	TYPE-III	25
642	450+925	450+950	TYPE-III-B	14
643	450+950	450+975	TYPE-I-B	25
644	450+975	451+000	TYPE-I-B	25
645	451+000	451+025	TYPE-I-B	25
646	451+025	451+050	TYPE-I-B	25
647	451+050	451+075	TYPE-I-B	25
648	451+075	451+100	TYPE-I-B	25
649	451+100	451+125	TYPE-I-B	14
650	451+125	451+150	TYPE-I	25

S. No.	Design Chainage (m)		TCS Type	Length (m)
	From	To		
651	451+150	451+175	TYPE-I	25
652	451+175	451+200	TYPE-I	25
653	451+200	451+225	TYPE-I	25
654	451+225	451+250	TYPE-II	25
655	451+250	451+275	TYPE-II	25
656	451+275	451+300	TYPE-II	14
657	451+300	451+325	TYPE-II	25
658	451+325	451+350	TYPE-II	25
659	451+350	451+375	TYPE-II	25
660	451+375	451+400	TYPE-II	25
661	451+400	451+425	TYPE-I	25
662	451+425	451+450	TYPE-I	25
663	451+450	451+475	TYPE-I	14
664	451+475	451+500	TYPE-I	25
665	451+500	451+525	TYPE-I	25
666	451+525	451+550	TYPE-I	25
667	451+550	451+575	TYPE-I	25
668	451+575	451+600	TYPE-I	14
669	451+600	451+625	TYPE-I	25
670	451+625	451+650	TYPE-I	25
671	451+650	451+675	TYPE-I	25
672	451+675	451+700	TYPE-I	25
673	451+700	451+725	TYPE-I	25
674	451+725	451+750	TYPE-I-A	25
675	451+750	451+775	TYPE-I-A	25
676	451+775	451+800	TYPE-III-E	14
677	451+800	451+825	TYPE-III-E	25
678	451+825	451+850	TYPE-III-E	25
679	451+850	451+875	TYPE-III-A	25
680	451+875	451+900	TYPE-III-A	25
681	451+900	451+925	TYPE-III-A	25
682	452+075	452+100	TYPE-IV-B	25
683	452+100	452+125	TYPE-IV-A	25
684	452+125	452+150	TYPE-IV-A	25
685	452+150	452+175	TYPE-IV-A	25
686	452+175	452+200	TYPE-II-A	25
687	452+200	452+225	TYPE-II-A	25
688	452+225	452+250	TYPE-II-A	25
689	452+250	452+275	TYPE-II-A	25
690	452+275	452+300	TYPE-II-A	25
691	452+300	452+325	TYPE-I	25
692	452+325	452+350	TYPE-I	25

S. No.	Design Chainage (m)		TCS Type	Length (m)
	From	To		
693	452+350	452+375	TYPE-I	25
694	452+375	452+400	TYPE-I	25
695	452+400	452+425	TYPE-I-B	25
696	452+425	452+450	TYPE-I	25
697	452+450	452+475	TYPE-I	14
698	452+475	452+500	TYPE-I	25
699	452+500	452+525	TYPE-I	25
700	452+525	452+550	TYPE-I	14
701	452+550	452+575	TYPE-I	25
702	452+575	452+600	TYPE-I-B	25
703	452+600	452+625	TYPE-I-B	25
704	452+625	452+650	TYPE-I-B	25
705	452+650	452+675	TYPE-I-C	25
706	452+675	452+700	TYPE-I-C	14
707	452+700	452+725	TYPE-I	25
708	452+725	452+750	TYPE-I	25
709	452+750	452+775	TYPE-I	25
710	452+775	452+800	TYPE-I	25
711	452+800	452+825	TYPE-I	25
712	452+825	452+850	TYPE-I	25
713	452+850	452+875	TYPE-I	25
714	452+875	452+900	TYPE-I-B	25
715	452+900	452+925	TYPE-I-B	14
716	452+925	452+950	TYPE-I-B	25
717	452+950	452+975	TYPE-I-B	25
718	452+975	453+000	TYPE-I	25
719	453+000	453+025	TYPE-I-B	25
720	453+025	453+050	TYPE-I-B	25
721	453+050	453+075	TYPE-I	14
722	453+075	453+100	TYPE-III-B	25
723	453+100	453+125	TYPE-III-B	25
724	453+125	453+150	TYPE-III-B	25
725	453+150	453+175	TYPE-II	25
726	453+175	453+200	TYPE-II	25
727	453+200	453+225	TYPE-IV-B	25
728	453+225	453+250	TYPE-II-B	25
729	453+250	453+275	TYPE-II-B	14
730	453+275	453+300	TYPE-II-B	25
731	453+300	453+325	TYPE-II-B	25
732	453+325	453+350	TYPE-II	25
733	453+350	453+375	TYPE-II	25
734	453+375	453+400	TYPE-II	25

S. No.	Design Chainage (m)		TCS Type	Length (m)
	From	To		
735	453+400	453+425	TYPE-II	25
736	453+425	453+450	TYPE-II	14
737	453+450	453+475	TYPE-II	25
738	453+475	453+500	TYPE-II	25
739	453+500	453+525	TYPE-I	25
740	453+525	453+550	TYPE-I	25
741	453+550	453+575	TYPE-III-B	25
742	453+575	453+600	TYPE-III-B	25
743	453+600	453+625	TYPE-III-C	14
744	453+625	453+650	TYPE-III-B	25
745	453+650	453+675	TYPE-I	25
746	453+675	453+700	TYPE-I	25
747	453+700	453+725	TYPE-I	25
748	453+725	453+750	TYPE-I	25
749	453+750	453+775	TYPE-I	14
750	453+775	453+800	TYPE-I	25
751	453+800	453+825	TYPE-I-B	25
752	453+825	453+850	TYPE-I-B	25
753	453+850	453+875	TYPE-I-B	25
754	453+875	453+900	TYPE-I	14
755	453+900	453+925	TYPE-I	25
756	453+925	453+950	TYPE-I	25
757	453+950	453+975	TYPE-I	25
758	453+975	454+000	TYPE-I	25
759	454+000	454+025	TYPE-I	25
760	454+025	454+050	TYPE-I-A	25
761	454+050	454+075	TYPE-I-A	14
762	454+075	454+100	TYPE-III-A	25
763	454+100	454+125	TYPE-III-A	25
764	454+125	454+150	TYPE-III-A	25
765	454+150	454+175	TYPE-III-A	25
766	454+175	454+200	TYPE-III-A	25
767	454+200	454+225	TYPE-III-A	25
768	454+225	454+250	TYPE-I-B	25
769	454+250	454+275	TYPE-III	25
770	454+275	454+300	TYPE-III	25
771	454+300	454+325	TYPE-III	25
772	454+325	454+350	TYPE-III	25
773	454+350	454+375	TYPE-IV	25
774	454+375	454+400	TYPE-IV-C	25
775	454+400	454+425	TYPE-IV-C	12
776	454+425	454+450	TYPE-II	25

S. No.	Design Chainage (m)		TCS Type	Length (m)
	From	To		
777	454+450	454+475	TYPE-IV	25
778	454+475	454+500	TYPE-IV	25
779	454+500	454+525	TYPE-IV	25
780	454+525	454+550	TYPE-IV	25
781	454+550	454+575	TYPE-II	25
782	454+575	454+600	TYPE-II	25
783	454+600	454+625	TYPE-I-A	25
784	454+625	454+650	TYPE-I-A	25
785	454+650	454+675	TYPE-I-A	14
786	454+675	454+700	TYPE-II	25
787	454+700	454+725	TYPE-II	25
788	454+725	454+750	TYPE-II	25
789	454+750	454+775	TYPE-II	25
790	454+775	454+800	TYPE-II	25
791	454+800	454+825	TYPE-I-A	25
792	454+825	454+850	TYPE-I-A	25
793	454+850	454+875	TYPE-I-A	25
794	454+925	454+950	TYPE-III-B	25
795	454+950	454+975	TYPE-I-A	25
796	454+975	455+000	TYPE-I-A	25
797	455+000	455+025	TYPE-I-A	25
798	455+025	455+050	TYPE-I-A	25
799	455+050	455+075	TYPE-I	25
800	455+075	455+100	TYPE-I	25
801	455+100	455+125	TYPE-II	14
802	455+125	455+150	TYPE-II	25
803	455+150	455+175	TYPE-I-B	25
804	455+175	455+200	TYPE-I-B	25
805	455+200	455+225	TYPE-I-B	25
806	455+225	455+250	TYPE-I-A	14
807	455+250	455+275	TYPE-I	25
808	455+275	455+300	TYPE-I	25
809	455+300	455+325	TYPE-I	25
810	455+325	455+350	TYPE-I	25
811	455+350	455+375	TYPE-I-B	25
812	455+375	455+400	TYPE-II	25
813	455+400	455+425	TYPE-II	25
814	455+425	455+450	TYPE-II	25
815	455+450	455+475	TYPE-II	25
816	455+475	455+500	TYPE-II	12
817	455+500	455+525	TYPE-II	25
818	455+525	455+550	TYPE-II	25

S. No.	Design Chainage (m)		TCS Type	Length (m)
	From	To		
819	455+550	455+575	TYPE-II-A	25
820	455+575	455+600	TYPE-I-A	25
821	455+600	455+625	TYPE-I-A	25
822	455+625	455+650	TYPE-I-A	25
823	455+650	455+675	TYPE-I	25
824	455+675	455+700	TYPE-I	25
825	455+700	455+725	TYPE-I	25
826	455+725	455+750	TYPE-I	14
827	455+750	455+775	TYPE-I	25
828	455+775	455+800	TYPE-I	25
829	455+800	455+825	TYPE-I	25
830	455+825	455+850	TYPE-I	25
831	455+850	455+875	TYPE-I	25
832	455+875	455+900	TYPE-I	25
833	455+900	455+925	TYPE-II	25
834	455+925	455+950	TYPE-II	25
835	455+950	455+975	TYPE-II	14
836	455+975	456+000	TYPE-II	25
837	456+000	456+025	TYPE-II	25
838	456+025	456+050	TYPE-II	25
839	456+050	456+075	TYPE-II	25
840	456+075	456+100	TYPE-I-A	25
841	456+100	456+125	TYPE-I-A	25
842	456+125	456+150	TYPE-I	25
843	456+150	456+175	TYPE-I-B	25
844	456+175	456+200	TYPE-I-B	14
845	456+800	456+825	TYPE-II-B	25
846	456+825	456+850	TYPE-II-B	14
847	456+850	456+875	TYPE-I-B	25
848	456+875	456+900	TYPE-I-B	25
849	456+900	456+925	TYPE-I	25
850	456+925	456+950	TYPE-I	16
851	456+950	456+975	TYPE-I	25
852	456+975	457+000	TYPE-I	25
853	457+000	457+025	TYPE-I	25
854	457+025	457+050	TYPE-I-A	25
855	457+050	457+075	TYPE-I-A	25
856	457+075	457+100	TYPE-I	25
857	457+100	457+125	TYPE-I	25
858	457+125	457+150	TYPE-III-B	25
859	457+150	457+175	TYPE-III-D	14
860	457+175	457+200	TYPE-III-B	25

S. No.	Design Chainage (m)		TCS Type	Length (m)
	From	To		
861	457+200	457+225	TYPE-III-B	25
862	457+225	457+250	TYPE-III-B	25
863	457+250	457+275	TYPE-III-B	25
864	457+275	457+300	TYPE-I-B	25
865	457+300	457+325	TYPE-I-B	14
866	457+325	457+350	TYPE-I-B	25
867	457+350	457+375	TYPE-I-B	25
868	457+375	457+400	TYPE-I-B	25
869	457+400	457+425	TYPE-I-B	25
870	457+475	457+500	TYPE-II	25
871	457+500	457+525	TYPE-II-B	25
872	457+525	457+550	TYPE-II-B	25
873	457+550	457+575	TYPE-II	25
874	457+575	457+600	TYPE-II	25
875	457+600	457+625	TYPE-II	25
876	457+625	457+650	TYPE-II-B	25
877	457+650	457+675	TYPE-II-B	25
878	457+675	457+700	TYPE-II-B	25
879	457+700	457+725	TYPE-II-B	25
880	457+725	457+750	TYPE-II-B	25
881	457+750	457+775	TYPE-IV-B	14
882	457+775	457+800	TYPE-IV-B	25
883	457+800	457+825	TYPE-IV-B	25
884	457+825	457+850	TYPE-II-B	25
885	457+850	457+875	TYPE-II	25
886	457+875	457+900	TYPE-I-A	14
887	457+900	457+925	TYPE-I-A	25
888	457+925	457+950	TYPE-I-A	25
889	457+950	457+975	TYPE-I-A	25
890	457+975	458+000	TYPE-I-B	14
891	458+000	458+025	TYPE-I-B	25
892	458+025	458+050	TYPE-I-B	25
893	458+050	458+075	TYPE-I	25
894	458+075	458+100	TYPE-I-B	25
895	458+100	458+125	TYPE-I	14
896	458+125	458+150	TYPE-I-A	25
897	458+150	458+175	TYPE-III-A	25
898	458+175	458+200	TYPE-III-A	25
899	458+200	458+225	TYPE-III-A	25
900	458+225	458+250	TYPE-III-A	25
901	458+250	458+275	TYPE-III-A	25
902	458+275	458+300	TYPE-I-B	14

S. No.	Design Chainage (m)		TCS Type	Length (m)
	From	To		
903	458+300	458+325	TYPE-I-B	25
904	458+325	458+350	TYPE-I-A	25
905	458+350	458+375	TYPE-I-A	25
906	458+375	458+400	TYPE-I-A	25
907	458+400	458+425	TYPE-I-A	25
908	458+425	458+450	TYPE-I-A	25
909	458+450	458+475	TYPE-I-A	25
910	458+475	458+500	TYPE-I	25
911	458+500	458+525	TYPE-I-A	25
912	458+525	458+550	TYPE-I-A	25
913	458+550	458+575	TYPE-IV	25
914	458+575	458+600	TYPE-IV	25
915	458+600	458+625	TYPE-IV	25
916	458+625	458+650	TYPE-II	25
917	458+650	458+675	TYPE-II	25
918	458+675	458+700	TYPE-IV	25
919	458+700	458+725	TYPE-IV	25
920	458+725	458+750	TYPE-II	25
921	458+750	458+775	TYPE-I-B	14
922	458+775	458+800	TYPE-I-C	25
923	458+800	458+825	TYPE-I-B	25
924	458+825	458+850	TYPE-I-B	25
925	458+850	458+875	TYPE-I-B	25
926	458+875	458+900	TYPE-I-B	25
927	458+900	458+925	TYPE-I-B	25
928	458+925	458+950	TYPE-I-A	14
929	458+950	458+975	TYPE-I-A	25
930	458+975	459+000	TYPE-I-A	25
931	459+000	459+025	TYPE-I-B	25
932	459+025	459+050	TYPE-II	14
933	459+050	459+075	TYPE-II	25
934	459+075	459+100	TYPE-II-B	25
935	459+100	459+125	TYPE-II-B	25
936	459+125	459+150	TYPE-II	25
937	459+150	459+175	TYPE-II	25
938	459+175	459+200	TYPE-II	25
939	459+200	459+225	TYPE-II	25
940	459+225	459+250	TYPE-II	25
941	459+250	459+275	TYPE-II	25
942	459+275	459+300	TYPE-II	14
943	459+300	459+325	TYPE-II	25
944	459+325	459+350	TYPE-II	25

S. No.	Design Chainage (m)		TCS Type	Length (m)
	From	To		
945	459+350	459+375	TYPE-II	25
946	459+375	459+400	TYPE-II-B	25
947	459+400	459+425	TYPE-II	25
948	459+425	459+450	TYPE-II	25
949	459+450	459+475	TYPE-II	25
950	459+475	459+500	TYPE-II	25
951	459+500	459+525	TYPE-II	25
952	459+525	459+550	TYPE-II	14
953	459+550	459+575	TYPE-II	25
954	459+575	459+600	TYPE-II	25
955	459+600	459+625	TYPE-II	25
956	459+625	459+650	TYPE-II	25
957	459+650	459+675	TYPE-II	25
958	459+675	459+700	TYPE-II	14
959	459+700	459+725	TYPE-II	25
960	459+725	459+750	TYPE-II	25
961	459+750	459+775	TYPE-II	25
962	459+775	459+800	TYPE-II-B	25
963	459+800	459+825	TYPE-I-B	25
964	459+825	459+850	TYPE-I-B	25
965	459+850	459+875	TYPE-I-B	25
966	459+875	459+900	TYPE-I-C	25
967	459+900	459+925	TYPE-I-C	25
968	459+925	459+950	TYPE-I	14
969	459+950	459+975	TYPE-I	25
970	459+975	460+000	TYPE-III	25
971	460+000	460+025	TYPE-III	25
972	460+025	460+050	TYPE-III	25
973	460+050	460+075	TYPE-I-C	25
974	460+075	460+100	TYPE-I-C	14
975	460+100	460+125	TYPE-III-B	25
976	460+125	460+150	TYPE-III-B	25
977	460+150	460+175	TYPE-III-B	25
978	460+175	460+200	TYPE-III-B	14
979	460+200	460+225	TYPE-I-B	25
980	460+225	460+250	TYPE-I-B	25
981	460+250	460+275	TYPE-I-B	25
982	460+275	460+300	TYPE-I-A	25
983	460+300	460+325	TYPE-I	25
984	460+325	460+350	TYPE-I-B	16
985	460+350	460+375	TYPE-I-A	25
986	460+375	460+400	TYPE-I-A	25

S. No.	Design Chainage (m)		TCS Type	Length (m)
	From	To		
987	460+400	460+425	TYPE-I	25
988	460+425	460+450	TYPE-I	25
989	460+450	460+475	TYPE-I	25
990	460+475	460+500	TYPE-I	14
991	460+500	460+525	TYPE-I	25
992	460+525	460+550	TYPE-I-A	25
993	460+550	460+575	TYPE-I-A	25
994	460+575	460+600	TYPE-I-A	25
995	460+600	460+625	TYPE-I-A	25
996	460+625	460+650	TYPE-I-A	25
997	460+650	460+675	TYPE-I-A	25
998	460+675	460+700	TYPE-I-A	25
999	460+700	460+725	TYPE-I	14
1000	460+725	460+750	TYPE-I	25
1001	460+750	460+775	TYPE-I-A	25
1002	460+775	460+800	TYPE-I-A	25
1003	460+800	460+825	TYPE-I-A	25
1004	460+825	460+850	TYPE-I	25
1005	460+850	460+875	TYPE-I-B	25
1006	460+875	460+900	TYPE-I-B	25
1007	460+900	460+925	TYPE-I-C	25
1008	460+925	460+950	TYPE-I-C	16
1009	460+950	460+975	TYPE-I-C	25
1010	460+975	461+000	TYPE-I-B	25
1011	461+000	461+025	TYPE-II	25
1012	461+025	461+050	TYPE-II	25
1013	461+050	461+075	TYPE-I	14
1014	461+075	461+100	TYPE-I	25
1015	461+100	461+125	TYPE-I	25
1016	461+125	461+150	TYPE-I	25
1017	461+150	461+175	TYPE-I-B	25
1018	461+175	461+200	TYPE-I-A	25
1019	461+200	461+225	TYPE-I-A	25
1020	461+225	461+250	TYPE-I	25
1021	461+250	461+275	TYPE-II	14
1022	461+275	461+300	TYPE-II	25
1023	461+300	461+325	TYPE-II	25
1024	461+325	461+350	TYPE-II	25
1025	461+350	461+375	TYPE-II	25
1026	461+375	461+400	TYPE-II	25
1027	461+400	461+425	TYPE-II	25
1028	461+425	461+450	TYPE-II	16

S. No.	Design Chainage (m)		TCS Type	Length (m)
	From	To		
1029	461+450	461+475	TYPE-IV	25
1030	461+475	461+500	TYPE-IV	25
1031	461+500	461+525	TYPE-IV	25
1032	461+525	461+550	TYPE-II	25
1033	461+550	461+575	TYPE-II	25
1034	461+575	461+600	TYPE-II	25
1035	461+600	461+625	TYPE-II	25
1036	461+625	461+650	TYPE-II	25
1037	461+650	461+675	TYPE-II	16
1038	461+675	461+700	TYPE-II	25
1039	461+825	461+850	TYPE-II	25
1040	461+850	461+875	TYPE-II	12
1041	461+875	461+900	TYPE-II	25
1042	461+900	461+925	TYPE-II	25
1043	461+925	461+950	TYPE-II-B	25
1044	461+950	461+975	TYPE-II-B	25
1045	461+975	462+000	TYPE-II-B	25
1046	462+000	462+025	TYPE-II	25
1047	462+025	462+050	TYPE-II	25
1048	462+050	462+075	TYPE-II	25
1049	462+075	462+100	TYPE-II	25
1050	462+100	462+125	TYPE-II	25
1051	462+125	462+150	TYPE-II	25
1052	462+150	462+175	TYPE-II	25
1053	462+175	462+200	TYPE-II-B	14
1054	462+200	462+225	TYPE-II	25
1055	462+225	462+250	TYPE-IV	25
1056	462+250	462+275	TYPE-IV	25
1057	462+275	462+300	TYPE-IV-A	25
1058	462+300	462+325	TYPE-II	25
1059	462+325	462+350	TYPE-II-B	14
1060	462+350	462+375	TYPE-II	25
1061	462+375	462+400	TYPE-II	25
1062	462+400	462+425	TYPE-II	25
1063	462+425	462+450	TYPE-II	25
1064	462+450	462+475	TYPE-II-A	25
1065	462+475	462+500	TYPE-I	25
1066	462+500	462+525	TYPE-I	25
1067	462+525	462+550	TYPE-I-B	25
1068	462+550	462+575	TYPE-I	14
1069	462+575	462+600	TYPE-I	25
1070	462+600	462+625	TYPE-I	25

S. No.	Design Chainage (m)		TCS Type	Length (m)
	From	To		
1071	462+625	462+650	TYPE-II	25
1072	462+650	462+675	TYPE-II	25
1073	462+675	462+700	TYPE-II	25
1074	462+700	462+725	TYPE-II	25
1075	462+725	462+750	TYPE-II	25
1076	462+750	462+775	TYPE-II	25
1077	462+775	462+800	TYPE-II	25
1078	462+800	462+825	TYPE-II	14
1079	462+825	462+850	TYPE-II	25
1080	462+850	462+875	TYPE-II	25
1081	462+875	462+900	TYPE-II-A	25
1082	462+900	462+925	TYPE-II-A	25
1083	462+925	462+950	TYPE-II	25
1084	462+950	462+975	TYPE-II	14
1085	462+975	463+000	TYPE-II	25
1086	463+000	463+025	TYPE-II	25
1087	463+025	463+050	TYPE-II	25
1088	463+050	463+075	TYPE-II	25
1089	463+075	463+100	TYPE-IV	25
1090	463+100	463+125	TYPE-IV	25
1091	463+125	463+150	TYPE-II	25
1092	463+150	463+175	TYPE-II	14
1093	463+175	463+200	TYPE-II	25
1094	463+200	463+225	TYPE-II	25
1095	463+225	463+250	TYPE-II	25
1096	463+250	463+275	TYPE-II-B	25
1097	463+275	463+300	TYPE-II	25
1098	463+300	463+325	TYPE-II	25
1099	463+325	463+350	TYPE-I-B	25
1100	463+350	463+375	TYPE-I-A	25
1101	463+375	463+400	TYPE-I	25
1102	463+400	463+425	TYPE-I	25
1103	463+425	463+450	TYPE-I	25
1104	463+950	463+975	TYPE-I	25
1105	463+975	464+000	TYPE-I	12
1106	464+000	464+025	TYPE-I	25
1107	464+025	464+050	TYPE-I	25
1108	464+050	464+075	TYPE-I	25
1109	464+075	464+100	TYPE-I	25
1110	464+100	464+125	TYPE-I	25
1111	464+125	464+150	TYPE-I	25
1112	464+150	464+175	TYPE-I	25

S. No.	Design Chainage (m)		TCS Type	Length (m)
	From	To		
1113	464+175	464+200	TYPE-I	25
1114	464+200	464+225	TYPE-I	25
1115	464+225	464+250	TYPE-I	25
1116	464+250	464+275	TYPE-I	25
1117	464+275	464+300	TYPE-I	25
1118	464+300	464+325	TYPE-I-A	25
1119	464+325	464+350	TYPE-I	25
1120	464+450	464+475	TYPE-II	25
1121	464+475	464+500	TYPE-II-B	14
1122	464+500	464+525	TYPE-II-B	25
1123	464+525	464+550	TYPE-II	25
1124	464+550	464+575	TYPE-II	14
1125	464+575	464+600	TYPE-II	25
1126	464+600	464+625	TYPE-II	25
1127	464+625	464+650	TYPE-II	25
1128	464+650	464+675	TYPE-II	25
1129	464+675	464+700	TYPE-II	25
1130	464+700	464+725	TYPE-II	25
1131	464+725	464+750	TYPE-I	14
1132	464+750	464+775	TYPE-I-B	25
1133	464+775	464+800	TYPE-I	25
1134	464+800	464+825	TYPE-I-B	25
1135	464+825	464+850	TYPE-I-B	25
1136	464+850	464+875	TYPE-I	25
1137	464+875	464+900	TYPE-I-A	25
1138	464+950	464+975	TYPE-I	16
1139	464+975	465+000	TYPE-I-A	25
1140	465+000	465+025	TYPE-I	25
1141	465+025	465+050	TYPE-I	25
1142	465+050	465+075	TYPE-I	25
1143	465+075	465+100	TYPE-I	25
1144	465+100	465+125	TYPE-I	25
1145	465+125	465+150	TYPE-I	25

7.9 Protection Work

Breast Wall have been proposed along the roadway edge on the hilly side of the section of project road where cutting is required or cutting is more than available ROW. In hilly sections, breast Wall of RCC/RE shall be provided.

Breast wall and Retaining wall shall be provided in accordance with the Manual of Specifications and Standards as referred in Schedule-D.

Retaining wall shall be proposed to be installed in sections of the project road having filling embankment RCC retaining wall shall be proposed for filling upto 4m and for filling requiring more than 4m of heights RE wall shall be proposed.

(a) Retaining Wall

S. No.	Design Chainage (km)		TCS Type	Height of Protection (m)	Length of Protection Work (m)
	From	To			
1	427+900	427+925	TYPE-V-C	2	25
2	427+925	427+950	TYPE-V-B	3	25
3	428+425	428+450	TYPE-I-B	4	25
4	428+475	428+500	TYPE-IV-D	1	25
5	428+500	428+525	TYPE-IV-D	1	25
6	428+525	428+550	TYPE-IV-D	2	25
7	428+550	428+575	TYPE-IV-D	2	14
8	428+575	428+600	TYPE-II-C	2	25
9	428+600	428+625	TYPE-II-C	3	25
10	428+675	428+700	TYPE-II-B	4	25
11	428+700	428+725	TYPE-II-B	2	25
12	428+750	428+775	TYPE-II-B	1	14
13	428+775	428+800	TYPE-II-B	2	25
14	428+800	428+825	TYPE-II-B	2	25
15	428+825	428+850	TYPE-II-B	1	25
16	428+950	428+975	TYPE-III-A	1	25
17	428+975	429+000	TYPE-I-B	2	25
18	429+000	429+025	TYPE-I-B	1	25
19	429+025	429+050	TYPE-I-B	2	25
20	429+050	429+075	TYPE-I-B	2	16
21	429+175	429+200	TYPE-I-B	1	25
22	429+225	429+250	TYPE-I-B	1	25
23	429+300	429+325	TYPE-I-B	2	25
24	429+325	429+350	TYPE-I-B	2	16
25	429+450	429+475	TYPE-II-B	1	25
26	429+475	429+500	TYPE-II-B	2	25
27	429+500	429+525	TYPE-V-C	2	25
28	429+675	429+700	TYPE-V-C	2	25
29	429+700	429+725	TYPE-V-B	1	25
30	429+825	429+850	TYPE-V-B	1	25
31	429+850	429+875	TYPE-V-B	1	25

S. No.	Design Chainage (km)		TCS Type	Height of Protection (m)	Length of Protection Work (m)
	From	To			
32	429+875	429+900	TYPE-V-B	3	25
33	429+900	429+925	TYPE-V-B	3	25
34	429+925	429+950	TYPE-V-B	2	25
35	429+975	430+000	TYPE-V-C	1	25
36	430+000	430+025	TYPE-I-B	2	16
37	430+025	430+050	TYPE-I-B	3	25
38	430+050	430+075	TYPE-I-B	3	25
39	430+075	430+100	TYPE-I-B	2	25
40	430+100	430+125	TYPE-I-B	2	25
41	430+125	430+150	TYPE-I-B	2	25
42	430+150	430+175	TYPE-I-B	1	25
43	430+250	430+275	TYPE-I-B	2	25
44	430+275	430+300	TYPE-I-B	2	25
45	430+475	430+500	TYPE-I-B	1	25
46	430+500	430+525	TYPE-I-B	2	25
47	430+525	430+550	TYPE-I-B	1	16
48	430+550	430+575	TYPE-I-B	1	25
49	430+575	430+600	TYPE-I-B	1	25
50	430+600	430+625	TYPE-III-A	1	25
51	430+975	431+000	TYPE-V-B	1	25
52	431+000	431+025	TYPE-V-B	3	25
53	431+025	431+050	TYPE-V-B	3	25
54	431+050	431+075	TYPE-V-B	3	25
55	431+075	431+100	TYPE-V-B	2	25
56	431+825	431+850	TYPE-III-B	3	25
57	431+875	431+900	TYPE-II-B	3	25
58	432+125	432+150	TYPE-I-B	1	25
59	432+425	432+450	TYPE-II-B	1	25
60	432+450	432+475	TYPE-II-B	2	25
61	432+475	432+500	TYPE-II-B	2	25
62	432+500	432+525	TYPE-II-B	4	14
63	432+525	432+550	TYPE-II-B	1	25
64	432+550	432+575	TYPE-II-B	1	25
65	432+725	432+750	TYPE-III-A	1	25
66	432+750	432+775	TYPE-I-B	2	25
67	432+775	432+800	TYPE-I-B	2	14
68	432+800	432+825	TYPE-I-B	2	25
69	432+900	432+925	TYPE-I-B	1	25
70	432+925	432+950	TYPE-I-B	1	14
71	432+950	432+975	TYPE-I-B	1	25
72	432+975	433+000	TYPE-I-B	2	25
73	433+175	433+200	TYPE-II	1	14

S. No.	Design Chainage (km)		TCS Type	Height of Protection (m)	Length of Protection Work (m)
	From	To			
74	433+225	433+250	TYPE-II-B	2	25
75	433+625	433+650	TYPE-I-B	2	25
76	433+800	433+825	TYPE-I-B	2	25
77	433+825	433+850	TYPE-I-B	2	25
78	434+725	434+750	TYPE-V-B	3	14
79	434+850	434+875	TYPE-V-B	3	25
80	435+075	435+100	TYPE-V-B	4	25
81	435+100	435+125	TYPE-V-B	4	14
82	435+250	435+275	TYPE-V-C	2	14
83	435+275	435+300	TYPE-V-C	2	25
84	435+300	435+325	TYPE-V-C	2	25
85	435+550	435+575	TYPE-II-B	2	25
86	435+575	435+600	TYPE-IV-B	2	25
87	435+600	435+625	TYPE-II-B	2	25
88	435+625	435+650	TYPE-II-B	2	16
89	435+650	435+675	TYPE-II-B	2	25
90	435+675	435+700	TYPE-II-B	2	25
91	435+700	435+725	TYPE-II-B	2	25
92	435+850	435+875	TYPE-II-B	2	25
93	435+925	435+950	TYPE-II-B	2	25
94	436+000	436+025	TYPE-II-B	2	14
95	436+025	436+050	TYPE-II-B	3	25
96	436+175	436+200	TYPE-II-B	2	25
97	436+225	436+250	TYPE-I-B	2	25
98	436+250	436+275	TYPE-I-B	2	25
99	436+275	436+300	TYPE-I-B	2	25
100	436+300	436+325	TYPE-I-B	2	25
101	436+325	436+350	TYPE-I-B	2	25
102	436+625	436+650	TYPE-I-B	2	25
103	436+650	436+675	TYPE-II-B	2	25
104	437+075	437+100	TYPE-I-B	2	25
105	437+100	437+125	TYPE-I-B	2	25
106	437+325	437+350	TYPE-V-C	2	25
107	437+350	437+375	TYPE-V-C	2	25
108	438+250	438+275	TYPE-V-B	4	25
109	438+275	438+300	TYPE-V-C	4	25
110	438+300	438+325	TYPE-V-C	2	12
111	438+325	438+350	TYPE-V-B	2	25
112	438+350	438+375	TYPE-V-B	2	25
113	438+375	438+400	TYPE-V-B	2	25
114	439+025	439+050	TYPE-I-B	3	25
115	439+050	439+075	TYPE-I-B	3	25

S. No.	Design Chainage (km)		TCS Type	Height of Protection (m)	Length of Protection Work (m)
	From	To			
116	439+675	439+700	TYPE-V-B	2	25
117	439+825	439+850	TYPE-I-B	2	25
118	439+850	439+875	TYPE-I-B	3	25
119	439+875	439+900	TYPE-I-B	2	25
120	439+900	439+925	TYPE-I-B	2	25
121	439+925	439+950	TYPE-I-B	2	16
122	439+950	439+975	TYPE-I-B	2	16
123	439+975	440+000	TYPE-I-B	2	25
124	440+000	440+025	TYPE-I-B	2	25
125	440+025	440+050	TYPE-I-B	2	25
126	440+050	440+075	TYPE-I-B	2	25
127	440+075	440+100	TYPE-I-B	2	25
128	440+125	440+150	TYPE-I-B	2	25
129	440+550	440+575	TYPE-I-B	2	25
130	440+575	440+600	TYPE-I-B	2	25
131	440+600	440+625	TYPE-I-B	2	25
132	440+625	440+650	TYPE-I-B	2	25
133	440+650	440+675	TYPE-I-B	2	25
134	440+725	440+750	TYPE-I-B	4	25
135	440+750	440+775	TYPE-I-B	4	25
136	440+775	440+800	TYPE-III-B	3	25
137	440+800	440+825	TYPE-III-B	3	25
138	440+825	440+850	TYPE-III-B	2	16
139	440+850	440+875	TYPE-I-B	3	25
140	440+875	440+900	TYPE-I-B	3	25
141	440+900	440+925	TYPE-I-B	2	25
142	441+050	441+075	TYPE-V-B	2	25
143	441+075	441+100	TYPE-V-B	2	25
144	441+100	441+125	TYPE-V-B	2	25
145	441+450	441+475	TYPE-I-B	2	25
146	441+475	441+500	TYPE-I-B	2	25
147	441+500	441+525	TYPE-I-B	2	25
148	441+525	441+550	TYPE-I-B	2	25
149	441+550	441+575	TYPE-I-B	2	25
150	441+625	441+650	TYPE-I-B	2	25
151	441+650	441+675	TYPE-I-B	2	25
152	441+675	441+700	TYPE-I-B	2	25
153	441+700	441+725	TYPE-I-B	2	25
154	441+725	441+750	TYPE-I-B	2	25
155	441+800	441+825	TYPE-III-C	4	25
156	441+825	441+850	TYPE-III-B	4	14
157	442+975	443+000	TYPE-V-C	2	25

S. No.	Design Chainage (km)		TCS Type	Height of Protection (m)	Length of Protection Work (m)
	From	To			
158	443+000	443+025	TYPE-V-B	3	14
159	443+025	443+050	TYPE-V-B	4	25
160	443+125	443+150	TYPE-V-B	2	25
161	443+200	443+225	TYPE-V-B	2	25
162	443+250	443+275	TYPE-V-B	2	25
163	443+275	443+300	TYPE-V-B	2	25
164	443+300	443+325	TYPE-V-B	2	25
165	444+500	444+525	TYPE-I-B	2	16
166	444+525	444+550	TYPE-III-B	2	25
167	444+950	444+975	TYPE-II-B	2	25
168	444+975	445+000	TYPE-II-B	2	25
169	445+000	445+025	TYPE-II-B	2	25
170	445+025	445+050	TYPE-II-B	2	25
171	445+050	445+075	TYPE-II-B	2	25
172	445+075	445+100	TYPE-II-B	2	25
173	445+125	445+150	TYPE-II-B	2	25
174	445+150	445+175	TYPE-IV-C	4	25
175	445+175	445+200	TYPE-IV-C	4	16
176	445+200	445+225	TYPE-II-B	3	25
177	445+275	445+300	TYPE-II-B	2	25
178	445+300	445+325	TYPE-II-B	2	25
179	445+325	445+350	TYPE-II-B	2	25
180	445+350	445+375	TYPE-II-B	2	25
181	445+375	445+400	TYPE-II-B	2	25
182	445+700	445+725	TYPE-II-B	2	25
183	445+725	445+750	TYPE-II-B	3	25
184	446+050	446+075	TYPE-II-B	2	14
185	446+075	446+100	TYPE-IV-B	2	25
186	446+450	446+475	TYPE-I-B	3	25
187	446+475	446+500	TYPE-I-B	3	25
188	446+500	446+525	TYPE-I-C	4	25
189	446+525	446+550	TYPE-II-B	3	14
190	446+550	446+575	TYPE-IV-B	2	25
191	446+625	446+650	TYPE-I-B	2	25
192	446+650	446+675	TYPE-I-B	2	25
193	446+675	446+700	TYPE-I-B	2	14
194	446+700	446+725	TYPE-I-B	2	25
195	446+900	446+925	TYPE-II-B	3	14
196	447+200	447+225	TYPE-II-B	4	14
197	447+225	447+250	TYPE-I-C	2	25
198	448+050	448+075	TYPE-I-B	2	14
199	448+200	448+225	TYPE-I-B	2	25

S. No.	Design Chainage (km)		TCS Type	Height of Protection (m)	Length of Protection Work (m)
	From	To			
200	448+225	448+250	TYPE-I-B	2	25
201	448+250	448+275	TYPE-I-B	2	25
202	448+275	448+300	TYPE-I-B	2	14
203	448+400	448+425	TYPE-I-B	2	14
204	448+425	448+450	TYPE-II-B	2	25
205	448+500	448+525	TYPE-II-B	2	25
206	448+525	448+550	TYPE-II-B	2	25
207	448+600	448+625	TYPE-II-B	2	14
208	448+625	448+650	TYPE-II-B	2	25
209	448+825	448+850	TYPE-I-B	2	25
210	449+000	449+025	TYPE-I-B	2	25
211	449+425	449+450	TYPE-I-B	4	25
212	449+450	449+475	TYPE-III-B	4	14
213	449+475	449+500	TYPE-III-B	4	25
214	449+500	449+525	TYPE-III-B	4	25
215	449+525	449+550	TYPE-III-B	4	25
216	449+550	449+575	TYPE-III-B	4	25
217	450+000	450+025	TYPE-III-B	3	25
218	450+025	450+050	TYPE-III-B	4	25
219	450+050	450+075	TYPE-III-B	4	25
220	450+200	450+225	TYPE-III-A	2	25
221	450+650	450+675	TYPE-I-B	2	14
222	450+675	450+700	TYPE-I-B	2	25
223	450+800	450+825	TYPE-I-B	2	25
224	450+825	450+850	TYPE-I-B	2	14
225	450+925	450+950	TYPE-III-B	4	14
226	450+950	450+975	TYPE-I-B	4	25
227	450+975	451+000	TYPE-I-B	2	25
228	451+000	451+025	TYPE-I-B	2	25
229	451+025	451+050	TYPE-I-B	4	25
230	451+050	451+075	TYPE-I-B	2	25
231	451+075	451+100	TYPE-I-B	2	25
232	451+100	451+125	TYPE-I-B	2	14
233	451+850	451+875	TYPE-III-A	2	25
234	451+875	451+900	TYPE-III-A	2	25
235	452+075	452+100	TYPE-IV-B	2	25
236	452+275	452+300	TYPE-II-A	2	25
237	452+400	452+425	TYPE-I-B	2	25
238	452+575	452+600	TYPE-I-B	2	25
239	452+600	452+625	TYPE-I-B	2	25
240	452+625	452+650	TYPE-I-B	2	25
241	452+650	452+675	TYPE-I-C	2	25

S. No.	Design Chainage (km)		TCS Type	Height of Protection (m)	Length of Protection Work (m)
	From	To			
242	452+675	452+700	TYPE-I-C	2	14
243	452+875	452+900	TYPE-I-B	2	25
244	452+900	452+925	TYPE-I-B	2	14
245	452+925	452+950	TYPE-I-B	2	25
246	452+950	452+975	TYPE-I-B	2	25
247	453+000	453+025	TYPE-I-B	2	25
248	453+025	453+050	TYPE-I-B	2	25
249	453+075	453+100	TYPE-III-B	2	25
250	453+100	453+125	TYPE-III-B	4	25
251	453+125	453+150	TYPE-III-B	4	25
252	453+200	453+225	TYPE-IV-B	2	25
253	453+225	453+250	TYPE-II-B	2	25
254	453+250	453+275	TYPE-II-B	2	14
255	453+275	453+300	TYPE-II-B	2	25
256	453+300	453+325	TYPE-II-B	2	25
257	453+550	453+575	TYPE-III-B	4	25
258	453+575	453+600	TYPE-III-B	4	25
259	453+600	453+625	TYPE-III-C	4	14
260	453+625	453+650	TYPE-III-B	3	25
261	453+800	453+825	TYPE-I-B	2	25
262	453+825	453+850	TYPE-I-B	2	25
263	453+850	453+875	TYPE-I-B	2	25
264	454+225	454+250	TYPE-I-B	2	25
265	454+375	454+400	TYPE-IV-C	3	25
266	454+400	454+425	TYPE-IV-C	2	12
267	454+925	454+950	TYPE-III-B	4	25
268	455+150	455+175	TYPE-I-B	2	25
269	455+175	455+200	TYPE-I-B	2	25
270	455+200	455+225	TYPE-I-B	2	25
271	455+350	455+375	TYPE-I-B	2	25
272	456+150	456+175	TYPE-I-B	2	25
273	456+175	456+200	TYPE-I-B	2	14
274	456+800	456+825	TYPE-II-B	3	25
275	456+825	456+850	TYPE-II-B	4	14
276	456+850	456+875	TYPE-I-B	3	25
277	456+875	456+900	TYPE-I-B	2	25
278	457+125	457+150	TYPE-III-B	3	25
279	457+175	457+200	TYPE-III-B	4	25
280	457+200	457+225	TYPE-III-B	4	25
281	457+225	457+250	TYPE-III-B	4	25
282	457+250	457+275	TYPE-III-B	4	25
283	457+275	457+300	TYPE-I-B	3	25

S. No.	Design Chainage (km)		TCS Type	Height of Protection (m)	Length of Protection Work (m)
	From	To			
284	457+300	457+325	TYPE-I-B	2	14
285	457+325	457+350	TYPE-I-B	2	25
286	457+350	457+375	TYPE-I-B	3	25
287	457+375	457+400	TYPE-I-B	3	25
288	457+400	457+425	TYPE-I-B	3	25
289	457+500	457+525	TYPE-II-B	3	25
290	457+525	457+550	TYPE-II-B	3	25
291	457+625	457+650	TYPE-II-B	2	25
292	457+650	457+675	TYPE-II-B	3	25
293	457+675	457+700	TYPE-II-B	3	25
294	457+700	457+725	TYPE-II-B	2	25
295	457+725	457+750	TYPE-II-B	4	25
296	457+750	457+775	TYPE-IV-B	4	14
297	457+775	457+800	TYPE-IV-B	4	25
298	457+800	457+825	TYPE-IV-B	4	25
299	457+825	457+850	TYPE-II-B	3	25
300	457+975	458+000	TYPE-I-B	2	14
301	458+000	458+025	TYPE-I-B	2	25
302	458+025	458+050	TYPE-I-B	3	25
303	458+075	458+100	TYPE-I-B	2	25
304	458+275	458+300	TYPE-I-B	2	14
305	458+300	458+325	TYPE-I-B	2	25
306	458+750	458+775	TYPE-I-B	2	14
307	458+775	458+800	TYPE-I-C	3	25
308	458+800	458+825	TYPE-I-B	2	25
309	458+825	458+850	TYPE-I-B	2	25
310	458+850	458+875	TYPE-I-B	2	25
311	458+875	458+900	TYPE-I-B	2	25
312	458+900	458+925	TYPE-I-B	2	25
313	459+000	459+025	TYPE-I-B	2	25
314	459+075	459+100	TYPE-II-B	2	25
315	459+100	459+125	TYPE-II-B	2	25
316	459+375	459+400	TYPE-II-B	2	25
317	459+775	459+800	TYPE-II-B	2	25
318	459+800	459+825	TYPE-I-B	2	25
319	459+825	459+850	TYPE-I-B	2	25
320	459+850	459+875	TYPE-I-B	2	25
321	459+875	459+900	TYPE-I-C	2	25
322	459+900	459+925	TYPE-I-C	2	25
323	460+050	460+075	TYPE-I-C	2	25
324	460+075	460+100	TYPE-I-C	2	14
325	460+100	460+125	TYPE-III-B	2	25

S. No.	Design Chainage (km)		TCS Type	Height of Protection (m)	Length of Protection Work (m)
	From	To			
326	460+125	460+150	TYPE-III-B	2	25
327	460+150	460+175	TYPE-III-B	2	25
328	460+175	460+200	TYPE-III-B	2	14
329	460+200	460+225	TYPE-I-B	2	25
330	460+225	460+250	TYPE-I-B	2	25
331	460+250	460+275	TYPE-I-B	2	25
332	460+325	460+350	TYPE-I-B	2	16
333	460+850	460+875	TYPE-I-B	2	25
334	460+875	460+900	TYPE-I-B	3	25
335	460+900	460+925	TYPE-I-C	3	25
336	460+925	460+950	TYPE-I-C	3	16
337	460+950	460+975	TYPE-I-C	2	25
338	460+975	461+000	TYPE-I-B	2	25
339	461+150	461+175	TYPE-I-B	2	25
340	461+925	461+950	TYPE-II-B	2	25
341	461+950	461+975	TYPE-II-B	2	25
342	461+975	462+000	TYPE-II-B	2	25
343	462+175	462+200	TYPE-II-B	2	14
344	462+325	462+350	TYPE-II-B	4	14
345	462+525	462+550	TYPE-I-B	2	25
346	463+250	463+275	TYPE-II-B	2	25
347	463+325	463+350	TYPE-I-B	2	25
348	463+700	463+725	TYPE-V-B	2	25
349	464+475	464+500	TYPE-II-B	2	14
350	464+500	464+525	TYPE-II-B	2	25
351	464+750	464+775	TYPE-I-B	2	25
352	464+800	464+825	TYPE-I-B	2	25
353	464+825	464+850	TYPE-I-B	2	25

(b) Breast Wall

S. No.	Design Chainage (km)		TCS Type	Height of Protection (m)	Length of Protection Work (m)
	From	To			
1	427+850	427+875	TYPE-V	2	25
2	427+875	427+900	TYPE-V-A	3	25
3	427+900	427+925	TYPE-V-C	3	25
4	428+350	428+375	TYPE-I-A	3	25
5	428+375	428+400	TYPE-I-A	3	25
6	428+400	428+425	TYPE-I-A	3	25
7	428+425	428+450	TYPE-I-B	3	25

S. No.	Design Chainage (km)		TCS Type	Height of Protection (m)	Length of Protection Work (m)
	From	To			
8	428+575	428+600	TYPE-II-C	1	25
9	428+600	428+625	TYPE-II-C	1	25
10	428+950	428+975	TYPE-III-A	3	25
11	428+975	429+000	TYPE-I-B	3	25
12	429+000	429+025	TYPE-I-B	3	25
13	429+025	429+050	TYPE-I-B	4	25
14	429+050	429+075	TYPE-I-B	4	16
15	429+075	429+100	TYPE-I-A	4	25
16	429+150	429+175	TYPE-I-A	3	25
17	429+175	429+200	TYPE-I-B	4	25
18	429+200	429+225	TYPE-I-A	4	25
19	429+225	429+250	TYPE-I-B	4	25
20	429+250	429+275	TYPE-I-A	4	16
21	429+275	429+300	TYPE-I-A	4	25
22	429+300	429+325	TYPE-I-B	4	25
23	429+325	429+350	TYPE-I-B	4	16
24	429+500	429+525	TYPE-V-C	1	25
25	429+675	429+700	TYPE-V-C	1	25
26	429+950	429+975	TYPE-V-A	1	25
27	429+975	430+000	TYPE-V-C	1	25
28	430+000	430+025	TYPE-I-B	1	16
29	430+025	430+050	TYPE-I-B	1	25
30	430+050	430+075	TYPE-I-B	1	25
31	430+075	430+100	TYPE-I-B	1	25
32	430+100	430+125	TYPE-I-B	1	25
33	430+125	430+150	TYPE-I-B	1	25
34	430+150	430+175	TYPE-I-B	1	25
35	430+175	430+200	TYPE-I-A	1	25
36	430+200	430+225	TYPE-I-A	1	16
37	430+225	430+250	TYPE-I-A	1	25
38	430+250	430+275	TYPE-I-B	4	25
39	430+325	430+350	TYPE-I-A	1	12
40	430+350	430+375	TYPE-I-A	1	25
41	430+375	430+400	TYPE-I-A	2	25
42	430+400	430+425	TYPE-I-A	2	25
43	430+425	430+450	TYPE-I-A	2	25
44	430+450	430+475	TYPE-I-A	2	25
45	430+475	430+500	TYPE-I-B	2	25
46	430+500	430+525	TYPE-I-B	2	25
47	430+525	430+550	TYPE-I-B	2	16
48	430+550	430+575	TYPE-I-B	2	25
49	430+575	430+600	TYPE-I-B	2	25

S. No.	Design Chainage (km)		TCS Type	Height of Protection (m)	Length of Protection Work (m)
	From	To			
50	430+600	430+625	TYPE-III-A	2	25
51	430+625	430+650	TYPE-III-A	2	25
52	430+650	430+675	TYPE-III-A	2	25
53	430+675	430+700	TYPE-I-A	2	25
54	430+825	430+850	TYPE-I-A	2	16
55	430+850	430+875	TYPE-I-A	2	25
56	430+875	430+900	TYPE-I-A	2	25
57	430+900	430+925	TYPE-V-A	2	25
58	431+175	431+200	TYPE-V-A	2	25
59	431+200	431+225	TYPE-V-A	2	16
60	431+375	431+400	TYPE-V-A	2	25
61	431+400	431+425	TYPE-V-A	2	16
62	432+150	432+175	TYPE-I-A	2	16
63	432+175	432+200	TYPE-I-A	2	25
64	432+575	432+600	TYPE-I-A	2	25
65	432+600	432+625	TYPE-I-A	2	25
66	432+625	432+650	TYPE-I-A	1	25
67	432+650	432+675	TYPE-I-A	1	25
68	432+675	432+700	TYPE-I-A	2	14
69	432+700	432+725	TYPE-III-A	1	25
70	432+725	432+750	TYPE-III-A	1	25
71	432+750	432+775	TYPE-I-B	1	25
72	432+775	432+800	TYPE-I-B	1	14
73	432+800	432+825	TYPE-I-B	1	25
74	432+825	432+850	TYPE-I-A	1	25
75	432+850	432+875	TYPE-III-A	1	25
76	432+875	432+900	TYPE-III-A	3	25
77	433+400	433+425	TYPE-I-A	1	25
78	433+425	433+450	TYPE-I-A	1	25
79	433+450	433+475	TYPE-I-A	1	25
80	433+475	433+500	TYPE-I-A	1	25
81	433+500	433+525	TYPE-I-A	1	25
82	433+525	433+550	TYPE-I-A	2	25
83	433+550	433+575	TYPE-I-A	2	25
84	433+575	433+600	TYPE-I-A	2	14
85	433+600	433+625	TYPE-I-A	2	25
86	433+625	433+650	TYPE-I-B	2	25
87	433+650	433+675	TYPE-I-A	2	25
88	433+675	433+700	TYPE-I-A	2	25
89	433+700	433+725	TYPE-I-A	2	25
90	433+725	433+750	TYPE-I-A	2	25
91	433+750	433+775	TYPE-I-A	2	25

S. No.	Design Chainage (km)		TCS Type	Height of Protection (m)	Length of Protection Work (m)
	From	To			
92	433+775	433+800	TYPE-I-A	2	25
93	433+825	433+850	TYPE-I-B	2	25
94	433+850	433+875	TYPE-I-A	2	14
95	433+875	433+900	TYPE-I-A	2	25
96	433+900	433+925	TYPE-I-A	2	25
97	433+925	433+950	TYPE-I-A	2	25
98	433+950	433+975	TYPE-I-A	2	25
99	433+975	434+000	TYPE-I-A	1	25
100	434+000	434+025	TYPE-I-A	1	14
101	434+125	434+150	TYPE-I-A	4	25
102	434+150	434+175	TYPE-I-A	4	14
103	434+175	434+200	TYPE-I-A	2	25
104	434+200	434+225	TYPE-I-A	2	25
105	434+225	434+250	TYPE-I-A	2	25
106	434+250	434+275	TYPE-I-A	2	25
107	434+275	434+300	TYPE-I-A	2	25
108	434+300	434+325	TYPE-I-A	2	25
109	434+325	434+350	TYPE-I-A	2	25
110	434+350	434+375	TYPE-I-A	2	25
111	434+375	434+400	TYPE-I-A	3	14
112	434+400	434+425	TYPE-I-A	3	25
113	434+900	434+925	TYPE-V-A	2	25
114	434+925	434+950	TYPE-V-A	2	25
115	434+950	434+975	TYPE-V-A	2	25
116	435+000	435+025	TYPE-V-A	2	25
117	435+025	435+050	TYPE-V-A	2	25
118	435+050	435+075	TYPE-V-A	2	25
119	435+125	435+150	TYPE-V	2	25
120	435+150	435+175	TYPE-V-A	4	25
121	435+175	435+200	TYPE-V-A	4	25
122	435+200	435+225	TYPE-V-A	4	25
123	435+225	435+250	TYPE-V-A	4	25
124	435+250	435+275	TYPE-V-C	4	14
125	435+275	435+300	TYPE-V-C	4	25
126	435+300	435+325	TYPE-V-C	4	25
127	436+200	436+225	TYPE-I-A	2	25
128	436+225	436+250	TYPE-I-B	1	25
129	436+250	436+275	TYPE-I-B	1	25
130	436+275	436+300	TYPE-I-B	1	25
131	436+300	436+325	TYPE-I-B	1	25
132	436+325	436+350	TYPE-I-B	1	25
133	436+350	436+375	TYPE-I-A	2	14

S. No.	Design Chainage (km)		TCS Type	Height of Protection (m)	Length of Protection Work (m)
	From	To			
134	436+375	436+400	TYPE-I-A	2	25
135	436+400	436+425	TYPE-I-A	1	25
136	436+425	436+450	TYPE-I-A	1	25
137	436+450	436+475	TYPE-I-A	1	25
138	436+475	436+500	TYPE-I-A	1	25
139	436+500	436+525	TYPE-I-A	1	14
140	436+525	436+550	TYPE-I-A	1	25
141	436+550	436+575	TYPE-I-A	1	25
142	436+575	436+600	TYPE-I-A	1	25
143	436+600	436+625	TYPE-I-A	1	25
144	436+625	436+650	TYPE-I-B	1	25
145	436+900	436+925	TYPE-I-A	1	16
146	436+925	436+950	TYPE-I-A	1	25
147	436+950	436+975	TYPE-I-A	1	25
148	436+975	437+000	TYPE-I-A	1	25
149	437+000	437+025	TYPE-I-A	1	25
150	437+025	437+050	TYPE-I-A	1	25
151	437+050	437+075	TYPE-I-A	2	25
152	437+075	437+100	TYPE-I-B	2	25
153	437+125	437+150	TYPE-I-A	1	14
154	437+250	437+275	TYPE-V-A	2	25
155	437+275	437+300	TYPE-V-A	2	16
156	437+300	437+325	TYPE-V-A	2	25
157	437+325	437+350	TYPE-V-C	2	25
158	437+350	437+375	TYPE-V-C	2	25
159	437+375	437+400	TYPE-V-A	2	25
160	437+400	437+425	TYPE-V-A	2	25
161	437+425	437+450	TYPE-V-A	2	25
162	437+450	437+475	TYPE-V-A	2	25
163	437+475	437+500	TYPE-V-A	2	25
164	437+500	437+525	TYPE-V-A	2	16
165	437+525	437+550	TYPE-V-A	2	25
166	437+550	437+575	TYPE-V-A	2	25
167	437+650	437+675	TYPE-I-A	4	25
168	437+675	437+700	TYPE-I-A	4	16
169	437+700	437+725	TYPE-I-A	4	25
170	437+725	437+750	TYPE-I-A	4	25
171	437+750	437+775	TYPE-I-A	3	25
172	437+775	437+800	TYPE-I-A	3	25
173	437+800	437+825	TYPE-I-A	3	25
174	437+825	437+850	TYPE-I-A	3	25
175	438+275	438+300	TYPE-V-C	3	25

S. No.	Design Chainage (km)		TCS Type	Height of Protection (m)	Length of Protection Work (m)
	From	To			
176	438+300	438+325	TYPE-V-C	2	12
177	438+550	438+575	TYPE-V-A	2	25
178	438+575	438+600	TYPE-V-A	2	25
179	438+600	438+625	TYPE-V-A	2	25
180	438+625	438+650	TYPE-V-A	2	25
181	438+675	438+700	TYPE-I-A	2	25
182	438+700	438+725	TYPE-I-A	2	16
183	438+775	438+800	TYPE-I-A	2	25
184	438+825	438+850	TYPE-I-A	2	25
185	438+850	438+875	TYPE-I-A	2	25
186	438+875	438+900	TYPE-I-A	2	25
187	438+900	438+925	TYPE-I-A	2	25
188	438+925	438+950	TYPE-I-A	2	25
189	438+950	438+975	TYPE-I-A	2	25
190	438+975	439+000	TYPE-I-A	2	16
191	439+000	439+025	TYPE-I-A	2	25
192	439+025	439+050	TYPE-I-B	2	25
193	439+075	439+100	TYPE-I-A	2	25
194	439+100	439+125	TYPE-I-A	2	25
195	439+125	439+150	TYPE-I-A	2	25
196	439+150	439+175	TYPE-I-A	2	25
197	439+225	439+250	TYPE-I-A	3	25
198	439+250	439+275	TYPE-I-A	3	16
199	439+275	439+300	TYPE-I-A	3	25
200	439+300	439+325	TYPE-I-A	3	25
201	439+325	439+350	TYPE-I-A	2	16
202	439+350	439+375	TYPE-I-A	2	25
203	439+375	439+400	TYPE-I-A	2	25
204	439+400	439+425	TYPE-I-A	2	25
205	439+425	439+450	TYPE-I-A	2	25
206	439+450	439+475	TYPE-I-A	2	14
207	439+475	439+500	TYPE-I-A	2	25
208	439+500	439+525	TYPE-III-A	3	25
209	439+525	439+550	TYPE-III-A	3	25
210	439+800	439+825	TYPE-I-A	2	25
211	439+825	439+850	TYPE-I-B	2	25
212	439+850	439+875	TYPE-I-B	2	25
213	439+875	439+900	TYPE-I-B	2	25
214	439+900	439+925	TYPE-I-B	2	25
215	439+925	439+950	TYPE-I-B	2	16
216	439+950	439+975	TYPE-I-B	2	16
217	439+975	440+000	TYPE-I-B	2	25

S. No.	Design Chainage (km)		TCS Type	Height of Protection (m)	Length of Protection Work (m)
	From	To			
218	440+000	440+025	TYPE-I-B	2	25
219	440+025	440+050	TYPE-I-B	3	25
220	440+050	440+075	TYPE-I-B	3	25
221	440+075	440+100	TYPE-I-B	3	25
222	440+125	440+150	TYPE-I-B	3	25
223	440+150	440+175	TYPE-I-A	3	25
224	440+175	440+200	TYPE-I-A	3	25
225	440+200	440+225	TYPE-I-A	3	25
226	440+225	440+250	TYPE-I-A	3	25
227	440+250	440+275	TYPE-I-A	3	16
228	440+275	440+300	TYPE-I-A	3	25
229	440+300	440+325	TYPE-I-A	3	25
230	440+325	440+350	TYPE-I-A	3	25
231	440+350	440+375	TYPE-I-A	3	25
232	440+375	440+400	TYPE-I-A	3	25
233	440+400	440+425	TYPE-I-A	2	25
234	440+425	440+450	TYPE-I-A	2	25
235	440+450	440+475	TYPE-I-A	2	25
236	440+475	440+500	TYPE-I-A	2	25
237	440+500	440+525	TYPE-I-A	2	25
238	440+525	440+550	TYPE-I-A	2	25
239	440+550	440+575	TYPE-I-B	2	25
240	440+575	440+600	TYPE-I-B	2	25
241	440+600	440+625	TYPE-I-B	2	25
242	441+450	441+475	TYPE-I-B	3	25
243	441+475	441+500	TYPE-I-B	3	25
244	441+500	441+525	TYPE-I-B	3	25
245	441+525	441+550	TYPE-I-B	3	25
246	441+550	441+575	TYPE-I-B	3	25
247	441+575	441+600	TYPE-I-A	3	16
248	441+600	441+625	TYPE-I-A	3	25
249	441+625	441+650	TYPE-I-B	3	25
250	441+650	441+675	TYPE-I-B	3	25
251	441+675	441+700	TYPE-I-B	3	25
252	441+700	441+725	TYPE-I-B	3	25
253	441+725	441+750	TYPE-I-B	3	25
254	441+800	441+825	TYPE-III-C	2	25
255	441+900	441+925	TYPE-V-A	2	25
256	441+925	441+950	TYPE-V-A	2	25
257	442+400	442+425	TYPE-V-A	2	25
258	442+425	442+450	TYPE-V-A	2	25
259	442+500	442+525	TYPE-V-A	2	25

S. No.	Design Chainage (km)		TCS Type	Height of Protection (m)	Length of Protection Work (m)
	From	To			
260	442+525	442+550	TYPE-V-A	2	25
261	442+550	442+575	TYPE-V-A	2	25
262	442+575	442+600	TYPE-V-A	2	25
263	442+600	442+625	TYPE-V-A	2	25
264	442+750	442+775	TYPE-V-A	2	25
265	442+775	442+800	TYPE-V-A	2	25
266	442+900	442+925	TYPE-V-A	2	25
267	442+925	442+950	TYPE-V-A	2	25
268	442+950	442+975	TYPE-V-A	2	25
269	442+975	443+000	TYPE-V-C	2	25
270	444+225	444+250	TYPE-V-A	2	25
271	444+250	444+275	TYPE-V-A	2	25
272	444+275	444+300	TYPE-V-A	2	25
273	444+550	444+575	TYPE-III-A	3	25
274	444+575	444+600	TYPE-III-A	3	25
275	444+650	444+675	TYPE-III-A	3	25
276	444+675	444+700	TYPE-I-A	2	25
277	444+750	444+775	TYPE-I-A	2	25
278	444+775	444+800	TYPE-I-A	2	25
279	445+150	445+175	TYPE-IV-C	2	25
280	445+175	445+200	TYPE-IV-C	2	16
281	445+400	445+425	TYPE-II-A	2	16
282	445+425	445+450	TYPE-II-A	2	25
283	445+450	445+475	TYPE-II-A	2	25
284	445+475	445+500	TYPE-II-A	2	25
285	445+500	445+525	TYPE-II-A	2	25
286	445+525	445+550	TYPE-II-A	2	25
287	445+550	445+575	TYPE-II-A	2	25
288	445+575	445+600	TYPE-II-A	2	25
289	446+350	446+375	TYPE-I-A	2	25
290	446+375	446+400	TYPE-I-A	2	25
291	446+400	446+425	TYPE-I-A	2	25
292	446+425	446+450	TYPE-I-A	2	25
293	446+500	446+525	TYPE-I-C	4	25
294	446+525	446+550	TYPE-II-B	2	14
295	446+625	446+650	TYPE-I-B	2	25
296	446+650	446+675	TYPE-I-B	2	25
297	446+675	446+700	TYPE-I-B	2	14
298	446+700	446+725	TYPE-I-B	2	25
299	447+200	447+225	TYPE-II-B	3	14
300	447+225	447+250	TYPE-I-C	2	25
301	449+075	449+100	TYPE-I-A	3	25

S. No.	Design Chainage (km)		TCS Type	Height of Protection (m)	Length of Protection Work (m)
	From	To			
302	449+100	449+125	TYPE-I-A	3	25
303	449+200	449+225	TYPE-III-A	3	25
304	449+225	449+250	TYPE-III-A	3	25
305	449+250	449+275	TYPE-III-A	3	25
306	449+275	449+300	TYPE-III-A	3	25
307	449+300	449+325	TYPE-I-A	3	14
308	449+325	449+350	TYPE-I-A	3	25
309	449+350	449+375	TYPE-I-A	3	25
310	449+375	449+400	TYPE-I-A	3	25
311	449+575	449+600	TYPE-III-B	2	25
312	449+600	449+625	TYPE-III-A	2	25
313	449+625	449+650	TYPE-III-A	2	25
314	449+650	449+675	TYPE-III-A	2	25
315	449+675	449+700	TYPE-III-A	2	25
316	449+925	449+950	TYPE-I-A	2	25
317	449+950	449+975	TYPE-I-A	2	25
318	450+075	450+100	TYPE-III-B	2	16
319	450+100	450+125	TYPE-III-A	3	25
320	450+125	450+150	TYPE-III-A	3	25
321	450+150	450+175	TYPE-III-A	2	25
322	450+175	450+200	TYPE-III-A	2	25
323	450+200	450+225	TYPE-III-A	2	25
324	450+375	450+400	TYPE-IV-A	2	25
325	450+400	450+425	TYPE-IV-A	2	25
326	450+425	450+450	TYPE-IV-A	2	25
327	450+475	450+500	TYPE-III-B	2	25
328	450+525	450+550	TYPE-I-A	2	25
329	450+550	450+575	TYPE-I-A	2	25
330	450+575	450+600	TYPE-I-A	2	25
331	450+600	450+625	TYPE-I-A	2	25
332	450+700	450+725	TYPE-I-A	2	25
333	450+850	450+875	TYPE-III-B	2	25
334	450+875	450+900	TYPE-III-B	1	25
335	451+725	451+750	TYPE-I-A	2	25
336	451+750	451+775	TYPE-I-A	2	25
337	451+850	451+875	TYPE-III-A	3	25
338	451+875	451+900	TYPE-III-A	2	25
339	451+900	451+925	TYPE-III-A	2	25
340	452+100	452+125	TYPE-IV-A	2	25
341	452+125	452+150	TYPE-IV-A	2	25
342	452+150	452+175	TYPE-IV-A	3	25
343	452+175	452+200	TYPE-II-A	3	25

S. No.	Design Chainage (km)		TCS Type	Height of Protection (m)	Length of Protection Work (m)
	From	To			
344	452+200	452+225	TYPE-II-A	3	25
345	452+225	452+250	TYPE-II-A	3	25
346	452+250	452+275	TYPE-II-A	3	25
347	452+275	452+300	TYPE-II-A	3	25
348	452+650	452+675	TYPE-I-C	3	25
349	452+675	452+700	TYPE-I-C	3	14
350	453+600	453+625	TYPE-III-C	3	14
351	454+025	454+050	TYPE-I-A	3	25
352	454+050	454+075	TYPE-I-A	3	14
353	454+075	454+100	TYPE-III-A	3	25
354	454+100	454+125	TYPE-III-A	3	25
355	454+125	454+150	TYPE-III-A	3	25
356	454+150	454+175	TYPE-III-A	3	25
357	454+175	454+200	TYPE-III-A	3	25
358	454+200	454+225	TYPE-III-A	3	25
359	454+375	454+400	TYPE-IV-C	3	25
360	454+400	454+425	TYPE-IV-C	3	12
361	454+600	454+625	TYPE-I-A	3	25
362	454+625	454+650	TYPE-I-A	3	25
363	454+650	454+675	TYPE-I-A	3	14
364	454+800	454+825	TYPE-I-A	3	25
365	454+825	454+850	TYPE-I-A	3	25
366	454+850	454+875	TYPE-I-A	3	25
367	454+950	454+975	TYPE-I-A	3	25
368	454+975	455+000	TYPE-I-A	3	25
369	455+000	455+025	TYPE-I-A	3	25
370	455+025	455+050	TYPE-I-A	3	25
371	455+175	455+200	TYPE-I-B	3	25
372	455+200	455+225	TYPE-I-B	3	25
373	455+225	455+250	TYPE-I-A	3	14
374	455+550	455+575	TYPE-II-A	3	25
375	455+575	455+600	TYPE-I-A	3	25
376	455+600	455+625	TYPE-I-A	3	25
377	455+625	455+650	TYPE-I-A	3	25
378	456+075	456+100	TYPE-I-A	3	25
379	456+100	456+125	TYPE-I-A	3	25
380	457+025	457+050	TYPE-I-A	3	25
381	457+050	457+075	TYPE-I-A	3	25
382	457+700	457+725	TYPE-II-B	2	25
383	457+725	457+750	TYPE-II-B	2	25
384	457+875	457+900	TYPE-I-A	2	14
385	457+900	457+925	TYPE-I-A	2	25

S. No.	Design Chainage (km)		TCS Type	Height of Protection (m)	Length of Protection Work (m)
	From	To			
386	457+925	457+950	TYPE-I-A	2	25
387	457+950	457+975	TYPE-I-A	2	25
388	458+125	458+150	TYPE-I-A	2	25
389	458+150	458+175	TYPE-III-A	3	25
390	458+175	458+200	TYPE-III-A	3	25
391	458+200	458+225	TYPE-III-A	3	25
392	458+225	458+250	TYPE-III-A	3	25
393	458+250	458+275	TYPE-III-A	3	25
394	458+275	458+300	TYPE-I-B	2	14
395	458+300	458+325	TYPE-I-B	2	25
396	458+325	458+350	TYPE-I-A	2	25
397	458+350	458+375	TYPE-I-A	2	25
398	458+375	458+400	TYPE-I-A	2	25
399	458+400	458+425	TYPE-I-A	2	25
400	458+425	458+450	TYPE-I-A	2	25
401	458+450	458+475	TYPE-I-A	2	25
402	458+500	458+525	TYPE-I-A	2	25
403	458+525	458+550	TYPE-I-A	2	25
404	458+775	458+800	TYPE-I-C	2	25
405	458+850	458+875	TYPE-I-B	2	25
406	458+875	458+900	TYPE-I-B	2	25
407	458+900	458+925	TYPE-I-B	2	25
408	458+925	458+950	TYPE-I-A	2	14
409	458+950	458+975	TYPE-I-A	2	25
410	458+975	459+000	TYPE-I-A	2	25
411	459+875	459+900	TYPE-I-C	2	25
412	459+900	459+925	TYPE-I-C	2	25
413	460+050	460+075	TYPE-I-C	2	25
414	460+075	460+100	TYPE-I-C	2	14
415	460+250	460+275	TYPE-I-B	2	25
416	460+275	460+300	TYPE-I-A	2	25
417	460+350	460+375	TYPE-I-A	2	25
418	460+375	460+400	TYPE-I-A	2	25
419	460+525	460+550	TYPE-I-A	2	25
420	460+550	460+575	TYPE-I-A	2	25
421	460+575	460+600	TYPE-I-A	2	25
422	460+600	460+625	TYPE-I-A	2	25
423	460+625	460+650	TYPE-I-A	2	25
424	460+650	460+675	TYPE-I-A	2	25
425	460+675	460+700	TYPE-I-A	2	25
426	460+750	460+775	TYPE-I-A	2	25
427	460+775	460+800	TYPE-I-A	2	25

S. No.	Design Chainage (km)		TCS Type	Height of Protection (m)	Length of Protection Work (m)
	From	To			
428	460+800	460+825	TYPE-I-A	2	25
429	460+850	460+875	TYPE-I-B	2	25
430	460+875	460+900	TYPE-I-B	2	25
431	460+900	460+925	TYPE-I-C	2	25
432	460+925	460+950	TYPE-I-C	2	16
433	460+950	460+975	TYPE-I-C	2	25
434	460+975	461+000	TYPE-I-B	2	25
435	461+175	461+200	TYPE-I-A	2	25
436	461+200	461+225	TYPE-I-A	2	25
437	462+275	462+300	TYPE-IV-A	2	25
438	462+450	462+475	TYPE-II-A	2	25
439	462+875	462+900	TYPE-II-A	2	25
440	462+900	462+925	TYPE-II-A	2	25
441	463+325	463+350	TYPE-I-B	2	25
442	463+350	463+375	TYPE-I-A	2	25
443	463+525	463+550	TYPE-V-A	2	25
444	463+550	463+575	TYPE-V-A	2	25
445	463+625	463+650	TYPE-V-A	2	25
446	464+300	464+325	TYPE-I-A	2	25
447	464+875	464+900	TYPE-I-A	3	25
448	464+975	465+000	TYPE-I-A	2	25

(c) Reinforced Earth Wall (Valley Side)

S. No.	Design Chainage (km)		TCS Type	Height of Protection (m)	Length of Protection Work (m)
	From	To			
1	428+450	428+475	TYPE-III-D	10	25
2	428+475	428+500	TYPE-IV-D	10	25
3	428+500	428+525	TYPE-IV-D	10	25
4	428+525	428+550	TYPE-IV-D	10	25
5	428+550	428+575	TYPE-IV-D	7	14
6	428+625	428+650	TYPE-II-D	7	25
7	428+650	428+675	TYPE-II-D	7	25
8	429+525	429+550	TYPE-V-D	6	25
9	429+550	429+575	TYPE-V-D	6	25
10	429+575	429+600	TYPE-V-D	6	25
11	431+850	431+875	TYPE-III-D	6	16
12	434+750	434+775	TYPE-V-D	6	25
13	434+775	434+800	TYPE-V-D	10	14
14	434+800	434+825	TYPE-V-D	10	25

S. No.	Design Chainage (km)		TCS Type	Height of Protection (m)	Length of Protection Work (m)
	From	To			
15	434+825	434+850	TYPE-V-D	6	25
16	435+875	435+900	TYPE-II-D	8	25
17	435+900	435+925	TYPE-II-D	6	25
18	436+050	436+075	TYPE-II-D	6	25
19	436+075	436+100	TYPE-II-D	8	25
20	436+100	436+125	TYPE-II-D	6	25
21	436+125	436+150	TYPE-II-D	9	25
22	436+150	436+175	TYPE-II-D	6	14
23	450+225	450+250	TYPE-III-D	6	25
24	450+250	450+275	TYPE-III-D	6	14
25	450+275	450+300	TYPE-III-D	6	25
26	450+300	450+325	TYPE-III-D	6	25
27	450+325	450+350	TYPE-III-D	10	25
28	450+350	450+375	TYPE-III-D	10	25
29	457+150	457+175	TYPE-III-D	8	14

(d) Reinforced Earth Wall (Hill Side)

S. No.	Design Chainage (km)		TCS Type	Height of Protection (m)	Length of Protection Work (m)
	From	To			
1	429+100	429+125	TYPE-III-E	15	25
2	429+125	429+150	TYPE-III-E	15	14
3	432+025	432+050	TYPE-III-E	8	25
4	432+050	432+075	TYPE-III-E	8	25
5	432+075	432+100	TYPE-III-E	8	25
6	432+100	432+125	TYPE-III-E	8	25
7	434+975	435+000	TYPE-V-D	8	14
8	444+600	444+625	TYPE-III-E	15	25
9	444+625	444+650	TYPE-III-E	15	25
10	450+450	450+475	TYPE-III-E	8	14
11	451+775	451+800	TYPE-III-E	10	14
12	451+800	451+825	TYPE-III-E	8	25
13	451+825	451+850	TYPE-III-E	8	25

(e) Landslides Locations

S. No.	Design Chainage (km)		Length (m)	TCS Type	Remark
	From	To			
1	429+350	429+450	100	VI	Road widening and hill side ,valley side protection work
2	435+425	435+500	75	VI-A	Hill side protection work
3	436+675	436+825	150	VI-B	Road widening and hill side protection work
4	451+925	452+000	75	VI-C	Road widening and hill side protection work
5	464+900	464+950	50	VI-D	Road widening and hill side, valley side protection work

Note:

- The contractor shall be responsible for accurate assessment of the actual requirement as per site situation and prepare design for slope protection and stabilization as per specification and standards stipulated in schedule-D and submit the same to the Authority's Engineer/Authority for review through the Proof Consultant and implement it accordingly thereafter

- Any increase in quantity over and above the tentative quantity as mentioned in above table or through change in specifications will not be considered as change of scope. Therefore, Contractor shall make through investigation at site and assess the requirement of slope protection and slide prone zone and other safety feature at his own before submission of bid.

- For executing any of the above type of slope protection works, the contractor should have the experience of having executed, in last 5 (five) financial years from the date of signing of Agreement, atleast 40% quantity of that type of slope protection works and provide requisite certificates/documents to verify the same to the Authority/ Authority engineer.
- If the Contractor does not have requisite experience for any/some of the above type of slope protection works, then he has to engage specialized firm(s) as sub-contractor(s) who has/have successfully completed in last 5(five) financial years atleast 40% quantity of such works. The contractor shall submit the credentials and the qualifying experience of the specialized sub-contractor(s) for approval of Authority before the commencement of such slope protection works.

7.10 The unused/un-disposed excavated material can be dumped along the road by using crate wall to create extra width for passing place/ parking place. Contractor has to ensure that no debris should spill beyond ROW handed over to contractor. In case of any violation the whole responsibility will be the contractor. For excess excavated material over and above the fill requirement the contractor will ensure safe disposal as per the law in extent.

8. TRAFFIC CONTROL DEVICES AND ROAD SAFETY WORK.

8.1 Traffic control devices and road safety works shall be provided in accordance with Section 9 of the IRC: SP: 73-2015 and IRC: SP: 48-1998.

8.2 Specifications of the reflective sheeting shall be as per the Manual of Specifications (IRC: SP: 73-2015) & (IRC: SP: 48-1998).

9. ROAD SIDE FURNITURE

9.1 Road side furniture shall be provided in accordance with the provisions of Section 9 and 12 of the Manual and as well given in Schedule-C.

9.2 Overhead traffic signs: location and size

Overhead traffic signs are provided as per site requirement according to paragraph 9.2.5 of the Manual and as given in Schedule-C.

10. COMPULSORY AFFORESTATION

Nil

11. HAZARDOUS LOCATIONS

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

Sl. No.	Location stretch from (km) to (km)	LHS/RHS
Nil		

12. SPECIAL REQUIREMENTS FOR HILL ROAD

In accordance with the section 13 of the manual (IRC: SP 73:2015 & IRC: SP 48:1998) and recommended practices for the treatment of embankment and road side slopes erosion control and relevant IRC.

13. CHANGE OF SCOPE

The length of Structures, bridges and slope protection works whatsoever in terms of retaining wall, breast wall and reinforced earth wall or under special requirement of hill slope specified herein above shall be treated as an approximate assessment. The actual lengths and height as required on the basis of detailed investigations shall be determined by the Contractor in accordance with the specification and standards. Any variations in the lengths and specifications given in the schedule–B shall not constitute a change of Scope.

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Appendix-I

Annex-I

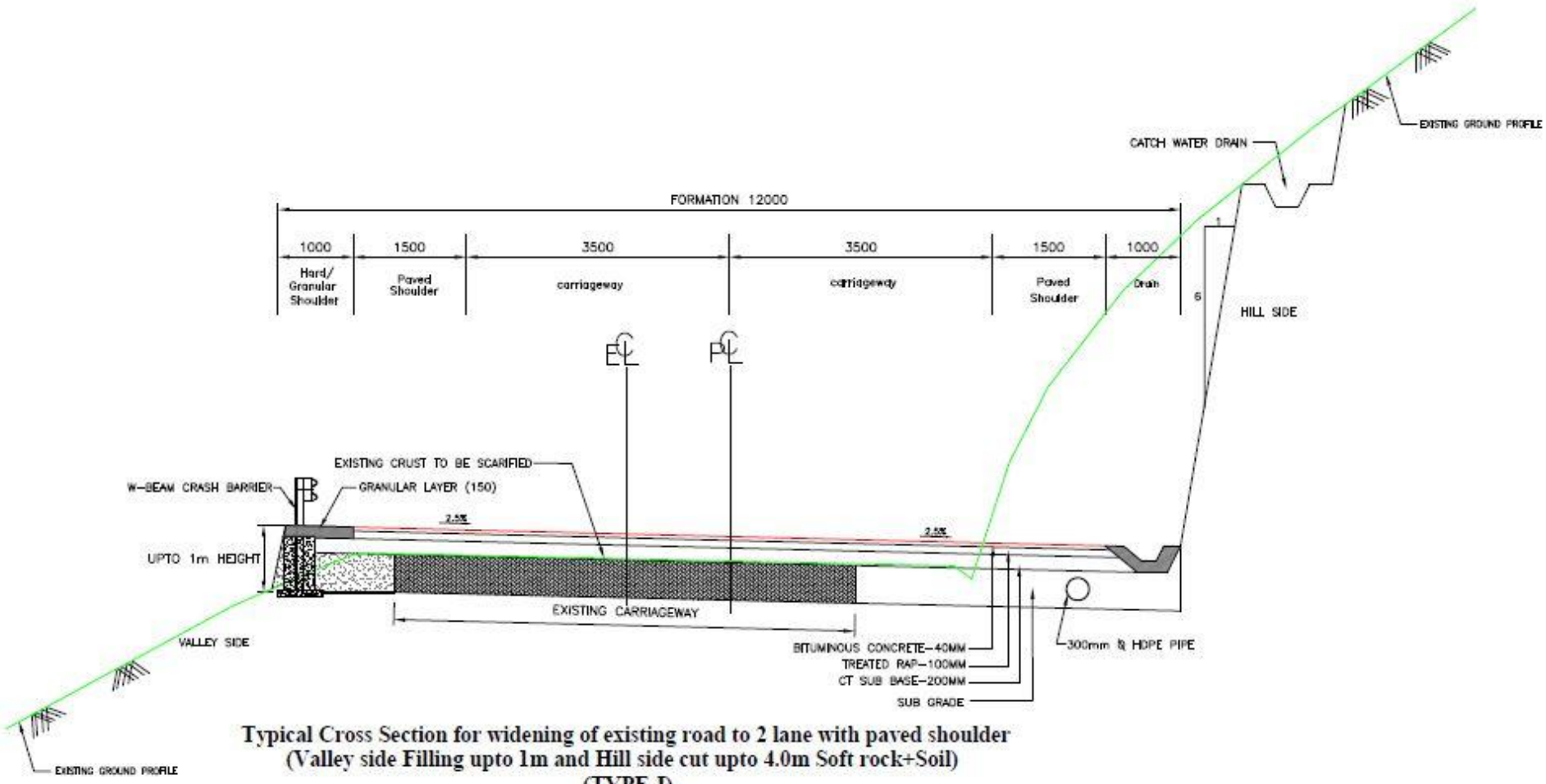
(Schedule B)

TYPICAL CROSS-SECTIONS

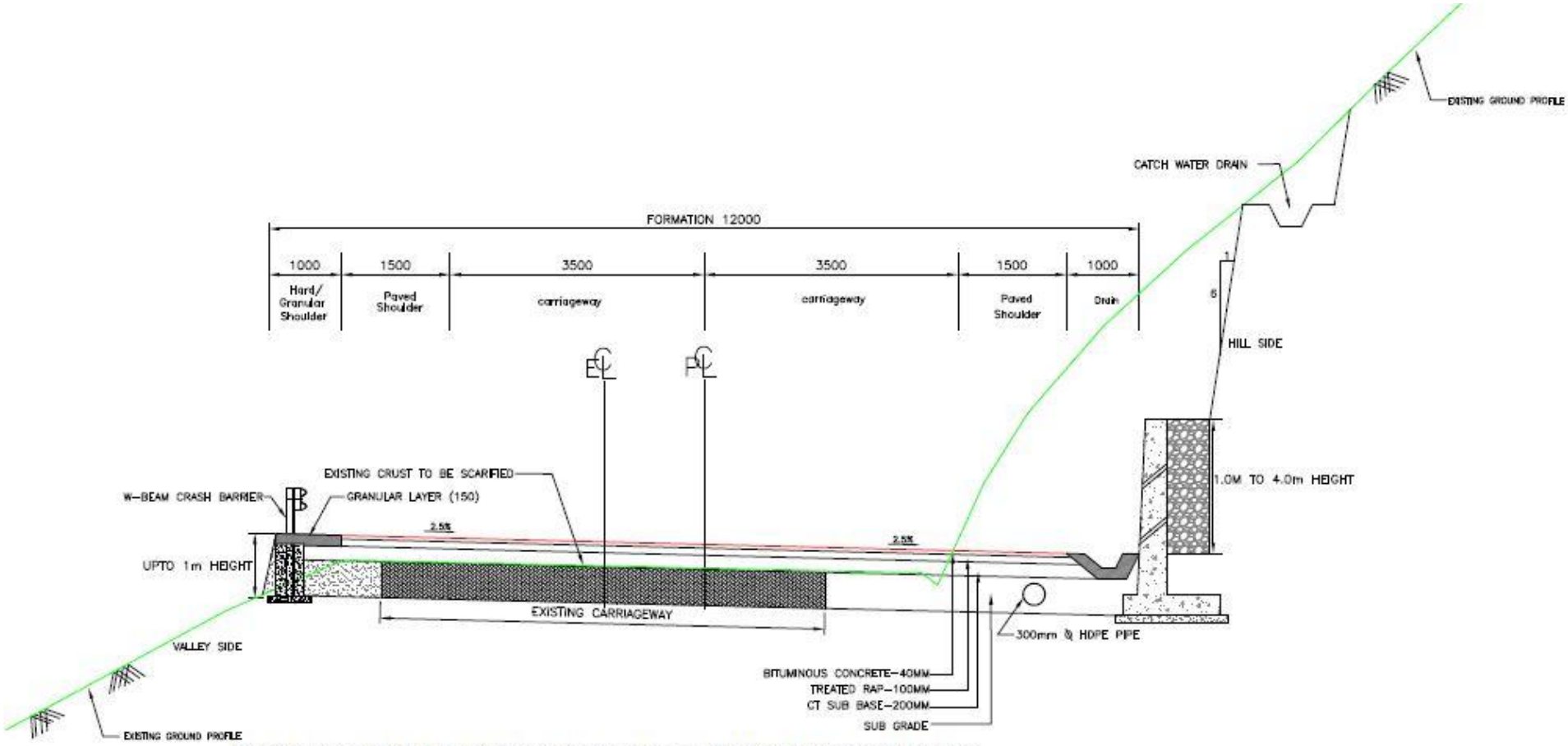
Summary of Typical Cross Sections*

S No	Type	Description
1	I	Typical Cross Section for widening of existing road to 2 lane with paved shoulder (Valley side Filling upto 1m and Hill side cut upto 4.0m (Soft rock+Soil)
2	I-A	Typical Cross Section for widening of existing road to 2 lane with paved shoulder (Valley side Filling upto 1m and Hill side upto 4.0m (Soft rock+Soil)
3	I-B	Typical Cross Section for widening of existing road to 2 lane with paved shoulder (Valley side Filling upto 4 m and Hill side cut upto 4.0m protection (Soft rock+Soil)
4	I-C	Typical Cross Section for 2 lane with paved shoulder in fill section Both Side upto 4.0m protection (Soft rock+Soil)
5	II	Typical Cross Section for widening of existing road to 2 lane with paved shoulder (Valley side Filling upto 1m and Hill side cut in hard rock
6	II-A	Typical Cross Section for widening of existing road to 2 lane with paved shoulder (Valley side Filling upto 1m and Hill side upto 4m protection hard rock
7	II-B	Typical Cross Section for widening of existing road to 2 lane with paved shoulder (Valley side upto 4m protection and hill side cut in hard rock
8	II-C	Typical Cross Section for widening of existing road to 2 lane with paved shoulder (Valley side Filling upto 4m and protection in hard rock)
9	II-D	Typical Cross Section for widening of existing road to 2 lane with paved shoulder (Valley side filling >4m protection in hard rock)
10	III	Typical Cross Section for realignment and bypass (Valley side filling upto 1m and hill side cut upto 4m (Soft rock+ Soil)
11	III-A	Typical Cross Section for realignment and bypass (Valley side filling upto 1m and hill side upto 4m protection (Soft rock+ Soil)
12	III-B	Typical Cross Section for realignment and bypass (Valley side filling upto 4m and hill side upto 4m cutting (Soft rock+ Soil)
13	III-C	Typical Cross Section for realignment and bypass Both Side upto 4.0m protection (Soft rock+Soil)
14	III-D	Typical Cross Section for realignment and bypass (Valley side filling >4m protection in hard rock)
15	III-E	Typical Cross Section for realignment and bypass (Hill side cutting >4m protection in hard rock)
16	IV	Typical Cross Section for realignment and bypass Valley side Filling upto 1m and hill side cut hard rock)
17	IV-A	Typical Cross Section for realignment and bypass (Valley side filling upto 1m and hill side upto 4m protection (hard rock)
18	IV-B	Typical Cross Section for realignment and bypass (Valley side filling upto

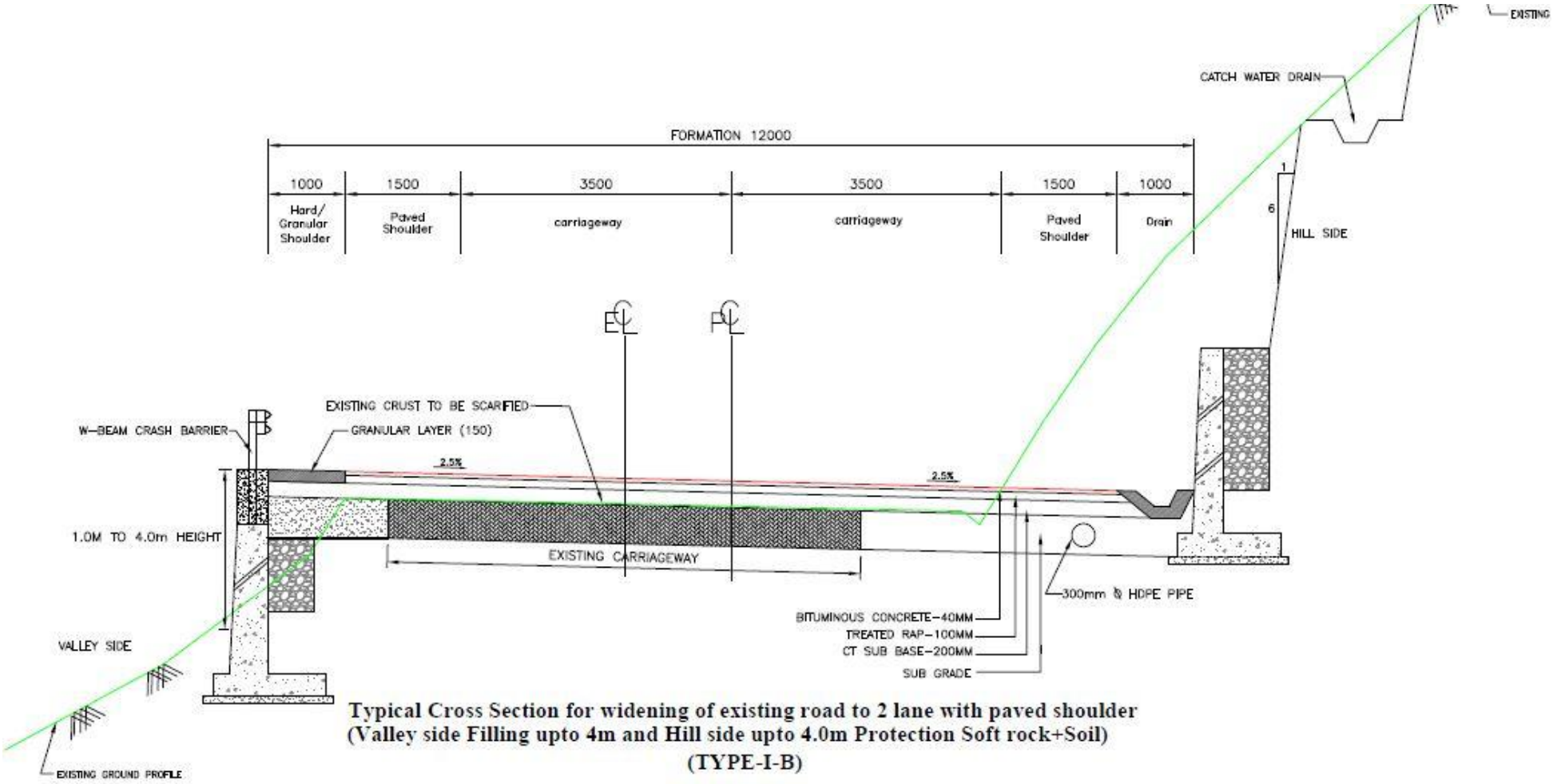
S No	Type	Description
		4m and hill side cut in (hard rock)
19	IV-C	Typical Cross Section for realignment and bypass (Valley side filling upto 4m and hill side upto 4m protection (Soft rock+ Soil)
20	IV-D	Typical Cross Section for realignment and bypass Both Side protection (Hard rock)
21	V	Typical Cross Section for 2 lane with paved shoulder & Raised Footpath cum drain in built-up area) (12.0m formation width)
22	V-A	Typical Cross Section for 2 lane with paved shoulder & Raised Footpath cum drain in built-up area) (hill side upto 4m protection) (12.0m formation width)
23	V-B	Typical Cross Section for 2 lane with paved shoulder & Raised Footpath cum drain in built-up area) (valley side upto 4m protection and hill side no protection) (12.0m formation width)
24	V-C	Typical Cross Section for 2 lane with paved shoulder & Raised Footpath cum drain in built-up area) (both side protection upto 4m) (12.0m formation width)
25	V-D	Typical Cross Section for 2 lane with paved shoulder & Raised Footpath cum drain in built-up area) (valley side protection> 4.0m) (12.0m formation width)
26	VI	Typical Cross Section of Landslides Mitigations Measures from Design Chainage 429+350 to 429+450
27	VI-A	Typical Cross Section of Landslides Mitigations Measures from Design Chainage 435+425 to 435+500
28	VI-B	Typical Cross Section of Landslides Mitigations Measures from Design Chainage 436+675 to 436+825
29	VI-C	Typical Cross Section of Landslides Mitigations Measures from Design Chainage 451+925 to 452+000
30	VI-D	Typical Cross Section of Landslides Mitigations Measures from Design Chainage 464+900 to 464+950



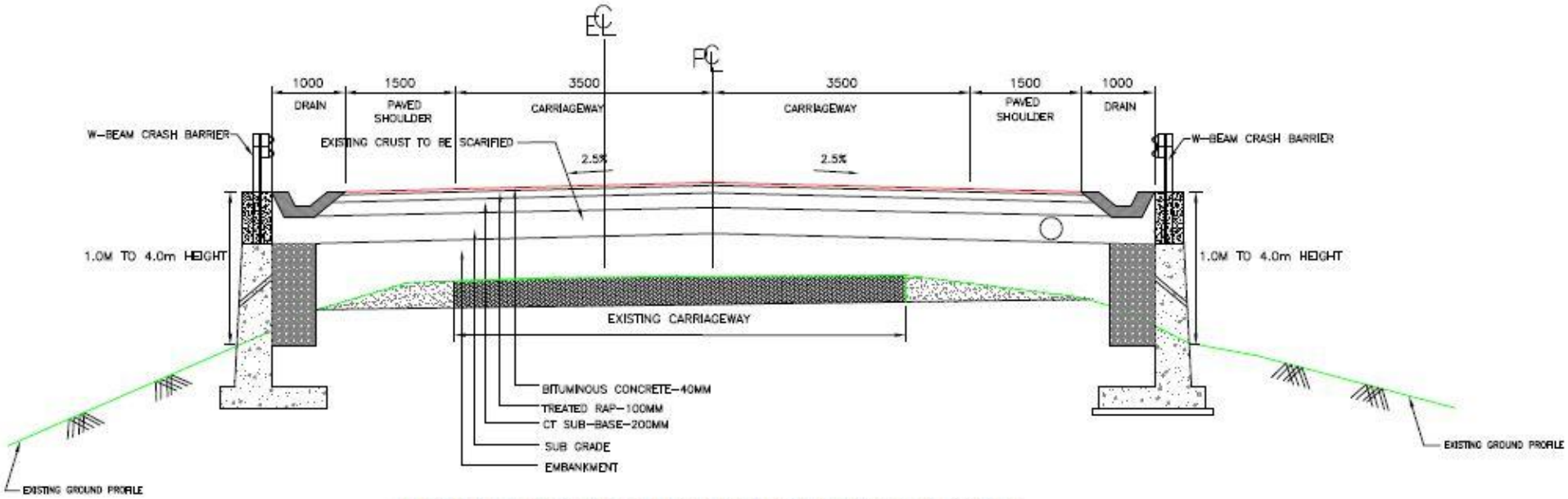
Typical Cross Section for widening of existing road to 2 lane with paved shoulder
(Valley side Filling upto 1m and Hill side cut upto 4.0m Soft rock+Soil)
(TYPE-I)



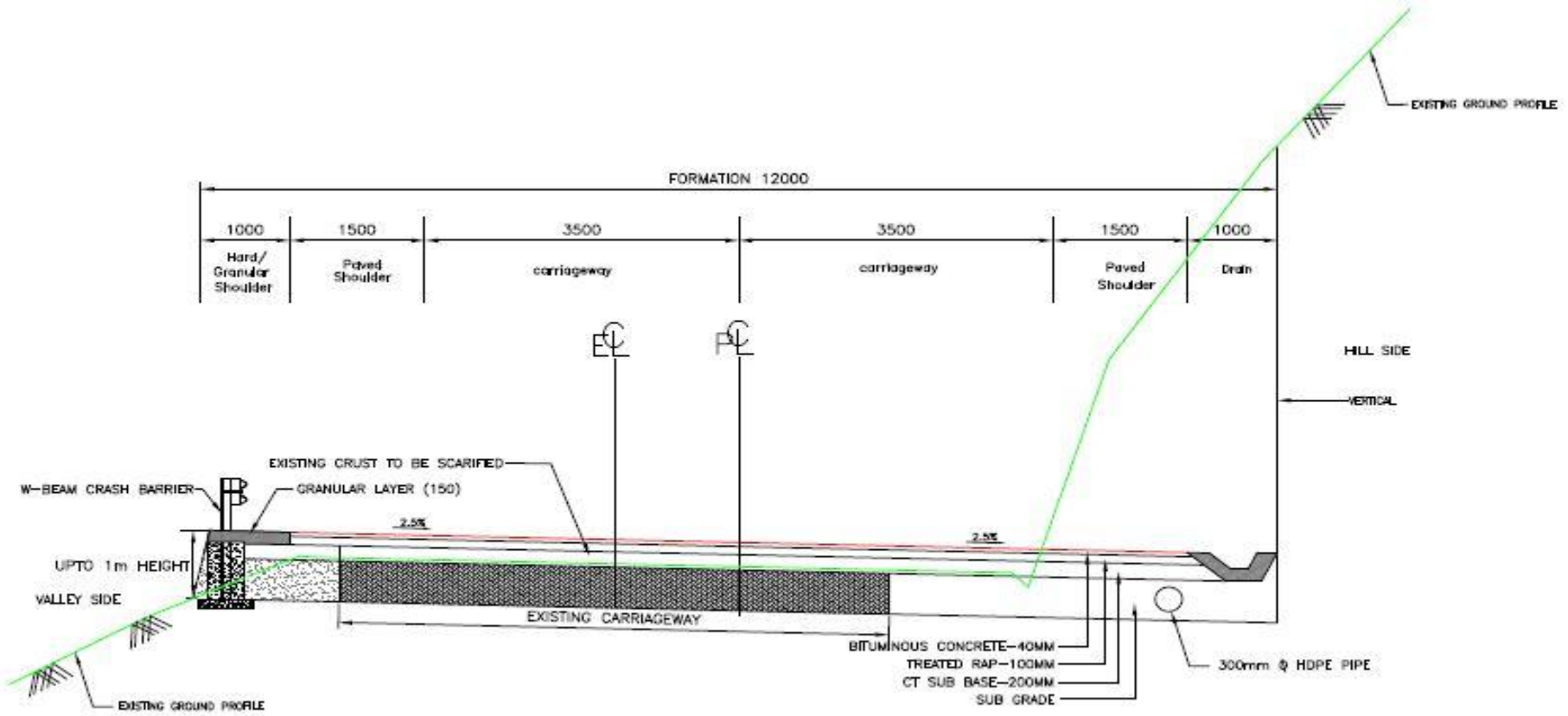
Typical Cross Section for widening of existing road to 2 lane with paved shoulder (Valley side Filling upto 1m and Hill side upto 4.0m Protection Soft rock+Soil) (TYPE-I-A)



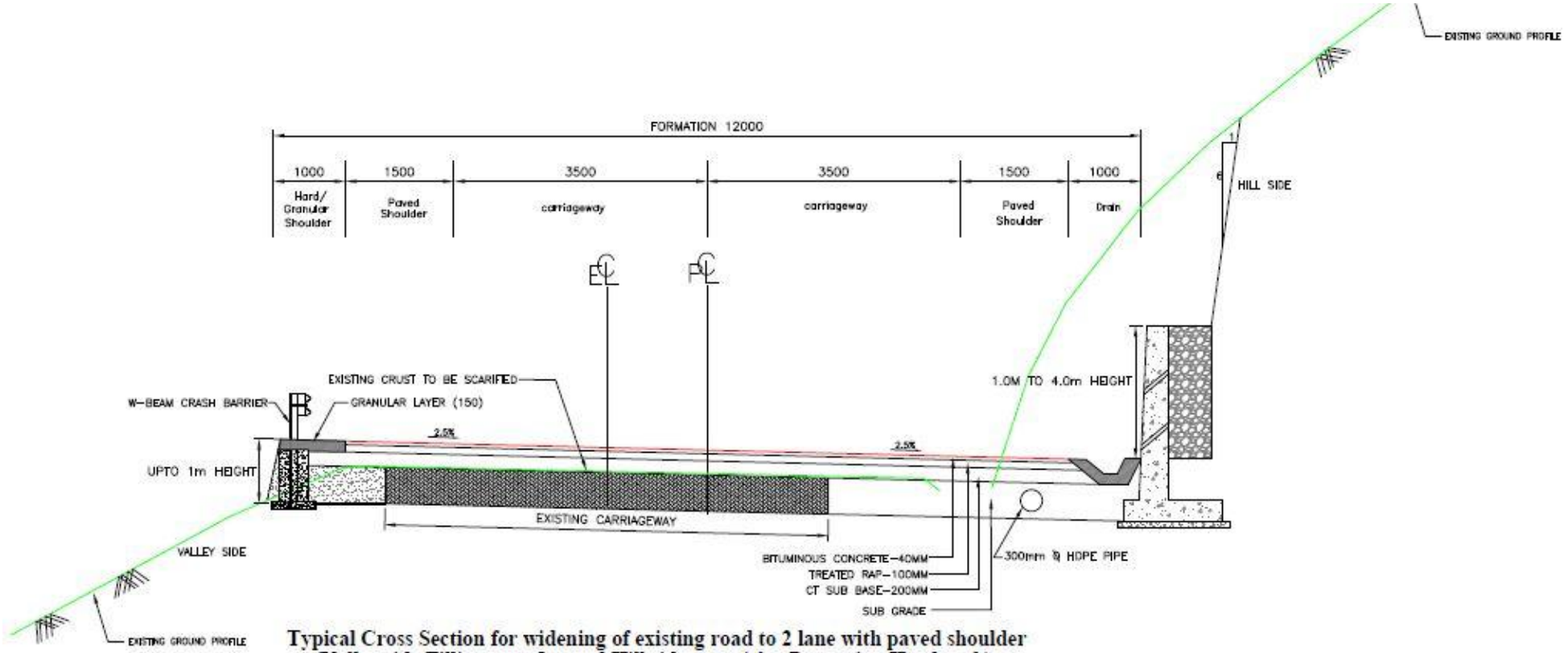
Typical Cross Section for widening of existing road to 2 lane with paved shoulder (Valley side Filling upto 4m and Hill side upto 4.0m Protection Soft rock+Soil) (TYPE-I-B)



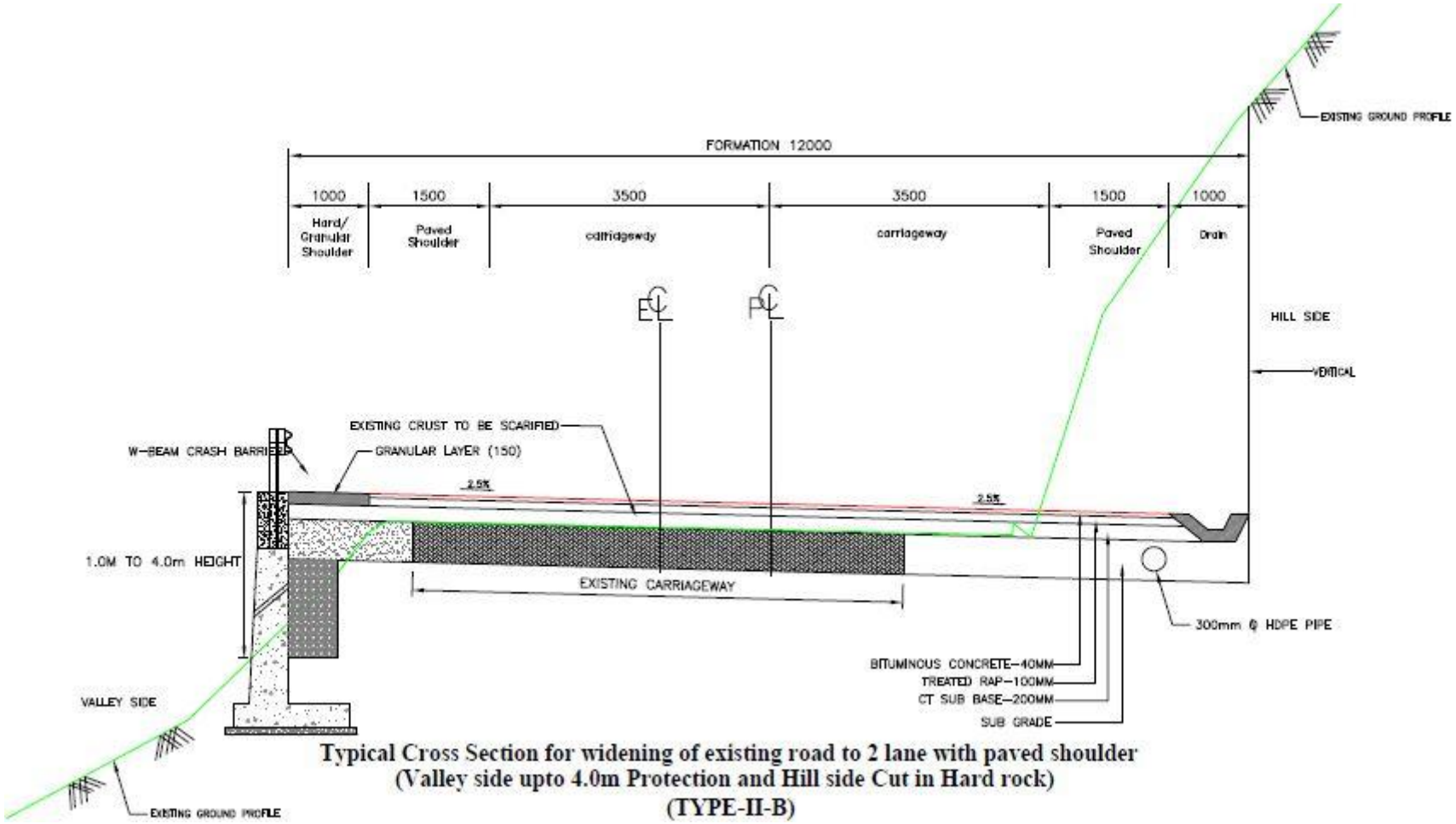
Typical Cross Section for 2 Lane with paved shoulder in fill Section
(Both sides upto 4.0m Protection Soft rock+Soil)
(TYPE-1-C)



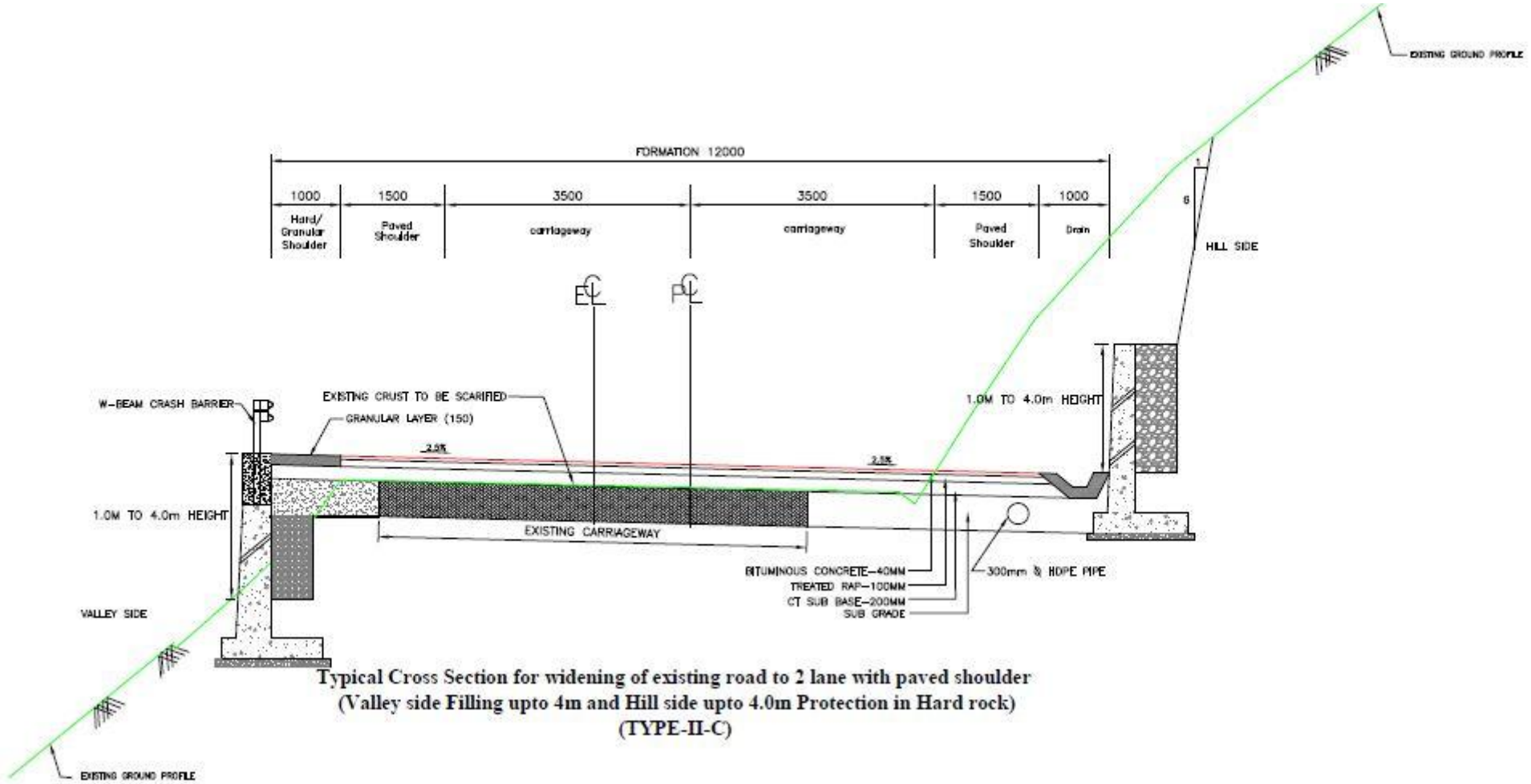
Typical Cross Section for widening of existing road to 2 lane with paved shoulder (Valley side Filling upto 1m and Hill side Cut in Hard rock) (TYPE-II)



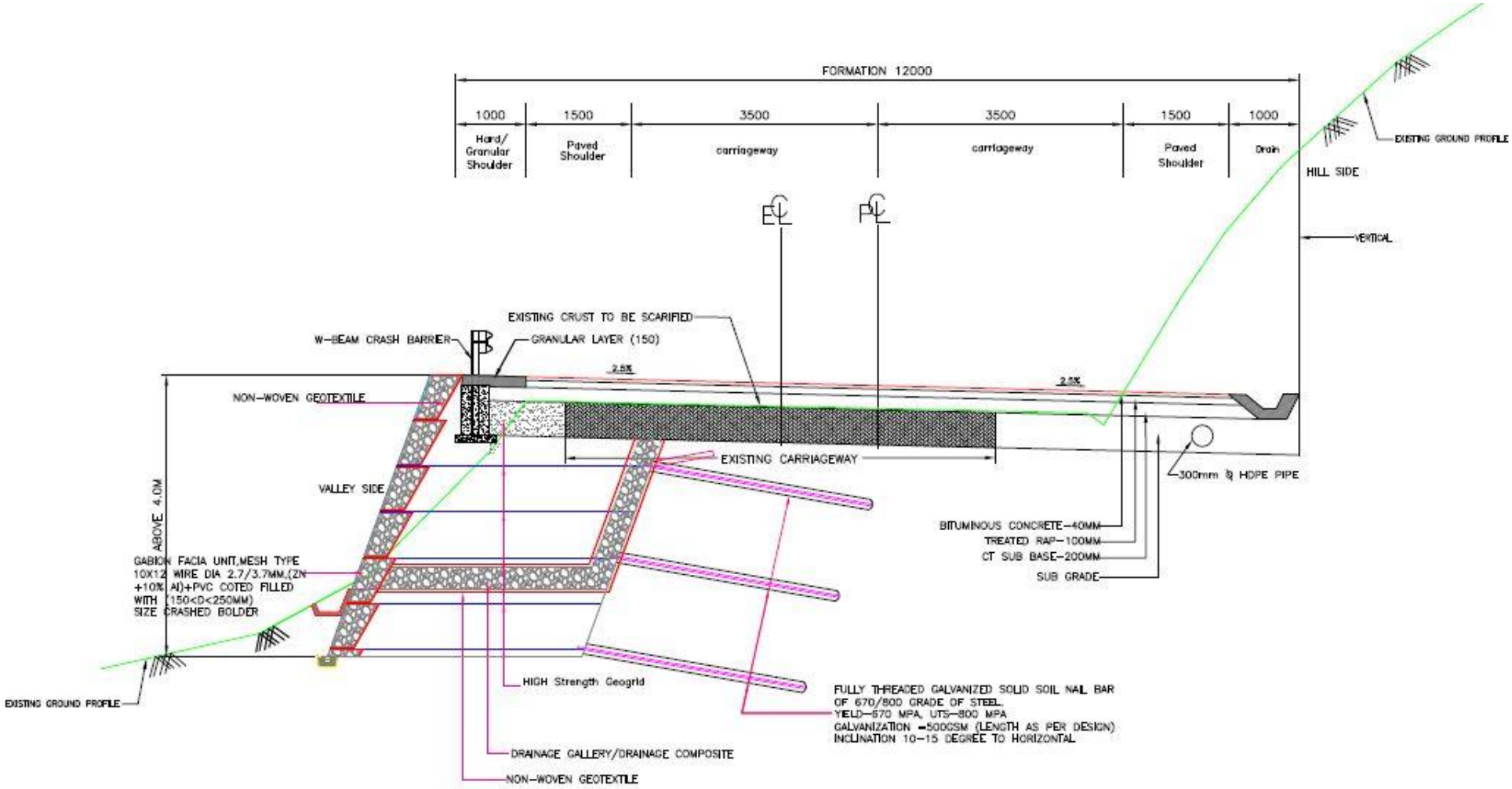
Typical Cross Section for widening of existing road to 2 lane with paved shoulder (Valley side Filling upto 1m and Hill side upto 4.0m Protection Hard rock) (TYPE-II-A)



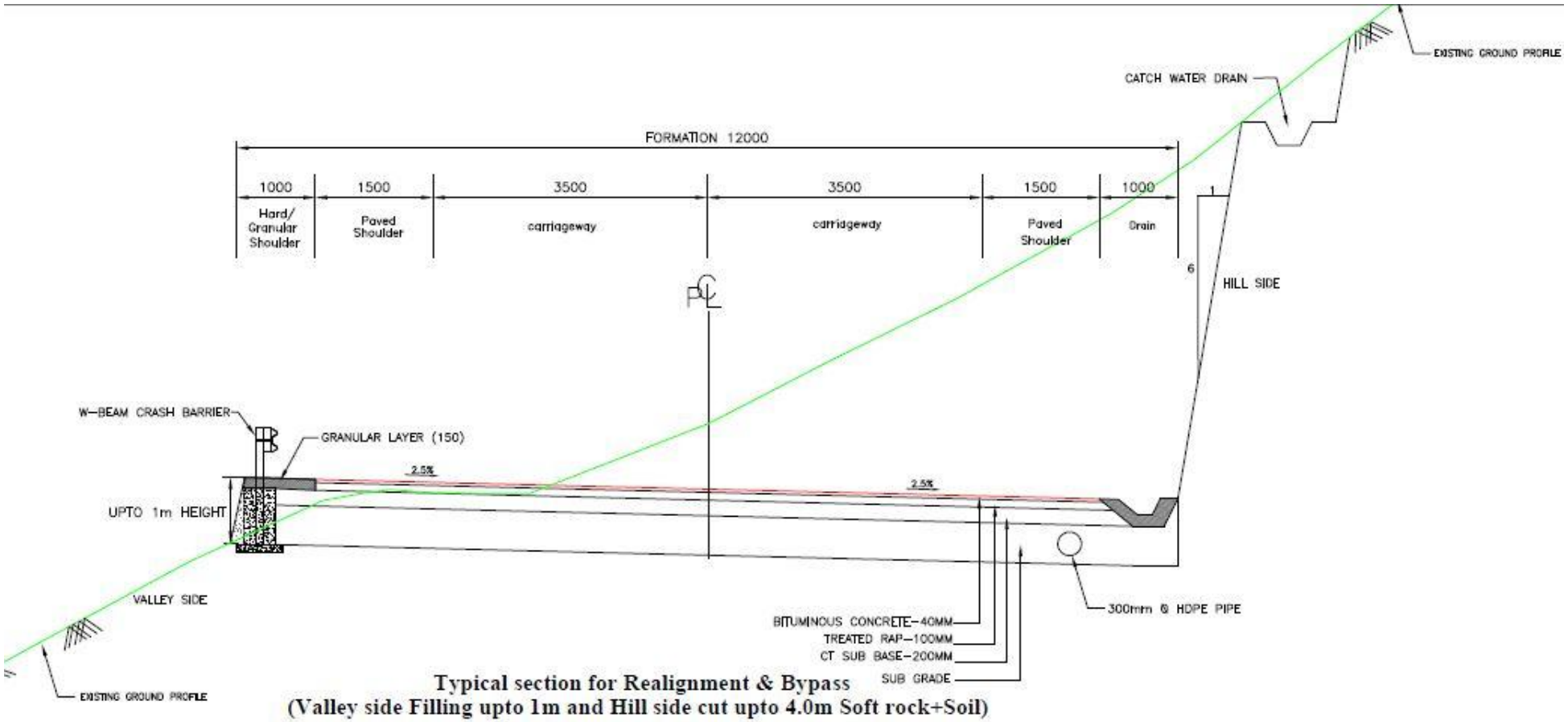
Typical Cross Section for widening of existing road to 2 lane with paved shoulder
(Valley side upto 4.0m Protection and Hill side Cut in Hard rock)
(TYPE-II-B)



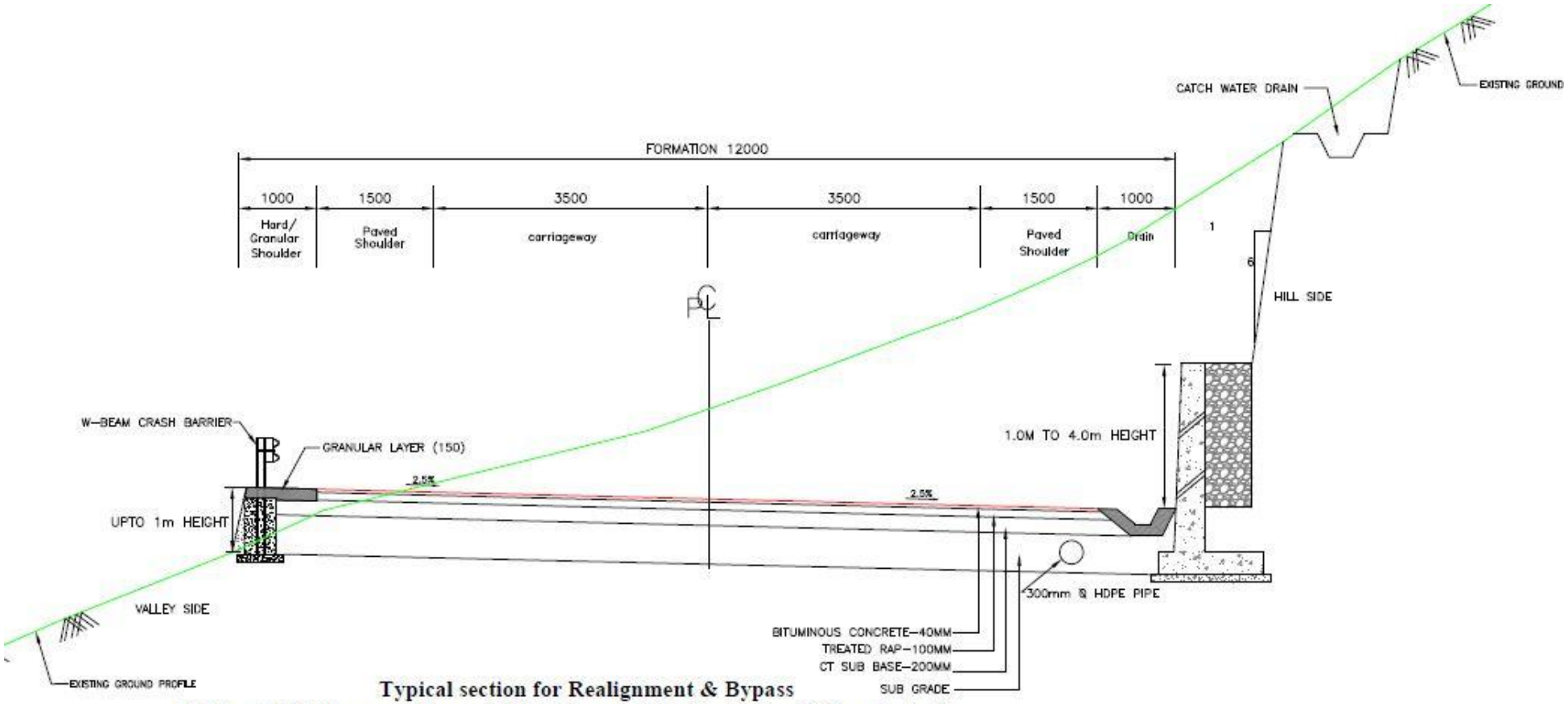
Typical Cross Section for widening of existing road to 2 lane with paved shoulder
(Valley side Filling upto 4m and Hill side upto 4.0m Protection in Hard rock)
(TYPE-II-C)



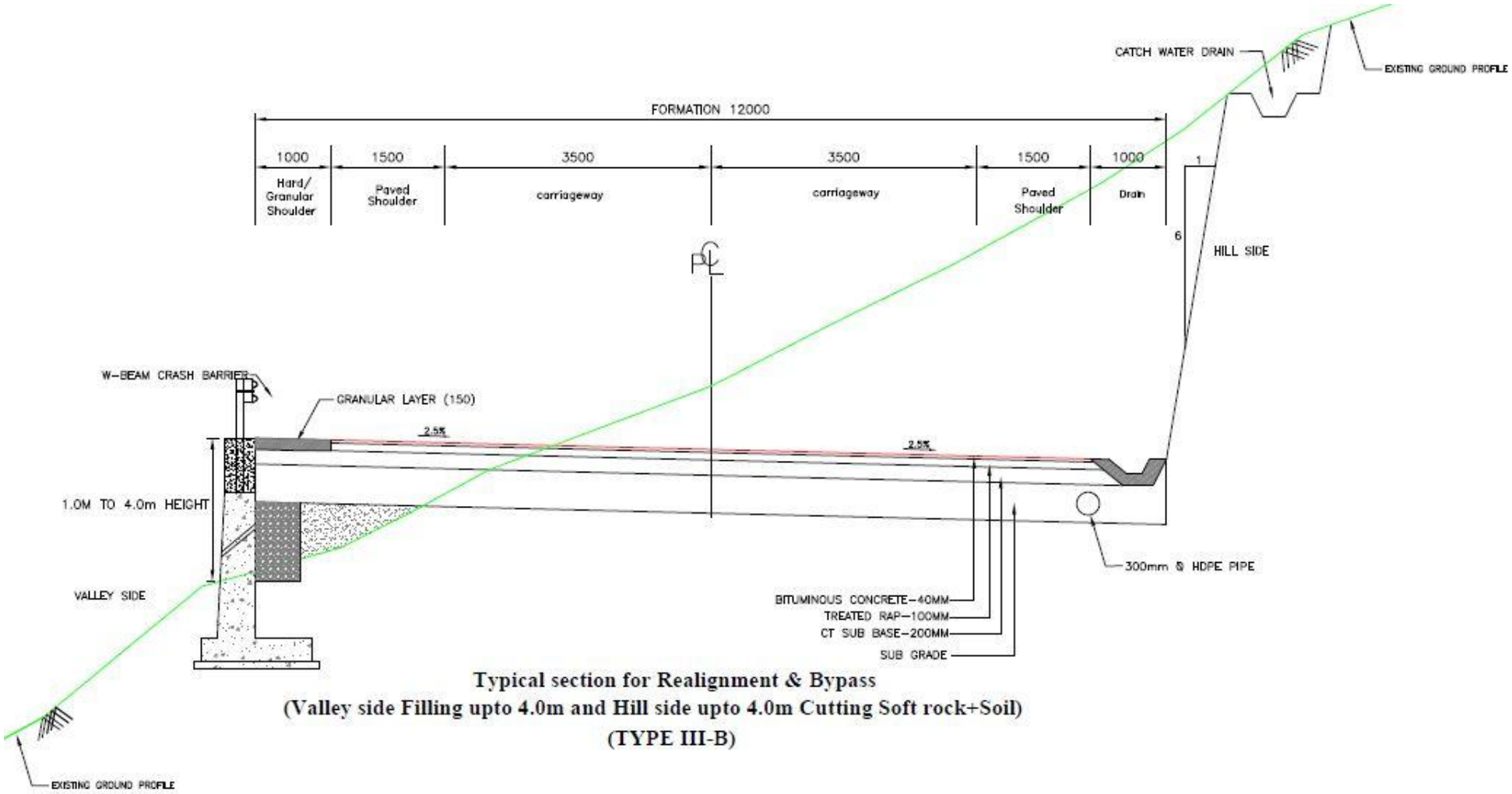
Typical Cross Section for widening of existing road to 2 lane with paved shoulder
(Valley side Filling >4.0m Protection in Hard rock)
(TYPE-II-D)



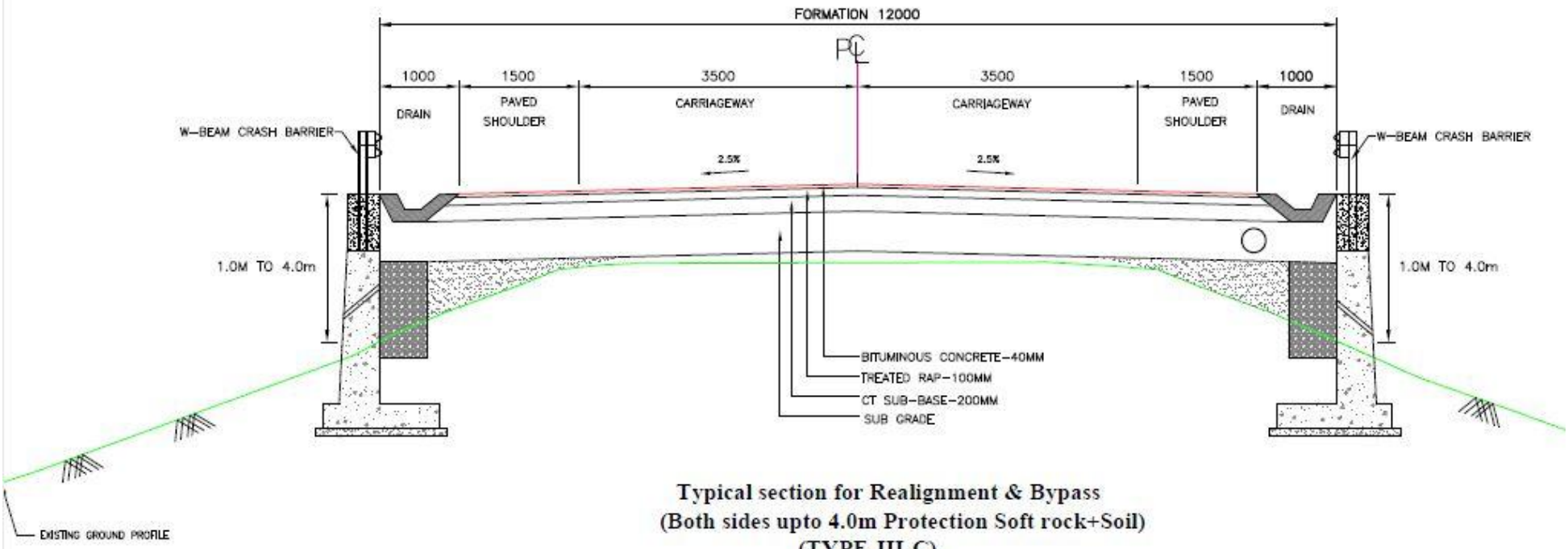
Typical section for Realignment & Bypass
(Valley side Filling upto 1m and Hill side cut upto 4.0m Soft rock+Soil)
(TYPE-III)



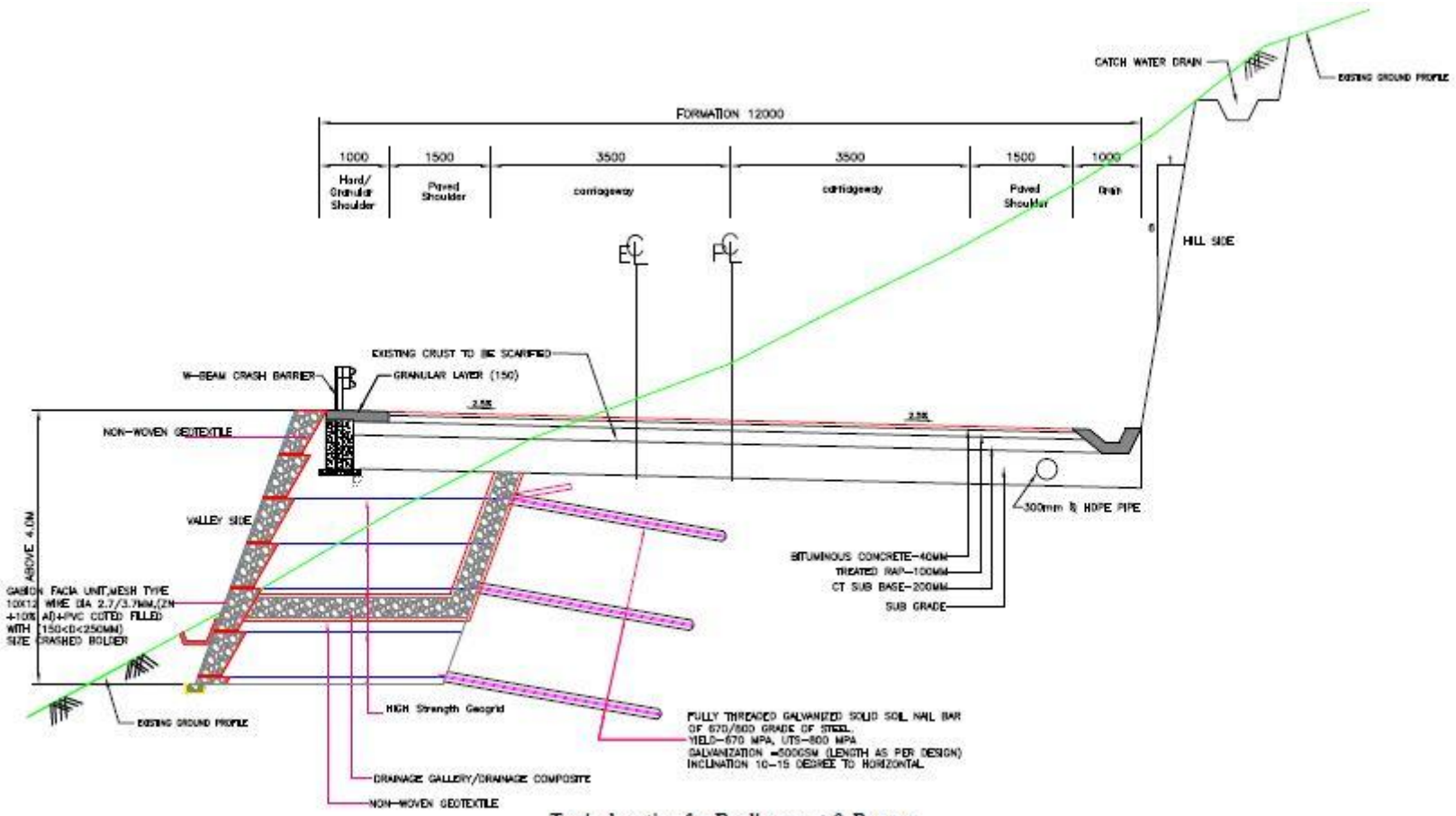
Typical section for Realignment & Bypass
(Valley side Filling upto 1m and Hill side upto 4.0m Protection Soft rock+Soil)
(TYPE-III-A)



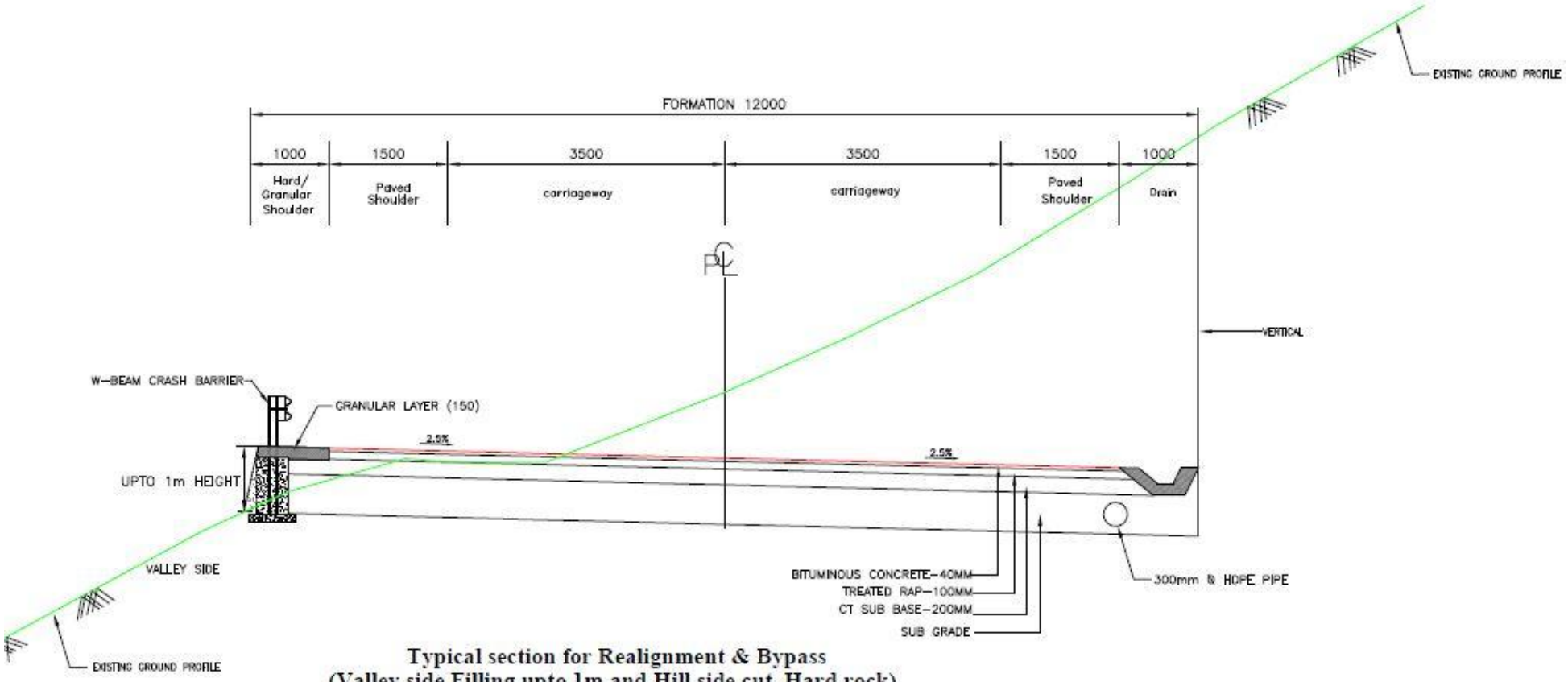
Typical section for Realignment & Bypass
(Valley side Filling upto 4.0m and Hill side upto 4.0m Cutting Soft rock+Soil)
(TYPE III-B)



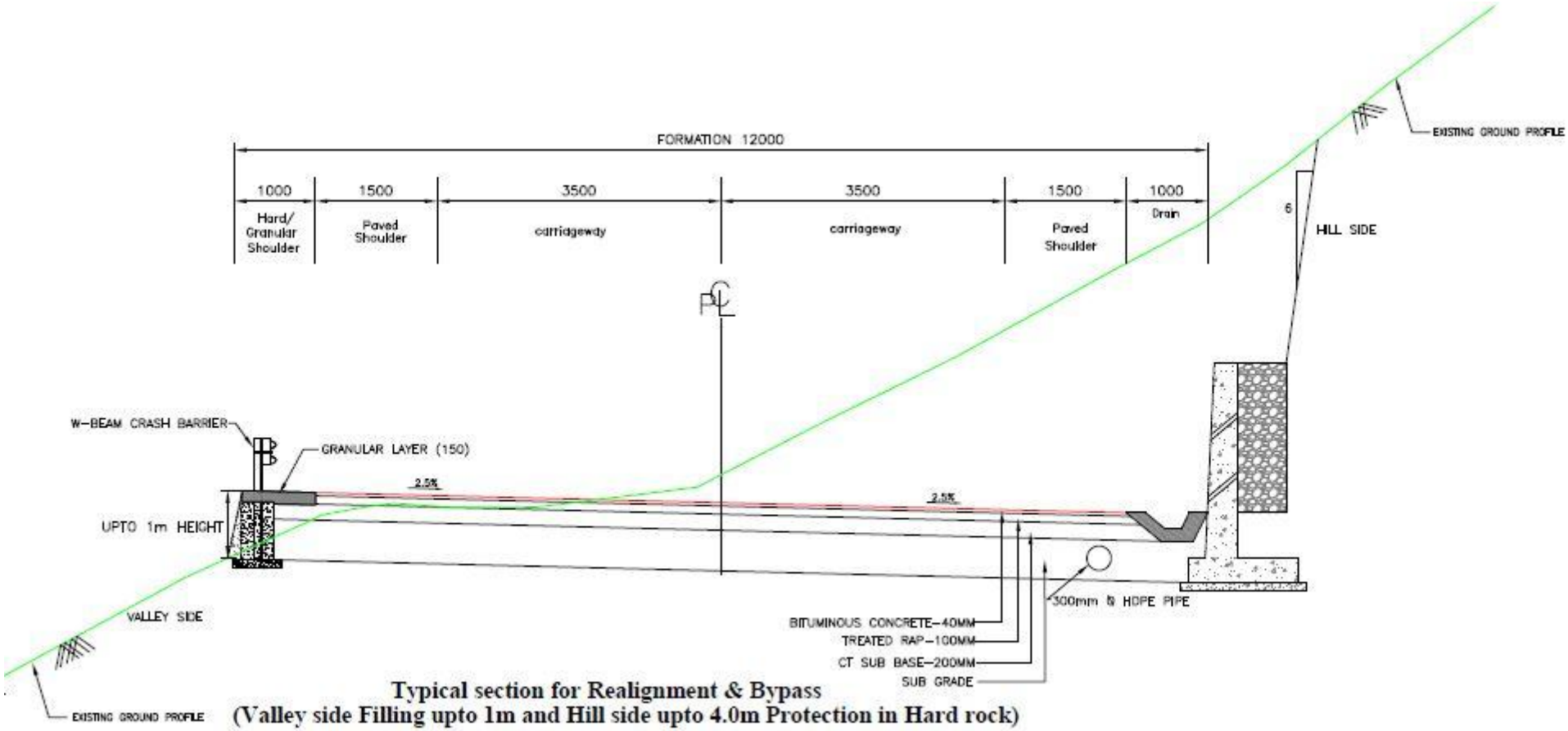
Typical section for Realignment & Bypass
(Both sides upto 4.0m Protection Soft rock+Soil)
(TYPE-III-C)



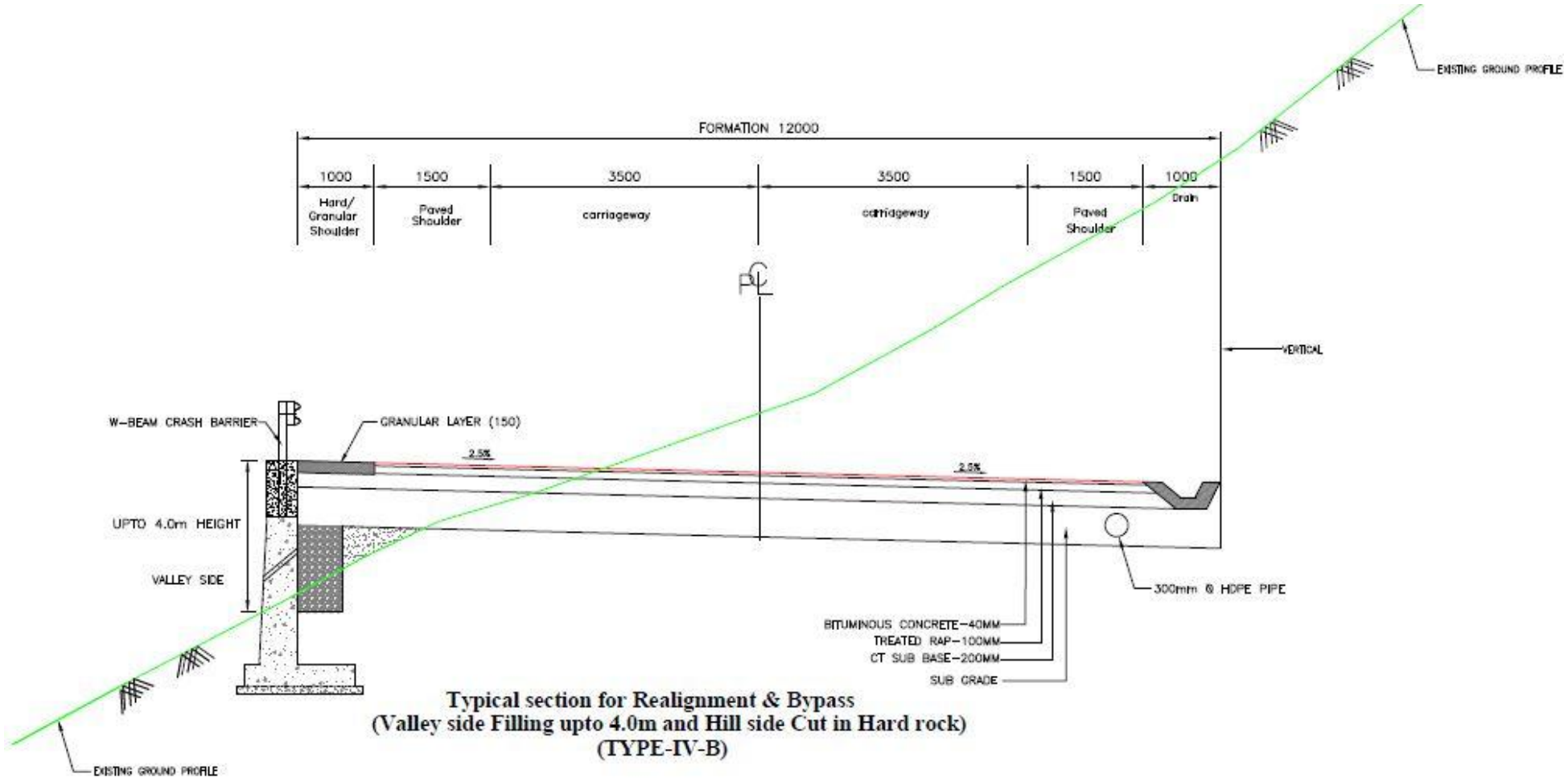
Typical section for Realignment & Bypass
(Valley side Filling >4.0m in soft rock)
(TYPE III-D)



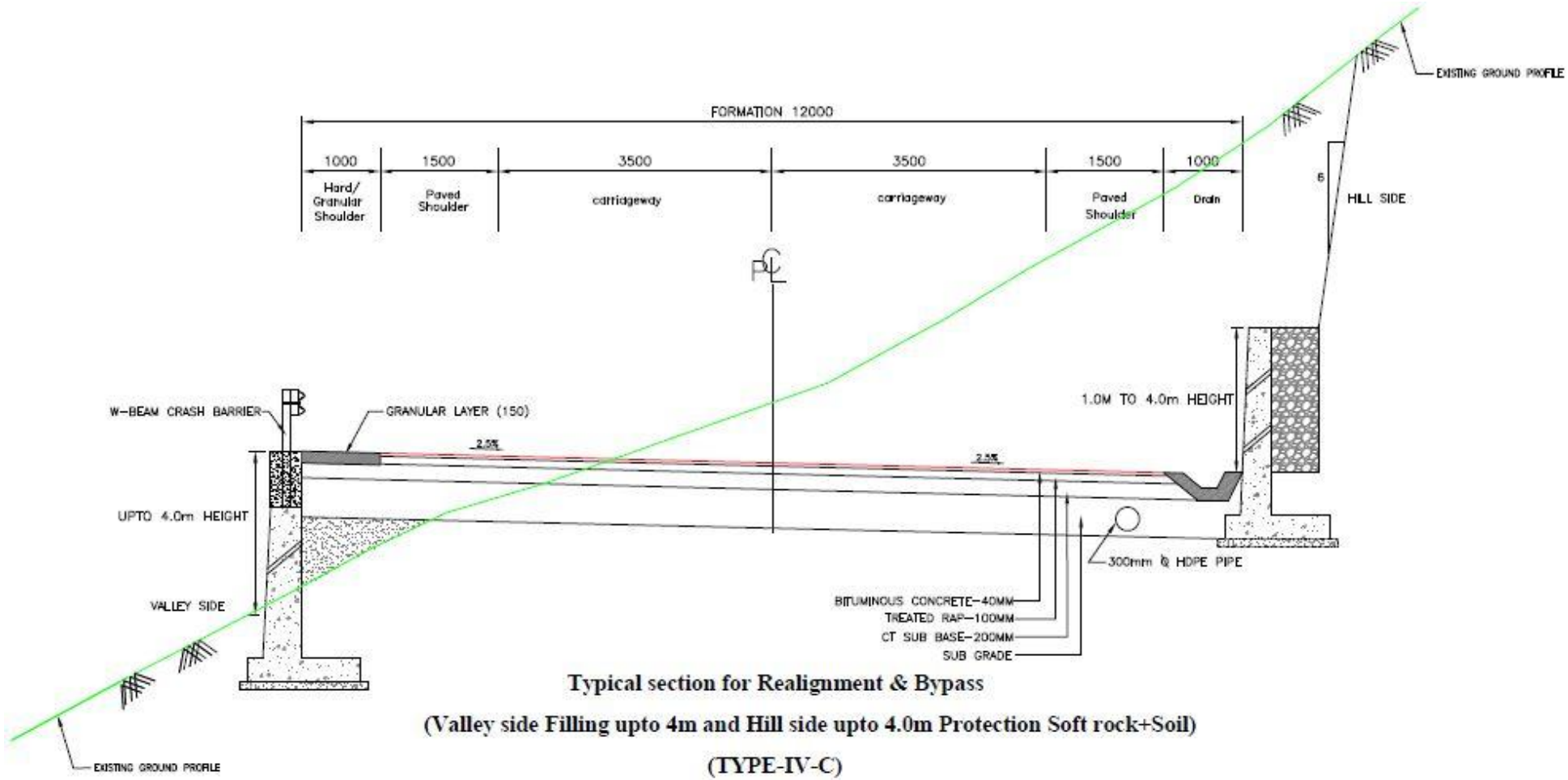
Typical section for Realignment & Bypass
(Valley side Filling upto 1m and Hill side cut Hard rock)
(TYPE-IV)



Typical section for Realignment & Bypass
(Valley side Filling upto 1m and Hill side upto 4.0m Protection in Hard rock)
(TYPE-IV-A)



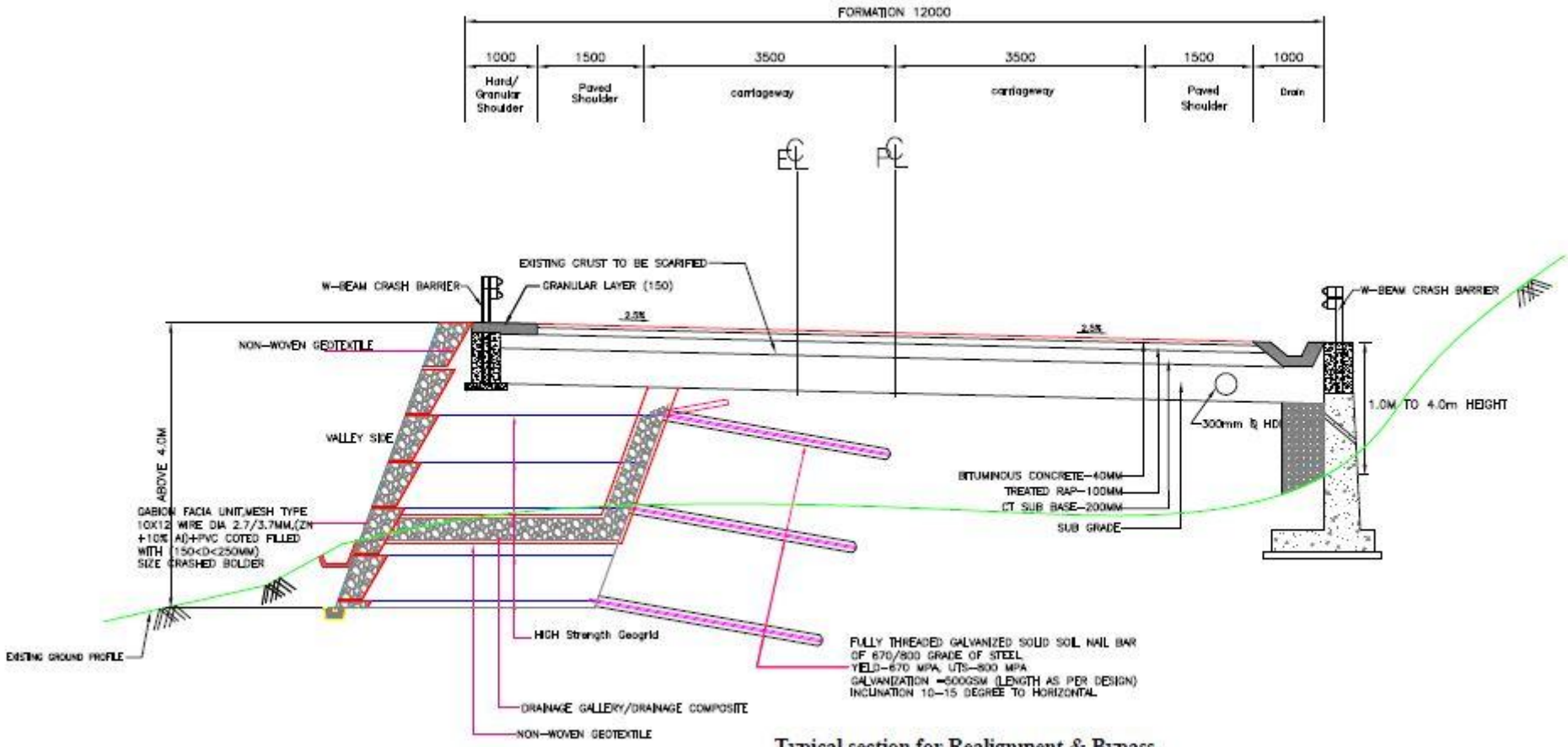
Typical section for Realignment & Bypass
(Valley side Filling upto 4.0m and Hill side Cut in Hard rock)
(TYPE-IV-B)



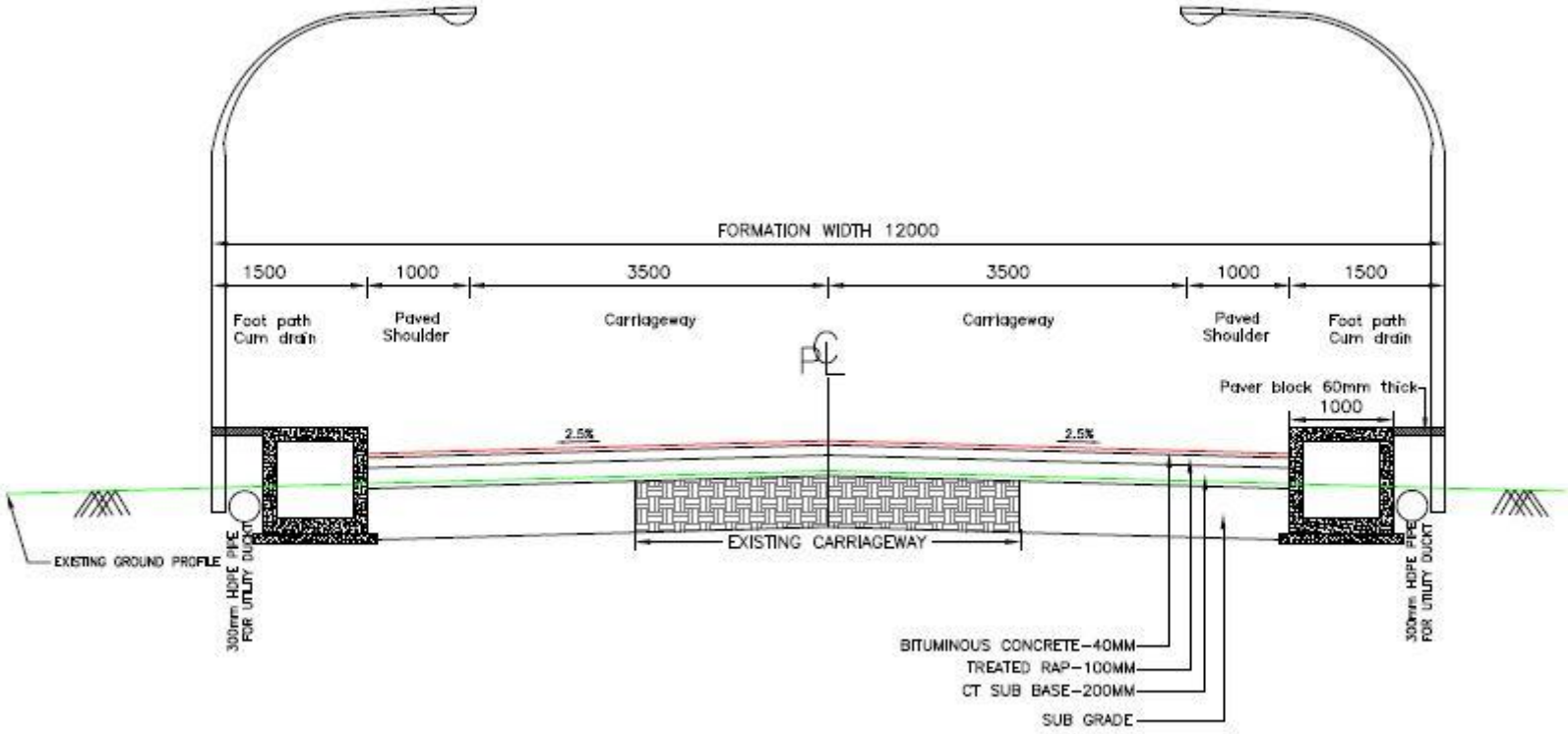
Typical section for Realignment & Bypass

(Valley side Filling upto 4m and Hill side upto 4.0m Protection Soft rock+Soil)

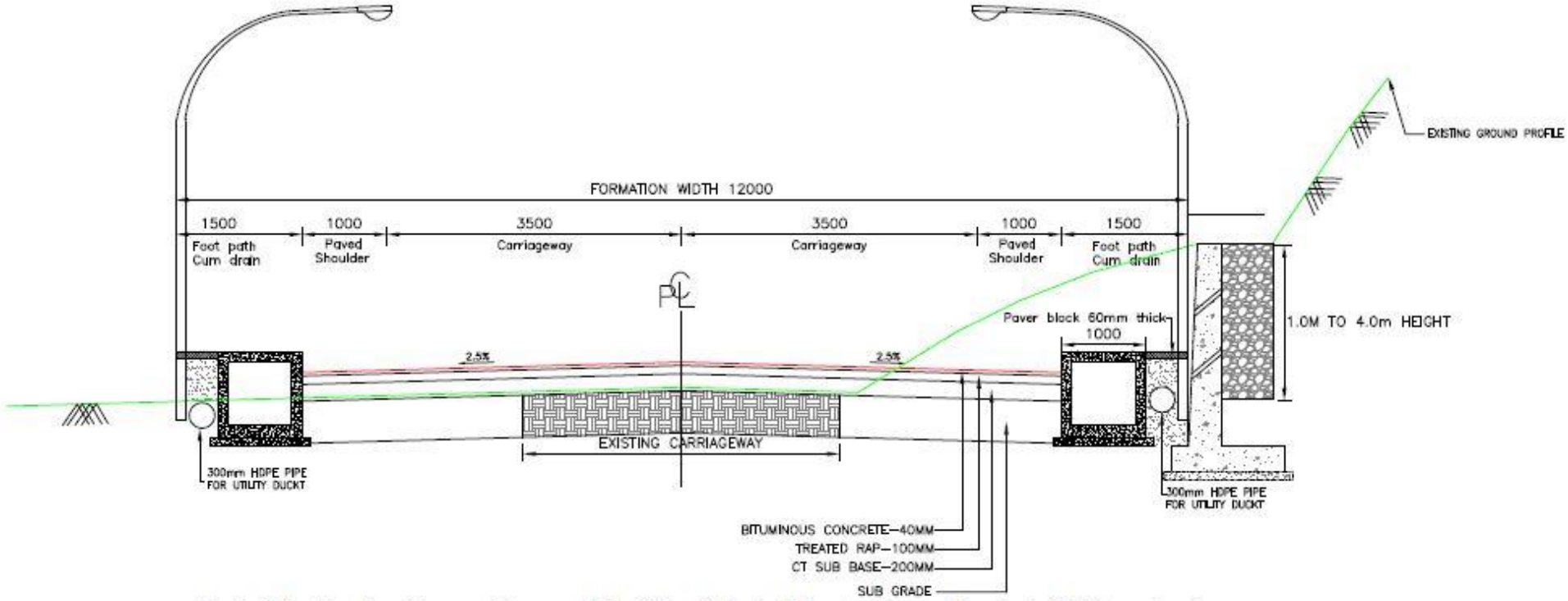
(TYPE-IV-C)



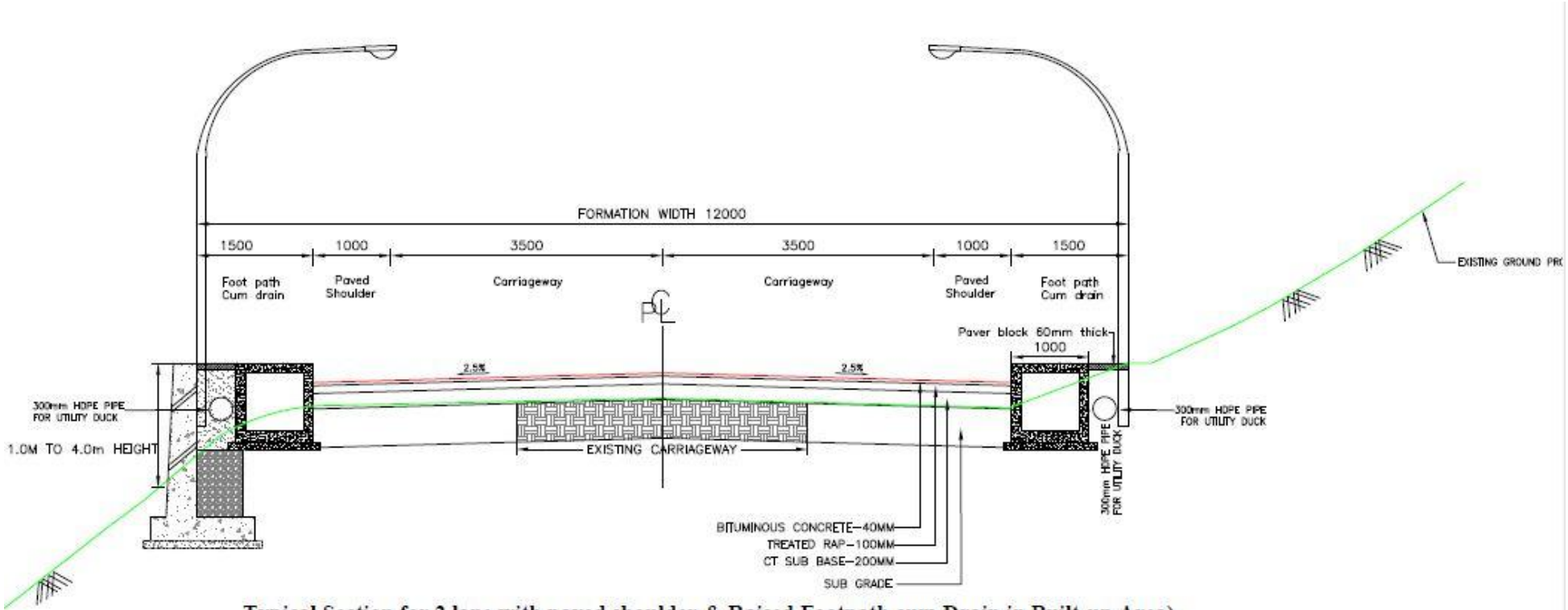
Typical section for Realignment & Bypass
(Both sides protection in Hard rock)
(TYPE-IV-D)



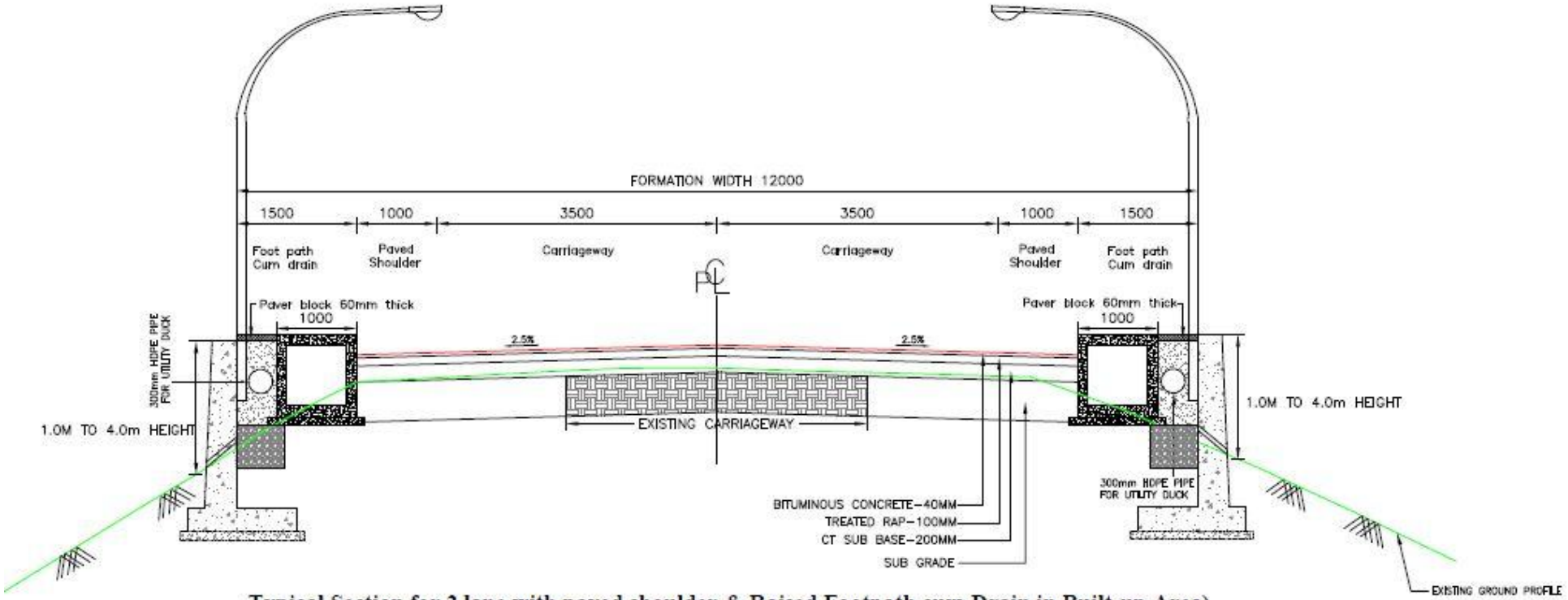
Typical Section for 2 lane with paved shoulder & Raised Footpath cum Drain in Built-up Area)
(12.0m formation width)
(TYPE-V)



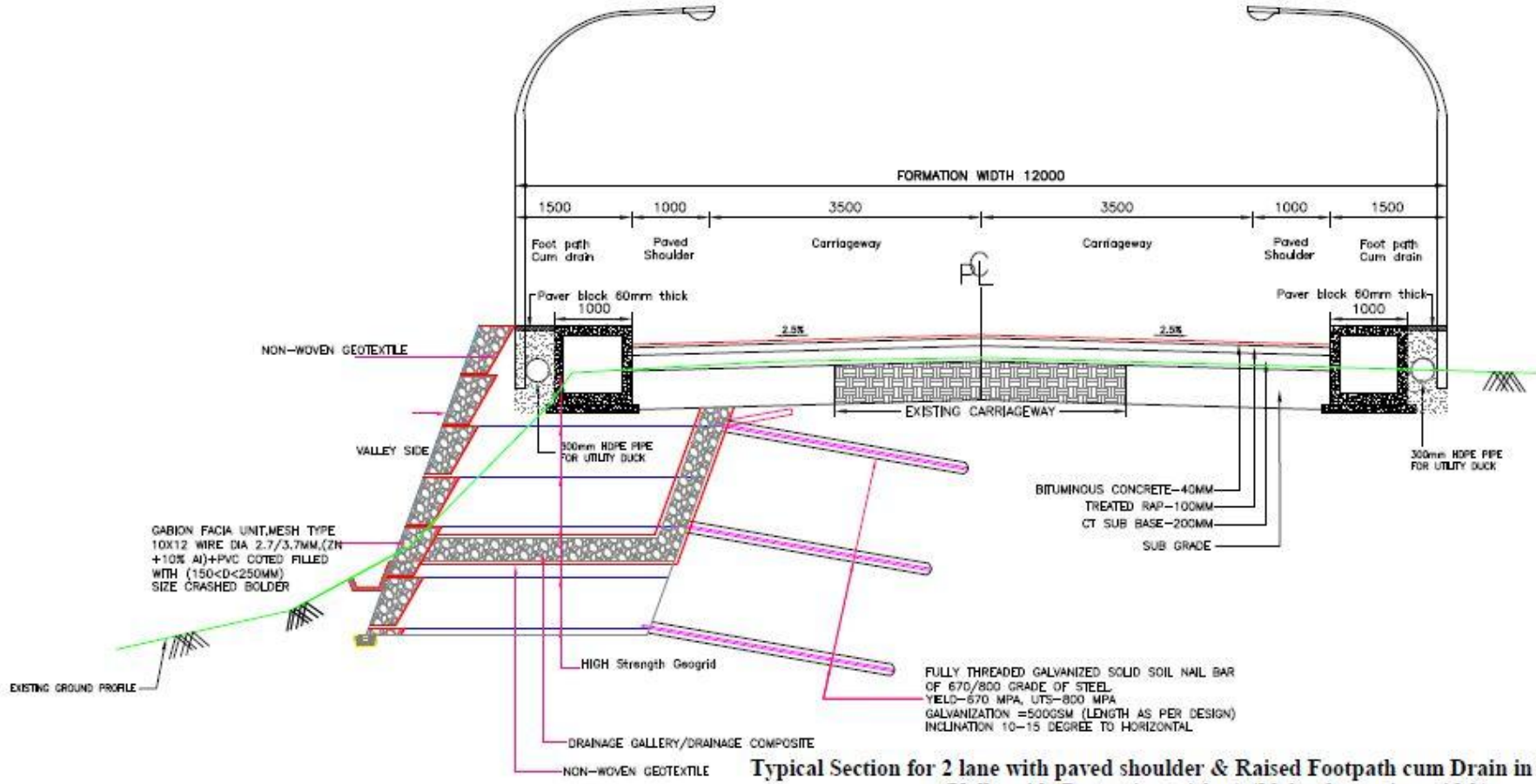
Typical Section for 2 lane with paved shoulder & Raised Footpath cum Drain in Built-up Area)
(Hill side Upto 4 m Protection) (12.0m formation width)
(TYPE-V-A)



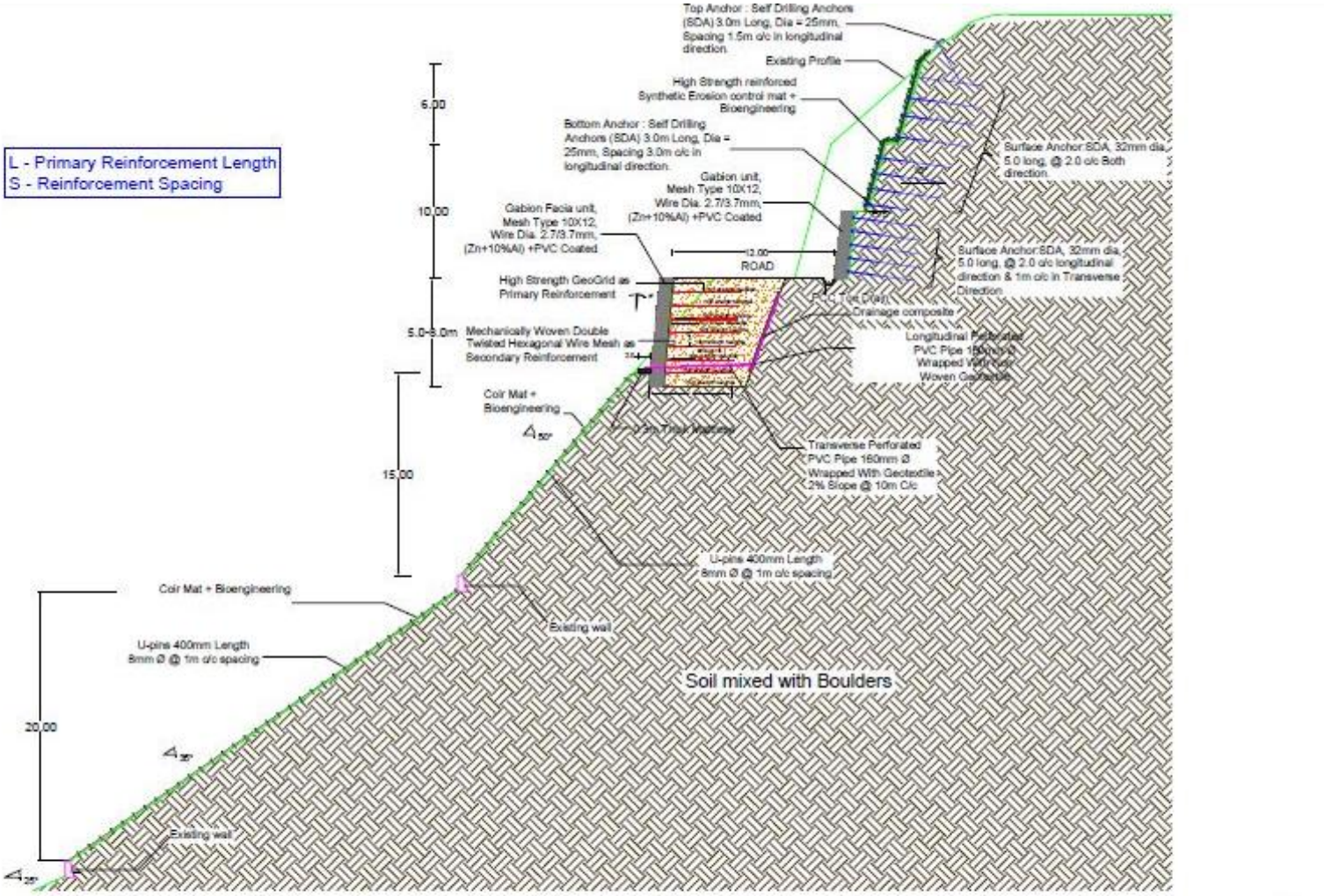
Typical Section for 2 lane with paved shoulder & Raised Footpath cum Drain in Built-up Area)
(Valley side Upto 4 m Protection and hill side no Protection) (12.0m formation width)
(TYPE-V-B)



Typical Section for 2 lane with paved shoulder & Raised Footpath cum Drain in Built-up Area)
(Both side protection Upto 4.0 m) (12.0m formation width)
(TYPE-V-C)

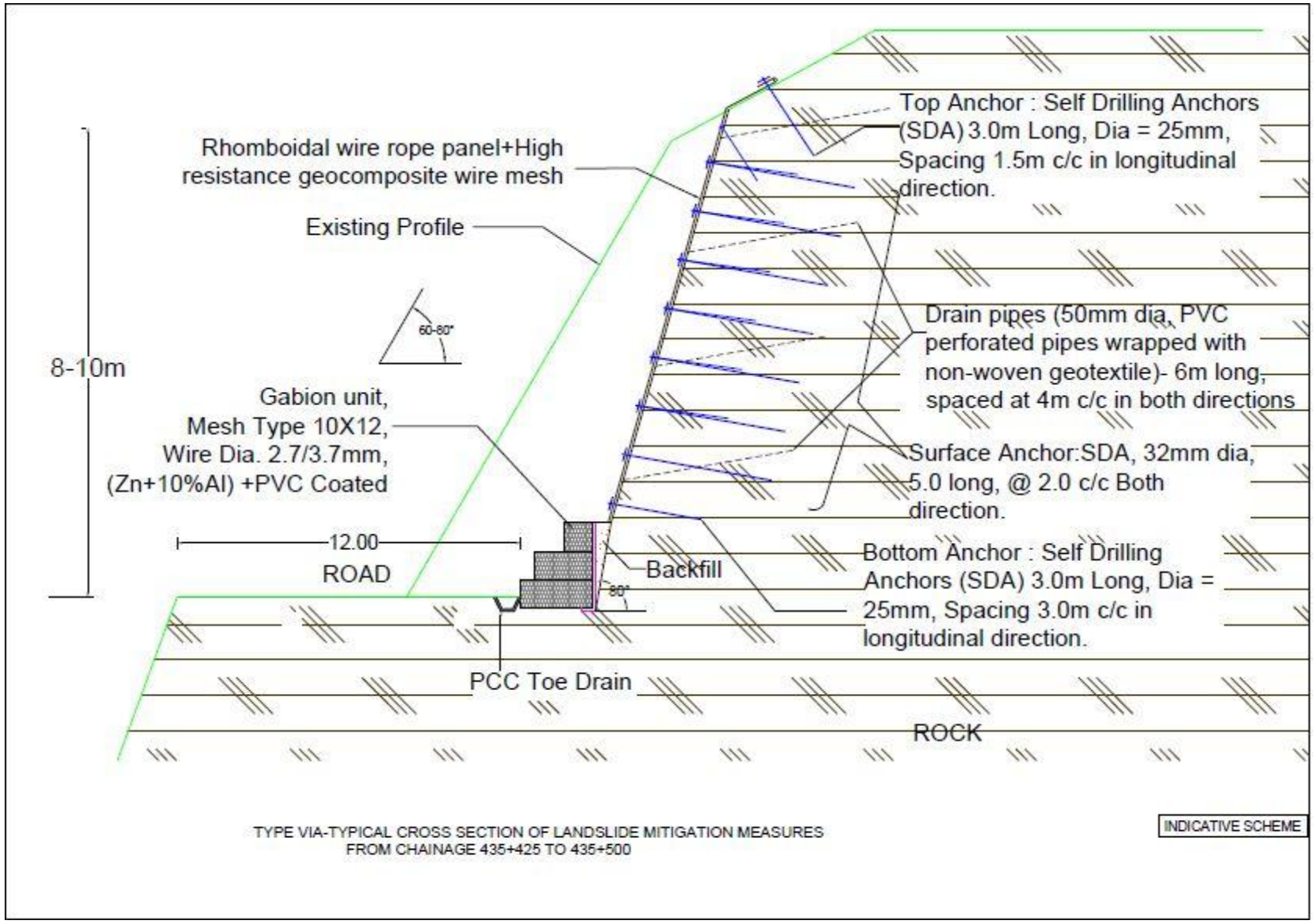


Typical Section for 2 lane with paved shoulder & Raised Footpath cum Drain in Built-up Area)
(Valley side Protection >4.0m) (12.0m formation width)
(TYPE-V-D)

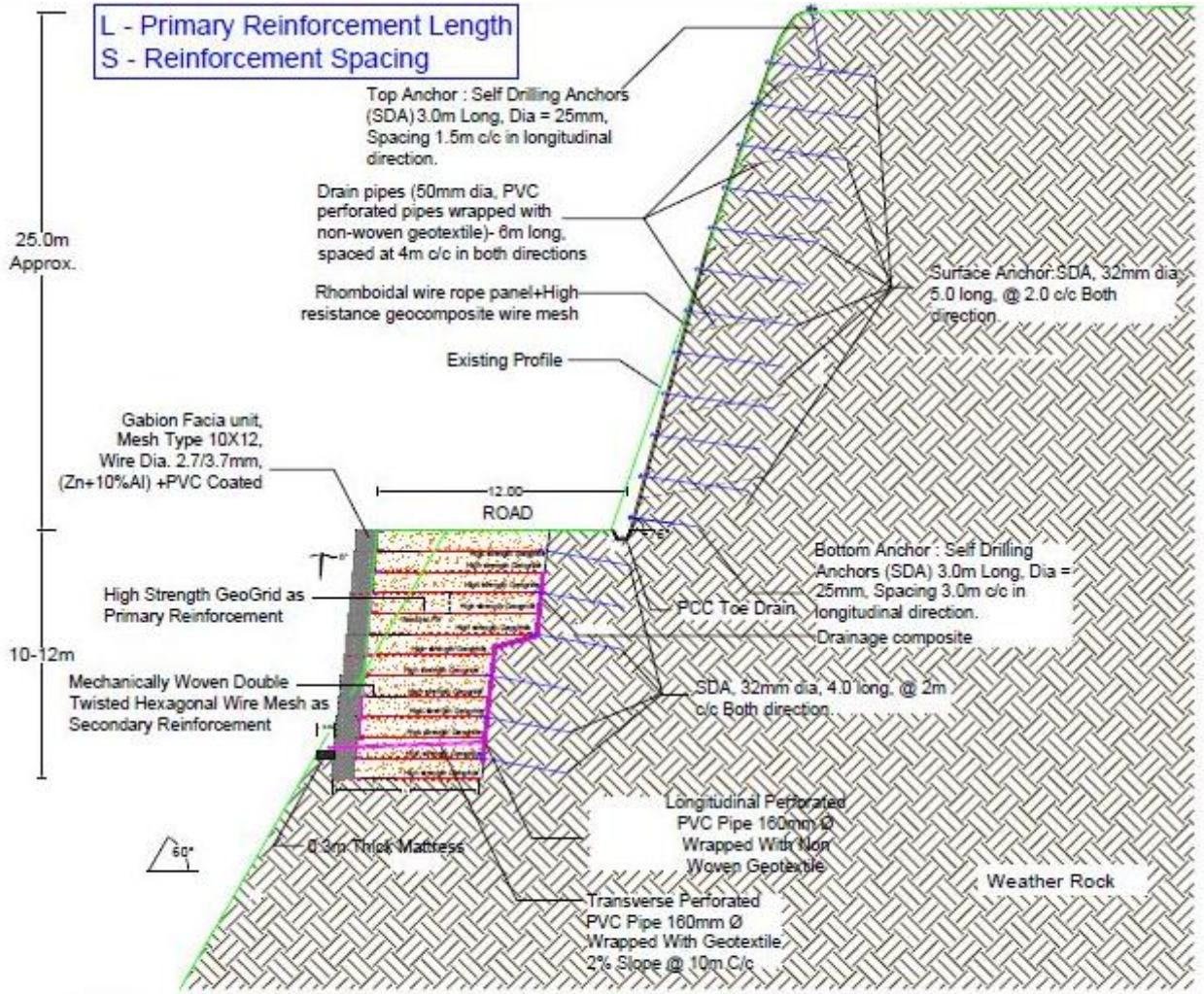


TYPE VI-TYPICAL CROSS SECTION OF LANDSLIDE MITIGATION MEASURES
FROM DESIGN CHAINAGE 429+350 TO 429+450

INDICATIVE SCHEME

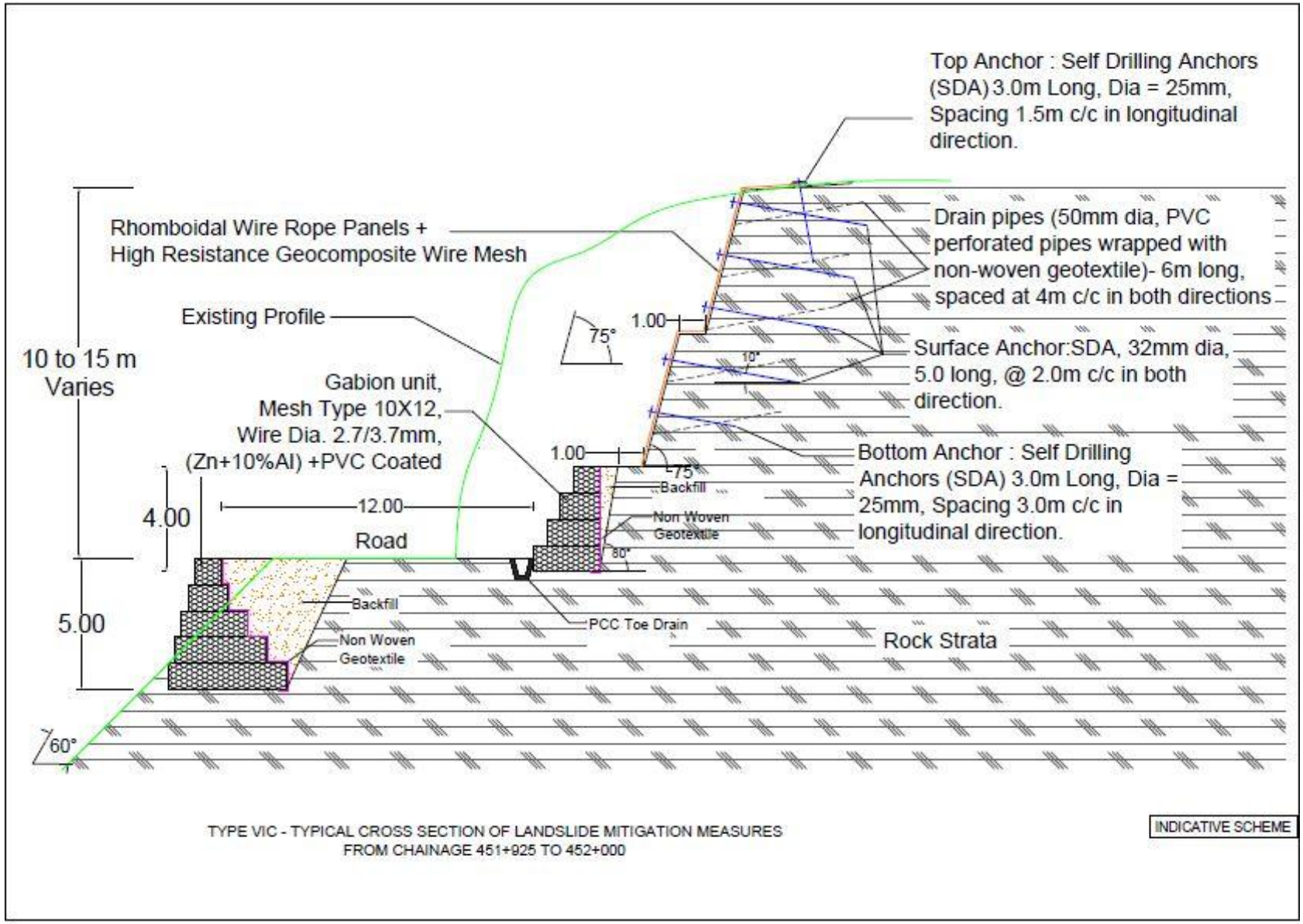


TYPE VIA-TYPICAL CROSS SECTION OF LANDSLIDE MITIGATION MEASURES FROM CHAINAGE 435+425 TO 435+500



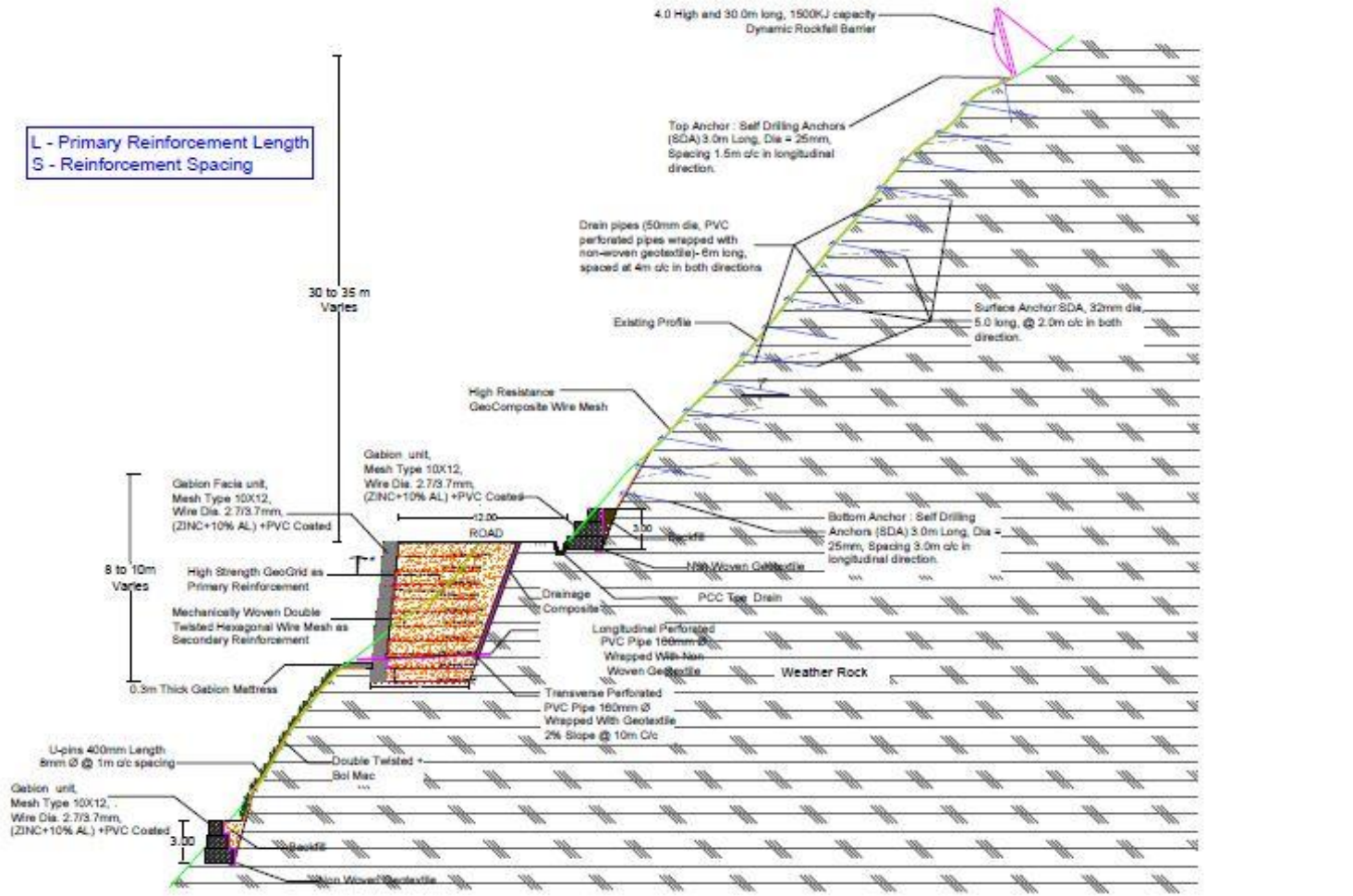
TYPE VIB - TYPICAL CROSS SECTION OF LANDSLIDE MITIGATIONMEASURES
FROM CHAINAGE 436+675 TO 436+825

INDICATIVE SCHEME



TYPE VIC - TYPICAL CROSS SECTION OF LANDSLIDE MITIGATION MEASURES FROM CHAINAGE 451+925 TO 452+000

INDICATIVE SCHEME



TYPE VID - TYPICAL CROSS SECTION OF LANDSLIDE MITIGATION MEASURES FROM CHAINAGE 464+900 TO 464+950

INDICATIVE SCHEME

SCHEDULE - C

(See Clause 2.1)

PROJECT FACILITIES

1. Project Facilities

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

a) Roadside furniture;

b) Pedestrian facilities;

c) Bus shelter

d) Truck lay byes

Others to be specified

2. Description of Project Facilities

Each of the Project Facilities is described below:

a) Roadside furniture;

The roadside furniture shall include the provision of:

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

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

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

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

v. **Hectometer / Kilometer stones**
Hectometer/ Kilometer Stones for the entire Project Highway at the locations as suggested in Manual.

vi. Boundary Pillar
Boundary pillar@50m along the alignment of the project road.

b) Pedestrian facilities;

The pedestrian facilities shall be provided as per the Manual.

c) Bus Shelter

The Contractor shall provide additional 19nos. of Bus Shelters along the project highway and the locations are given below. The design of Bus Shelters should be aesthetically pleased with surrounding. The locations of these bus shelters shall be finalized by the Contractor in consultation with Authority's Engineer.

S. No.	Design Chainage (km)	Location	Side
1	428+000	Bachpur	Both side
2	429+000	Chamoli	Both side
3	431+000	Khetrapal	Both side
4	433+000	Bheemtala	Both side
5	434+000	Chhinka	Both side
6	435+000	Bedubagar	Both side
7	436+350	Birhi	Both side
8	439+350	Koriya	Both side
9	440+000	Mayapuri	Both side
10	441+000	Batula	Both side
11	441+600	Gadora	Both side
12	443+000	Gari	Both side
13	444+000	Agthala	Both side
14	445+000	Pepalkothi	Both side
15	451+000	Garudganga	Both side
16	452+000	Pakhi	Both side
17	456+000	Tangni	Both side
18	459+550	Patalganga	Both side
19	461+000	Langsidhar	Both side

d) Truck lay byes

S.N	Design Chainage (km)	Location	Side
1	444+600	pepalkothi	One side

SCHEDULE – D

(See Clause 2.1)

SPECIFICATIONS AND STANDARDS

1. Construction

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

2. Design Standards

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

Manual of Specifications and Standards for Two-Laning of Highways (IRC: SP: 73-2015) & Hill road (IRC:SP: 48-1998), referred to herein as the Manual.

{ Note: specify the relevant Manual, Specifications and Standards}

Annex - I

(Schedule-D)

Specifications and Standards for Construction

1. Specification and Standards

All Materials, works and construction operations shall conform to the Manual of Specifications and Standards for Two-Lanning of Highways (IRC: SP: 73-2015), referred to as the Manual, and MORTH Specifications for Road and Bridge Works. Where the specification for a work is not given, Good Industry Practice shall be adopted to the satisfaction of the Engineer in charge.

2. Deviations from the Specifications and Standards

2.1. 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.

2.2. 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:

{ 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.}

SCHEDULE – E

(See Clause 2.1 and 14.2)

MAINTENANCE REQUIREMENTS

1. Maintenance Requirements

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

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

1.3. All Materials, works and construction operations shall conform to the "SPECIFICATIONS FOR ROAD ANDBRIDGE WORKS (FIFTH REVISION, April 2013)", including latest corrections slips, issued by the Ministry of Surface Transport & Highways, Government of India and published by the Indian Roads Congress.

This being not an item rate contract, the procedure for Measurement and Payment for the items of works shall be in accordance with provision of Article 19 of the Agreement. Therefore the Sub Clauses of measurement for payment and rates in above specifications stand deleted.

Where the specifications for a work are not given, Good Industry Practice shall be adopted to the satisfaction of the Authority's Engineer.

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: SP:35. 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 torrential rains, floods, earthquake or other natural disasters shall be undertaken by the Contractor at its own cost and/or out of the proceeds of insurance.

Annex – I

(Schedule-E)

Repair/rectification of Defects and deficiencies

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

Nature of Defect or deficiency		Time limit for repair/ rectification
ROADS		
(a)	**Carriageway and paved shoulders**	
(i)	Breach or blockade	Temporary restoration of traffic within 24 hours; permanent restoration within 15 (fifteen) days
(ii)	Any significant change in roughness value from original value [more than 5%] in a stretch of 1 km (as measured by a Calibrated bump integrator)	120 (one hundred and twenty) days
(iii)	Pot holes	24 hours
(iv)	Any cracks in road surface	15 (fifteen) days
(v)	Any depressions, rutting exceeding 10 mm in road surface	30 (Thirty) days
(vi)	Skidding	7 (seven) days
(vii)	Any other defect/distress on the road	15 (fifteen) days
(viii)	Damage to pavement edges	15 (fifteen) days
(ix)	Removal of debris, dead animals	6 hours
(x)	Any other defects/deficiency not covered above but pointed out by Engineer	3 (Three) days
(b)	**Granular earth shoulders, side slopes, drains and culverts**	
(i)	Edge drop at shoulders exceeding 40 mm	7 (Seven) days

(ii)	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
(iii)	Variation by more than 15% in the prescribed side (embankment) slopes	30 (thirty) days
(iv)	Rain cuts/gullies in slope	7 (Seven) days
(v)	Damage to or silting of culverts and side drains	7 (Seven) days
(vi)	Desilting of drains in urban/semi-urban areas	24 hours
(vii)	Railing, parapets, crash barriers	7 (Seven) days (Restore immediately if causing safety hazard)
(viii)	Any other defects/deficiency not covered above but pointed out by Engineer	3 (Three) days
(c)	**Road side furniture including road sign and pavement marking**	
(i)	Damage to shape or position, poor visibility or loss of retro-reflectivity	48 hours
(ii)	Painting of KM stone, railing, parapets, crash barriers	As and when required/Once every year
(iii)	Danaged/missing roa signs required replacement	7 (Seven) days
(iv)	Damage to road mark ups	7 (Seven) days
(v)	Any other defects/deficiency not covered above but pointed out by Engineer	3 (Three) days
(d)	**Road lighting**	
(i)	Any major failure of the system	24 hours
(ii)	Faults and minor failures	8 hours
(iii)	Any other defects/deficiency not covered above but pointed out by Engineer	3 (Three) days
(e)	**Trees and plantation**	
(i)	Obstruction in a minimum head-room of 5 m above carriageway or obstruction in visibility of road signs	24 hours
(ii)	Removal of fallen trees from carriageway	4 hours
(iii)	Deterioration in health of trees and bushes	Timely watering and treatment

(iv)	Trees and bushes requiring replacement	30 (Thirty) days
(v)	Removal of vegetation affecting sight line and road structures	15 (fifteen) days
(vi)	Any other defects/deficiency not covered above but pointed out by Engineer	3 (Three) days
(f)	**Other Project Facilities, Rest Area and Approach roads**	
(i)	Damage in pedestrian facilities, truck lay-buys, bus-bays, bus-shelters, cattle, crossings, [Traffic Aid Posts, Medical Aid Posts] and service roads	15 (fifteen) days
(ii)	Cleaning of toilets	Every 4 hours
(iii)	Defects in electrical, water and sanitary installations	24 hours
(iv)	Any other defects/deficiency not covered above but pointed out by Engineer	3 (Three) days
(v)	Rescue operations and attendance at accidents	Round the clock patrolling Inform police and other agencies immediately Removal of vehicles or debris. Assistance for first-aid and transport of accident victim to hospital Arrangement for safe movement of traffic
(vi)	Any other defects/deficiency not covered above but pointed out by Engineer	3 (Three) days
(vii)	Damaged vehicles or debris on the road	4 (Four) hours
(viii)	Malfunctioning of the mobile cranes	4 (four) hours
Bridges		
(a)	**Superstructure**	
(i)	Any damage, cracks, spalling/scaling Temporary measures Permanent measures	 Within 48 hours Within 15 (fifteen) days or as specified by the Authority's Engineer

(b)	**Bearings (metallic) of bridges**	
(i)	Deformation	15 (fifteen) days Greasing of metallic bearings once in a year
(c)	**Joints**	
(i)	malfunctioning of joints	15 (fifteen) days
(ii)	Any other defects/deficiency not covered above (a) , (b) &(c) but pointed out by Engineer	3 (Three) days
(d)	**Foundations**	
(i)	Scouring and/or cavitation	15 (fifteen) days
(e)	**Piers, abutments, return walls and wing walls**	
(i)	Cracks and damages including settlement and tilting, Spalling, scaling	30 (thirty) days
(ii)	Any other defects/deficiency not covered above (d) & (e) but pointed out by Engineer	3 (Three) 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 of 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
(viii)	Any other defects/deficiency not covered	3 (Three) days

	above but pointed out by Engineer	

The failure to address above measures for any of the defects/deficiency may attract reduction in payment as per schedule M

Schedule-F

(See Clause 3.1.5(a))

APPLICABLE PERMITS

1. **Applicable Permits**

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 Panchayat and Pollution Control Board for installation of crushers;

(c) License for use of explosives;

(d) Permission of the State Government for drawing water from river/reservoir;

(e) License from inspector of factories or other competent Authority for setting up batching plant;

(f) Clearance of Pollution Control Board for setting up batching plant;

(g) Clearance of Village Panchayats and Pollution Control Board for setting up asphalt plant;

(h) Permission of Village Panchayats and State Government for borrow earth; and

(i) Any other permits, clearances or approvals required under Applicable Laws.

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

Schedule-G

(See Clause 7.1.1, 7.5.3 and 19.2)

FORM OF BANK GUARANTEE

Annex-I

(See Clause 7.1.1)

PERFORMANCE SECURITY

The Managing Director,
NHIDCL,
3rd Floor, PTI Building, Sansad Marg,
New Delhi

WHEREAS:

(a) [name and address of contractor] (hereinafter called "the Contractor") and [**NHIDCL**], (**"the Authority"**) have entered into an agreement (the **"Agreement"**) for **Construction and Upgradation of existing road to 2-lane with paved shoulder from Km 430.000 to Km. 468.000 of Chamoli to Paini (Excluding Km 437.625 to Km 437.775, Km 458.900 to Km 459.475 and Km 464.425 to Km 464.525) of NH-07 under Chardham Pariyojna on EPC basis in the state of Uttarakhand".** 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 and Defects Liability Period (as defined in the Agreement) in a sum of Rs. …. Crore (Rupees …. Crore) (the "Guarantee Amount").

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

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

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

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

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

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

to the Agreement or for the fulfillment, compliance and/or performance of all or any of the obligations of the Contractor under the Agreement.

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

8. The Performance Security shall cease to be in force and effect upto 90 (ninety) days after the end of the Defects Liability Period as set forth in Clauses 17.1 of EPC agreement.

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

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

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

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

13. Intimation regarding issuance of this Bank Guarantee shall be sent to Authority's Bank through SFMS gateway as per the details below:

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 SYNB0009062
4	Beneficiary Bank Branch Name	Transport Bhawan, New Delhi

5	Beneficiary Bank Address	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 7.5.3)

Form for Guarantee for Withdrawal of Retention Money

The Managing Director,
NHIDCL,
3rd Floor, PTI Building, Sansad Marg,
New Delhi

WHEREAS:

(a) [Name and address of contractor] (hereinafter called "**the Contractor**") has executed an agreement (hereinafter called the "Agreement") with the [NHIDCL], (hereinafter called "the Authority") for the "**Construction and Upgradation of existing road to 2-lane with paved shoulder from Km 430.000 to Km. 468.000 of Chamoli to Paini (Excluding Km 437.625 to Km 437.775, Km 458.900 to Km 459.475 and Km 464.425 to Km 464.525) of NH-07 under Chardham Pariyojna on EPC basis in the state of Uttarakhand"** subject to and in accordance with the provisions of the Agreement.

(b) in accordance with the Clause 7.5.3 of the Agreement, whenever the amount of the retention money (hereinafter called "Retention Money") held by the Authority exceeds 1% (one per cent) of the Contract Price, the Contractor may, at its option, withdraw the Retention Money after furnishing to the Authority a bank guarantee for an amount equal to the proposed withdrawal.

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

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

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

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

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

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

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

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

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

8. The guarantee shall cease to be in force and effect 90 (ninety) days after the end of the Defects Liability Period specified in Clauses 17.1 of the Agreement.

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

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

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

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

13. Intimation regarding issuance of this Bank Guarantee shall be sent to Authority's Bank through SFMS gateway as per the details below:

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 SYNB0009062
4	Beneficiary Bank Branch Name	Transport Bhawan, New Delhi
5	Beneficiary Bank Address	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 19.2)

Form for Guarantee for Advance Payment

The Managing Director,
NHIDCL,
3rd Floor, PTI Building, Sansad Marg,
New Delhi

WHEREAS:

(A) [name and address of contractor] (hereinafter called "**the Contractor**") has executed an agreement (hereinafter called the "Agreement") with the [**NHIDCL**], (hereinafter called "**the Authority**") for the "**Construction and Upgradation of existing road to 2-lane with paved shoulder from Km 430.000 to Km. 468.000 of Chamoli to Paini (Excluding Km 437.625 to Km 437.775, Km 458.900 to Km 459.475 and Km 464.425 to Km 464.525) of NH-07 under Chardham Pariyojna on EPC basis in the state of Uttarakhand"** subject to and in accordance with the provisions of the Agreement.

(B) in accordance with the Clause 19.2 of the Agreement the Authority shall make to the Contractor advance payment (hereinafter called "Advance Payment") equal to 10% (ten per cent) of the contract price for mobilization expenses and acquisition of equipment; 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 equal to the amount of each 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; and the amount of (first/second) installment of the Advance Payment is Rs. **** cr. (Rupees ***** crore) (the "Guarantee Amount").

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

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

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

2. A letter from the Authority, under the hand of an officer not below the rank of [Executive Director, NHIDCL], that the Contractor has committed default in the due and faithful performance of all or any of its obligations for the repayment of the installment 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 difference between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other Authority or body, or by the discharge of the Contractor for any reason whatsoever

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

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

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

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

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

8. The guarantee shall cease to be in force and effect 90 (ninety) days after the end of the one year from the date of payment of the installment of the Advance Payment, as set forth in Clause 19.2 of the Agreement.

9. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.
10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorized to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.

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

12. Notwithstanding anything contained herein before, our liability under this Bank Guarantee is restricted to Rs._____ (Rs._____ in words) and the bank guarantee shall remain valid till _____. Unless a claim or a demand in writing is served upon us on or before_____ all our liability under this Bank Guarantee shall cease.

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

14. Intimation regarding issuance of this Bank Guarantee shall be sent to Authority's Bank through SFMS gateway as per the details below:

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 SYNB0009062
4	Beneficiary Bank Branch Name	Transport Bhawan, New Delhi
5	Beneficiary Bank Address	Syndicate Bank transport Bhawan, 1st Parliament Street, New Delhi-110001

15.

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

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by:

(Signature)

(Name)

(Designation)

(Code Number)

(Address)

NOTES:

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

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

Schedule-H

(See Clauses 10.1.4 and 19.3)

Contract Price Weightages

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

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

Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4
Road works including culverts, widening and repair of culverts	45.46%	**A- Widening and Strengthening of Existing Road**	
		(1) Earthwork up to top of the sub-grade	18.13%
		(2) Treated Sub-Base Course	10.81%
		(3) Treated RAP	16.73%
		(4) Bituminous Base Course	0.00%
		(5) Wearing Coat	8.12%
		(5) Widening and repair of culvert	0.00%
		B.1- Reconstruction/ New 2-lane realignment/bypass (Flexible pavement)	
		(1) Earthwork up to top of the sub-grade	6.48%
		(2) Treated Sub-Base Course	3.52%
		(3) Treated RAP	4.18%
		(4) Bituminous Base Course	0.00%
		(5) Wearing Coat	2.75%
		D-Re-Construction and New culverts on existing road, realignments, bypasses:	
		Culverts (lengths < 6m)	29.28%
Minor Bridges	5.56%	**A.1- Widening and Repair of Minor bridges (length >6 m and < 60 m)**	
		Minor bridges	0.00%

		A.2- New Minor bridges (length >6 m and < 60 m)	
		(1) Foundation + Sub- Structure: On completion of the foundation work including foundations for wing and return walls, abutments, piers upto the abutment/ pier cap.	75.81%
		(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 in all respect.	24.19%
		(3) Approaches: On completion of approaches including Retaining walls, stone pitching, protection works complete in all respect and fit for use.	0.00%
Major Bridge works	1.08%	**A.1- Widening and Repair of Major bridges**	
		Major Bridges	0.00%
		A.2 -New major bridges & Viaduct	
		(1) Foundation	31.58%
		(2) Sub-structure	40.50%
		(3) Super-structure (including bearings)	21.99%
		(4) Wearing Coat including expansion joints	2.90%
		(5) Miscellaneous Items like hand rails, crash barriers, road markings etc.	1.87%
		(6) Wing walls/ return walls	0.03%
		(7) Guide Bunds, River Training works etc.	0.00%
		(8) Approaches (including Retaining walls, stone pitching and protection works)	1.13%

Other works	47.90%	(i) Road side drains	6.82%
		(ii) Road signs, markings, km stones, safety devices, (a) W beam crash barrier (b) Utility duct (c) Miscellaneous	 7.95% 7.52% 1.37%
		(iii) Project facilities (a) Bus Bays and Bus Shelter (b) Truck lay-byes (c) Rest areas (d) Others	 0.33% 0.18% 0.00% 0.09%
		(iv) Protection Works other than approaches to the bridges, elevated sections/ flyover/ grade separators and ROBs/ RUBs	0.00%
		(v) Protection works (a) Retaining Wall/Breast Wall (b) Reinforced Earth Wall (c) Landslides	 38.99% 15.19% 21.56%
		(vi) Safety and traffic management during construction	0.00%

- The above list is illustrative and may require modification as per the scope of the work.

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 for Payment	Percentage weightage	Payment Procedure
A- Widening and Strengthening of Existing Road		
(1) Earthwork up to top of the sub-grade	18.13%	Unit of measurement is linear length for two lane. Payment of each stage shall be made on pro rata basis on completion of a stage in length of nor less than 10% of the total length
(2) Treated Sub-Base Course	10.81%	
(3) Treated RAP	16.73%	
(4) Bituminous Base Course	0.00%	
(5) Wearing Coat	8.12%	
B.1- Reconstruction/ New 2-lane realignment/bypass (Flexible pavement)		
(1) Earthwork up to top of the sub-grade	6.48%	Unit of measurement is linear length for two lane. Payment of each stage shall be made on pro rata basis on completion of a stage in length of nor less than 10% of the total length.
(2) Treated Sub-Base Course	3.52%	
(3) Treated RAP	4.18%	
(4) Bituminous Base Course	0.00%	
(5) Wearing Coat	2.75%	
D-Re-construction and New culverts on existing road, realignments, bypasses:		
(1) Culverts (length < 6m)	29.28%	Cost of each culvert shall be determined on pro- rata basis with respect to the total number of culverts. Payment shall be made on the completion of at least five culverts.

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

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

Where P = Contract Price

L = Total length in km

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

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

1.3.2 Minor Bridge and Underpasses/ Overpasses

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

Table 1.3.2

Stage of Payment	**Weightage**	**Payment Procedure**
1	**2**	**3**
A.1- Widening and Repair of Minor bridges (length >6 m and < 60 m)	0.00%	Cost of each minor bridge shall be determined on pro rata basis with respect to the total linear length of the minor bridges. Payment shall be made on the completion of widening & repair works of a minor bridge.
A.2- <u>New minor bridges</u>		
(1) Foundation + Sub- Structure: On completion of the foundation work including foundations for wing and return walls, abutments, piers upto the abutment/ pier cap.	75.81%	Cost of each minor bridge shall be determined on pro rata basis with respect to the total linear length (m) of the minor bridges. Payment against foundation + sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation + sub-structure of each bridge subject to completion of at least two foundations along with sub-structure upto abutment/pier cap level of each bridge. In case where load testing is required for foundation, the trigger of first payment shall

		include load testing also where specified.
(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 in all respect.	24.19%	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.
(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 respect as specified in the column of "Stage of Payment" in this sub-clause.

1.3.3 Major Bridge works & Viaducts

Procedure for estimating the value of Major Bridge works & Viaducts shall be as stated in table 1.3.3:

Table 1.3.3

Stage for Payment	**Percentage weightage**	**Payment Procedure**
A.1- Widening and Repair of Major bridges	0.00%	Cost of each major bridge shall be determined on pro rata basis with respect to the total linear length of the major bridges. Payment shall be made on the completion of widening & repair works of a minor bridge.
A.2-<u>New major bridges</u>		
(1) Foundation	31.58%	Cost of each major bridge/ Viaduct shall be determined on pro rata basis with respect to the total linear length (m) of the Major bridge/ Viaduct. 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/ Viaduct subject to completion of at least two

(2) Substructure		foundations of the Major bridge/ Viaduct. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
	40.50%	Payment against sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of the Major bridge/ Viaduct subject to completion of at least two sub-structures of abutments/piers upto abutment/pier cap level of the Major bridge/ Viaduct.
(3) Super-structure (including bearings)	21.99%	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	2.90%	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 barriers, road markings etc.	1.87%	Payment 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	0.03%	Payment shall be made on completion of all wing walls/return walls complete in all respects as specified.
(7) Guide Bunds, River Training works etc.	0.000%	Payment 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)	1.13%	Payment shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respect 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 for Payment		**Percentage weightage**	**Payment Procedure**
(i) Road side drains		6.82%	Unit of measurement is linear length in km. Payment shall be made on pro-rata basis on completion of a stage in a length of not less than 10% (ten per cent) of the total length.
(ii) Road signs, markings, km stones, safety devices,…. (a) W beam crash barrier (b) Utility duct (c) Miscellaneous		 7.95% 7.52% 1.37%	
(iii) Project facilities	(i) Bus byes	0.33%	Payment shall be made on pro-rata basis for completed facilities.
	(ii) Truck lay bye	0.18%	
	(iii) Rest areas	0.000%	
	Others	0.09%	
(iv) Protection Works other than approaches to the bridges, elevated sections/ flyover/ grade separators and ROBs/ RUBs		0.00%	
(v) Protection Works (a) Retaining wall/Brest Wall (b) Reinforced Earth wall (c) Landslides		 38.99% 15.19% 21.56%	Unit of measurement is linear length. Payment shall be made on pro-rata basis on completion of a stage in a length of not less than 10% (ten per cent) of the total length.
(vi) Safety and traffic management during construction		0.00%	Payment shall be made on pro rata basis every six months.

2. Procedure for payment for Maintenance

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

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

SCHEDULE-I

(See Clause 10.2)

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

Alignment Plan and longitudinal Section are enclosed in digital form in CD marked as Annex-I

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

- Horizontal and Vertical Alignment (with plan & profile) with details of reference pillars. Horizontal Intersection Point, Vertical Intersection Points, elements of curves, and sight distances.
- Typical Cross-section with details of pavement structures.
- Detailed drawings of individual Bridges/Structures/ROB.
- Detailed drawing for individual culverts.
- Detailed drawings of guide bunds and protection works and retaining structures.
- Detailed drawings of Drainage including Masonry drains and other drains.

SCHEDULE-J

(See Clause 10.3.2)

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

2.1 Project Milestone-I shall occur on the date falling on the 180th (One hundred eighty) day from the Appointed Date (the "**Project Milestone-I"**).

2.2 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 completion schedule in reference to Schedule-H Items, Stages and Sub-stages payment statements for an amount not less than 10% (ten per cent) of the Contract Price.

3. Project Milestone-II

3.1 Project Milestone-II shall occur on the date falling on the 420th (four hundred twenty) day from the Appointment Date (the **"Project Milestone-II**").

Prior to the occurrence of Project Milestone-II, the Contractor shall have commenced construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements completion schedule in reference to Schedule-H Items, Stages and Sub-stages payment statements for an amount not less than 40% (forty per cent) of the Contract Price.

4. Project Milestone-III

4.1 Project Milestone-III shall occur on the date falling on the 660th (six hundred sixty) day from the Appointed Date (the "**Project Milestone-III"**).

4.2 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 payment Statements for an amount not less than 70% (seventy per cent) of the Contract Price.

5 Schedule Completion Date

5.1 The Schedule Completion Date shall occur on the 912th (nine hundred twelve) day from the Appointed Date.

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

6 Extension of time

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

SCHEDULE-K

(See Clause 12.1.2)

Tests on Completion

1. Schedule for Tests

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

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

2 Tests

2.1 Visual and physical test: The Authority's Engineer shall conduct a visual and physical check of construction to determine that all works and equipment forming part thereof conform to the provisions of this Agreement. The physical tests shall include: all the tests specified in IRC code, manual and MORTH specifications for the road and Bridge works, 5th revision, 2013.

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

2.3 Tests for bridges: All major and minor bridges shall be subjected to the rebound hammer and ultrasonic pulse velocity tests, to be conducted in accordance with the procedure described in Special Report No. 17: 1996 of the IRC Highway Research Board on 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) meters or more shall also be subjected to load testing.

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

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

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

3 Agency for conducting Tests

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

4. Completion Certificate

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

SCHEDULE-L

(See Clause 12.2 and 12.4)

PROVISIONAL CERTIFICATE

1. I, …….. (Name of the Authority's Engineer), acting as Authority's Engineer, under and in accordance with the Agreement dated …….. (the "**Agreement**"), for construction of the "**Construction and Upgradation of existing road to 2-lane with paved shoulder from Km 430.000 to Km. 468.000 of Chamoli to Paini (Excluding Km 437.625 to Km 437.775, Km 458.900 to Km 459.475 and Km 464.425 to Km 464.525) of NH-07 under Chardham Pariyojna on EPC basis in the state of Uttarakhand"** through ……. (Name of Contractor), hereby certify that the Tests in accordance with Article 12 of the Agreement have been undertaken to determine compliance of the Project Highway with the provisions of the Agreement.

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

3. In view of the foregoing, I am satisfied that that Project Highway can be safety and reliably placed in service of the users thereof, and in terms of the Agreement, the Project Highway is hereby provisionally declared fit for entry into operation on this the ……day of …….20 …..

ACCEPTED, SIGNED, SEALED AND DELIVERED	SIGNED, SEALED AND DELIVERED
For and on behalf of	For and on behalf of
CONTRACTOR	by Authority's Engineer
by:	
(Signature)	(Signature)

COMPLETION CERTIFICATE

1. I, …….. (Name of the Authority's Engineer), acting as Authority's Engineer, under and in accordance with the Agreement dated …….. (the "**Agreement**"), for construction of the "**Construction and Upgradation of existing road to 2-lane with paved shoulder from Km 430.000 to Km. 468.000 of Chamoli to Paini (Excluding Km 437.625 to Km 437.775, Km 458.900 to Km 459.475 and Km 464.425 to Km 464.525) of NH-07 under Chardham Pariyojna on EPC basis in the state of Uttarakhand"** 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 safety and reliably placed in service of the Users thereof..

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

SIGNED, SEALED AND DELIVERED

For and on behalf of

Authority's Engineer by:

(Signature)

(Name)

(Designation)

(Address)

SCHEDULE-M

(See Clauses 14.6., 15.2 and 19.7)

PAYMENT REDUCTION FOR NON-COMPLIANCE

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

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

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

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

2. Percentage reductions in lump sum payments

2.1 The following percentages shall govern the payment reduction:

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

(iii)	Painting, repairs/replacement kerbs, railings, parapets, guideposts/crash barriers	5%
(d)	**Roadside Drains**	
(i)	Cleaning and repair of drains	5%
(e)	**Road Furniture**	
(i)	Cleaning, painting, replacement of road signs, delineators, road markings, 200 m/km/5th km stones	5%
(f)	**Miscellaneous Items**	
(i)	Removal of dead animals, broken down/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%

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

R=P/100 * M * L1/L

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

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

L1 = Non-complying length

L = Total length of the road,

R = Reduction (the amount to be deducted for noncompliance 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 noncompliance.

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

SCHEDULE-N

(See Clause 18.1.1)

SELECTION OF AUTHORITY'S ENGINEER

1 Selection of Authority's Engineer

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

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

2 Terms of Reference

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

3 Appointment of Government entity as Authority's Engineer

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

Annex – I

(Schedule - N)

TERMS OF REFERENCE FOR AUTHORITY'S ENGINEER

1. Scope

1.1 These Terms of Reference (the "**TOR**") for the Authority's Engineer are being specified pursuant to the EPC Agreement dated ..... (the "**Agreement**), which has been entered into between the Ministry of Road Transport and Highways (the "**Authority**") and ..... (the "**Contractor**") for "**Construction and Upgradation of existing road to 2-lane with paved shoulder from Km 430.000 to Km. 468.000 of Chamoli to Paini (Excluding Km 437.625 to Km 437.775, Km 458.900 to Km 459.475 and Km 464.425 to Km 464.525) of NH-07 under Chardham Pariyojna on EPC basis in the state of Uttarakhand"**, and a copy of which is annexed hereto and marked as Annex-A to form part of this TOR.

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

2. Definitions and interpretation

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

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

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

3. General

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

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

(a) Any Time extension;

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

(c) The Termination Payment; or

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

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

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

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

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

4 Construction Period

4.1 During the Construction Period, the Authority's Engineer shall review the Drawings furnished by the Contractor along with supporting data, including the geo-technical and hydrological investigations, characteristics of materials from borrow areas and quarry sites, topographical surveys, and the recommendations of the Safety

Consultant in accordance with the provisions of Clause 10.1.6. The Authority's Engineer shall complete such review and send its observations to the Authority and the Contractor within 15 (fifteen) days of receipt of such Drawings; provided, however that in case of a Major Bridge or Structure, the aforesaid period of 15 (fifteen) days may be extended 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.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

5. Maintenance Period

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

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

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

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

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

6 Determination of costs and time

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

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

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

7. Payments

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

7.2 Authority's Engineer shall -

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

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

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

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

8. Other duties and functions

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

9 Miscellaneous

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

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

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

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

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

SCHEDULE - O

(See Clauses 19.4.1, 19.6.1, and 19.8.1)

Forms of Payment Statements

1. Stage Payment Statement for Works

The Stage Payment Statement for Works shall state:

(a) The estimated amount for the Works executed in accordance with Clause 19.3.1 subsequent to the last claim;

(b) Amounts reflecting adjustments in price for the aforesaid claim;

(c) The estimated amount of each Change of Scope Order executed subsequent to the last claim;

(d) Amounts reflecting adjustment in price, if any, for (c) above in accordance with the provisions of Clause 13.2.3 (a);

(e) Total of (a), (b), (c) and (d) above;

(f) Deductions:

  (i) Any amount to be deducted in accordance with the provisions of the Agreement except taxes;

  (ii) Any amount towards deduction of taxes; and

  (iii) Total of (i) and (ii) above.

(g) Net claim: (e) – (f) (iii);

(h) The amounts received by the Contractor upto the last claim:

  (i) For the Works executed (excluding Change of Scope orders);
  (ii) For Change of Scope Orders, and
  (iii) Taxes deducted

2. Monthly Maintenance Payment Statement

The monthly Statement for Maintenance Payment shall state:

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

(b) the deductions for maintenance work not done;

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

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

(e) amount towards deduction of taxes

3. Contractor's claim for Damages

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

SCHEDULE-P

(See Clause 20.1)

INSURANCE

1. Insurance during Construction Period

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

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

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

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

2. Insurance for Contractor's Defects Liability

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

3. Insurance against injury to persons and damage to property

3.1. The Contractor shall insure against each Party's liability for any loss, damage, death or bodily injury which may occur to any physical property (except things insured under Paragraph l 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 and occurring before the issue of the Performance Certificate. 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 as per the applicable laws of government and procedure in vogue.

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

(a) the Authority's right to have the construction works executed on, over, under, in or through any land, and to occupy this land for the Works; and

(b) Damage which is and 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.