# SCHEDULE - A

Schedule-A

(See Clauses 2.1 and 8.1)

Site of the Project

1 The Site

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

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

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

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

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

Annex –I

(Schedule-A)

Site

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

1. Site

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

2. Land

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

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

3. Carriageway

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

4. Major Bridges

The Site includes the following Major Bridges: -

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

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

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

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

6. Grade separators

The Site includes the following grade separators:

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

7. Minor bridges

The Site includes the following minor bridges:

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

8. Railway level crossings

The Site includes the following railway level crossings:

| S. No. | Location(km) | Remarks |
|---|---|---|
| Nil | | |

9. Underpasses (vehicular, non- vehicular)

The Site includes the following underpasses:

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

10. Culverts

The Site has the following culverts:

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

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

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

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

11. Bus bays

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

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

12. Truck Lay byes

The details of truck lay byes are as follows:

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

13. Roadside drains

The details of the roadside drains are as follows:

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

14. Major junctions

The details of major junctions are as follows:

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

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

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

15. Minor junctions

The details of the minor junctions are as follows:

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

6. Bypasses

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

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

17. Other structures

Details of Existing Retaining Wall are as follows:

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

Details of Existing Breast Wall are as follows:

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

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

17. Other structures

[Provide details of other structures, if any.]

18 . **Existing utilities**

(i) Electrical utilities

The site includes the following electrical utilities:-

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

| SL. NO | Chainage | | Length (in Km) | | | | Crossings | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | From | To | 400KV | 220KV | 110KV | 66KV | 400KV | 220KV | 110KV | 66KV |
| Nil | | | | | | | | | | |

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

| SL. NO | Chainage | | HT/LT Lines (Nos.) | | | Crossings | | | Transformer | | Conductor | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | From | To | 33KV | 11KV | LT | 33KV | 11KV | LT | No | Capacity | Type | Length |
| 1 | 9.840 | 54.990 | 8 | 40 | 42 | | | | | | | |

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

The site includes the following Public Health utilities:-

| SL. | Chainage | Length (in Km) | Crossings | Water Tank |
|---|---|---|---|---|

| NO | From | To | Water Supply Line | | Sewage Line | | Water Supply Line | | Sewage Line | | Capacity (in lts) | Nos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | With Pumping | With Gravity Flow | With Pumping | With Gravity Flow | With Pumping | With Gravity Flow | With Pumping | With Gravity Flow | | |
| 1 | 9.840 | 54.990 | 19.05 | | | | | | | | 20000 | 2 |

(iii) Any Other line

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

Annex – II

(As per Clause 8.3 (i))

(Schedule-A)

Dates for providing Right of Way of Construction Zone

| **Sl. No** | **Design Chainage(km)** | | **Length in km** | **Existing ROW** | **Proposed ROW Width (m)** | **Date of Providing proposed ROW** |
|---|---|---|---|---|---|---|
| | From | To | | | | |
| (i) Full Right of Way (full width) | 9.840 | 26.000 | 16.160 | 7m-19m | 15m -38 m wide for construction work. | 90 % at Appointed Date |
| ii) Balance Right of Way (full width) | 9.840 | 26.000 | 16.160 | 7m-19m | 15 m -38 m wide for construction work. | Within 90 days after the appointed date as per clause 8.2 of DCA |
| (iii) Full Right of Way (full width) | 26.000 | 54.990 | 28.990 | 4.5m -13m | 16m -40m wide for construction work. | 90 % at Appointed Date |
| iv) Balance Right of Way (full width) | 26.000 | 54.990 | 28.990 | 4.5m -13m | 16 m -40 m wide for construction work. | Within 90 days after the appointed date as per clause 8.2 of DCA |

# Annex - III

(Schedule-A)

Alignment Plans

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

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

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

Annex – IV

(Schedule-A)

**Environmental Clearances**

**MOEF Clearance:**

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

**Forest Clearance :**

Online proposal uploaded of Form A, Part –I on 13.07.2016.Hard copy of Form A, Part –I submitted to Chief Conservator of Forest on 2.08.2016. & Tree counting survey under Ukhrul Forest Division & Senapati Forest Division is completed on 9.09.2016. and 29.08.2016 respectively.FRA Certificate received from Deputy Commissioner of Ukhrul & Senapati district on dated 1.10.2016 &27.09.2016 respectively & the FRA Certificate submitted to both NHIDCL & Concerned DFO. Joint Site Visit with DFO & Conservator of Forest in Ukhrul & Senapati district completed on 10.12.2016 & 18.10.2016 respectively & Form A, Part-II of Forest Clearance is Uploaded by Concerned DFO of Ukhrul & Senapati District on 30.12.2016 and it is pending at Chief Conservator of Forests/Nodal officer(FCA), Govt. of Manipur.

**Wildlife Clearance:**

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

# SCHEDULE - B

Schedule - B

(See Clause 2.1)

Development of the Project Highway

**1. Development of the Project Highway**

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

**2. [Rehabilitation and augmentation]**

[Rehabilitation and augmentation] shall include [Two-Lanning and Strengthening] of the Project Highway as described in Annex-I of this Schedule-B and in Schedule-C.

**3. Specifications and Standards**

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

Annex – I

(Schedule-B)

Description of [Two-Lanning]

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

**1. Widening of the Existing Highway**

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

(ii) Width of Carriageway

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

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

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

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

**2. Geometric Design and General Features**

(i) General

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

(ii) Design speed

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

(iii) Improvement of the existing road geometrics

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

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

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

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

(iv) Right of Way

| Sl. No | Design Chainage(km) | | Length(km) | Width (m) |
|---|---|---|---|---|
| | From | To | | |
| 1 | 9+450 | 50+850 | 41.400 | 15 m - 40 m wide for construction work. |

(v) Type of shoulders
[Refer to provision of relevant Manual and specify]

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

| Sl. No. | Stretch (from Km to Km) | Fully Paved shoulders/footpaths | Reference to cross section |
|---|---|---|---|
| 1. | 25+565 to 26+305 | 2 X 1.5 m width Footpath | TCS-1 |
| 2. | 27+545 to 27+575 | 2 X 1.5 m width Footpath | TCS-1A |

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

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

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

(vi) Lateral and vertical clearances at underpasses

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

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

follows:

| Sl. No. | Location (Chainage) (from km to km) | Span/ opening (m) | Remarks |
|---|---|---|---|
| Nil | | | |

(vii) Lateral and vertical clearances at overpasses

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

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

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

(viii) Service roads

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

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

(ix) Grade separated structures

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

[Refer to requirements specified in the relevant Manual]

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

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

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

(x) Cattle and pedestrian underpass /overpass

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

| Sl. No. | Location | Type of crossing |
|---|---|---|
| Nil | | |

(xi) Typical cross-sections of the Project Highway

[Give typical cross-sections of the Project Highway by reference to the Manual] As per attached Drawings

| Sl No | TCS Type | Description |
|---|---|---|
| 1 | TCS-1: | 2 -Lane carriageway with paved shoulder in cutting with both side cover drain cum footpath at built up area |
| 2 | TCS-1A: | 2 -Lane carriageway with paved shoulder in cutting with both side cover drain cum footpath & Left side breast wall at built up area |
| 3 | TCS-1B: | 2 -Lane carriageway with paved shoulder in cutting with both side cover drain cum footpath & right side breast wall at built up area |
| 4 | TCS-2: | 2 -Lane carriageway with paved shoulder in filling with both side cover drain cum footpath at built up area with both side retaining wall |
| 5 | TCS-2A: | 2 -Lane carriageway with paved shoulder in filling with both side cover drain cum footpath & left side retaining wall at built up area |
| 6 | TCS-2B: | 2 -Lane carriageway with paved shoulder in filling with both side cover drain cum footpath & right side retaining wall at built up area |
| 7 | TCS-2C: | 2 -Lane carriageway with paved shoulder in filling with both side cover drain cum footpath & left side retaining wall & right side breast wall at built up area |
| 8 | TCS-2D: | 2 -Lane carriageway with paved shoulder in filling with both side cover drain cum footpath & left side breast wall & right side retaining wall at built up area |
| 9 | TCS-3: | 2 -Lane carriageway with paved shoulder with both side cover drain in built up area |
| 10 | TCS-4A: | 2 -Lane carriageway with paved shoulder with stone masonry trapezoidal drain on right side |
| 11 | TCS-4B: | 2 -Lane carriageway with paved shoulder with stone masonry trapezoidal drain on left side |
| 12 | TCS-4C: | 2 -Lane carriageway with paved shoulder with stone masonry trapezoidal both side drain |
| 13 | TCS-5: | 2 -Lane carriageway with paved shoulder with both side retaining wall |
| 14 | TCS-6: | 2 -Lane carriageway with paved shoulder with both side breast wall |
| 15 | TCS-7A: | 2 -Lane carriageway with paved shoulder with left side breast wall |
| 16 | TCS-7B: | 2 -Lane carriageway with paved shoulder with Right side breast wall |
| 17 | TCS-8A: | 2 -Lane carriageway with paved shoulder with Left side breast wall with right side Trapezoidal drain |
| 18 | TCS-8B: | 2 -Lane carriageway with paved shoulder with Left side Trapezoidal drain & right side breast wall |
| 19 | TCS-9A: | 2 -Lane carriageway with paved shoulder with Left side Retaining wall & right side trapezoidal drain |
| 20 | TCS-9B: | 2 -Lane carriageway with paved shoulder with Left side trapezoidal drain & right side Retaining wall |
| 21 | TCS-9C: | 2 -Lane carriageway with paved shoulder & right side Retaining wall |
| 22 | TCS-9D: | 2 -Lane carriageway with paved shoulder & Left side Retaining wall |
| 23 | TCS-10A: | 2 -Lane carriageway with paved shoulder With Left side Retaining wall & right side breast wall |
| 24 | TCS-10B: | 2 -Lane carriageway with paved shoulder With Left side breast wall & right side Retaining wall |
| 25 | TCS-11: | 2 -Lane carriageway with paved shoulder |

| Chainage (Km) | | Length of CD | Net Length (m) | TCS No. |
|---|---|---|---|---|
| From | To | | | |

| Chainage (Km) | | Length of CD | Net Length (m) | TCS No. |
|---|---|---|---|---|
| From | To | | | |
| 9450 | 9985 | 2.6 | 532.4 | TCS-4C |
| 9985 | 10035 | | 50 | TCS-8A |
| 10035 | 10245 | | 210 | TCS-4C |
| 10245 | 10285 | | 40 | TCS-4C |
| 10285 | 10515 | | 230 | TCS-4C |
| 10515 | 10585 | | 70 | TCS-8A |
| 10585 | 10665 | | 80 | TCS-4B |
| 10665 | 11855 | 2.7 | 1187.3 | TCS-4C |
| 11855 | 12005 | 2.6 | 147.4 | TCS-8A |
| 12005 | 12025 | | 20 | TCS-4C |
| 12025 | 12215 | 2.7 | 187.3 | TCS-4B |
| 12215 | 12265 | | 50 | TCS-8A |
| 12265 | 12715 | 5.3 | 444.7 | TCS-4B |
| 12715 | 12775 | | 60 | TCS-4C |
| 12775 | 12915 | 2.6 | 137.4 | TCS-4B |
| 12915 | 12985 | | 70 | TCS-4C |
| 12985 | 13195 | 2.7 | 207.3 | TCS-4B |
| 13195 | 13285 | | 90 | TCS-4C |
| 13285 | 13455 | 2.7 | 167.3 | TCS-4B |
| 13455 | 13505 | | 50 | TCS-7A |
| 13505 | 13615 | 2.6 | 107.4 | TCS-4B |
| 13615 | 13675 | | 60 | TCS-7A |
| 13675 | 13695 | | 20 | TCS-4C |
| 13695 | 13755 | | 60 | TCS-7A |
| 13755 | 13815 | 2.7 | 57.3 | TCS-9B |
| 13815 | 14285 | | 470 | TCS-4C |
| 14285 | 14345 | 2.5 | 57.5 | TCS-9B |
| 14345 | 14495 | | 150 | TCS-4C |
| 14495 | 14675 | 5.2 | 174.8 | TCS-9B |
| 14675 | 14715 | | 40 | TCS-4B |
| 14715 | 14805 | | 90 | TCS-4C |
| 14805 | 14895 | 2.7 | 87.3 | TCS-4B |
| 14895 | 15045 | | 150 | TCS-4C |
| 15045 | 15175 | | 130 | TCS-4B |
| 15175 | 15195 | | 20 | TCS-4C |
| 15195 | 15275 | | 80 | TCS-4B |
| 15275 | 15355 | | 80 | TCS-8A |
| 15355 | 15385 | | 30 | TCS-4C |
| 15385 | 15755 | 7.9 | 362.1 | TCS-4B |
| 15755 | 15795 | | 40 | TCS-4C |
| 15795 | 16145 | 2.7 | 347.3 | TCS-4B |
| 16145 | 16175 | | 30 | TCS-9B |
| 16175 | 16235 | | 60 | TCS-4B |
| 16235 | 16255 | 2.7 | 17.3 | TCS-11 |

| Chainage (Km) | | Length of CD | Net Length (m) | TCS No. |
|---|---|---|---|---|
| From | To | | | |
| 16255 | 16315 | | 60 | TCS-4C |
| 16315 | 16595 | | 280 | TCS-4B |
| 16595 | 16605 | | 10 | TCS-9B |
| 16605 | 16705 | | 100 | TCS-4C |
| 16705 | 16775 | | 70 | TCS-8A |
| 16775 | 16825 | | 50 | TCS-4C |
| 16825 | 16855 | | 30 | TCS-4C |
| 16855 | 17045 | 5.2 | 184.8 | TCS-4B |
| 17045 | 17185 | | 140 | TCS-4B |
| 17185 | 17205 | 2.6 | 17.4 | TCS-4A |
| 17205 | 17385 | | 180 | TCS-4B |
| 17385 | 17745 | 2.5 | 357.5 | TCS-4B |
| 17745 | 17755 | | 10 | TCS-9B |
| 17755 | 17995 | 2.6 | 237.4 | TCS-4B |
| 17995 | 18015 | | 20 | TCS-9D |
| 18015 | 18045 | | 30 | TCS-4C |
| 18045 | 18145 | 7.9 | 92.1 | TCS-7A |
| 18145 | 18155 | | 10 | TCS-4B |
| 18155 | 18675 | | 520 | TCS-4B |
| 18675 | 18695 | 2.7 | 17.3 | TCS-9B |
| 18695 | 18715 | | 20 | TCS-4B |
| 18715 | 18755 | | 40 | TCS-4C |
| 18755 | 18875 | | 120 | TCS-7A |
| 18875 | 18975 | 2.7 | 97.3 | TCS-4B |
| 18975 | 19065 | | 90 | TCS-4C |
| 19065 | 19175 | | 110 | TCS-4A |
| 19175 | 19195 | 2.5 | 17.5 | TCS-9A |
| 19195 | 19225 | | 30 | TCS-4A |
| 19225 | 19295 | | 70 | TCS-8B |
| 19295 | 19450 | 2.7 | 152.3 | TCS-4A |
| 19450 | 19715 | 2.6 | 262.4 | TCS-15 |
| 19715 | 19755 | | 40 | TCS-15 |
| 19755 | 19905 | 5.3 | 144.7 | TCS-15 |
| 19905 | 20135 | 2.5 | 227.5 | TCS-15 |
| 20135 | 20300 | 2.5 | 162.5 | TCS-15 |
| 20300 | 20400 | | 100 | TCS-4C |
| 20400 | 20440 | | 40 | TCS-15 |
| 20440 | 20565 | | 125 | TCS-15 |
| 20565 | 20675 | | 110 | TCS-15 |
| 20675 | 20995 | 5.4 | 314.6 | TCS-4A |
| 20995 | 21105 | 2.6 | 107.4 | TCS-4C |
| 21105 | 21295 | 2.7 | 187.3 | TCS-4A |
| 21295 | 21575 | | 280 | TCS-4C |
| 21575 | 21635 | | 60 | TCS-4A |

| Chainage (Km) | | Length of CD | Net Length (m) | TCS No. |
|---|---|---|---|---|
| From | To | | | |
| 21635 | 21715 | | 80 | TCS-4C |
| 21715 | 21785 | 5.2 | 64.8 | TCS-4A |
| 21785 | 21865 | | 80 | TCS-4C |
| 21865 | 21895 | 2.7 | 27.3 | TCS-4C |
| 21895 | 21905 | | 10 | TCS-4C |
| 21905 | 21975 | | 70 | TCS-4C |
| 21975 | 22045 | 2.6 | 67.4 | TCS-4A |
| 22045 | 22205 | | 160 | TCS-4A |
| 22205 | 22475 | 5.3 | 264.7 | TCS-4A |
| 22475 | 23195 | 2.6 | 717.4 | TCS-4A |
| 23195 | 23585 | 7.9 | 382.1 | TCS-4A |
| 23585 | 23615 | 2.6 | 27.4 | TCS-9A |
| 23615 | 23655 | | 40 | TCS-4A |
| 23655 | 23695 | | 40 | TCS-8B |
| 23695 | 23725 | | 30 | TCS-7B |
| 23725 | 23775 | 2.6 | 47.4 | TCS-10A |
| 23775 | 23835 | | 60 | TCS-4C |
| 23835 | 23925 | 2.7 | 87.3 | TCS-10A |
| 23925 | 24115 | 2.6 | 187.4 | TCS-7B |
| 24115 | 24125 | 2.7 | 7.3 | TCS-10A |
| 24125 | 24425 | | 300 | TCS-7B |
| 24425 | 24455 | 2.6 | 27.4 | TCS-8B |
| 24455 | 24530 | | 75 | TCS-4C |
| 24530 | 24605 | | 75 | TCS-8B |
| 24605 | 24635 | 2.6 | 27.4 | TCS-4A |
| 24635 | 24675 | | 40 | TCS-4A |
| 24675 | 24740 | 2.6 | 62.4 | TCS-4A |
| 24740 | 24755 | | 15 | TCS-9A |
| 24755 | 24770 | | 15 | TCS-4A |
| 24770 | 24875 | | 105 | TCS-7B |
| 24875 | 24920 | 2.7 | 42.3 | TCS-4A |
| 24920 | 24960 | | 40 | TCS-9A |
| 24960 | 25195 | | 235 | TCS-4A |
| 25195 | 25235 | | 40 | TCS-4A |
| 25235 | 25275 | | 40 | TCS-4C |
| 25275 | 25305 | | 30 | TCS-4A |
| 25305 | 25465 | 2.6 | 157.4 | TCS-8B |
| 25465 | 25565 | | 100 | TCS-4C |
| 25565 | 25785 | | 220 | TCS-1 |
| 25785 | 26000 | 5.2 | 209.8 | TCS-1A |
| 26000 | 26235 | 5.2 | 229.8 | TCS-1A |
| 26235 | 26305 | | 70 | TCS-2B |
| 26305 | 26415 | 2.7 | 107.3 | TCS-4B |
| 26415 | 26455 | 2.7 | 37.3 | TCS-11 |

| Chainage (Km) | | Length of CD | Net Length (m) | TCS No. |
|---|---|---|---|---|
| From | To | | | |
| 26455 | 26655 | | 200 | TCS-4B |
| 26655 | 27005 | | 350 | TCS-4C |
| 27005 | 27175 | | 170 | TCS-8A |
| 27175 | 27215 | | 40 | TCS-4C |
| 27215 | 27255 | 2.6 | 37.4 | TCS-4B |
| 27255 | 27365 | | 110 | TCS-4C |
| 27365 | 27405 | 2.7 | 37.3 | TCS-9B |
| 27405 | 27495 | | 90 | TCS-4C |
| 27495 | 27515 | | 20 | TCS-11 |
| 27515 | 27545 | 2.7 | 27.3 | TCS-9B |
| 27545 | 27575 | | 30 | TCS-1A |
| 27575 | 27775 | | 200 | TCS-4B |
| 27775 | 27875 | | 100 | TCS-4C |
| 27875 | 28175 | | 300 | TCS-4B |
| 28175 | 28255 | 2.6 | 77.4 | TCS-9B |
| 28255 | 28295 | | 40 | TCS-4B |
| 28295 | 28335 | 2.5 | 37.5 | TCS-9B |
| 28335 | 28555 | 2.6 | 217.4 | TCS-4C |
| 28555 | 28625 | | 70 | TCS-4B |
| 28625 | 28675 | | 50 | TCS-9B |
| 28675 | 28795 | | 120 | TCS-8A |
| 28795 | 28845 | 2.6 | 47.4 | TCS-10B |
| 28845 | 28885 | | 40 | TCS-8A |
| 28885 | 28945 | | 60 | TCS-4C |
| 28945 | 29005 | | 60 | TCS-4B |
| 29005 | 29045 | | 40 | TCS-4C |
| 29045 | 29065 | | 20 | TCS-4B |
| 29065 | 29105 | 2.7 | 37.3 | TCS-9B |
| 29105 | 29155 | 2.6 | 47.4 | TCS-4C |
| 29155 | 29265 | | 110 | TCS-4B |
| 29265 | 29315 | 2.7 | 47.3 | TCS-9B |
| 29315 | 29355 | | 40 | TCS-4C |
| 29355 | 29405 | | 50 | TCS-4C |
| 29405 | 29545 | 2.6 | 137.4 | TCS-4B |
| 29545 | 30075 | | 530 | TCS-4C |
| 30075 | 30125 | | 50 | TCS-4B |
| 30125 | 30655 | | 530 | TCS-4C |
| 30655 | 30685 | | 30 | TCS-4B |
| 30685 | 30705 | | 20 | TCS-4B |
| 30705 | 30765 | | 60 | TCS-4B |
| 30765 | 30785 | | 20 | TCS-9B |
| 30785 | 30905 | | 120 | TCS-4B |
| 30905 | 30975 | | 70 | TCS-4C |
| 30975 | 31035 | | 60 | TCS-4B |

| Chainage (Km) | | Length of CD | Net Length (m) | TCS No. |
|---|---|---|---|---|
| From | To | | | |
| 31035 | 31085 | | 50 | TCS-4C |
| 31085 | 31115 | 2.6 | 27.4 | TCS-4C |
| 31115 | 31155 | | 40 | TCS-4C |
| 31155 | 31185 | | 30 | TCS-8A |
| 31185 | 31365 | | 180 | TCS-4C |
| 31365 | 31465 | | 100 | TCS-9B |
| 31465 | 31485 | | 20 | TCS-9B |
| 31485 | 31565 | | 80 | TCS-4C |
| 31565 | 31635 | 2.6 | 67.4 | TCS-7A |
| 31635 | 31685 | | 50 | TCS-10B |
| 31685 | 32195 | 2.6 | 507.4 | TCS-4C |
| 32195 | 32685 | | 490 | TCS-4C |
| 32685 | 32835 | 2.6 | 147.4 | TCS-4B |
| 32835 | 32915 | | 80 | TCS-4C |
| 32915 | 32945 | | 30 | TCS-4B |
| 32945 | 33495 | 5.3 | 544.7 | TCS-4C |
| 33495 | 33555 | | 60 | TCS-4B |
| 33555 | 33745 | | 190 | TCS-4C |
| 33745 | 33795 | | 50 | TCS-4B |
| 33795 | 33875 | 2.7 | 77.3 | TCS-9B |
| 33875 | 33905 | | 30 | TCS-4B |
| 33905 | 33945 | | 40 | TCS-4C |
| 33945 | 33985 | | 40 | TCS-8A |
| 33985 | 34055 | | 70 | TCS-4B |
| 34055 | 34085 | | 30 | TCS-8A |
| 34085 | 34115 | | 30 | TCS-4B |
| 34115 | 34125 | 2.7 | 7.3 | TCS-8A |
| 34125 | 34240 | | 115 | TCS-4C |
| 34240 | 34285 | 2.7 | 42.3 | TCS-9B |
| 34285 | 34345 | | 60 | TCS-4B |
| 34345 | 34385 | | 40 | TCS-9B |
| 34385 | 34415 | | 30 | TCS-11 |
| 34415 | 34445 | | 30 | TCS-4C |
| 34445 | 34470 | | 25 | TCS-4B |
| 34470 | 34545 | | 75 | TCS-10B |
| 34545 | 34585 | | 40 | TCS-9B |
| 34585 | 34775 | | 190 | TCS-7A |
| 34775 | 35045 | | 270 | TCS-4C |
| 35045 | 35195 | | 150 | TCS-4C |
| 35195 | 35265 | 2.6 | 67.4 | TCS-10B |
| 35265 | 35285 | | 20 | TCS-4B |
| 35285 | 35565 | | 280 | TCS-4C |
| 35565 | 35715 | | 150 | TCS-4C |
| 35715 | 35735 | | 20 | TCS-4C |

| Chainage (Km) | | Length of CD | Net Length (m) | TCS No. |
|---|---|---|---|---|
| From | To | | | |
| 35735 | 35785 | | 50 | TCS-9B |
| 35785 | 35865 | 2.6 | 77.4 | TCS-5 |
| 35865 | 35895 | | 30 | TCS-9A |
| 35895 | 36375 | 2.7 | 477.3 | TCS-4A |
| 36375 | 36635 | 2.6 | 257.4 | TCS-4C |
| 36635 | 36655 | | 20 | TCS-4A |
| 36655 | 36685 | 2.6 | 27.4 | TCS-4A |
| 36685 | 36710 | | 25 | TCS-9D |
| 36710 | 36735 | | 25 | TCS-4A |
| 36735 | 36845 | | 110 | TCS-4A |
| 36845 | 36865 | | 20 | TCS-9A |
| 36865 | 37595 | 2.6 | 727.4 | TCS-4A |
| 37595 | 37645 | 2.7 | 47.3 | TCS-9A |
| 37645 | 37705 | 2.6 | 57.4 | TCS-4A |
| 37705 | 37840 | | 135 | TCS-4B |
| 37840 | 37985 | 5.2 | 139.8 | TCS-11 |
| 37985 | 38275 | 2.6 | 287.4 | TCS-4A |
| 38275 | 38305 | 2.6 | 27.4 | TCS-9A |
| 38305 | 39105 | 7.9 | 792.1 | TCS-4B |
| 39105 | 39530 | 10.7 | 414.3 | TCS-4A |
| 39530 | 39555 | 2.7 | 22.3 | TCS-9A |
| 39555 | 39575 | | 20 | TCS-4A |
| 39575 | 39625 | | 50 | TCS-4C |
| 39625 | 39655 | | 30 | TCS-4A |
| 39655 | 39665 | | 10 | TCS-9A |
| 39665 | 39955 | | 290 | TCS-4A |
| 39955 | 40015 | 2.6 | 57.4 | TCS-9A |
| 40015 | 40225 | 2.6 | 207.4 | TCS-4A |
| 40225 | 40255 | | 30 | TCS-7B |
| 40255 | 40475 | 5.3 | 214.7 | TCS-4A |
| 40475 | 40605 | 2.6 | 127.4 | TCS-4C |
| 40605 | 40685 | | 80 | TCS-4A |
| 40685 | 40715 | | 30 | TCS-9A |
| 40715 | 41265 | 7.9 | 542.1 | TCS-4A |
| 41265 | 41325 | | 60 | TCS-4A |
| 41325 | 41500 | 5.3 | 169.7 | TCS-4A |
| 41500 | 41515 | | 15 | TCS-4A |
| 41515 | 41565 | | 50 | TCS-4C |
| 41565 | 41825 | 2.6 | 257.4 | TCS-4A |
| 41825 | 41895 | 2.6 | 67.4 | TCS-9A |
| 41895 | 41955 | | 60 | TCS-4A |
| 41955 | 41995 | 2.6 | 37.4 | TCS-9A |
| 41995 | 42055 | | 60 | TCS-4C |
| 42055 | 42145 | | 90 | TCS-4C |

| Chainage (Km) | | Length of CD | Net Length (m) | TCS No. |
|---|---|---|---|---|
| From | To | | | |
| 42145 | 42335 | 2.6 | 187.4 | TCS-4A |
| 42335 | 42375 | | 40 | TCS-4C |
| 42375 | 42425 | 2.6 | 47.4 | TCS-4A |
| 42425 | 42535 | 2.7 | 107.3 | TCS-4A |
| 42535 | 42605 | | 70 | TCS-4C |
| 42605 | 42985 | 2.6 | 377.4 | TCS-4A |
| 42985 | 43005 | | 20 | TCS-4C |
| 43005 | 43495 | 7.8 | 482.2 | TCS-4A |
| 43495 | 43535 | | 40 | TCS-4C |
| 43535 | 43555 | | 20 | TCS-4A |
| 43555 | 43565 | 2.6 | 7.4 | TCS-4A |
| 43565 | 43615 | | 50 | TCS-4A |
| 43615 | 43685 | | 70 | TCS-9A |
| 43685 | 43695 | 2.7 | 7.3 | TCS-4A |
| 43695 | 43775 | | 80 | TCS-8B |
| 43775 | 43875 | 2.6 | 97.4 | TCS-4C |
| 43875 | 44065 | 2.6 | 187.4 | TCS-4A |
| 44065 | 44075 | | 10 | TCS-9A |
| 44075 | 44105 | | 30 | TCS-4A |
| 44105 | 44115 | | 10 | TCS-9A |
| 44115 | 44305 | 2.6 | 187.4 | TCS-4A |
| 44305 | 45525 | | 1220 | TCS-4C |
| 45525 | 45715 | | 190 | TCS-7B |
| 45715 | 45815 | | 100 | TCS-8B |
| 45815 | 45865 | | 50 | TCS-4C |
| 45865 | 45915 | | 50 | TCS-7B |
| 45915 | 46285 | 5.3 | 364.7 | TCS-4A |
| 46285 | 46335 | | 50 | TCS-4C |
| 46335 | 46385 | 2.7 | 47.3 | TCS-7B |
| 46385 | 46415 | | 30 | TCS-10A |
| 46415 | 46455 | | 40 | TCS-4A |
| 46455 | 46465 | 2.6 | 7.4 | TCS-9A |
| 46465 | 46695 | 2.6 | 227.4 | TCS-4A |
| 46695 | 46745 | | 50 | TCS-4C |
| 46745 | 46865 | | 120 | TCS-4A |
| 46865 | 47225 | 2.6 | 357.4 | TCS-4C |
| 47225 | 47445 | | 220 | TCS-4A |
| 47445 | 47565 | 2.7 | 117.3 | TCS-4C |
| 47565 | 47605 | 2.6 | 37.4 | TCS-4A |
| 47605 | 47675 | | 70 | TCS-4C |
| 47675 | 47745 | | 70 | TCS-4A |
| 47745 | 47755 | 2.6 | 7.4 | TCS-9A |
| 47755 | 47795 | | 40 | TCS-4A |
| 47795 | 47815 | | 20 | TCS-9A |

| Chainage (Km) | | Length of CD | Net Length (m) | TCS No. |
|---|---|---|---|---|
| From | To | | | |
| 47815 | 48165 | 2.5 | 347.5 | TCS-4A |
| 48165 | 48385 | 2.6 | 217.4 | TCS-4C |
| 48385 | 48775 | 5.3 | 384.7 | TCS-4A |
| 48775 | 48815 | | 40 | TCS-7B |
| 48815 | 48965 | 2.7 | 147.3 | TCS-4A |
| 48965 | 50125 | 5.2 | 1155 | TCS-4C |
| 50125 | 50215 | | 90 | TCS-8B |
| 50215 | 50285 | 2.6 | 67.4 | TCS-4A |
| 50285 | 50355 | | 70 | TCS-9A |
| 50355 | 50385 | | 30 | TCS-4A |
| 50385 | 50415 | | 30 | TCS-4C |
| 50415 | 50445 | | 30 | TCS-4A |
| 50445 | 50525 | | 80 | TCS-11 |
| 50525 | 50565 | | 40 | TCS-11 |
| 50565 | 50775 | 89.6 | 120.4 | TCS-11 |
| 50775 | 50850 | | 75 | TCS-9B |
| **Total Length** | | **481** | **40919** | |

**3. Intersections and Grade Separators**

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

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

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

(i) At-grade intersections

Major Intersections

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

Minor Intersections

| Sl. No. | Location of intersection (Km) | Type of intersection | Other features |
|---|---|---|---|
| 1. | 16+690 | T-Type | 3-legged |
| 2. | 19+050 | X-Type | 4-legged |
| 3. | 24+675 | Y-Type | 3-legged |
| 4. | 25+690 | T-Type | 3-legged |
| 5. | 25+970 | Y-Type | 3-legged |
| 6. | 26+080 | T-Type | 3-legged |
| 7. | 34+400 | Y-Type | 3-legged |
| 8. | 34+950 | Y-Type | 3-legged |

| Sl. No. | Location of intersection (Km) | Type of intersection | Other features |
|---|---|---|---|
| 9. | 35+790 | T-Type | 3-legged |
| 10. | 36+700 | T-Type | 3-legged |
| 11. | 37+610 | Y-Type | 3-legged |
| 12. | 50+450 | T-Type | 3-legged |

(ii) Grade separated intersection with/without ramps

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

**4. Road Embankment and Cut Section**

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

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

The existing road shall be raised in the following sections:

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

**5. Pavement Design**

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

(ii) Type of pavement

Flexible Pavement

(iii) Design requirements

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

(a) Design Period and strategy

Flexible pavement for new pavement or for widening and strengthening of the existing pavement shall be designed for a minimum design period of 20 years. Stage construction shall not be permitted.

(b) Design Traffic

Notwithstanding anything to the contrary contained in this Agreement or the Manual. The Contractor shall design the pavement for design traffic of 20 msa.

(iv) Reconstruction of stretches

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

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

| SL NO. | Stretch from Km to Km | Remarks | TCS Type |
|---|---|---|---|
| 1. | 9+450 to 9+850 | Reconstruction | TCS-4C |
| 2. | 10+600 to 10+665 | Reconstruction | TCS-4B |
| 3. | 10+665 to 11+050 | Reconstruction | TCS-4C |
| 4. | 11+470 to 11+700 | Reconstruction | TCS-4C |
| 5. | 12+300 to 12+600 | Reconstruction | TCS-4B |
| 6. | 13+300 to 13+455 | Reconstruction | TCS-4B |
| 7. | 13+455 to 13+505 | Reconstruction | TCS-7A |
| 8. | 13+505 to 13+615 | Reconstruction | TCS-4B |
| 9. | 13+615 to 13+675 | Reconstruction | TCS-7A |
| 10. | 13+675 to 13+695 | Reconstruction | TCS-4C |
| 11. | 13+695 to 13+755 | Reconstruction | TCS-7A |
| 12. | 13+755 to 13+815 | Reconstruction | TCS-9B |
| 13. | 13+815 to 14+050 | Reconstruction | TCS-4C |
| 14. | 15+550 to 15+755 | Reconstruction | TCS-4C |
| 15. | 15+755 to 15+795 | Reconstruction | TCS-4C |
| 16. | 15+795 to 16+145 | Reconstruction | TCS-4B |
| 17. | 16+145 to 16+175 | Reconstruction | TCS-9B |
| 18. | 16+175 to 16+235 | Reconstruction | TCS-4B |
| 19. | 16+235 to 16+255 | Reconstruction | TCS-11 |
| 20. | 16+255 to 16+315 | Reconstruction | TCS-4C |
| 21. | 16+315 to 16+595 | Reconstruction | TCS-4B |
| 22. | 16+595 to 16+605 | Reconstruction | TCS-9B |
| 23. | 16+605 to 16+705 | Reconstruction | TCS-4C |
| 24. | 16+705 to 16+775 | Reconstruction | TCS-8A |
| 25. | 16+775 to 16+825 | Reconstruction | TCS-4C |
| 26. | 16+825 to 16+855 | Reconstruction | TCS-4C |
| 27. | 16+855 to 17+045 | Reconstruction | TCS-4B |
| 28. | 17+045 to 17+185 | Reconstruction | TCS-4B |
| 29. | 17+185 to 17+205 | Reconstruction | TCS-4A |
| 30. | 17+205 to 17+385 | Reconstruction | TCS-4B |
| 31. | 17+385 to 17+745 | Reconstruction | TCS-4B |
| 32. | 17+745 to 17+755 | Reconstruction | TCS-9B |
| 33. | 17+755 to 17+995 | Reconstruction | TCS-4B |
| 34. | 17+995 to 18+015 | Reconstruction | TCS-9D |
| 35. | 18+015 to 18+045 | Reconstruction | TCS-4C |
| 36. | 18+045 to 18+145 | Reconstruction | TCS-7A |
| 37. | 18+145 to 18+155 | Reconstruction | TCS-4B |
| 38. | 18+155 to 18+675 | Reconstruction | TCS-4B |
| 39. | 18+675 to 18+695 | Reconstruction | TCS-9B |
| 40. | 18+695 to 18+715 | Reconstruction | TCS-4B |
| 41. | 18+715 to 18+755 | Reconstruction | TCS-4C |
| 42. | 18+755 to 18+875 | Reconstruction | TCS-7A |
| 43. | 18+875 to 18+975 | Reconstruction | TCS-4B |
| 44. | 18+975 to 19+065 | Reconstruction | TCS-4C |
| 45. | 19+065 to 19+175 | Reconstruction | TCS-4A |
| 46. | 19+175 to 19+195 | Reconstruction | TCS-9A |

| SL NO. | Stretch from Km to Km | Remarks | TCS Type |
|---|---|---|---|
| 47. | 19+195 to 19+225 | Reconstruction | TCS-4A |
| 48. | 19+225 to 19+295 | Reconstruction | TCS-8B |
| 49. | 19+295 to 19+475 | Reconstruction | TCS-4A |
| 50. | 19+475 to 19+715 | Reconstruction | TCS-4A |
| 51. | 19+715 to 19+755 | Reconstruction | TCS-9A |
| 52. | 19+755 to 19+905 | Reconstruction | TCS-4A |
| 53. | 19+905 to 20+135 | Reconstruction | TCS-4A |
| 54. | 20+135 to 20+355 | Reconstruction | TCS-4A |
| 55. | 20+355 to 20+405 | Reconstruction | TCS-4C |
| 56. | 20+405 to 20+440 | Reconstruction | TCS-4A |
| 57. | 20+440 to 20+565 | Reconstruction | TCS-4A |
| 58. | 20+565 to 20+605 | Reconstruction | TCS-4A |
| 59. | 20+605 to 20+995 | Reconstruction | TCS-4A |
| 60. | 21+105 to 21+295 | Reconstruction | TCS-4A |
| 61. | 21+295 to 21+500 | Reconstruction | TCS-4C |
| 62. | 22+220 to 22+475 | Reconstruction | TCS-4A |
| 63. | 22+475 to 23+195 | Reconstruction | TCS-4A |
| 64. | 23+195 to 23+585 | Reconstruction | TCS-4A |
| 65. | 23+585 to 23+615 | Reconstruction | TCS-9A |
| 66. | 23+615 to 23+655 | Reconstruction | TCS-4A |
| 67. | 23+655 to 23+695 | Reconstruction | TCS-8B |
| 68. | 23+695 to 23+725 | Reconstruction | TCS-7B |
| 69. | 23+725 to 23+775 | Reconstruction | TCS-10A |
| 70. | 23+775 to 23+835 | Reconstruction | TCS-4C |
| 71. | 23+835 to 23+925 | Reconstruction | TCS-10A |
| 72. | 23+925 to 24+115 | Reconstruction | TCS-7B |
| 73. | 24+115 to 24+125 | Reconstruction | TCS-10A |
| 74. | 24+125 to 24+425 | Reconstruction | TCS-7B |
| 75. | 24+425 to 24+450 | Reconstruction | TCS-8B |
| 76. | 24+590 to 24+605 | Reconstruction | TCS-8B |
| 77. | 24+605 to 24+635 | Reconstruction | TCS-4A |
| 78. | 24+635 to 24+675 | Reconstruction | TCS-4A |
| 79. | 24+675 to 24+740 | Reconstruction | TCS-4A |
| 80. | 24+740 to 24+755 | Reconstruction | TCS-9A |
| 81. | 24+755 to 24+770 | Reconstruction | TCS-4A |
| 82. | 24+770 to 24+875 | Reconstruction | TCS-7B |
| 83. | 24+875 to 24+920 | Reconstruction | TCS-4A |
| 84. | 24+920 to 24+960 | Reconstruction | TCS-9A |
| 85. | 24+960 to 25+195 | Reconstruction | TCS-4A |
| 86. | 25+195 to 25+235 | Reconstruction | TCS-4A |
| 87. | 25+235 to 25+275 | Reconstruction | TCS-4C |
| 88. | 25+275 to 25+305 | Reconstruction | TCS-4A |
| 89. | 25+305 to 25+465 | Reconstruction | TCS-8B |
| 90. | 25+465 to 25+565 | Reconstruction | TCS-4C |
| 91. | 25+565 to 25+785 | Reconstruction | TCS-1 |
| 92. | 25+785 to 26+000 | Reconstruction | TCS-1A |
| 93. | 26+000 to 26+235 | Reconstruction | TCS-1A |
| 94. | 26+235 to 26+305 | Reconstruction | TCS-2B |
| 95. | 26+305 to 26+415 | Reconstruction | TCS-4B |
| 96. | 26+415 to 26+455 | Reconstruction | TCS-11 |
| 97. | 26+455 to 26+655 | Reconstruction | TCS-4B |
| 98. | 26+655 to 26+780 | Reconstruction | TCS-4C |

| SL NO. | Stretch from Km to Km | Remarks | TCS Type |
|---|---|---|---|
| 99. | 27+520 to 27+545 | Reconstruction | TCS-9B |
| 100. | 27+545 to 27+575 | Reconstruction | TCS-1A |
| 101. | 27+575 to 27+775 | Reconstruction | TCS-4B |
| 102. | 27+775 to 27+875 | Reconstruction | TCS-4C |
| 103. | 27+875 to 28+175 | Reconstruction | TCS-4B |
| 104. | 28+175 to 28+255 | Reconstruction | TCS-9B |
| 105. | 28+255 to 28+295 | Reconstruction | TCS-4B |
| 106. | 28+295 to 28+335 | Reconstruction | TCS-9B |
| 107. | 28+335 to 28+350 | Reconstruction | TCS-4C |
| 108. | 29+450 to 29+545 | Reconstruction | TCS-4B |
| 109. | 29+545 to 30+075 | Reconstruction | TCS-4C |
| 110. | 30+075 to 30+100 | Reconstruction | TCS-4B |
| 111. | 30+650 to 30+655 | Reconstruction | TCS-4C |
| 112. | 30+655 to 30+685 | Reconstruction | TCS-4B |
| 113. | 30+685 to 30+705 | Reconstruction | TCS-4B |
| 114. | 30+705 to 30+765 | Reconstruction | TCS-4B |
| 115. | 30+765 to 30+785 | Reconstruction | TCS-9B |
| 116. | 30+785 to 30+900 | Reconstruction | TCS-4B |
| 117. | 32+200 to 32+685 | Reconstruction | TCS-4C |
| 118. | 32+685 to 32+830 | Reconstruction | TCS-4B |
| 119. | 34+250 to 34+285 | Reconstruction | TCS-9B |
| 120. | 34+285 to 34+345 | Reconstruction | TCS-4B |
| 121. | 34+345 to 34+385 | Reconstruction | TCS-9B |
| 122. | 34+385 to 34+415 | Reconstruction | TCS-11 |
| 123. | 34+415 to 34+445 | Reconstruction | TCS-4C |
| 124. | 34+445 to 34+470 | Reconstruction | TCS-4B |
| 125. | 34+470 to 34+545 | Reconstruction | TCS-10B |
| 126. | 34+545 to 34+585 | Reconstruction | TCS-9B |
| 127. | 34+585 to 34+600 | Reconstruction | TCS-7A |
| 128. | 35+550 to 35+565 | Reconstruction | TCS-4C |
| 129. | 35+565 to 35+715 | Reconstruction | TCS-4C |
| 130. | 35+715 to 35+735 | Reconstruction | TCS-4C |
| 131. | 35+735 to 35+785 | Reconstruction | TCS-9B |
| 132. | 35+785 to 35+865 | Reconstruction | TCS-5 |
| 133. | 35+865 to 35+895 | Reconstruction | TCS-9A |
| 134. | 35+895 to 36+375 | Reconstruction | TCS-4A |
| 135. | 36+375 to 36+500 | Reconstruction | TCS-4C |
| 136. | 36+700 to 36+710 | Reconstruction | TCS-9D |
| 137. | 36+710 to 36+735 | Reconstruction | TCS-4A |
| 138. | 36+735 to 36+845 | Reconstruction | TCS-4A |
| 139. | 36+845 to 36+865 | Reconstruction | TCS-9A |
| 140. | 36+865 to 37+595 | Reconstruction | TCS-4A |
| 141. | 37+595 to 37+645 | Reconstruction | TCS-9A |
| 142. | 37+645 to 37+705 | Reconstruction | TCS-4A |
| 143. | 37+705 to 37+840 | Reconstruction | TCS-4B |
| 144. | 37+840 to 37+985 | Reconstruction | TCS-11 |
| 145. | 37+985 to 38+275 | Reconstruction | TCS-4A |
| 146. | 38+275 to 38+305 | Reconstruction | TCS-9A |
| 147. | 38+305 to 38+600 | Reconstruction | TCS-4B |
| 148. | 39+100 to 39+105 | Reconstruction | TCS-4B |
| 149. | 39+105 to 39+530 | Reconstruction | TCS-4A |
| 150. | 39+530 to 39+550 | Reconstruction | TCS-9A |

| SL NO. | Stretch from Km to Km | Remarks | TCS Type |
|---|---|---|---|
| 151. | 39+650 to 39+655 | Reconstruction | TCS-4A |
| 152. | 39+655 to 39+665 | Reconstruction | TCS-9A |
| 153. | 39+665 to 39+955 | Reconstruction | TCS-4A |
| 154. | 39+955 to 40+015 | Reconstruction | TCS-9A |
| 155. | 40+015 to 40+070 | Reconstruction | TCS-4A |
| 156. | 40+200 to 40+225 | Reconstruction | TCS-4A |
| 157. | 40+225 to 40+255 | Reconstruction | TCS-7B |
| 158. | 40+255 to 40+400 | Reconstruction | TCS-4A |
| 159. | 41+000 to 41+265 | Reconstruction | TCS-4A |
| 160. | 41+265 to 41+325 | Reconstruction | TCS-4A |
| 161. | 41+325 to 41+500 | Reconstruction | TCS-4A |
| 162. | 41+000 to 41+265 | Reconstruction | TCS-4A |
| 163. | 41+265 to 41+325 | Reconstruction | TCS-4C |
| 164. | 41+325 to 41+515 | Reconstruction | TCS-4A |
| 165. | 41+515 to 41+565 | Reconstruction | TCS-9A |
| 166. | 41+565 to 41+825 | Reconstruction | TCS-4A |
| 167. | 41+825 to 41+895 | Reconstruction | TCS-9A |
| 168. | 41+895 to 41+955 | Reconstruction | TCS-4C |
| 169. | 41+955 to 41+995 | Reconstruction | TCS-4C |
| 170. | 41+995 to 42+055 | Reconstruction | TCS-4A |
| 171. | 42+055 to 42+145 | Reconstruction | TCS-4A |
| 172. | 42+145 to 42+200 | Reconstruction | TCS-4C |
| 173. | 43+900 to 44+065 | Reconstruction | TCS-4A |
| 174. | 44+065 to 44+075 | Reconstruction | TCS-4A |
| 175. | 44+075 to 44+105 | Reconstruction | TCS-4C |
| 176. | 44+105 to 44+115 | Reconstruction | TCS-4A |
| 177. | 44+115 to 44+150 | Reconstruction | TCS-4C |
| 178. | 44+550 to 45+050 | Reconstruction | TCS-4A |
| 179. | 45+180 to 45+450 | Reconstruction | TCS-4C |
| 180. | 45+550 to 45+715 | Reconstruction | TCS-4A |
| 181. | 45+715 to 45+800 | Reconstruction | TCS-4A |
| 182. | 45+900 to 45+915 | Reconstruction | TCS-4A |
| 183. | 45+915 to 46+250 | Reconstruction | TCS-9A |
| 184. | 46+360 to 46+385 | Reconstruction | TCS-4A |
| 185. | 46+385 to 46+415 | Reconstruction | TCS-8B |
| 186. | 46+415 to 46+455 | Reconstruction | TCS-4C |
| 187. | 46+455 to 46+465 | Reconstruction | TCS-4A |
| 188. | 46+465 to 46+600 | Reconstruction | TCS-4A |
| 189. | 47+250 to 47+400 | Reconstruction | TCS-9A |
| 190. | 47+950 to 48+165 | Reconstruction | TCS-4A |
| 191. | 48+165 to 48+385 | Reconstruction | TCS-9A |
| 192. | 48+385 to 48+775 | Reconstruction | TCS-4A |
| 193. | 48+775 to 48+815 | Reconstruction | TCS-4A |
| 194. | 48+815 to 48+965 | Reconstruction | TCS-4C |
| 195. | 48+965 to 49+100 | Reconstruction | TCS-4C |
| 196. | 49+500 to 49+850 | Reconstruction | TCS-4C |
| 197. | 50+800 to 50+850 | Reconstruction | TCS-4C |

## 6. Roadside Drainage

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

**RR Masonry Covered Drain**

| CHAINAGE (M) | | Side | Net Length (m) |
|---|---|---|---|
| From | To | | |
| 25565 | 26305 | Both | 1480 |
| 27545 | 27575 | Both | 60 |
| Total= | | | 1540 |

**RR Masonry Triangular Open Drain**

| Left Side | | |
|---|---|---|
| Chainage | | Length |
| From | To | |
| 9450 | 9985 | 535 |
| 10035 | 10245 | 210 |
| 10245 | 10285 | 40 |
| 10285 | 10515 | 230 |
| 10585 | 10665 | 80 |
| 10665 | 11855 | 1190 |
| 12005 | 12025 | 20 |
| 12025 | 12215 | 190 |
| 12265 | 12715 | 450 |
| 12715 | 12775 | 60 |
| 12775 | 12915 | 140 |
| 12915 | 12985 | 70 |
| 12985 | 13195 | 210 |
| 13195 | 13285 | 90 |
| 13285 | 13455 | 170 |
| 13505 | 13615 | 110 |
| 13675 | 13695 | 20 |
| 13755 | 13815 | 60 |
| 13815 | 14285 | 470 |
| 14285 | 14345 | 60 |
| 14345 | 14495 | 150 |
| 14495 | 14675 | 180 |
| 14675 | 14715 | 40 |
| 14715 | 14805 | 90 |
| 14805 | 14895 | 90 |
| 14895 | 15045 | 150 |
| 15045 | 15175 | 130 |
| 15175 | 15195 | 20 |
| 15195 | 15275 | 80 |
| 15355 | 15385 | 30 |
| 15385 | 15755 | 370 |
| 15755 | 15795 | 40 |
| 15795 | 16145 | 350 |
| 16145 | 16175 | 30 |
| 16175 | 16235 | 60 |
| 16255 | 16315 | 60 |

| Left Side | | |
|---|---|---|
| Chainage | | Length |
| From | To | |
| 16315 | 16595 | 280 |
| 16595 | 16605 | 10 |
| 16605 | 16705 | 100 |
| 16775 | 16825 | 50 |
| 16825 | 16855 | 30 |
| 16855 | 17045 | 190 |
| 17045 | 17185 | 140 |
| 17205 | 17385 | 180 |
| 17385 | 17745 | 360 |
| 17745 | 17755 | 10 |
| 17755 | 17995 | 240 |
| 18015 | 18045 | 30 |
| 18145 | 18155 | 10 |
| 18155 | 18675 | 520 |
| 18675 | 18695 | 20 |
| 18695 | 18715 | 20 |
| 18715 | 18755 | 40 |
| 18875 | 18975 | 100 |
| 18975 | 19065 | 90 |
| 19225 | 19295 | 70 |
| 20355 | 20405 | 50 |
| 20995 | 21105 | 110 |
| 21295 | 21575 | 280 |
| 21635 | 21715 | 80 |
| 21785 | 21865 | 80 |
| 21865 | 21895 | 30 |
| 21895 | 21905 | 10 |
| 21905 | 21975 | 70 |
| 23655 | 23695 | 40 |
| 23775 | 23835 | 60 |
| 24425 | 24455 | 30 |
| 24455 | 24530 | 75 |
| 24530 | 24605 | 75 |
| 25235 | 25275 | 40 |
| 25305 | 25465 | 160 |
| 25465 | 25565 | 100 |
| 26305 | 26415 | 110 |
| 26455 | 26655 | 200 |
| 26655 | 27005 | 350 |
| 27175 | 27215 | 40 |
| 27215 | 27255 | 40 |
| 27255 | 27365 | 110 |
| 27365 | 27405 | 40 |
| 27405 | 27495 | 90 |

| Left Side | | |
|---|---|---|
| Chainage | | Length |
| From | To | |
| 27515 | 27545 | 30 |
| 27575 | 27775 | 200 |
| 27775 | 27875 | 100 |
| 27875 | 28175 | 300 |
| 28175 | 28255 | 80 |
| 28255 | 28295 | 40 |
| 28295 | 28335 | 40 |
| 28335 | 28555 | 220 |
| 28555 | 28625 | 70 |
| 28625 | 28675 | 50 |
| 28885 | 28945 | 60 |
| 28945 | 29005 | 60 |
| 29005 | 29045 | 40 |
| 29045 | 29065 | 20 |
| 29065 | 29105 | 40 |
| 29105 | 29155 | 50 |
| 29155 | 29265 | 110 |
| 29265 | 29315 | 50 |
| 29315 | 29355 | 40 |
| 29355 | 29405 | 50 |
| 29405 | 29545 | 140 |
| 29545 | 30075 | 530 |
| 30075 | 30125 | 50 |
| 30125 | 30655 | 530 |
| 30655 | 30685 | 30 |
| 30685 | 30705 | 20 |
| 30705 | 30765 | 60 |
| 30765 | 30785 | 20 |
| 30785 | 30905 | 120 |
| 30905 | 30975 | 70 |
| 30975 | 31035 | 60 |
| 31035 | 31085 | 50 |
| 31085 | 31115 | 30 |
| 31115 | 31155 | 40 |
| 31185 | 31365 | 180 |
| 31365 | 31465 | 100 |
| 31465 | 31485 | 20 |
| 31485 | 31565 | 80 |
| 31685 | 32195 | 510 |
| 32195 | 32685 | 490 |
| 32685 | 32835 | 150 |
| 32835 | 32915 | 80 |
| 32915 | 32945 | 30 |
| 32945 | 33495 | 550 |

| Left Side | | |
|---|---|---|
| Chainage | | Length |
| From | To | |
| 33495 | 33555 | 60 |
| 33555 | 33745 | 190 |
| 33745 | 33795 | 50 |
| 33795 | 33875 | 80 |
| 33875 | 33905 | 30 |
| 33905 | 33945 | 40 |
| 33985 | 34055 | 70 |
| 34085 | 34115 | 30 |
| 34125 | 34240 | 115 |
| 34240 | 34285 | 45 |
| 34285 | 34345 | 60 |
| 34345 | 34385 | 40 |
| 34415 | 34445 | 30 |
| 34445 | 34470 | 25 |
| 34545 | 34585 | 40 |
| 34775 | 35045 | 270 |
| 35045 | 35195 | 150 |
| 35265 | 35285 | 20 |
| 35285 | 35565 | 280 |
| 35565 | 35715 | 150 |
| 35715 | 35735 | 20 |
| 35735 | 35785 | 50 |
| 36375 | 36635 | 260 |
| 37705 | 37840 | 135 |
| 38305 | 39105 | 800 |
| 39575 | 39625 | 50 |
| 40475 | 40605 | 130 |
| 41515 | 41565 | 50 |
| 41995 | 42055 | 60 |
| 42055 | 42145 | 90 |
| 42335 | 42375 | 40 |
| 42535 | 42605 | 70 |
| 42985 | 43005 | 20 |
| 43495 | 43535 | 40 |
| 43695 | 43775 | 80 |
| 43775 | 43875 | 100 |
| 44305 | 45525 | 1220 |
| 45715 | 45815 | 100 |
| 45815 | 45865 | 50 |
| 46285 | 46335 | 50 |
| 46695 | 46745 | 50 |
| 46865 | 47225 | 360 |
| 47445 | 47565 | 120 |
| 47605 | 47675 | 70 |

| Left Side | | |
|---|---|---|
| Chainage | | Length |
| From | To | |
| 48165 | 48385 | 220 |
| 48965 | 50125 | 1160 |
| 50125 | 50215 | 90 |
| 50385 | 50415 | 30 |
| 50775 | 50850 | 75 |
| **Total length =** | | **23990** |

| Right Side | | |
|---|---|---|
| Chainage | | Length |
| From | To | |
| 9450 | 9985 | 535 |
| 9985 | 10035 | 50 |
| 10035 | 10245 | 210 |
| 10245 | 10285 | 40 |
| 10285 | 10515 | 230 |
| 10515 | 10585 | 70 |
| 10665 | 11855 | 1190 |
| 11855 | 12005 | 150 |
| 12005 | 12025 | 20 |
| 12215 | 12265 | 50 |
| 12715 | 12775 | 60 |
| 12915 | 12985 | 70 |
| 13195 | 13285 | 90 |
| 13675 | 13695 | 20 |
| 13815 | 14285 | 470 |
| 14345 | 14495 | 150 |
| 14715 | 14805 | 90 |
| 14895 | 15045 | 150 |
| 15175 | 15195 | 20 |
| 15275 | 15355 | 80 |
| 15355 | 15385 | 30 |
| 15755 | 15795 | 40 |
| 16255 | 16315 | 60 |
| 16605 | 16705 | 100 |
| 16705 | 16775 | 70 |
| 16775 | 16825 | 50 |
| 16825 | 16855 | 30 |
| 17185 | 17205 | 20 |
| 18015 | 18045 | 30 |
| 18715 | 18755 | 40 |
| 18975 | 19065 | 90 |
| 19065 | 19175 | 110 |
| 19175 | 19195 | 20 |
| 19195 | 19225 | 30 |

| Right Side | | |
|---|---|---|
| Chainage | | Length |
| From | To | |
| 19295 | 19475 | 180 |
| 19475 | 19715 | 240 |
| 19715 | 19755 | 40 |
| 19755 | 19905 | 150 |
| 19905 | 20135 | 230 |
| 20135 | 20355 | 220 |
| 20355 | 20405 | 50 |
| 20405 | 20440 | 35 |
| 20440 | 20565 | 125 |
| 20565 | 20605 | 40 |
| 20605 | 20995 | 390 |
| 20995 | 21105 | 110 |
| 21105 | 21295 | 190 |
| 21295 | 21575 | 280 |
| 21575 | 21635 | 60 |
| 21635 | 21715 | 80 |
| 21715 | 21785 | 70 |
| 21785 | 21865 | 80 |
| 21865 | 21895 | 30 |
| 21895 | 21905 | 10 |
| 21905 | 21975 | 70 |
| 21975 | 22045 | 70 |
| 22045 | 22205 | 160 |
| 22205 | 22475 | 270 |
| 22475 | 23195 | 720 |
| 23195 | 23585 | 390 |
| 23585 | 23615 | 30 |
| 23615 | 23655 | 40 |
| 23775 | 23835 | 60 |
| 24455 | 24530 | 75 |
| 24605 | 24635 | 30 |
| 24635 | 24675 | 40 |
| 24675 | 24740 | 65 |
| 24740 | 24755 | 15 |
| 24755 | 24770 | 15 |
| 24875 | 24920 | 45 |
| 24920 | 24960 | 40 |
| 24960 | 25195 | 235 |
| 25195 | 25235 | 40 |
| 25235 | 25275 | 40 |
| 25275 | 25305 | 30 |
| 25465 | 25565 | 100 |
| 26655 | 27005 | 350 |
| 27005 | 27175 | 170 |

| Right Side | | |
|---|---|---|
| Chainage | | Length |
| From | To | |
| 27175 | 27215 | 40 |
| 27255 | 27365 | 110 |
| 27405 | 27495 | 90 |
| 27775 | 27875 | 100 |
| 28335 | 28555 | 220 |
| 28675 | 28795 | 120 |
| 28845 | 28885 | 40 |
| 28885 | 28945 | 60 |
| 29005 | 29045 | 40 |
| 29105 | 29155 | 50 |
| 29315 | 29355 | 40 |
| 29355 | 29405 | 50 |
| 29545 | 30075 | 530 |
| 30125 | 30655 | 530 |
| 30905 | 30975 | 70 |
| 31035 | 31085 | 50 |
| 31085 | 31115 | 30 |
| 31115 | 31155 | 40 |
| 31155 | 31185 | 30 |
| 31185 | 31365 | 180 |
| 31485 | 31565 | 80 |
| 31685 | 32195 | 510 |
| 32195 | 32685 | 490 |
| 32835 | 32915 | 80 |
| 32945 | 33495 | 550 |
| 33555 | 33745 | 190 |
| 33905 | 33945 | 40 |
| 33945 | 33985 | 40 |
| 34055 | 34085 | 30 |
| 34115 | 34125 | 10 |
| 34125 | 34240 | 115 |
| 34415 | 34445 | 30 |
| 34775 | 35045 | 270 |
| 35045 | 35195 | 150 |
| 35285 | 35565 | 280 |
| 35565 | 35715 | 150 |
| 35715 | 35735 | 20 |
| 35865 | 35895 | 30 |
| 35895 | 36375 | 480 |
| 36375 | 36635 | 260 |
| 36635 | 36655 | 20 |
| 36655 | 36685 | 30 |
| 36710 | 36735 | 25 |
| 36735 | 36845 | 110 |

| **Right Side** | | |
|---|---|---|
| **Chainage** | | **Length** |
| **From** | **To** | |
| 36845 | 36865 | 20 |
| 36865 | 37595 | 730 |
| 37595 | 37645 | 50 |
| 37645 | 37705 | 60 |
| 37985 | 38275 | 290 |
| 38275 | 38305 | 30 |
| 39105 | 39530 | 425 |
| 39530 | 39555 | 25 |
| 39555 | 39575 | 20 |
| 39575 | 39625 | 50 |
| 39625 | 39655 | 30 |
| 39655 | 39665 | 10 |
| 39665 | 39955 | 290 |
| 39955 | 40015 | 60 |
| 40015 | 40225 | 210 |
| 40255 | 40475 | 220 |
| 40475 | 40605 | 130 |
| 40605 | 40685 | 80 |
| 40685 | 40715 | 30 |
| 40715 | 41265 | 550 |
| 41265 | 41325 | 60 |
| 41325 | 41515 | 190 |
| 41515 | 41565 | 50 |
| 41565 | 41825 | 260 |
| 41825 | 41895 | 70 |
| 41895 | 41955 | 60 |
| 41955 | 41995 | 40 |
| 41995 | 42055 | 60 |
| 42055 | 42145 | 90 |
| 42145 | 42335 | 190 |
| 42335 | 42375 | 40 |
| 42375 | 42425 | 50 |
| 42425 | 42535 | 110 |
| 42535 | 42605 | 70 |
| 42605 | 42985 | 380 |
| 42985 | 43005 | 20 |
| 43005 | 43495 | 490 |
| 43495 | 43535 | 40 |
| 43535 | 43555 | 20 |
| 43555 | 43565 | 10 |
| 43565 | 43615 | 50 |
| 43615 | 43685 | 70 |
| 43685 | 43695 | 10 |
| 43775 | 43875 | 100 |

| Right Side | | |
|---|---|---|
| Chainage | | Length |
| From | To | |
| 43875 | 44065 | 190 |
| 44065 | 44075 | 10 |
| 44075 | 44105 | 30 |
| 44105 | 44115 | 10 |
| 44115 | 44305 | 190 |
| 44305 | 45525 | 1220 |
| 45815 | 45865 | 50 |
| 45915 | 46285 | 370 |
| 46285 | 46335 | 50 |
| 46415 | 46455 | 40 |
| 46455 | 46465 | 10 |
| 46465 | 46695 | 230 |
| 46695 | 46745 | 50 |
| 46745 | 46865 | 120 |
| 46865 | 47225 | 360 |
| 47225 | 47445 | 220 |
| 47445 | 47565 | 120 |
| 47565 | 47605 | 40 |
| 47605 | 47675 | 70 |
| 47675 | 47745 | 70 |
| 47745 | 47755 | 10 |
| 47755 | 47795 | 40 |
| 47795 | 47815 | 20 |
| 47815 | 48165 | 350 |
| 48165 | 48385 | 220 |
| 48385 | 48775 | 390 |
| 48815 | 48965 | 150 |
| 48965 | 50125 | 1160 |
| 50215 | 50285 | 70 |
| 50285 | 50355 | 70 |
| 50355 | 50385 | 30 |
| 50385 | 50415 | 30 |
| 50415 | 50445 | 30 |
| **Total length =** | **28445** | |

**Outlet Drain:**

| Sl No. | Left Side | Right Side |
|---|---|---|
| | Chainage (km) | Chainage (km) |
| 1 | 17.185 | 10.285 |
| 2 | 17.205 | 12.215 |
| 3 | 17.995 | 12.775 |
| 4 | 18.015 | 12.915 |
| 5 | 19.295 | 13.285 |
| 6 | 20.405 | 13.675 |

| Sl No. | Left Side | Right Side |
|---|---|---|
| | Chainage (km) | Chainage (km) |
| 7 | 21.105 | 13.815 |
| 8 | 21.575 | 14.345 |
| 9 | 21.865 | 15.175 |
| 10 | 21.975 | 15.275 |
| 11 | 22.205 | 15.795 |
| 12 | 23.655 | 16.315 |
| 13 | 23.775 | 16.855 |
| 14 | 31.085 | 17.045 |
| 15 | 35.785 | 18.015 |
| 16 | 36.635 | 18.715 |
| 17 | 37.705 | 18.975 |
| 18 | 39.105 | 24.617 |
| 19 | 39.625 | 24.675 |
| 20 | 40.605 | 26.655 |
| 21 | 41.565 | 27.255 |
| 22 | 42.055 | 27.405 |
| 23 | 42.375 | 27.545 |
| 24 | 42.605 | 28.675 |
| 25 | 43.005 | 28.845 |
| 26 | 43.535 | 29.005 |
| 27 | 43.875 | 29.105 |
| 28 | 44.93 | 29.315 |
| 29 | 45.525 | 30.075 |
| 30 | 45.865 | 30.655 |
| 31 | 46.335 | 30.975 |
| 32 | 46.745 | 31.185 |
| 33 | 47.225 | 32.685 |
| 34 | 47.565 | 33.745 |
| 35 | 47.675 | 33.985 |
| 36 | 48.385 | 34.085 |
| 37 | 50.215 | 34.215 |
| 38 | 50.415 | 34.445 |
| 39 | 50.565 | 35.195 |
| 40 | | 35.735 |
| 41 | | 36.655 |
| 42 | | 36.735 |
| 43 | | 38.305 |
| 44 | | 50.445 |

**Catch water Drain:**

| Left Side | | | | |
|---|---|---|---|---|
| Chainage (Km) | | Length (m) | Nos of Catch pit required | Length of Catchwater Drain (m) |
| From | To | | | |
| 12.375 | 12.548 | 173 | 2 | 346 |

| | | | | |
|---|---|---|---|---|
| 14.525 | 14.315 | 210 | 1 | 210 |
| 17.020 | 17.185 | 165 | 4 | 660 |
| 17.735 | 17.205 | 530 | 1 | 530 |
| 40.870 | 41.195 | 325 | 1 | 325 |
| 41.515 | 41.565 | 50 | 1 | 50 |
| **Total length =** | | | | **2121** |

| **Right Side** | | | | |
|---|---|---|---|---|
| **Chainage (Km)** | | **Length (m)** | **Nos of Catch pit required** | **Length of Catchwater Drain (m)** |
| **From** | **To** | | | |
| 14.495 | 14.345 | 150 | 1 | 150 |
| 22.55 | 22.943 | 393 | 1 | 393 |
| 22.943 | 23.223 | 280 | 2 | 560 |
| 23.223 | 23.394 | 171 | 2 | 342 |
| 23.394 | 23.457 | 63 | 1 | 63 |
| 23.457 | 23.585 | 128 | 2 | 256 |
| 24.017 | 23.874 | 143 | 2 | 286 |
| 24.120 | 24.017 | 103 | 2 | 206 |
| 24.250 | 24.120 | 130 | 2 | 260 |
| 24.300 | 24.250 | 50 | 2 | 100 |
| 24.635 | 24.617 | 18 | 1 | 18 |

**Total length = 4755**

**7. Design of Structures**

(i) General

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

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

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

| **Sl. No.** | **Bridge/Structure at km** | **Width of carriageway and cross-sectional features** |
|---|---|---|
| 1 | 50.655 | Carriageway Width = 11.0m<br>Width of Railings = 1.0m (2x0.50m)<br>Overall width = 12 m |

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

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

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

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

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

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

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

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

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

(ii) Culverts

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

(b) Reconstruction of existing culverts:

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

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

| Sl No. | Culvert Location | Span /Opening (m) | Remarks* |
|---|---|---|---|
| 1. | 10+237 | 1x1.0m Dia | Single Span |
| 2. | 10+340 | 1x0.9m Dia | Single Span |
| 3. | 12+080 | 1x 1.0m Dia | Single Span |
| 4. | 12+550 | 1x1.2m Dia | Single Span |
| 5. | 12+872 | 1x0.9m Dia | Single Span |
| 6. | 13+229 | 1x1.0m Dia | Single Span |
| 7. | 13+638 | 1x0.9m Dia | Single Span |
| 8. | 14+100 | 1x0.9m Dia | Single Span |
| 9. | 14+280 | 1x0.9m Dia | Single Span |
| 10. | 14+545 | 1x0.3m Dia | Single Span |
| 11. | 15+150 | 1x0.6m Dia | Single Span |
| 12. | 15+455 | 1x1.0m Dia | Single Span |
| 13. | 15+540 | 1x1.0m Dia | Single Span |
| 14. | 16+408 | 1x1.0m Dia | Single Span |
| 15. | 16+607 | 1x0.9m Dia | Single Span |
| 16. | 16+980 | 1x0.9m Dia | Single Span |
| 17. | 17+354 | 1x0.9m Dia | Single Span |
| 18. | 18+204 | 1x0.9m Dia | Single Span |
| 19. | 18+367 | 1x0.9m Dia | Single Span |
| 20. | 18+952 | 1x1.0m Dia | Single Span |
| 21. | 19+063 | 1x1.0m Dia | Single Span |
| 22. | 19+381 | 1x1.0m Dia | Single Span |
| 23. | 19+550 | 1x1.0m Dia | Single Span |

| Sl No. | Culvert Location | Span /Opening (m) | Remarks* |
|---|---|---|---|
| 24. | 19+908 | 1x0.9m Dia | Single Span |
| 25. | 20+200 | 1x1.2m Dia | Single Span |
| 26. | 20+406 | 1x0.6m Dia | Single Span |
| 27. | 20+602 | 1x0.9m Dia | Single Span |
| 28. | 20+770 | 1x0.9m Dia | Single Span |
| 29. | 21+286 | 1x0.6m Dia | Single Span |
| 30. | 21+379 | 1x0.6m Dia | Single Span |
| 31. | 21+627 | 1x0.9m Dia | Single Span |
| 32. | 21+955 | 1x0.9m Dia | Single Span |
| 33. | 22+332 | 1x0.9m Dia | Single Span |
| 34. | 22+598 | 1x1.2m Dia | Single Span |
| 35. | 23+104 | 1x0.9m Dia | Single Span |
| 36. | 23+180 | 1x0.9m Dia | Single Span |
| 37. | 23+280 | 1x0.9m Dia | Single Span |
| 38. | 23+473 | 1x0.9m Dia | Single Span |
| 39. | 23+867 | 1x1.2m Dia | Single Span |
| 40. | 23+984 | 1x0.9m Dia | Single Span |
| 41. | 24+463 | 1x0.6m Dia | Single Span |
| 42. | 24+987 | 1x0.9m Dia | Single Span |
| 43. | 25+049 | 1x0.9m Dia | Single Span |
| 44. | 25+176 | 1x0.6m Dia | Single Span |
| 45. | 25+384 | 1x0.9m Dia | Single Span |
| 46. | 25+514 | 1x0.9m Dia | Single Span |
| 47. | 25+647 | 1x1.0m Dia | Single Span |
| 48. | 25+741 | 1x0.9m Dia | Single Span |
| 49. | 26+068 | 1x0.9m Dia | Single Span |
| 50. | 27+068 | 1x1.0m Dia | Single Span |
| 51. | 27+707 | 1x1.0m Dia | Single Span |
| 52. | 27+902 | 1x0.9m Dia | Single Span |
| 53. | 28+205 | 1x0.6m Dia | Single Span |
| 54. | 29+518 | 1x1.0m Dia | Single Span |
| 55. | 30+407 | 1x0.9m Dia | Single Span |
| 56. | 30+516 | 1x1.0m Dia | Single Span |
| 57. | 31+407 | 1x0.7m Dia | Single Span |
| 58. | 31+570 | 1x1.2m Dia | Single Span |
| 59. | 32+880 | 1x0.7m Dia | Single Span |
| 60. | 34+154 | 1x1.2m Dia | Single Span |
| 61. | 34+365 | 1x1.0m Dia | Single Span |
| 62. | 35+559 | 1x1.0m Dia | Single Span |
| 63. | 36+069 | 1x1.0m Dia | Single Span |
| 64. | 36+275 | 1x1.0m Dia | Single Span |
| 65. | 36+729 | 1x1.2m Dia | Single Span |
| 66. | 40+640 | 1x0.9m Dia | Single Span |
| 67. | 40+782 | 1x0.6m Dia | Single Span |
| 68. | 42+147 | 1x0.9m Dia | Single Span |

| Sl No. | Culvert Location | Span /Opening (m) | Remarks* |
|---|---|---|---|
| 69. | 42+764 | 1x0.9m Dia | Single Span |
| 70. | 43+222 | 1x0.6m Dia | Single Span |
| 71. | 43+706 | 1x1.0m Dia | Single Span |
| 72. | 43+801 | 1x1.0m Dia | Single Span |
| 73. | 44+183 | 1x1.0m Dia | Single Span |
| 74. | 44+962 | 1x0.7m Dia | Single Span |
| 75. | 45+238 | 1x0.9m Dia | Single Span |
| 76. | 45+336 | 1x0.9m Dia | Single Span |
| 77. | 45+945 | 1x0.9m Dia | Single Span |
| 78. | 46+199 | 1x1.0m Dia | Single Span |
| 79. | 46+501 | 1x1.0m Dia | Single Span |
| 80. | 46+599 | 1x1.0m Dia | Single Span |
| 81. | 47+182 | 1x0.9m Dia | Single Span |
| 82. | 47+293 | 1x0.9m Dia | Single Span |
| 83. | 47+569 | 1x1.0m Dia | Single Span |
| 84. | 49+616 | 1x1.0m Dia | Single Span |
| 85. | 49+936 | 1x0.9m Dia | Single Span |
| 86. | 50+270 | 1x1.2m Dia | Single Span |
| 87. | 50+800 | 1x1.5m Dia | Single Span |
| 88. | 51+350 | 1x1.0m Dia | Single Span |
| 89. | 51+443 | 1x1.2m Dia | Single Span |
| 90. | 51+892 | 1x1.0m Dia | Single Span |
| 91. | 52+262 | 1x1.0m Dia | Single Span |
| 92. | 52+481 | 1x1.0m Dia | Single Span |
| 93. | 52+540 | 1x1.0m Dia | Single Span |
| 94. | 52+937 | 1x1.2m Dia | Single Span |
| 95. | 53+003 | 1x1.0m Dia | Single Span |
| 96. | 53+378 | 1x0.9m Dia | Single Span |
| 97. | 54+312 | 1x0.9m Dia | Single Span |
| 98. | 54+880 | 1x0.3m Dia | Single Span |

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

(c) Widening of existing culverts:

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

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

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

| Sl. No. | Culvert Location | Span /Opening (m) | Remarks* |
|---|---|---|---|

| Sl. No. | Culvert Location | Span /Opening (m) | Remarks* |
|---|---|---|---|
| 1 | 10+350 | 2X2X1 Cell | Box Culvert |
| 2 | 10+920 | 2X2X1 Cell | Box Culvert |
| 3 | 12+293 | 2X3X1 Cell | Box Culvert |
| 4 | 13+125 | 2X3X1 Cell | Box Culvert |
| 5 | 13+180 | 2X2X1 Cell | Box Culvert |
| 6 | 14+850 | 2X3X1 Cell | Box Culvert |
| 7 | 15+712 | 2X2X1 Cell | Box Culvert |
| 8 | 16+506 | 2X2X1 Cell | Box Culvert |
| 9 | 16+925 | 2X2X1 Cell | Box Culvert |
| 10 | 18+542 | 2X2X1 Cell | Box Culvert |
| 11 | 19+828 | 2X3X1 Cell | Box Culvert |
| 12 | 20+748 | 2X3X1 Cell | Box Culvert |
| 13 | 23+223 | 2X2X1 Cell | Box Culvert |
| 14 | 24+250 | 2X2X1 Cell | Box Culvert |
| 15 | 24+617 | 2X2X1 Cell | Box Culvert |
| 16 | 24+747 | 2X2X1 Cell | Box Culvert |
| 17 | 25+081 | 2X3X1 Cell | Box Culvert |
| 18 | 26+348 | 2X3X1 Cell | Box Culvert |
| 19 | 27+233 | 2X2X1 Cell | Box Culvert |
| 20 | 27+386 | 2X3X1 Cell | Box Culvert |
| 21 | 28+177 | 2X2X1 Cell | Box Culvert |
| 22 | 28+821 | 2X2X1 Cell | Box Culvert |
| 23 | 29+083 | 2X3X1 Cell | Box Culvert |
| 24 | 31+096 | 2X2X1 Cell | Box Culvert |
| 25 | 34+118 | 2X3X1 Cell | Box Culvert |
| 26 | 34+385 | 2X3X1 Cell | Box Culvert |
| 27 | 35+248 | 2X2X1 Cell | Box Culvert |
| 28 | 35+820 | 2X2X1 Cell | Box Culvert |
| 29 | 36+020 | 2X3X1 Cell | Box Culvert |
| 30 | 36+220 | 2X2X1 Cell | Box Culvert |
| 31 | 36+695 | 2X2X1 Cell | Box Culvert |
| 32 | 37+695 | 2X2X1 Cell | Box Culvert |
| 33 | 37+870 | 2X2X1 Cell | Box Culvert |
| 34 | 37+951 | 2X2X1 Cell | Box Culvert |
| 35 | 38+120 | 2X2X1 Cell | Box Culvert |
| 36 | 38+289 | 2X2X1 Cell | Box Culvert |
| 37 | 38+376 | 2X2X1 Cell | Box Culvert |
| 38 | 38+451 | 2X2X1 Cell | Box Culvert |
| 39 | 39+120 | 2X2X1 Cell | Box Culvert |
| 40 | 39+213 | 2X3X1 Cell | Box Culvert |
| 41 | 39+470 | 2X3X1 Cell | Box Culvert |
| 42 | 40+195 | 2X2X1 Cell | Box Culvert |
| 43 | 40+341 | 2X2X1 Cell | Box Culvert |
| 44 | 40+805 | 2X2X1 Cell | Box Culvert |
| 45 | 41+195 | 2X2X1 Cell | Box Culvert |
| 46 | 41+337 | 2X3X1 Cell | Box Culvert |

| Sl. No. | Culvert Location | Span /Opening (m) | Remarks* |
|---|---|---|---|
| 47 | 41+510 | 2X2X1 Cell | Box Culvert |
| 48 | 42+195 | 2X2X1 Cell | Box Culvert |
| 49 | 42+405 | 2X2X1 Cell | Box Culvert |
| 50 | 43+270 | 2X2X1 Cell | Box Culvert |
| 51 | 43+558 | 2X3X1 Cell | Box Culvert |
| 52 | 44+145 | 2X2X1 Cell | Box Culvert |
| 53 | 46+370 | 2X3X1 Cell | Box Culvert |
| 54 | 46+457 | 2X2X1 Cell | Box Culvert |
| 55 | 47+751 | 2X2X1 Cell | Box Culvert |

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

[Refer provision of the relevant Manual and provide details]

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

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

(iii) Bridges

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

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

[Refer provision of the relevant Manual and provide details]

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

(ii) The following narrow bridges shall be widened:

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

(b) Additional new bridges

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

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

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

| Nil |
|---|

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

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

| Sl. No. | Location at km | Remarks |
|---|---|---|
| Nil | | |

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

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

| Sl. No. | Location at km | Remarks |
|---|---|---|
| Nil | | |

(e) Drainage system for bridge decks

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

(f) Structures in marine environment

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

(v) Rail-road bridges

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

(b) Road over-bridges

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

| Sl. No. | Location of Level crossing (Chainage km) | Length of bridge (m) |
|---|---|---|
| Nil | | |

(c) Road under-bridges

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

| Sl. No. | Location of Level crossing (Chainage km) | Number and length of span (m) |
|---|---|---|
| Nil | | |

(v) Grade separated structures

[Refer provision of the relevant Manual]

The grade separated structures shall be provided at the locations and of the type and length specified in paragraphs 2(ix) and 3 of this Annex-I.

(vi) Repairs and strengthening of bridges and structures

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

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

(a) Bridges

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

(b) ROB / RUB

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

(c) Overpasses/Underpasses and other structures

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

(vii) List of Major Bridges and Structures

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

| Sl. No. | Location (Km) |
|---|---|
| Nil | |

**8. Traffic Control Devices and Road Safety Works**

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

| Traffic Signages, Road Marking and other appurtenances | Quantity | unit |
|---|---|---|
| Kilometer stones= | 34 | Nos |
| 5th Kilometer stones= | 8 | Nos |
| Boundary Stones= | 416 | Nos |
| Delineators (100 cm long and circular shaped)+Hazard marker = | 5261 | Nos |
| 900 mm Octagonal | 2 | Nos |

| | | |
|---|---|---|
| 600 mm circular | 1458 | Nos |
| 900 mm Tringular | 548 | Nos |
| 800 mm x 600 mm rectangular | 9 | Nos |
| Direction Sign < 0.9 sqm | 4 | sqm |
| Direction Sign > 0.9 sqm | 8 | sqm |
| Convex Mirror for Blind Curve | 16 | Nos |
| Rumble Strip= | 98 | sqm |

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

**9. Roadside Furniture**

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

a. Overhead traffic signs: location and size

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

**10. Compulsory Afforestation**

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

**11. Hazardous Locations**

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

**a) Breast Wall**

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

| Chainage | | side | Length |
|---|---|---|---|
| From | To | | |
| 24530 | 24605 | Right | 75 |
| 24770 | 24875 | Right | 105 |
| 25305 | 25465 | Right | 160 |
| 25565 | 25785 | Both | 440 |
| 25785 | 26000 | Left | 215 |
| 26000 | 26235 | Left | 235 |
| 27005 | 27175 | Left | 170 |
| 27545 | 27575 | Left | 30 |
| 28675 | 28795 | Left | 120 |
| 28795 | 28845 | Left | 50 |
| 28845 | 28885 | Left | 40 |
| 31155 | 31185 | Left | 30 |
| 31565 | 31635 | Left | 70 |
| 31635 | 31685 | Left | 50 |
| 33945 | 33985 | Left | 40 |
| 34055 | 34085 | Left | 30 |
| 34115 | 34125 | Left | 10 |
| 34470 | 34545 | Left | 75 |
| 34585 | 34775 | Left | 190 |
| 35195 | 35265 | Left | 70 |
| 40225 | 40255 | Right | 30 |
| 41995 | 42055 | Right | 60 |
| 43695 | 43775 | Right | 80 |
| 45525 | 45715 | Right | 190 |
| 45715 | 45815 | Right | 100 |
| 45865 | 45915 | Right | 50 |
| 46335 | 46385 | Right | 50 |
| 46385 | 46415 | Right | 30 |
| 48775 | 48815 | Right | 40 |
| 50125 | 50215 | Right | 90 |
| **Total=** | | | **5720** |

**b) Retaining Wall**

| Chainage | | side | Avg. Hight | Length |
|---|---|---|---|---|
| From | To | | | |
| 13755 | 13815 | Right | 2.0 | 60 |
| 14285 | 14345 | Right | 3.0 | 60 |
| 14495 | 14675 | Right | 2.0 | 180 |
| 16145 | 16175 | Right | 4.0 | 30 |
| 16595 | 16605 | Right | 2.0 | 10 |
| 17745 | 17755 | Right | 2.0 | 10 |
| 18675 | 18695 | Right | 2.0 | 20 |
| 19175 | 19195 | Left | 2.0 | 20 |
| 23585 | 23615 | Left | 4.0 | 30 |
| 23725 | 23775 | Left | 2.0 | 50 |

| Chainage | | side | Avg. Hight | Length |
|---|---|---|---|---|
| From | To | | | |
| 23835 | 23925 | Left | 2.0 | 90 |
| 24115 | 24125 | Left | 4.0 | 10 |
| 17995 | 18015 | Left | 4.0 | 20 |
| 24740 | 24755 | Left | 2.0 | 15 |
| 24920 | 24960 | Left | 2.0 | 40 |
| 26235 | 26305 | Right | 4.0 | 70 |
| 27365 | 27405 | Right | 2.0 | 40 |
| 27515 | 27545 | Right | 2.0 | 30 |
| 28175 | 28255 | Right | 2.0 | 80 |
| 28295 | 28335 | Right | 3.0 | 40 |
| 28625 | 28675 | Right | 2.0 | 50 |
| 29065 | 29105 | Right | 2.0 | 40 |
| 29265 | 29315 | Right | 4.0 | 50 |
| 30765 | 30785 | Right | 4.0 | 20 |
| 31365 | 31465 | Right | 3.0 | 100 |
| 31465 | 31485 | Right | 2.0 | 20 |
| 31635 | 31685 | Right | 3.0 | 50 |
| 33795 | 33875 | Right | 3.0 | 80 |
| 34240 | 34285 | Right | 4.0 | 45 |
| 34345 | 34385 | Right | 4.0 | 40 |
| 34470 | 34585 | Right | 4.0 | 115 |
| 35195 | 35265 | Right | 2.0 | 70 |
| 35735 | 35785 | Right | 3.0 | 50 |
| 36685 | 36710 | Left | 2.0 | 25 |
| 36845 | 36865 | Left | 2.0 | 20 |
| 37595 | 37645 | Left | 4.0 | 50 |
| 38275 | 38305 | Left | 2.0 | 30 |
| 39530 | 39555 | Left | 2.0 | 25 |
| 39655 | 39665 | Left | 2.0 | 10 |
| 39955 | 40015 | Left | 4.0 | 60 |
| 40685 | 40715 | Left | 2.0 | 30 |
| 35785 | 35865 | Both | 5.0 | 160 |
| 28795 | 28845 | Right | 6.0 | 50 |
| 35865 | 35895 | Left | 6.0 | 30 |
| 41825 | 41895 | Left | 2.0 | 70 |
| 43615 | 43685 | Left | 2.0 | 70 |
| 44065 | 44075 | Left | 3.0 | 10 |
| 44105 | 44115 | Left | 2.0 | 10 |
| 46385 | 46415 | Left | 3.0 | 30 |
| 46455 | 46465 | Left | 3.0 | 10 |
| 47745 | 47755 | Left | 2.0 | 10 |
| 47795 | 47815 | Left | 6.0 | 20 |
| 50285 | 50355 | Left | 4.0 | 70 |
| 50775 | 50850 | Right | 4.0 | 75 |
| **Total length** | | | **2500 m** | |

**Metal Beam Crash Barrier:**

| Design Chainage (m) | | Side | Length (m) |
|---|---|---|---|
| From | To | | |
| 17900 | 18020 | Right | 120 |
| 18500 | 18650 | Right | 150 |
| 19700 | 19900 | Left | 200 |
| 20200 | 20300 | Left | 100 |
| 20400 | 20550 | Left | 150 |
| 22319 | 22450 | Left | 131 |
| 23050 | 23350 | Left | 300 |
| 28050 | 28250 | Right | 200 |
| 39800 | 39944 | Left | 144 |
| 40250 | 40350 | Left | 100 |
| 40700 | 40800 | Left | 100 |
| 42900 | 43004 | Left | 104 |
| 43500 | 43555 | Left | 55 |
| 43800 | 44000 | Left | 200 |
| 46000 | 46150 | Left | 150 |
| 46400 | 46450 | Left | 50 |
| 48394 | 48694 | Left | 300 |
| 48850 | 48950 | Left | 100 |
| 49550 | 49650 | Left | 100 |
| **Total =** | | | **2754** |

Total No Bridge= 1 no
Length For both Approach (30m for each Portion)= 120 m
**Total length of crash barrier = 2874 m**

**Gabion Structure:**

| Chainage | | side | Length |
|---|---|---|---|
| From | To | | |
| 19450 | 20300 | RHS | 850 |
| 20400 | 20675 | RHS | 275 |
| **Total Length=** | | | **1125** |

**Total area of Hydro seeding as per site condition is 401029 sqm**

**12. Special Requirement for Hill Roads**

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

**13. Change of Scope**

The length of Structures and bridges specified here in above shall be treated as an approximate assessment. The actual lengths as required on the basis of detailed investigations shall be determined by the Contractor in accordance with the Specifications and Standards. Any variations in the lengths specified in this Schedule- B shall not constitute a Change of Scope save and except any variations in the length arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.

**(Schedule-B1)**

1. The shifting of utilities and felling of trees shall be carried out by the concerned department. The cost of the same shall be borne by the concerned department.

# SCHEDULE - C

Schedule - C

(See Clause 2.1)

**Project Facilities**

1. Project Facilities

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

(a) Toll plaza[s]

(b) Roadside furniture;

(c) Pedestrian facilities;

(d) Truck Lay byes;

(e) Bus-bays and passenger shelters;

(f) Rest areas; and

(g) Others to be specified

2. Description of Project Facilities

Each of the Project Facilities is described below:

**a) Toll Plaza: -**

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

**b) Roadside furniture: -**

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

**C) Pedestrian Facility:-**

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

**d) Truck Lay bye:-**

| Sl. No. | Truck lay bye Chainage (Both Side) | Name of the Place |
|---|---|---|
| 1 | 26.750 | Toloi |

**e) Bus Bay & Passenger shelter: -**

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

**f) Rest Areas**

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

**g) Others to be specified**

**Street Lighting:**

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

**Environment**

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

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

# SCHEDULE - D

Schedule - D

(See Clause 2.1)

Specifications and Standards

1. Construction

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

2. Design Standards

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

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

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

Annex – I

(Schedule-D)

Specifications and Standards for Construction

1. Specifications and Standards

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

2. Deviations from the Specifications and Standards

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

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

<table>
<tr><th>Item</th><th>Manual Clause Reference</th><th colspan="5">Provision as per Manual</th><th colspan="5">Modified Provision</th></tr>
<tr><td rowspan="5">Shoulder</td><td rowspan="5">2.6</td><td colspan="5"><u>Mountainous Terrain</u></td><td colspan="5"><u>Mountainous Terrain</u></td></tr>
<tr><td rowspan="2">Type of Section</td><td rowspan="2"></td><td colspan="3">Width of Shoulder (m)</td><td rowspan="2">Type of Section</td><td rowspan="2"></td><td colspan="3">Width of Shoulder (m)</td></tr>
<tr><td>Paved</td><td>Earthen</td><td>Total</td><td>Paved</td><td>Earthen</td><td>Total</td></tr>
<tr><td rowspan="2">Open Country with Isolated Built-up Area</td><td>Hill Side</td><td>1.5</td><td>-</td><td>1.5</td><td rowspan="2">Open Country with Isolated Built-up Area</td><td>Hill Side</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>Valley Side</td><td>1.5</td><td>1</td><td>2.5</td><td>Valley Side</td><td>-</td><td>Up to 1.0 m</td><td>1</td></tr>
<tr><td rowspan="2">Built-up Area and Approaches to grade separated structures/<br><br>bridges</td><td>Hill Side</td><td>0.25 m + 1.5 m (Raised)</td><td>-</td><td>1.75</td><td rowspan="2">Built-up Area and Approaches to grade separated structures/<br><br>bridges</td><td>Hill Side</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>Valley Side</td><td>0.25 m + 1.5 m (Raised)</td><td>-</td><td>1.75</td><td>Valley Side</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>Design Speed</td><td>2.2</td><td colspan="5"><u>Mountainous Terrain:</u><br><br>Ruling : 60 Kmph<br><br>Minimum : 40 Kmph</td><td colspan="5"><u>Mountainous Terrain:</u><br>Design Speed followed 40-60 kmph in general. However design speed has been reduced to 20 kmph due to site constraints and to accommodate the proposal within EROW.<br>(Refer Horizontal Alignment Drawing and Table 1.1 below)</td></tr>
<tr><td>Extra Widening</td><td>2.7</td><td colspan="5">Extra Widening has been proposed as per IRC: SP: 73-2015<br>Radius | Extra Widening<br>75-100 m | 0.9 m<br>101-300 m | 0.6 m</td><td colspan="5">Extra Widening has been proposed as per IRC: SP: 48-1998 (Table 6.9) of Hill Road Manual.<br>Radius | Extra Widening<br>21-40 m | 1.5 m<br>41-60 m | 1.2 m</td></tr>
</table>

| Item | Manual Clause Reference | Provision as per Manual | Modified Provision | | |
|---|---|---|---|---|---|
| | | | 61-100 m | 0.9 m | |
| | | | 75-100 m | 0.9 m | |
| | | | 101-300 m | 0.6 m | |
| | | | Above 300 m | NIL | |
| Radii of Horizontal Curve | 2.9.4 | **Mountainous Terrain:**<br>Desirable Minimum Radius: 150 m<br>Absolute Minimum Radius: 75 m | Radius below 75 m has been provided in the location listed in table 1. | | |

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

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

| Sl. No. | HIP No. | Stretch (from km to km) | Type of Deficiency | Remarks |
|---|---|---|---|---|
| 39. | 223 | 32+466 to 32+494 | Sharp Bend | Design Speed = 30 Kmph |
| 40. | 224 | 32+649 to 32+680 | Sharp Bend | Design Speed = 20 Kmph |
| 41. | 225 | 32+804 to 32+823 | Sharp Bend | Design Speed = 30 Kmph |
| 42. | 309 | 44+000 to 44+005 | Sharp Bend | Design Speed = 30 Kmph |
| 43. | 310 | 44+050 to 44+077 | Sharp Bend | Design Speed = 20 Kmph |
| 44. | 311 | 44+114 to 44+120 | Sharp Bend | Design Speed = 25 Kmph |
| 45. | 312 | 44+151 to 44+168 | Sharp Bend | Design Speed = 25 Kmph |
| 46. | 313 | 44+221 to 44+245 | Sharp Bend | Design Speed = 30 Kmph |
| 47. | 324 | 45+606 to 45+612 | Sharp Bend | Design Speed = 25 Kmph |
| 48. | 325 | 45+663 to 45+671 | Sharp Bend | Design Speed = 30 Kmph |
| 49. | 326 | 45+725 to 45+749 | Sharp Bend | Design Speed = 20 Kmph |
| 50. | 327 | 45+836 to 45+859 | Sharp Bend | Design Speed = 20 Kmph |
| 51. | 328 | 45+902 to 45+926 | Sharp Bend | Design Speed = 25 Kmph |
| 52. | 333 | 46+454 to 46+488 | Sharp Bend | Design Speed = 25 Kmph |
| 53. | 334 | 46+553 to 46+570 | Sharp Bend | Design Speed = 20 Kmph |
| 54. | 346 | 48+679 to 48+707 | Sharp Bend | Design Speed = 30 Kmph |
| 55. | 347 | 48+766 to 48+800 | Sharp Bend | Design Speed = 30 Kmph |
| 56. | 348 | 48+870 to 48+883 | Sharp Bend | Design Speed = 30 Kmph |
| 57. | 349 | 48+998 to 49+027 | Sharp Bend | Design Speed = 20 Kmph |
| 58. | 359 | 50+469 to 50+501 | Sharp Bend | Design Speed = 30 Kmph |
| 59. | 360 | 50+568 to 50+599 | Sharp Bend | Design Speed = 30 Kmph |
| 60. | 361 | 50+716 to 50+819 | Sharp Bend | Design Speed = 30 Kmph |

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

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

| Sl. No. | HIP No. | Stretch (from km to km) | Radius |
|---|---|---|---|
| 25. | 103 | 15+255 to 15+272 | 60 |
| 26. | 105 | 15+738 to 15+770 | 60 |
| 27. | 106 | 15+852 to 15+903 | 50 |
| 28. | 112 | 16+690 to 16+709 | 60 |
| 29. | 113 | 16+826 to 16+837 | 50 |
| 30. | 115 | 17+184 to 17+224 | 20 |
| 31. | 117 | 17+560 to 17+639 | 50 |
| 32. | 118 | 17+729 to 17+740 | 40 |
| 33. | 119 | 17+771 to 17+797 | 30 |
| 34. | 120 | 17+837 to 17+864 | 20 |
| 35. | 121 | 17+944 to 17+982 | 30 |
| 36. | 122 | 18+021 to 18+047 | 40 |
| 37. | 123 | 18+142 to 18+180 | 20 |
| 38. | 125 | 18+336 to 18+348 | 20 |
| 39. | 126 | 18+392 to 18+399 | 40 |
| 40. | 127 | 18+454 to 18+461 | 60 |
| 41. | 128 | 18+517 to 18+528 | 40 |
| 42. | 129 | 18+595 to 18+622 | 25 |
| 43. | 130 | 18+680 to 18+688 | 60 |
| 44. | 131 | 18+812 to 18+831 | 50 |
| 45. | 136 | 19+612 to 19+629 | 70 |
| 46. | 139 | 19+983 to 20+059 | 50 |
| 47. | 140 | 20+220 to 20+234 | 70 |
| 48. | 141 | 20+460 to 20+507 | 50 |
| 49. | 142 | 20+664 to 20+714 | 50 |
| 50. | 143 | 20+809 to 20+820 | 50 |
| 51. | 145 | 21+012 to 21+057 | 50 |
| 52. | 149 | 21+619 to 21+633 | 70 |
| 53. | 150 | 21+728 to 21+871 | 63 |
| 54. | 152 | 22+161 to 22+195 | 50 |
| 55. | 154 | 22+395 to 22+410 | 50 |
| 56. | 155 | 22+456 to 22+467 | 60 |
| 57. | 156 | 22+595 to 22+630 | 25 |
| 58. | 161 | 23+179 to 23+281 | 60 |
| 59. | 162 | 23+460 to 23+496 | 50 |
| 60. | 163 | 23+678 to 23+706 | 25 |
| 61. | 164 | 23+890 to 23+906 | 60 |
| 62. | 165 | 24+007 to 24+049 | 50 |
| 63. | 166 | 24+138 to 24+162 | 70 |
| 64. | 172 | 24+811 to 24+902 | 60 |
| 65. | 173 | 24+981 to 25+013 | 30 |
| 66. | 174 | 25+118 to 25+170 | 60 |
| 67. | 175 | 25+243 to 25+270 | 60 |
| 68. | 176 | 25+411 to 25+489 | 40 |
| 69. | 177 | 25+562 to 25+589 | 30 |
| 70. | 178 | 25+641 to 25+690 | 40 |
| 71. | 179 | 25+747 to 25+760 | 60 |
| 72. | 180 | 25+850 to 25+944 | 70 |
| 73. | 181 | 26+061 to 26+076 | 30 |
| 74. | 182 | 26+138 to 26+174 | 60 |

| Sl. No. | HIP No. | Stretch (from km to km) | Radius |
|---|---|---|---|
| 75. | 183 | 26+315 to 26+358 | 60 |
| 76. | 184 | 26+443 to 26+470 | 35 |
| 77. | 185 | 26+539 to 26+590 | 35 |
| 78. | 187 | 26+983 to 27+021 | 60 |
| 79. | 188 | 27+158 to 27+209 | 50 |
| 80. | 191 | 27+652 to 27+665 | 60 |
| 81. | 192 | 27+779 to 27+806 | 20 |
| 82. | 194 | 28+125 to 28+148 | 50 |
| 83. | 196 | 28+317 to 28+343 | 20 |
| 84. | 197 | 28+465 to 28+481 | 50 |
| 85. | 198 | 28+566 to 28+608 | 50 |
| 86. | 199 | 28+712 to 28+735 | 50 |
| 87. | 200 | 28+812 to 28+828 | 60 |
| 88. | 201 | 28+922 to 28+967 | 50 |
| 89. | 202 | 29+054 to 29+088 | 70 |
| 90. | 203 | 29+163 to 29+201 | 50 |
| 91. | 204 | 29+287 to 29+314 | 50 |
| 92. | 205 | 29+398 to 29+422 | 50 |
| 93. | 206 | 29+545 to 29+595 | 60 |
| 94. | 213 | 30+901 to 30+927 | 60 |
| 95. | 214 | 31+087 to 31+125 | 60 |
| 96. | 216 | 31+406 to 31+450 | 50 |
| 97. | 217 | 31+538 to 31+598 | 50 |
| 98. | 218 | 31+684 to 31+762 | 50 |
| 99. | 220 | 32+063 to 32+094 | 50 |
| 100. | 221 | 32+257 to 32+288 | 30 |
| 101. | 222 | 32+367 to 32+379 | 60 |
| 102. | 224 | 32+649 to 32+680 | 20 |
| 103. | 225 | 32+804 to 32+823 | 40 |
| 104. | 226 | 32+904 to 32+913 | 50 |
| 105. | 228 | 33+124 to 33+148 | 50 |
| 106. | 231 | 33+713 to 33+784 | 50 |
| 107. | 232 | 34+089 to 34+093 | 50 |
| 108. | 233 | 34+197 to 34+218 | 50 |
| 109. | 237 | 34+688 to 34+731 | 50 |
| 110. | 238 | 34+822 to 34+837 | 70 |
| 111. | 239 | 34+928 to 34+988 | 50 |
| 112. | 240 | 35+089 to 35+186 | 50 |
| 113. | 241 | 35+267 to 35+293 | 50 |
| 114. | 248 | 36+538 to 36+571 | 60 |
| 115. | 249 | 36+668 to 36+681 | 60 |
| 116. | 251 | 36+950 to 36+968 | 70 |
| 117. | 257 | 37+671 to 37+686 | 60 |
| 118. | 264 | 38+544 to 38+553 | 70 |
| 119. | 265 | 38+653 to 38+677 | 50 |
| 120. | 266 | 38+763 to 38+779 | 50 |
| 121. | 267 | 38+857 to 38+876 | 70 |
| 122. | 269 | 39+154 to 39+163 | 70 |
| 123. | 275 | 39+815 to 39+873 | 70 |
| 124. | 277 | 40+137 to 40+149 | 60 |

| Sl. No. | HIP No. | Stretch (from km to km) | Radius |
|---|---|---|---|
| 125. | 279 | 40+310 to 40+325 | 50 |
| 126. | 280 | 40+428 to 40+453 | 50 |
| 127. | 282 | 40+650 to 40+663 | 70 |
| 128. | 283 | 40+743 to 40+770 | 50 |
| 129. | 287 | 41+266 to 41+282 | 70 |
| 130. | 291 | 41+769 to 41+797 | 50 |
| 131. | 292 | 41+874 to 41+875 | 60 |
| 132. | 293 | 41+969 to 41+989 | 50 |
| 133. | 294 | 42+063 to 42+075 | 70 |
| 134. | 295 | 42+170 to 42+183 | 70 |
| 135. | 296 | 42+353 to 42+414 | 50 |
| 136. | 297 | 42+520 to 42+554 | 60 |
| 137. | 301 | 42+969 to 43+008 | 60 |
| 138. | 305 | 43+531 to 43+574 | 60 |
| 139. | 308 | 43+877 to 43+909 | 70 |
| 140. | 309 | 44+000 to 44+005 | 50 |
| 141. | 310 | 44+050 to 44+077 | 20 |
| 142. | 311 | 44+114 to 44+120 | 30 |
| 143. | 312 | 44+151 to 44+168 | 30 |
| 144. | 313 | 44+221 to 44+245 | 40 |
| 145. | 314 | 44+333 to 44+343 | 60 |
| 146. | 318 | 44+856 to 44+875 | 60 |
| 147. | 320 | 45+160 to 45+182 | 60 |
| 148. | 323 | 45+466 to 45+526 | 50 |
| 149. | 324 | 45+606 to 45+612 | 30 |
| 150. | 325 | 45+663 to 45+671 | 40 |
| 151. | 326 | 45+725 to 45+749 | 20 |
| 152. | 327 | 45+836 to 45+859 | 20 |
| 153. | 328 | 45+902 to 45+926 | 30 |
| 154. | 330 | 46+079 to 46+103 | 60 |
| 155. | 332 | 46+372 to 46+381 | 60 |
| 156. | 333 | 46+454 to 46+488 | 30 |
| 157. | 334 | 46+553 to 46+570 | 20 |
| 158. | 335 | 46+677 to 46+696 | 60 |
| 159. | 336 | 46+899 to 46+912 | 50 |
| 160. | 337 | 47+005 to 47+042 | 50 |
| 161. | 338 | 47+227 to 47+253 | 60 |
| 162. | 341 | 47+733 to 47+750 | 50 |
| 163. | 342 | 48+024 to 48+069 | 60 |
| 164. | 343 | 48+156 to 48+230 | 50 |
| 165. | 345 | 48+557 to 48+576 | 60 |
| 166. | 346 | 48+679 to 48+707 | 30 |
| 167. | 347 | 48+766 to 48+800 | 50 |
| 168. | 348 | 48+870 to 48+883 | 40 |
| 169. | 349 | 48+998 to 49+027 | 20 |
| 170. | 351 | 49+340 to 49+392 | 50 |
| 171. | 353 | 49+587 to 49+614 | 50 |
| 172. | 355 | 49+942 to 49+964 | 50 |
| 173. | 356 | 50+049 to 50+052 | 50 |
| 174. | 357 | 50+138 to 50+156 | 60 |

| Sl. No. | HIP No. | Stretch (from km to km) | Radius |
|---|---|---|---|
| 175. | 358 | 50+230 to 50+251 | 70 |
| 176. | 359 | 50+469 to 50+501 | 30 |
| 177. | 360 | 50+568 to 50+599 | 50 |
| 178. | 361 | 50+716 to 50+819 | 50 |

(iii) [Note 1: Deviations from the aforesaid Specifications and Standards shall be listed out here. Such deviations shall be specified only if they are considered essential in view of project-specific requirements.]

# SCHEDULE - H

## Schedule - H

(See Clauses 10.1 (iv) and 19.3)

## Contract Price Weightages

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

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

| Item | Weightage in % of CP | Stage for Payment | Percentage |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
| Road Works including Culverts, widening and repair of culverts | 71.68 % | **A- Widening and strengthening of existing road** | |
| | | (1) Earthwork up to top of the sub- grade | [Nil] |
| | | (2) Sub-base Course | [Nil] |
| | | (3) Non bituminous Base course | [Nil] |
| | | (4) Bituminous Basecourse | [Nil] |
| | | (5) Wearing Coat | [Nil] |
| | | (6) Widening and repair of culverts | [Nil] |
| | | **B.1-Reconstruction/New 2-Lane Realignment /Bypass (Flexible Pavement)** | |
| | | (1) Earthwork up to top of the sub- grade | 47.79% |
| | | (2) Sub-base Course | 18.97% |
| | | (3) Non bituminous Base course | 8.73% |
| | | (4) Bituminous Basecourse | 1.04% |
| | | (5) Wearing Coat | 7.16% |
| | | **B.2-Reconstruction/New 8-Lane Realignment/ Bypass (Rigid Pavement)** | |
| | | (1) Earthwork up to top of the sub- grade | [Nil] |
| | | (2) Sub-base Course | [Nil] |
| | | (3) Dry Lean Concrete (DLC) Course | [Nil] |
| | | (4) Pavement Quality Control (PQC) Course | [Nil] |
| | | **C.1-Reconstruction/ New Service Road (Flexible Pavement)** | |
| | | (1) Earthwork up to top of the sub- grade | [Nil] |
| | | (2) Sub-base Course | [Nil] |
| | | (3) Non bituminous Base course | [Nil] |
| | | (4) Bituminous Basecourse | [Nil] |
| | | (5) Wearing Coat | [Nil] |
| | | **C.2- Reconstruction/New Service road (Rigid Pavement)** | |
| | | (1) Earthwork up to top of the sub- grade | [Nil] |
| | | (2) Sub-base Course | [Nil] |
| | | (3) Dry Lean Concrete (DLC) Course | [Nil] |
| | | (4) Pavement Quality Control (PQC) Course | [Nil] |
| | | **D- Reconstruction & New Culverts on existing road, realignments, bypasses Culverts (length <6m)** | 16.32% |
| Minor bridge/ | 0.00% | **A.1-widening and repairing of Minor Bridges** | |

| Item | Weightage in % of CP | Stage for Payment | Percentage |
|---|---|---|---|
| Underpasses/ Overpasses | | **(length >6 m&<60m)** | |
| | | Minor Bridges | [Nil] |
| | | **A.2- New Minor bridges (length >6 mand<60m)** | |
| | | (1) Foundation + Sub-Structure: On completion of the foundation work including foundations for wing and return walls, abutments, piers up to the abutment/pier cap. | [Nil] |
| | | (2) Super-structure: On completion of the super-structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road, signs & markings, tests on completion etc. complete in all respect. | [Nil] |
| | | (3) Approaches: On completion of approaches including Retaining walls, stone pitching, protection works complete in all and fit for use | [Nil] |
| | | (4) Guide Bunds and River Training Works: On completion of Guide Bunds and river training works complete in all respects | [Nil] |
| | | **B.1- Widening and repairs of underpasses/overpasses** | |
| | | Underpasses/ Overpasses | [Nil] |
| | | **B.2-NewUnderpasses/Overpasses** | |
| | | (1)Foundation + Sub-Structure: On completion of the foundation work including foundations for wing and return walls, abutments, piers upto the abutment/pier cap. | [Nil] |
| | | (2)Super-structure: On completion of the super-structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road signs & markings, tests on completion etc. complete in all respect.<br><br>Wearing Coat (a) in case of Overpass-wearing coat including expansion joints complete in all respects as specified and (b) in case of underpass- rigid pavement including drainage facility complete in all respects as specified. | [Nil] |
| | | (3) Approaches: On completion of approaches including Retaining walls/ Reinforced Earth walls, stone pitching, protection works complete in all respect and fit for use. | [Nil] |
| | | | |
| **Major bridge(length>60 m) works and ROB/RUB/elevated sections/flyovers including viaducts, if any** | 3.45 % | **A.1- Widening and repairs of Major Bridges** | |
| | | (1)Foundation | [Nil] |
| | | (2)Sub-structure | [Nil] |
| | | (3)Super-structure(including bearings) | [Nil] |
| | | (4)Wearing Coat including expansion joints | [Nil] |
| | | (5) Miscellaneous Items like handrails, crash barrier, road markings etc. | [Nil] |
| | | (6) Wing walls/return walls | [Nil] |

| Item | Weightage in % of CP | Stage for Payment | Percentage |
|---|---|---|---|
| | | (7)Guide Bunds,River Training works etc. | [Nil] |
| | | (8)Approaches(including Retaining walls, stone pitching and protection works) | [Nil] |
| | | **A.2-NewMajorBridges** | |
| | | (1)Foundation | 21.31% |
| | | (2)Sub-structure | 46.12% |
| | | (3)Super-structure(including bearings) | 25.06% |
| | | (4)Wearing Coat including expansion joints | 3.27% |
| | | (5) Miscellaneous Items like handrails, crash barrier, road markings etc. | 1.55% |
| | | (6) Wing walls/return walls | [Nil] |
| | | (7)Guide Bunds, River Training works etc. | [Nil] |
| | | (8)Approaches(including Retaining walls, stone pitching and protection works) | 2.68% |
| | | **B.1-Wideningandrepairsof (a) ROB (b) RUB** | |
| | | (1) Foundations | [Nil] |
| | | (2) Sub-Structure | [Nil] |
| | | (3) Super-Structure (Including bearings) | [Nil] |
| | | (4)Wearing Coat(a)in case of ROB- wearing coat including expansion joints complete in all respects as specified and (b) In case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified | [Nil] |
| | | (5) Miscellaneous Items like handrails, crash barrier, road markings etc. | [Nil] |
| | | (6) Wing walls/Return walls | [Nil] |
| | | (7) Approaches (Including Retaining walls, Stone Pitching and protection works) | [Nil] |
| | | **B.2-NewROB/RUB** | |
| | | (1) Foundations | [Nil] |
| | | (2) Sub-Structure | [Nil] |
| | | (3) Super-Structure (Including bearings) | [Nil] |
| | | (4) Wearing Coat (a) in case of ROB- wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified | [Nil] |
| | | (5) Miscellaneous Items like handrails, crash barrier, road markings etc. | [Nil] |
| | | (6) Wing walls/Return walls | [Nil] |
| | | (7)Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works) | [Nil] |
| | | **C.1- Widening and repair of Elevated Section/Flyovers/Grade Separators** | |
| | | (1) Foundations | [Nil] |
| | | (2) Sub-Structure | [Nil] |
| | | (3)Super-Structure(Including bearings) | [Nil] |

| Item | Weightage in % of CP | Stage for Payment | Percentage |
|---|---|---|---|
| | | (4)Wearing Coat including expansion joints | [Nil] |
| | | (5) Miscellaneous Items like handrails, crash barrier, road markings etc. | [Nil] |
| | | (6) Wing walls/Return walls | [Nil] |
| | | (7)Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works) | [Nil] |
| | | **C.2- New Elevated Section/Flyovers/Grade Separators** | |
| | | (1) Foundations | [Nil] |
| | | (2) Sub-Structure | [Nil] |
| | | (3)Super-Structure(Including bearings) | [Nil] |
| | | (4)Wearing Coat including expansion joints | [Nil] |
| | | (5) Miscellaneous Items like handrails, crash barrier, road markings etc. | [Nil] |
| | | (6) Wing walls/Return walls | [Nil] |
| | | (7)Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works) | [Nil] |
| **Other Works** | 24.87 % | (i) Toll Plaza | [Nil] |
| | | (ii) Road side drains | 26.83% |
| | | (iii) Road signs, markings, km stones, safety devices etc | 4.25% |
| | | (iv) Project facilities | |
| | | a) Bus Bays | 0.37% |
| | | b) Truck Lay-byes | 0.46% |
| | | c) Passenger Shelter | 0.11% |
| | | d) Rest Area | [Nil] |
| | | e) Diversion Works | [Nil] |
| | | (v) Road side Plantation | [Nil] |
| | | (vi) Repair of Protection Works other than approaches to the bridges, elevated sections/flyover/grade separators and ROBs/ RUBs | [Nil] |
| | | (vii) Safety &Traffic Management during const. | [Nil] |
| | | (viii) Breast Wall | 22.43% |
| | | (ix) Toe Wall | [Nil] |
| | | (x) Retaining Wall | 13.16% |
| | | (xi) Crash Barrier | 1.22% |
| | | (xi) Boundary wall | [Nil] |
| | | (xii) Site Clearance & Dismantling | 3.19% |
| | | (xiii) Protection Works | 26.68% |
| | | (xiv) Utility Shifting | 1.3% |

1.3 Procedure of estimating the value of work done

1.3.1 Road works

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

Table 1.3.1

| Stage of Payment | Percentage weightage | Payment Procedure |
|---|---|---|
| **A- Widening & Strengthening of road** | | Unit of measurement is linear length. Payment of each stage shall be made on pro-rata basis on completion of a stage in a length of not less than 5(five)percent of the total length. |
| (1)Earthwork up to top of the sub-grade | [Nil] | |
| (2) Sub-base Course | [Nil] | |
| (3) Non bituminous Base course | [Nil] | |
| (4) Bituminous Base course | [Nil] | |
| (5) Wearing Coat | [Nil] | |
| (6) Widening and repair of culverts | [Nil] | Cost of ten completed culverts shall be determined on pro-rata basis with respect to the total number of culverts. |
| **B.1- Reconstruction/New2-Lane Realignment/Bypass(Flexible Pavement)** | | Unit of measurement is linear length. Payment of each stage shall be made on pro-rata basis on completion of a stage in full length or 0.5(half) km length, whichever is less. |
| (1)Earthwork up to top of the sub-grade | 47.79% | |
| (2) Sub-base Course | 18.97% | |
| (3) Non bituminous Base course | 8.73% | |
| (4) Bituminous Base course | 1.04% | |
| (5) Wearing Coat | 7.16% | |
| **B.2- Reconstruction/New 8-Lane Realignment/Bypass (Rigid Pavement)** | | Unit of measurement is linear length. Payment of each stage shall be made on pro-rata basis on completion of a stage in full length or 5(five) km length, whichever is less. |
| (1)Earthwork up to top of the sub-grade | [Nil] | |
| (2) Sub-base Course | [Nil] | |
| (3) Dry Lean Concrete (DLC) Course | [Nil] | |
| (4) Pavement Quality Control (PQC) Course | [Nil] | |
| **C.1- Reconstruction/New Service Road/ Slip Road (Flexible Pavement)** | | Unit of measurement is linear length. Payment of each stage shall be made on pro-rata basis on completion of a stage in full length or 5(five) km length, whichever is less. |
| (1)Earthwork up to top of the sub-grade | [Nil] | |
| (2) Sub-base Course | [Nil] | |
| (3) Non bituminous Base course | [Nil] | |
| (4) Bituminous Basecourse | [Nil] | |
| (5) Wearing Coat | [Nil] | |
| **C.2- Reconstruction/New Service road (Rigid Pavement)** | | Unit of measurement is linear length. Payment of each stage shall be made on pro-rata basis on completion of a stage in full length or 5(five) km length, whichever is less. |
| (1)Earthwork up to top of the sub-grade | [Nil] | |
| (2) Sub-base Course | [Nil] | |
| (3) Dry Lean Concrete (DLC)Course | [Nil] | |
| (4) Pavement Quality Control (PQC) Course | [Nil] | |
| **D-Reconstruction & New Culverts on existing road, realignments, bypasses** | | Cost of each culverts shall be determined on pro-rata basis with respect to the total number of culverts. Payment shall be made on the completion of at |
| Culverts (length <6m) | 16.32% | |

| Stage of Payment | Percentage weightage | Payment Procedure |
|---|---|---|
| | | least one culverts |

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

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

Where,

P = Contract Price

L = Total length in km

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

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

1.3.2 Minor Bridges and Underpasses/Overpasses.

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

Table 1.3.2

| Stage of Payment | Weightage | Payment Procedure |
|---|---|---|
| 1 | 2 | 3 |
| **A.1-Widening and repairs of Minor Bridges(length>6m&<60m)** | Nil | Cost of each minor bridge shall be determined on pro-rata basis with respect to the total linear length of the minor bridges. Payment shall be made on the completion of widening & repair works of a minor bridge |
| **A.2- New Minor Bridges (length > 6m & < 60m)** | | |
| (1)Foundation + Sub-Structure: On completion of the foundation work including foundations for wing and return walls, abutments, piers up to the abutment/pier cap. | Nil | Foundation: Cost of each minor bridge shall be determined on pro-rata basis with respect to the total linear length (m) of the minor bridges. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. Not less than 25% of the scope of foundation of each bridge.<br><br>In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified. |
| (2)Super-structure: On completion of the super-structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road,signs & markings, tests on completion etc. complete in all respect. | Nil | Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super structure of at least one span in all respects as specified in the column of "Stage of Payment" in this sub-clause. In case of structures where pre-cast girders have been proposed by the Contractor, 50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of |

| Stage of Payment | Weightage | Payment Procedure |
|---|---|---|
| | | stage specified as above |
| (3)Approaches :On completion of approaches including Retaining walls, stone pitching, protection works complete in all and fit for use | Nil | Approaches: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of approaches in all respect as specified in the column of "Stage of Payment" in this sub-clause. |
| (4) Guide Bunds and River Training Works: On completion of Guide Bunds and river training works complete in all respects | Nil | Guide Bunds and River Training Works:<br>Payment shall be made on pro-rata basis on completion of a stage i.e. completion of Guide Bund sand River training Works in all respects as specified |
| **B.1- Widening and repairs of underpasses/overpasses** | [Nil] | Cost of each underpass/overpass shall be determined on pro-rata basis with respect to the total linear length of the underpasses/ overpasses. Payment shall be made on the completion of widening & repair works of a underpass/overpass. |
| **B.2- New Underpasses/Overpasses** | | |
| (1)Foundation + Sub-Structure: On completion of the foundation work including foundations for wing and return walls, abutments, piers up to the abutment/pier cap. | [Nil] | Foundation: Cost of each Underpass/ Overpass shall be determined on pro- rata basis with respect to the total linear length (m) of the Underpasses/Overpasses. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. Not less than 25% of the scope of foundation of each Underpasses/ Overpasses.<br><br>In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified. |
| (2)Super-structure: On completion of the super-structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road signs & markings, tests on completion etc. complete in all respect.<br><br>Wearing Coat (a) in case of Overpass-wearing coat including expansion joints complete in all respects as specified and (b) in case of underpass- rigid pavement including drainage facility complete in all respects as specified. | [Nil] | Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure of at least one span in all respects as specified in the column of "Stage of Payment" in this sub-clause. In case of structures where pre-cast girders have been proposed by the Contractor,50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above |
| (3) Approaches: On completion of approaches including Retaining walls/ Reinforced Earth walls, stone pitching, protection works complete in all respect and fit for use. | [Nil] | Payment shall be made on pro-rata basis on completion of a stage in all respects as specified |

1.3.3 Major Bridge works, ROB/RUB and Structures.

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

Table 1.3.3

| Stage of Payment | Weightage | Payment Procedure |
|---|---|---|
| **A.1- Widening and repairs of Major Bridges** | | |
| (1) Foundation | [Nil] | Foundation: Cost of each Major Bridge shall be determined on pro-rata basis with respect to the total linear length (m) of the Major Bridge. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the major Bridge. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified. |
| (2) Sub-structure | [Nil] | Sub-structure: Payment against sub- structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub- structure of major bridge. |
| (3)Super-structure(including bearings) | [Nil] | Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure including bearings of at least one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor,50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above |
| (4)Wearing Coat including expansion joints | [Nil] | Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified. |
| (5) Miscellaneous Items like handrails, crash barrier, road markings etc. | [Nil] | Miscellaneous: Payments shall be made on completion of all miscellaneous works like handrails, crash barriers, road markings etc. complete in all respects as specified. |
| (6) Wing walls/return walls | [Nil] | Wingwalls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified. |
| (7)Guide Bunds, River Training works etc. | [Nil] | Guide Bunds, River Training works: Payments shall be made on completion of all guide bunds/river training works etc. complete in all respects as specified. |
| (8)Approaches(including Retaining walls, stone pitching and protection works) | [Nil] | Approaches: Payments shall be made on pro-rata basis on completion of 10% of the scope of each stage. |
| **A.2-NewMajorBridges** | | |
| (1)Foundation | 21.31% | Foundation: Cost of each Major Bridge shall be determined on pro-rata basis with respect to the total linear length (m) of the Major Bridge. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the major Bridge. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified. |

| Stage of Payment | Weightage | Payment Procedure |
|---|---|---|
| (2)Sub-structure | 46.12% | Sub-structure: Payment against sub- structure shall be made on pro-rata basis on completion of a stage i.e. not lessthan25% of the scope of sub- structure of major bridge. |
| (3)Super-structure(including bearings) | 25.06% | Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure including bearings of at least one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor, 50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above |
| (4)Wearing Coat including expansion joints | 3.27% | Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified. |
| (5) Miscellaneous Items like handrails, crash barrier, road markings etc. | 1.55% | Miscellaneous: Payments shall be made on completion of all miscellaneous works like handrails, crash barriers, road markings. complete in all respects as specified. |
| (6) Wing walls/return walls | [Nil] | Wingwalls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified. |
| (7)Guide bunds, River Training works etc. | [Nil] | Guide Bunds, River Training works: Payments shall be made on completion of all guide bunds/river training works etc. complete in all respects as specified. |
| (8)Approaches(including Retaining walls, stone pitching and protection works) | 2.68% | Approaches: Payments shall be made on pro-rata basis on completion of 10% of the scope of each stage. |
| **B.1- Widening and repairs of (a)ROB (b)RUB** | [Nil] | |
| (1) Foundations | [Nil] | Foundation: Cost of each ROB/RUB shall be determined on pro-rata basis with respect to the total linear length (m)of the ROB/RUB. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the ROB/RUB.<br><br>In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified. |
| (2) Sub-Structure | [Nil] | Sub-structure: Payment against sub- structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub- structure of ROB/RUB. |
| (3) Super-Structure (Including bearings) | [Nil] | Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure including bearings of at least one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor,50%ofthe stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above |
| (4) Wearing Coat(a)in case of ROB-wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB-rigid pavement under RUB | [Nil] | Wearing Coat: Payment shall be made on completion<br><br>(a) in case of ROB-wearing coat including expansion joints complete in all respects as specified |

| Stage of Payment | Weightage | Payment Procedure |
|---|---|---|
| including drainage facility complete in all respects as specified | | and<br><br>(b) in case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified. |
| (5) Miscellaneous Items like handrails, crash barrier, road markings etc. | [Nil] | Miscellaneous: Payments shall be made on completion of all miscellaneous works like handrails, crash barriers, road markings etc. complete in all respects as specified. |
| (6) Wing walls/Return walls | [Nil] | Wingwalls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified. |
| (7) Approaches (Including Retaining walls, Stone Pitching and protection works) | [Nil] | Payments shall be made on pro-rata basis on completion of 20% of the total area. |
| **B.2-NewROB/RUB** | | |
| (1) Foundation | [Nil] | Foundation: Cost of each ROB/RUB shall be determined on pro-rata basis with respect to the total linear length (m)of the ROB/RUB. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the ROB/RUB. |
| (2) Sub-structure | [Nil] | Sub-structure: Payment against sub- structure shall be made on pro-rata basis on completion of a stage i.e. Not less than 25% of the scope of sub- structure of ROB/RUB. |
| (3) Super-structure (including bearing) | [Nil] | Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure including bearings of at least one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor,50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above |
| (4)Wearing Coat (a) in case of ROB- wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified | [Nil] | Wearing Coat: Payment shall be made on completion<br><br>(a) in case of ROB-wearing coat including expansion joints complete in all respects as specified<br><br>and<br><br>(b) In case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified. |
| (5) Miscellaneous Items like handrails, crash barrier, road markings etc. | [Nil] | Miscellaneous: Payments shall be made on completion of all miscellaneous works like handrails, crash barriers, road markings etc. Complete in all respects as specified. |
| (6) Wing walls/Return walls | [Nil] | Wingwalls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified. |
| (7)Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works) | [Nil] | Payment shall be made on pro-rata basis on completion of a stage in all respects as specified |
| **C.1-Wideningandrepairs of Elevated Section/ Flyovers/Grade Separators** | | |
| (1) Foundations | [Nil] | Foundation: Cost of each structure shall be determined on pro-rata basis with respect to the total linear length (m)of |

| Stage of Payment | Weightage | Payment Procedure |
|---|---|---|
| | | the structure. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the structure.<br><br>In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified. |
| (2) Sub-Structure | [Nil] | Sub-structure: Payment against sub- structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub- structure of structure. |
| (3) Super-Structure(Including bearings) | [Nil] | Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure including bearings of at least one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor,50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above |
| (4) Wearing Coat including expansion joints | [Nil] | Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified. |
| (5) Miscellaneous Items like handrails, crash barrier, road markings etc. | [Nil] | Miscellaneous: Payments shall be made on completion of all miscellaneous works like handrails, crash barriers, road markings etc. Complete in all respects as specified. |
| (6) Wing walls/Return walls | [Nil] | Wingwalls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified. |
| (7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works) | [Nil] | Payment shall be made on pro-rata basis on completion of a stage in all respects as specified |
| **C.2- New Elevated Section/ Flyovers/Grade Separators** | | |
| (1) Foundations | [Nil] | Foundation: Cost of each structure shall be determined on pro-rata basis with respect to the total linear length (m)of the structure. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the structure.<br><br>In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified. |
| (2) Sub-Structure | [Nil] | Sub-structure: Payment against sub- structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub- structure of structure. |
| (3)Super-Structure(Including bearings) | [Nil] | Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure including bearings of at least one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor,50% of the stage payment shall be due and payable on casting of girders foreach span and balance 50% of the stage payment shall be made on completion of stage specified as above |

| Stage of Payment | Weightage | Payment Procedure |
|---|---|---|
| (4)Wearing Coat including expansion joints | [Nil] | Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified. |
| (5) Miscellaneous Items like handrails, crash barrier, road markings etc. | [Nil] | Miscellaneous: Payments shall be made on completion of all miscellaneous works like handrails, crash barriers, road markings etc. complete in all respects as specified. |
| (6) Wing walls/Return walls | [Nil] | Wingwalls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified. |
| (7)Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works) | [Nil] | Payments shall be made on pro-rata basis on completion of 20% of the total area. |

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

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

1.3.4 Other works.

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

Table 1.3.4

| Stage of Payment | Weightage | Payment Procedure |
|---|---|---|
| 1 | 2 | 3 |
| (1) Toll Plaza | [Nil] | Unit of measurement is each completed toll plaza. Payment of each toll plaza shall be made on pro-rata basis with respect to the total of all toll plaza. |
| (2) Roadside drains | 26.83% | Unit of measurement is linear length. Payment shall be made on pro-rata basis on completion of a stage in a length of not less than 5% (five percent)of the total length. |
| (3) Road signs, markings, km stones, safety devices etc. | 4.25% | |
| (4) Project Facilities | | Payment shall be made on pro-rata basis for completed facilities. |
| a) Bus Bays | 0.37% | |
| b) Truck Lay-byes | 0.46% | |
| c) Passenger Shelter | 0.11% | |
| d) Rest Area | [Nil] | |
| e) Diversion Works | [Nil] | |
| (5) Road side Plantation including Horticulture in Wayside Amenities | [Nil] | Unit of measurement is linear length |
| (6) Repair of Protection Works other than approaches to the | [Nil] | Unit of measurement is linear length. Payment shall be made |

| Stage of Payment | Weightage | Payment Procedure |
|---|---|---|
| bridges, elevated sections/flyover/grade separators and ROBs/ RUBs | | on pro-rata basis on completion of a stage in a length of not less than 5% (five percent)of the total length. |
| (7) Safety and traffic management during construction | [Nil] | Payment shall be made on prorate basis every six months. |
| (8) Protection Works | | Unit of measurement is linear length. Payment shall be made on pro-rata basis on completion of a stage in a length of not less than 5% (five percent)of the total length. |
| (a) Breast Wall | 22.43% | |
| (b) Toe Wall | [Nil] | |
| (c )Retaining Wall | 13.16% | |
| (c) Crash Barrier | 1.22% | |
| (9) Site Clearance & Dismantling | 3.19% | Unit of measurement is linear length. Payment shall be made on pro-rata basis on completion of a stage in a length of not less than 5% (five percent)of the total length. |
| (10) Protection Works | 26.68% | Unit of measurement is linear length. Payment shall be made on pro-rata basis on completion of a stage in a length of not less than 5% (five percent)of the total length. |
| (11) Utility Shifting | 1.3% | Unit of measurement is linear length. Payment shall be made on pro-rata basis on completion of a stage in a length of not less than 5% (five percent)of the total length. |

**2. Procedure for payment for Maintenance**

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

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