No. 3023/644/Procu./MPRDC/NDB/CW/2024 Date: 13/06/2024

MADHYA PRADESH ROAD DEVELOPMENT CORPORATION LTD.

Reply of Additional Pre-bid queries for Upgradation of following State Highways in the state of Madhya Pradesh on EPC Mode under proposed NDB Loan: Package No. 1, 2, 3, 4, 5, 6, 7, 8 & 9

NIT No. 15825/644/Procu./MPRDC/NDB/CW/2024 Dated: 11/03/2024

S.No.	Clause Ref.	Description	Query	MPRDC Reply
1	ADDENDUM-I Ref. 335/644/Procu. /MPRDC/NDB/ CW/2024 dated 08.04.2024 Point No.3 as per ADDENDUM-1 : Addition of Clause (Vii) under 10.1 Pg. 4 of 5 : Corrigendum - 1	Environmental management Plan (EMP) in line with Schedule-S	EMP Plan preparation is mandated under the addition of clause 10.1 (vii). And also, the Contractor is mandated to fulfill the provisions of EMP **a)** This require the contractor to incur additional cost. Hence the same has to be reviewed on field. For review and finalization, the Contractor is in need of adequate period to work out the Cost part. Instead of 25.04.2024, **suitable extension of time from the said due date of bid submission may kindly be provided, please.**	Please refer **Addendum-5**
2	ADDENDUM-I Ref. 335/644/Procu./MPRDC/NDB/ CW/2024 dated 08.04.2024 Pg. 5 of 5 : Corrigendum - 1 Point No.3 as per ADDENDUM-**1 : Addition of Clause (Viii) under 10.1** (Viii) (f) – relocation	Relocation of Government buildings, Religious structures, CPR, etc.,	**10.1 (Viii) (f) – says** *"The Contractor shall ensure relocation of all Government Building, Religious Structures, Common Public Resources, etc.,"* **a)** In accordance with clause 8.4 of EPC Agreement, the site shall be made available to the Contractor without incurring any additional cost implication towards acquisition and use of site for completion of the works. Further, no details about existing RoW is given in the Schedule-A. Whereas, the above said new clause 10.1 (viii) (f) stipulated under the Addendum-1, implies the responsibility of the Contractor for relocation of the Govt, Religious & CPR, etc., Threfore, Clause 8.4 & 10.1 (Viii) (f) conflict each other. **b)** In general practice at NH, NHAI, various State & Central	Please refer **Para-2, 3 & 8** of **Addendum-6**

M.P. ROAD DEVELOPMENT CORPORATION LTD. 45-'A' Arera Hills Bhopal (M.P.)

MADHYA PRADESH ROAD DEVELOPMENT CORPORATION LTD.

S.No.	Clause Ref.	Description	Query	MPRDC Reply
			governmental bodies, the relocation of Government buildings, religious structures, Common Public resources, etc., would be under the Authority's obligations as all of these warrant approvals from the administrative and other Governmental authorities. Whereas under the said Amenment-1, the contractor is mandated to ensure the relocation under the said clause ref. **c)** Further, the bidder cannot be able to assess the cost for relocation without existing RoW data. Hence, we request the Authority to clarify the following **i. Whether the cost for relocation will be provided at extra cost or not?** **ii. If additional cost is not provided, the existing RoW data is needed to evaluate the cost for relocation.** **iii. In consideration of the queries and nature of the obligation to the contractor for relocation of such buildings, CPR, etc., the bidder has to study conditions at field in the perspective of relocation related matters. Hence, suitable extension of time from the due date of bid submission may kindly be provided, please.**	
3	The above-mentioned clauses Page No.4 of 5 & 5 of 5 – Corrigendum-1	The above-mentioned items	a) Both the above said EMP & relocation related provisions are included under clause 10.1 which is meant for "Obligations prior to Commencement of works". Hence, this may warrant the Contractor's to fulfil prior to commencement of works".	Please refer **Para-2 and 3** of **Addendum-6**

S.No.	Clause Ref.	Description	Query	MPRDC Reply
			Submission of an EMP shall be possible within a certain period of appointment date (if stipulated in EPC Agreement), whereas implementation of EMP and relocation of the above said Government buildings, religious structures, CPR, etc., will not be generally not possible prior to commencement (or) within a certain period. b) Hence, **the authority is requested to clarify the need of introduction of these two clauses under 10.1 which is "Obligations prior to Commencement of works"; or otherwise, kindly define the clauses as suitably in EPC Agreement subjecting to the clarification of above queries".**	
4	Article-12 Page-63 of EPC Agreement	Completion Certificate	a) No provisions are stipulated for Provisional Completion Certificate. If a particular stretch of the project highway is effected by any kind of reasons which are beyond the control of Contractor, Authority's Engineer and Authority, then there has to be a mechanism for Completion certificate without affecting the Maintenance obligations of the Contractor. Whereas no provisions are made for Provisional Completion Certificate. b) In practical field conditions, such kind of no-provisions for Provisional completion certificate lead to huge delays for getting approvals for a completion certificate or delays for realizing commencement of maintenance period even after substantial completion of the project highway or similar effective issues as the cases it be. To avoid such	No Change

MADHYA PRADESH ROAD DEVELOPMENT CORPORATION LTD.

S.No.	Clause Ref.	Description	Query	MPRDC Reply
			circumstances, it is preferable to keep provisions for "Provisional Completion Certificate" suitably in Article-12. c) **The Authority is requested to consider this observation and revisit the Article-12 for Completion certificate and suitable provisions in EPC Agreement.**	
5	Clause-10.3 (ii) – 2nd Para Page-49 of EPC Agreement	Construction of the Project Highway	a) For determination of Extension of time, the provisions are prescribed to calculate extension of time based on the % of the length affected. Whereas in reality at the Project Highway, the length will not be having a direct relation with the Contract Price. *For example : Financial progress of 100m length of a "X" Km will not be equal to same value of works for 100m length on an another "Y" Km.* b) **In consideration of the above, the extension of time shall be considered based on the Length (or) the value of works affected as per the case(s) it be. The Authority shall kindly revisit this provision of EPC Agreement.**	No Change
6	2.20 Bid Security	2.20.1 The Bidder shall furnish as part of its Bid, a B id security online on MP Tenders Portal of amount specified in clause 1.1.1 here in above	The above mentioned clause were given to the pay bid security 1% has to be paid through online portal https://mptenders.gov.in. The other bank option such as DD, Physical Bank Guarantee, E-Bank Guarantee etc., was not provided to the bidders for participation.	No Change

M.P. ROAD DEVELOPMENT CORPORATION LTD. 45-'A' Arera Hills Bhopal (M.P.)

MADHYA PRADESH ROAD DEVELOPMENT CORPORATION LTD.

S.No.	Clause Ref.	Description	Query	MPRDC Reply
7	2.20 Bid Security	-	Waive off EMD for CPES/ PSU / government entities.	No Change
8	-	-	Package 5 - Lukwasa Isagarh Chanderi Road under subject NIT. While referring the Schedule B, we find some following discrepancies among the various clauses of Schedule as below: **TCS** The Project Road is to be developed / reconstructed as per various TCS. Please refer the Clause 1.4, 2.12 (A), 2.12 (B) and 5.4. The TCS for various chainages are not matching among the Clauses. The Length of each TCS as given in Clause 1.4 and 2.12 (B) are matching, whereas, type of some TCS between Clause 1.4 and 2.12(A) & 5.4 are differed. We understand that the TCS as per Clause 1.4 and 2.12 (B) are to be followed. Please confirm. **DRAIN WIDTH** Please refer Sr No 52 to 60 of Table provided with Clause 2.11, Sr No 52 to 60 of Table provided with Clause 6 (I) and Sr No 52 to 60 of Table provided with Clause 6 (III). The Width of RCC Covered Drain at above all location varies from 1.9 M to 9.9 M. We understand that, the same is typographical error. The width of RCC Covered Drain at all location shall be considered as 0.9 M. Please confirm.	Please refer **Para-5** of **Addendum-6**

M.P. ROAD DEVELOPMENT CORPORATION LTD. 45-'A' Arera Hills Bhopal (M.P.)

MADHYA PRADESH ROAD DEVELOPMENT CORPORATION LTD.

S.No.	Clause Ref.	Description	Query	MPRDC Reply
			It is requested to clarify the above points by issuing revised Schedule / amendments at the earliest.	
9	2.2.2 Qualification requirements of Bidders	2.2.2.2 Technical Capacity	We kindly request clarification regarding the Technical Capacity criteria as mentioned in point 2.2.2.2 (ii) e A & B on page 23 of the Request for Proposal (RFP). To properly assess this capacity, we require clarification regarding whether we should evaluate it based on the total length of the bridge or the single largest span of the bridge.	The longest span of proposed bridge shall be considered for evaluation as per clause 2.2.2.2(ii) of the RFP.
10	-	-	May kindly clarify that the proposed typical cross section TCS-1 to TCS-7 are not clearly indicating individual sub item of the work so needs to be amended (if any)	Please refer **Para-6** of **Addendum-6**
11	2.21 'Performance Security ' of RFP	-	May please clarify clause 2.21 (iii) 'Performance Security' of RFP that if any Additional performance security to be deposited will be the part of performance security of additional performance security has to be provided separately apart of performance security i.e. 5% of Bid Price.	The Additional Performance Security shall be in addition to the Performance Security as per clause 2.21 of the RFP.

M.P. ROAD DEVELOPMENT CORPORATION LTD. 45-'A' Arera Hills Bhopal (M.P.)

MADHYA PRADESH ROAD DEVELOPMENT CORPORATION LTD.

S.No.	Clause Ref.	Description	Query	MPRDC Reply
12	Annexure-1 (Schedule-B) 7. DESIGN OF STRUCTURES (iv) Rail-road bridges. b. Road Over-bridges	Road Over-bridges (road over rail) shall be provided at the following level crossing as per GAD Drawing attached.	As per Schedule-B the center span (Over Railway Portion) of ROB Structure is 37.28mtr. but in GAD the center span of ROB is indicated as 63.4 mtr and in profile over railway portion two span shown but mention 1x64 mtr. span. Provision of total proposed length and span arrangement of road over bridge structure of Schedule B and drawing (Plan & profile and GADs) are mismatched. Kindly confirm clarify the corret center span length (OVER RAILWAY PORTION) and provide the approved GAD of proposed ROB Structure.	Please refer **Para-7** of **Addendum-6**

M.P. ROAD DEVELOPMENT CORPORATION LTD. 45-'A' Arera Hills Bhopal (M.P.)

13/06/2024

(Gopal Singh)
Chief Engineer
(Procurement)
MPRDC, Bhopal
Tel: 0755-2597216
Email: procu-mprdc@mp.gov.in

CIN : U45203MP2004SGC016758

M.P. Road Development Corporation Ltd.

(M.P. State Highway Authority)

(Govt. of M.P. Undertaking)

45-A, Arera Hills, Bhopal-462011

☎ : 0755-2597290 / 2765205 Fax : 0755-2572643, Website : mprdc.gov.in

No. 3023/644/Procu./MPRDC/NDB/CW/2024 Date 13/06/2024

ADDENDUM-6

NIT No. 15825/644/Procu./MPRDC/NDB/CW/2024 Dated: 11/03/2024

Upgradation of following State Highways in the state of Madhya Pradesh on EPC Mode under proposed NDB Loan: Package No. 1, 2, 3, 4, 5, 6, 7, 8 & 9

1. Replace the content of Sub-clause 3.1.9 of Section – 3 of RFP Document of Package No. 1, 2, 3, 4, 5, 6, 7, 8 & 9 with the following:

   "After evaluation of Technical Bids, the Authority will publish result of Technical Evaluation along with date & time of opening of Financial Bid on MP Tenders Portal. In case of any objection, the bidder shall submit their representation in writing to following within 7 days of publication of result of Technical Evaluation. No representation shall be entertained after prescribe time mentioned herein.

   Chief Engineer (Procurement)
   Madhya Pradesh Road Development Corporation Limited
   45A Arera Hills, Bhopal (MP) 462011
   Email: procu-mprdc@mp.gov.in "

2. Add the following below the **Sub-clause 10.1 (vi) of Article 10** of EPC Agreement of Package No. 1, 2, 3, 4, 5, 6, 7, 8 & 9:

   "(vii) Prepare an updated Environmental Management Plan that is inline with Schedule –S including the action plan and checklist and submit to the Authority Engineer for review and concurrence. Failure of the Authority Engineer to review the Environmental Management plan and convey its concurrence shall not relieve the contractor of its obligation and liabilities under this agreement, in addition, the contactor shall carry out necessary works also inline with ISO 14000:2004/15 Environmental Management Standards."

3. Add the following below the **Sub-clause 4.10 (i) of Article 4** of EPC Agreement of Package No. 1, 2, 3, 4, 5, 6, 7, 8 & 9:

   "(ii) The contractor agrees to comply all the provision set forth in 'Schedule –S'."

4. Replace the words "**PROVISIONAL CERTIFICATE**" from Schedule-L of Package No. 1, 2, 3, 4, 5, 6, 7, 8 & 9 with the words "**COMPLETION CERTIFICATE**".

5. The Schedule B of **Package No. 5: Lukwasa–Isagarh-Chanderi Road (SH-04)** is hereby replaced with **Revised Schedule B,** which is enclosed herewith.

6. The TCS-1 to TCS-7 of **Package No. 7: Shivpuri-Pohri-Karahal-Goras Road (SH-51A)** is hereby replaced with **Revised TCS-1 to TCS-7,** which is enclosed herewith.

7. Replace the figures "**2 x 30.0 + 1 x 37.28 + 2 x 30.0**" of first row of column 'Span (m)' of table of para 'b. Road over-bridges' of para 7 (iv) of Annex – I of Schedule B of **Package No. 2: Ratlam – Jhabua Road (SH - 26)** with "**2 x 30.0 + 1 x 63.40 + 2 x 30.0**".

8. The Annex – II of Schedule A of **Package No. 2: Ratlam – Jhabua Road (SH - 26)** is hereby replaced with **Revised Annex – II,** which is enclosed herewith.

This Addendum – 6 shall take precedence over the previously issued Addenda and Bid documents. This Addendum – 6 shall form part of the contract agreement.

Encl: As Above.

M.P. ROAD DEVELOPMENT CORPORATION LTD. 45-'A' Arera Hills Bhopal (M.P.)

13/06/2024

(Gopal Singh)
Chief Engineer
(Procurement)
MPRDC, Bhopal
Tel: 0755-2597216
Email: procu-mprdc@mp.gov.in

REVISED SCHEDULE - B

(See Clause 2.1)

DEVELOPMENT OF THE PROJECT HIGHWAY

1. DEVELOPMENT OF THE PROJECT HIGHWAY

Development of the Project Highway shall include 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 Laning of the Project Highway as described in **Annex-I** of this **Schedule-B** and **Annex-I** of **Schedule-C**.

3. SPECIFICATIONS AND STANDARDS

Two Laning shall be undertaken and completed by the Concessionaire in conformity with the Specifications and Standards set forth in **Annex-I** of **Schedule-D**. **(Manual of specifications and standards for two lane roads IRC-SP-73-2018).**

M.P. ROAD DEVELOPMENT CORPORATION LTD. 45-'A' Arera Hills Bhopal (M.P.)

Annex - I
(Schedule-B)

DESCRIPTION OF TWO-LANING WITH PAVED SHOULDERS

1. REHABILITATION, UPGRADATION & WIDENING OF THE EXISTING HIGHWAY

1.1 The Project Highway is an existing Intermediate-lane highway which is to be developed to two lanes with paved shoulder from Km 0.000 (Toriya Road) to Km 72.955 (MP-UP Border) in the State of Madhya Pradesh **(Project Design Length – 72.955 Km).**

1.2 The Project Highway shall follow the existing alignment unless otherwise specified by the Authority and shown in the alignment plans specified in **Para 2.4 of Schedule-B. Notwithstanding anything to the contrary contained in this Agreement or Manual, the proposed profile of the project highway as indicated in the Para 2.4 of Schedule-B shall be deemed to be part of this Schedule-B and shall be followed the Contractor with minimum FRL as indicated in the alignment plan. Based on site/design requirement, the Contractor may, however, improve/upgrade upon the alignment plans and profiles as indicated in Annexure – III of Schedule A and raise the finished roadway level (FRL) with approval from the Authority's Engineer within the available Right of Way (ROW). Geometric deficiencies, if any, in the existing horizontal and vertical profiles shall be corrected as per the prescribed standards for plain/ rolling terrain to the extent land is available.**

1.3 Except as otherwise specified by Authority and shown in the alignment plan specified in **Para 2.4 of Schedule-B**. Geometric deficiencies, if any, in the existing horizontal & vertical profiles shall be corrected as per the prescribed standards of Schedule-D to the extent land is available.

1.4 Width of Carriageway

(a) **Two Lane with Paved Shoulders: -** Two-Laning with paved shoulders shall be undertaken. The paved carriageway shall be **[7.0m + 2*1.5m = 10.0m]** wide in accordance with the typical cross sections drawings of Schedule-D.

In open country the following typical cross sections will be adopted:

TCS-I (A): Reconstruction & Widening of Existing Intermediate Lane Flexible Pavement to 2-Lane Carriageway with Paved Shoulders Flexible Pavement in Open Country shall be adopted in the following locations in open country –

Design Ch. (Km)		Length (Km)	Width of paved CW (m)	Roadway Width (m)	Reference TCS
From	To				
0.000	14.175	14.175	7.0 + 2*1.5 = 10.0	12.0	TCS-I (A) of Schedule-D
24.250	24.560	0.310			
25.300	25.360	0.060			
26.660	26.740	0.080			

Design Ch. (Km)		Length (Km)	Width of paved CW (m)	Roadway Width (m)	Reference TCS
From	To				
26.900	27.120	0.220			
27.280	27.720	0.440			
27.960	28.220	0.260			
29.250	29.420	0.170			
30.600	30.680	0.080			
32.800	32.880	0.080			
32.990	33.240	0.250			
33.360	33.440	0.080			
33.560	34.280	0.720			
37.980	40.360	2.380			
41.120	41.300	0.180			
41.420	41.750	0.330			
43.160	43.740	0.580			
43.940	45.040	1.100			
45.220	45.380	0.160			
45.680	45.800	0.120			
50.560	50.650	0.090			
51.560	51.900	0.340			
52.480	54.260	1.780			
54.380	54.550	0.170			
61.300	61.540	0.240			
61.680	61.950	0.270			
63.000	63.620	0.620			
63.740	63.980	0.240			
64.200	66.400	2.200			
66.650	66.820	0.170			
66.960	68.140	1.180			
68.300	68.800	0.500			
70.650	70.720	0.070			
71.000	71.160	0.160			
71.280	71.940	0.660			
72.180	72.480	0.300			
Total Length		**30.765**			

TCS-I (B): Reconstruction & Widening of Existing 2-Lane Flexible Pavement to 2-Lane Carriageway with Paved Shoulders Flexible Pavement in Open Country shall be adopted in the following locations in open country –

Design Ch. (Km)		Length (Km)	Width of paved CW (m)	Roadway Width (m)	Reference TCS
From	To				
15.500	15.530	0.030	7.0 + 2*1.5 = 10.0	12.0	TCS-I (B) of Schedule-D
15.740	16.000	0.260			
16.220	16.330	0.110			
16.660	17.080	0.420			
17.180	17.400	0.220			
17.540	17.600	0.060			
17.650	17.700	0.050			
17.760	17.960	0.200			
19.700	20.260	0.560			
20.380	20.640	0.260			
20.880	21.000	0.120			
21.200	21.400	0.200			
22.220	22.640	0.420			
22.980	23.040	0.060			
23.090	23.180	0.090			
Total Length		**3.060**			

TCS-I (C): Reconstruction & Widening (with Profile Raising) of Existing Flexible Pavement to 2-Lane Carriageway with Paved Shoulders Flexible Pavement in Open Country shall be adopted in the following locations in open country –

Design Ch. (Km)		Length (Km)	Width of paved CW (m)	Roadway Width (m)	Reference TCS
From	To				
16.000	16.220	0.220	7.0 + 2*1.5 = 10.0	12.0	TCS-I (C) of Schedule-D
16.400	16.600	0.200			
17.080	17.180	0.100			
17.400	17.475	0.075			
20.260	20.380	0.120			
20.730	20.880	0.150			
21.000	21.200	0.200			
22.030	22.220	0.190			
22.640	22.980	0.340			
23.290	23.350	0.060			
24.560	24.720	0.160			
26.500	26.660	0.160			
27.120	27.280	0.160			
27.720	27.960	0.240			
30.680	30.780	0.100			
32.880	32.990	0.110			
33.240	33.360	0.120			
33.440	33.560	0.120			
34.450	34.500	0.050			
37.920	37.980	0.060			
40.950	41.120	0.170			
41.300	41.420	0.120			
43.740	43.820	0.080			
45.040	45.220	0.180			
45.380	45.540	0.160			
50.420	50.490	0.070			
50.650	50.700	0.050			
51.180	51.460	0.280			
51.900	52.000	0.100			
52.150	52.330	0.180			
63.620	63.740	0.120			
63.980	64.200	0.220			
66.820	66.960	0.140			
70.830	71.000	0.170			
71.160	71.280	0.120			
71.940	72.180	0.240			
72.480	72.680	0.200			
Total Length		**5.535**			

TCS-III (A): Reconstruction of Existing Intermediate Lane Carriageway to 2-Lane Carriageway with Paved Shoulders Flexible Pavement in Ghat Sections (LHS-Hill & RHS-Valley) shall be adopted in the following locations in open country –

Design Ch. (Km)		Length (Km)	Width of paved CW (m)	Roadway Width (m)	Reference TCS
From	To				
24.120	24.250	0.130	7.0 + 2*1.5 = 10.0	11.0	TCS-III (A) of Schedule-D
35.460	35.500	0.040			
36.370	36.520	0.150			
36.900	37.100	0.200			
37.220	37.520	0.300			
41.750	42.300	0.550			
42.820	43.160	0.340			

Design Ch. (Km)		Length (Km)	Width of paved CW (m)	Roadway Width (m)	Reference TCS
From	To				
45.800	45.860	0.060			
45.940	46.100	0.160			
46.720	47.360	0.640			
47.470	47.720	0.250			
48.020	48.300	0.280			
48.620	48.860	0.240			
48.980	49.000	0.020			
49.100	49.200	0.100			
49.280	49.820	0.540			
Total Length		**4.000**			

TCS-III (B): Reconstruction of Existing Intermediate Lane Carriageway to 2-Lane Carriageway with Paved Shoulders Flexible Pavement in Ghat Sections (RHS-Hill & LHS-Valley) shall be adopted in the following locations in open country –

Design Ch. (Km)		Length (Km)	Width of paved CW (m)	Roadway Width (m)	Reference TCS
From	To				
28.300	28.860	0.560	7.0 + 2*1.5 = 10.0	11.0	TCS-III (B) of Schedule-D
29.180	29.250	0.070			
29.520	29.580	0.060			
29.660	29.750	0.090			
31.900	31.980	0.080			
32.160	32.350	0.190			
34.880	34.960	0.080			
35.280	35.460	0.180			
40.440	40.600	0.160			
40.840	40.950	0.110			
42.300	42.720	0.420			
60.720	60.840	0.120			
Total Length		**2.120**			

TCS-III (C): Reconstruction of Existing Intermediate Lane Carriageway to 2-Lane Carriageway with Paved Shoulders Flexible Pavement in Ghat Sections (RHS-Hill) shall be adopted in the following locations in open country –

Design Ch. (Km)		Length (Km)	Width of paved CW (m)	Roadway Width (m)	Reference TCS
From	To				
29.750	30.240	0.490	7.0 + 2*1.5 = 10.0	11.0	TCS-III (C) of Schedule-D
30.520	30.600	0.080			
32.730	32.800	0.070			
Total Length		**0.640**			

TCS-III (D): Reconstruction (with Profile Raising) of Existing Intermediate Lane Carriageway to 2-Lane Carriageway with Paved Shoulders Flexible Pavement in Ghat Sections (LHS-Hill & RHS-Valley) shall be adopted in the following locations in open country –

Design Ch. (Km)		Length (Km)	Width of paved CW (m)	Roadway Width (m)	Reference TCS
From	To				
24.070	24.120	0.050	7.0 + 2*1.5 = 10.0	11.0	TCS-III (D) of Schedule-D
35.600	35.700	0.100			
36.020	36.100	0.080			
36.640	36.810	0.170			
37.820	37.920	0.100			
45.860	45.940	0.080			

Design Ch. (Km)		Length (Km)	Width of paved CW (m)	Roadway Width (m)	Reference TCS
From	To				
46.100	46.490	0.390			
46.560	46.720	0.160			
47.840	48.020	0.180			
48.460	48.620	0.160			
49.000	49.100	0.100			
49.200	49.280	0.080			
50.200	50.320	0.120			
50.320	50.380	0.060			
Total Length		**1.830**			

TCS-III (E): Reconstruction (with Profile Raising) of Existing Intermediate Lane Carriageway to 2-Lane Carriageway with Paved Shoulders Flexible Pavement in Ghat Sections (RHS-Hill & LHS-Valley) shall be adopted in the following locations in open country –

Design Ch. (Km)		Length (Km)	Width of paved CW (m)	Roadway Width (m)	Reference TCS
From	To				
29.580	29.660	0.080	7.0 + 2*1.5 = 10.0	11.0	TCS-III (E) of Schedule-D
31.980	32.160	0.180			
32.350	32.640	0.290			
34.500	34.580	0.080			
34.660	34.720	0.060			
35.160	35.280	0.120			
40.600	40.840	0.240			
60.310	60.480	0.170			
60.600	60.720	0.120			
60.840	61.300	0.460			
Total Length		**1.800**			

TCS-III (F): Reconstruction (with Profile Raising) of Existing Intermediate Lane Carriageway to 2-Lane Carriageway with Paved Shoulders Flexible Pavement in Ghat Sections (RHS-Hill) shall be adopted in the following locations in open country –

Design Ch. (Km)		Length (Km)	Width of paved CW (m)	Roadway Width (m)	Reference TCS
From	To				
30.240	30.440	0.200	7.0 + 2*1.5 = 10.0	11.0	TCS-III (F) of Schedule-D
Total Length		**0.200**			

TCS-III (G): Reconstruction of Existing Intermediate Lane Carriageway to 2-Lane Carriageway with Paved Shoulders Rigid Pavement in Ghat Sections (RHS-Hill & LHS-Valley) shall be adopted in the following locations in open country –

Design Ch. (Km)		Length (Km)	Width of paved CW (m)	Roadway Width (m)	Reference TCS
From	To				
59.800	60.220	0.420	7.0 + 2*1.5 = 10.0	11.0	TCS-III (G) of Schedule-D
Total Length		**0.420**			

TCS-IV (A): Construction of 2-Lane with Paved Shoulders Flexible Pavement in Open Country (In Cutting) shall be adopted in the following locations in open country –

Design Ch. (Km)		Length (Km)	Width of paved CW (m)	Roadway Width (m)	Reference TCS
From	To				
15.530	15.740	0.210	7.0 + 2*1.5 = 10.0	12.0	TCS-IV (A) of Schedule-D
16.330	16.400	0.070			
16.600	16.660	0.060			
17.475	17.540	0.065			
17.600	17.650	0.050			
17.700	17.760	0.060			
17.960	18.080	0.120			
20.640	20.730	0.090			
23.040	23.090	0.050			
23.180	23.290	0.110			
24.720	24.950	0.230			
25.360	26.500	1.140			
26.740	26.900	0.160			
28.220	28.300	0.080			
28.860	29.180	0.320			
29.420	29.520	0.100			
30.440	30.520	0.080			
32.640	32.730	0.090			
34.280	34.450	0.170			
34.580	34.660	0.080			
34.720	34.880	0.160			
34.960	35.160	0.200			
35.500	35.600	0.100			
35.700	36.020	0.320			
36.100	36.370	0.270			
36.520	36.640	0.120			
36.810	36.900	0.090			
37.100	37.220	0.120			
37.520	37.820	0.300			
40.360	40.440	0.080			
42.720	42.820	0.100			
43.820	43.940	0.120			
45.540	45.680	0.140			
46.490	46.560	0.070			
47.360	47.470	0.110			
47.720	47.840	0.120			
48.300	48.460	0.160			
48.860	48.980	0.120			
49.820	50.150	0.330			
50.150	50.200	0.050			
50.380	50.420	0.040			
50.490	50.560	0.070			
51.460	51.560	0.100			
52.000	52.150	0.150			
52.330	52.480	0.150			
54.260	54.380	0.120			
60.480	60.600	0.120			
61.540	61.680	0.140			
68.140	68.300	0.160			
70.720	70.830	0.110			
72.680	72.955	0.275			
Total Length		**7.850**			

In Built up areas the following typical cross sections will be adopted:

TCS-I (D): Reconstruction & Widening of Existing 2-Lane Flexible Pavement to 4-Lane Divided Carriageway with Rigid Pavement in Open Country (LHS) & Anandpur Trust (RHS) shall be adopted in the following locations in open country –

Design Ch. (Km)		Length (Km)	Width of paved CW (m)	Roadway Width (m)	Reference TCS
From	To				
18.080	19.380	1.300	2*7.5 = 15.0	19.50	TCS-I (D) of Schedule-D
19.460	19.700	0.240			
Total Length		**1.540**			

TCS-I (E): Reconstruction & Widening (With Profile Raising) of Existing 2-Lane Flexible Pavement to 4-Lane Divided Carriageway with Rigid Pavement in Open Country (LHS) & Anandpur Trust (RHS)shall be adopted in the following locations in open country –

Design Ch. (Km)		Length (Km)	Width of paved CW (m)	Roadway Width (m)	Reference TCS
From	To				
19.380	19.460	0.080	2*7.5 = 15.0	19.50	TCS-I (E) of Schedule-D
Total Length		**0.080**			

TCS-II (A): Reconstruction & Widening of Existing 2-Lane (1x10.00m) Carriageway to 4-Lane Divided Carriageway with RCC Drain in Built-Ups shall be adopted in the following locations –

Design Ch. (Km)		Length (Km)	Width of paved CW (m)	Roadway Width (m)	Reference TCS
From	To				
14.175	14.800	0.625	2*7.5 = 15.0	varies 16.61 to 18.61	TCS-II (A) of Schedule-D
Total Length		**0.625**			

TCS-II (B): Reconstruction & Widening of Existing 4-Lane (2x7.00m) Carriageway to 4-Lane Divided Carriageway with RCC Drain in Built-Ups shall be adopted in the following locations –

Design Ch. (Km)		Length (Km)	Width of paved CW (m)	Roadway Width (m)	Reference TCS
From	To				
14.800	14.820	0.020	2*7.5 = 15.0	varies 16.61 to 18.61	TCS-II (B) of Schedule-D
14.900	15.230	0.330			
Total Length		**0.350**			

TCS-II (C): Reconstruction & Widening of Existing 2-Lane (1x7.00m) Carriageway to 4-Lane Divided Carriageway with RCC Drain in Built-Ups shall be adopted in the following locations –

Design Ch. (Km)		Length (Km)	Width of paved CW (m)	Roadway Width (m)	Reference TCS
From	To				
15.230	15.500	0.270	2*7.5 = 15.0	varies 16.61 to 18.61	TCS-II (C) of Schedule-D
Total Length		**0.270**			

TCS-II (D): Reconstruction & Widening of Existing Intermediate Lane Flexible Pavement to 2-Lane with Paved Shoulders Rigid Pavement Including Paver Block Floorings & RCC Drain in Built-Ups shall be adopted in the following locations –

Design Ch. (Km)		Length (Km)	Width of paved CW (m)	Roadway Width (m)	Reference TCS
From	To				
23.650	24.040	0.390	7.0 + 2*1.5 = 10.0	varies 11.0 to 13.0	TCS-II (D) of Schedule-D
24.950	25.040	0.090			
25.180	25.300	0.120			
30.880	30.980	0.100			
31.150	31.280	0.130			
31.380	31.520	0.140			
31.620	31.740	0.120			
31.820	31.900	0.080			
50.750	50.830	0.080			
50.920	51.180	0.260			
54.550	56.020	1.470			
58.725	58.740	0.015			
58.980	59.060	0.080			
59.120	59.800	0.680			
61.950	63.000	1.050			
68.800	69.680	0.880			
69.800	70.340	0.540			
70.480	70.650	0.170			
Total Length		**6.395**			

TCS-II (E): Reconstruction & Widening of Existing 2-Lane Flexible Pavement to 2-Lane with Paved Shoulders Rigid Pavement Including Paver Block Floorings & RCC Drain in Built-Ups shall be adopted in the following locations –

Design Ch. (Km)		Length (Km)	Width of paved CW (m)	Roadway Width (m)	Reference TCS
From	To				
21.400	21.900	0.500	7.0 + 2*1.5 = 10.0	varies 11.0 to 13.0	TCS-II (E) of Schedule-D
23.420	23.650	0.230			
56.300	56.620	0.320			
56.720	57.300	0.580			
Total Length		**1.630**			

TCS-II (F): Reconstruction & Widening of Existing Single Lane Flexible Pavement to 2-Lane with Paved Shoulders Rigid Pavement Including Paver Block Floorings & RCC Drain in Built-Ups shall be adopted in the following locations –

Design Ch. (Km)		Length (Km)	Width of paved CW (m)	Roadway Width (m)	Reference TCS
From	To				
57.300	57.680	0.380	7.0 + 2*1.5 = 10.0	varies 11.0 to 13.0	TCS-II (F) of Schedule-D
57.740	57.920	0.180			
58.100	58.520	0.420			
58.620	58.725	0.105			
Total Length		**1.085**			

TCS-II (G): Reconstruction & Widening (With Profile Raising) of Existing 4-Lane (2x7.00m) Carriageway to 4-Lane Divided Carriageway with RCC Drain in Built-Ups shall be adopted in the following locations –

Design Ch. (Km)		Length (Km)	Width of paved CW (m)	Roadway Width (m)	Reference TCS
From	To				
14.820	14.900	0.080	2*7.5 = 15.0	varies 16.61 to 18.61	TCS-II (G) of Schedule-D
Total Length		**0.080**			

M.P. ROAD DEVELOPMENT CORPORATION LTD. S.I.W. Arera Hills Bhopal (M.P.)

TCS-II (H): Reconstruction & Widening (With Profile Raising) of Existing Flexible Pavement to 2-Lane with Paved Shoulders Rigid Pavement Including Paver Block Floorings & RCC Drain in Built-Ups shall be adopted in the following locations –

Design Ch. (Km)		Length (Km)	Width of paved CW (m)	Roadway Width (m)	Reference TCS
From	To				
21.960	22.030	0.070	7.0 + 2*1.5 = 10.0	varies 11.0 to 13.0	TCS-II (H) of Schedule-D
23.350	23.420	0.070			
24.040	24.070	0.030			
25.040	25.180	0.140			
31.060	31.150	0.090			
31.280	31.380	0.100			
31.520	31.620	0.100			
50.700	50.750	0.050			
50.830	50.920	0.090			
58.740	58.840	0.100			
69.680	69.800	0.120			
70.340	70.480	0.140			
Total Length		**1.100**			

TCS-II (I): Reconstruction & Widening (With Profile Raising) of Existing Single Lane Flexible Pavement to 2-Lane with Paved Shoulders Rigid Pavement Including Paver Block Floorings & RCC Drain in Built-Ups shall be adopted in the following locations –

Design Ch. (Km)		Length (Km)	Width of paved CW (m)	Roadway Width (m)	Reference TCS
From	To				
57.920	58.100	0.180	7.0 + 2*1.5 = 10.0	varies 11.0 to 13.0	TCS-II (I) of Schedule-D
Total Length		**0.180**			

TCS-IV (B): Construction of 2-Lane with Paved Shoulders Rigid Pavement Including Paver Block Floorings & RCC Drain in Built-Ups (In Cutting) shall be adopted in the following locations –

Design Ch. (Km)		Length (Km)	Width of paved CW (m)	Roadway Width (m)	Reference TCS
From	To				
21.900	21.960	0.060	7.0 + 2*1.5 = 10.0	varies 11.0 to 13.0	TCS-IV (B) of Schedule-D
30.780	30.880	0.100			
30.980	31.060	0.080			
31.740	31.820	0.080			
56.020	56.100	0.080			
56.100	56.300	0.200			
56.620	56.720	0.100			
57.680	57.740	0.060			
58.520	58.620	0.100			
58.840	58.980	0.140			
59.060	59.120	0.060			
60.220	60.310	0.090			
66.400	66.650	0.250			
Total Length		**1.400**			

2. GEOMETRIC DESIGN AND GENERAL FEATURES

2.1 General

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

2.2 Design speed

The design speed shall be the minimum design speed of 80 Kmph for plain / rolling terrain.

However, at such locations where existing geometry cannot be improved to achieve the minimum design speed due to unavailability of RoW, the design speed shall be restricted. These locations are-

(a) In Plain & Rolling Terrain

HIP No.	HIP Chainage	Radius (m)	Speed kmph
1	0+026.588	200	40
2	2+023.443	200	50
3	4+923.087	150	50
4	6+908.667	70	30
5	8+084.027	360	70
6	9+275.004	250	60
7	10+148.784	250	60
8	12+487.343	250	60
9	14+191.910	30	20
10	14+843.676	23.5	20
11	15+053.698	250	60
12	15+159.839	200	50
13	15+297.860	200	50
14	15+434.617	150	40
15	15+654.120	200	50
16	15+779.602	150	50
17	16+023.758	150	40
18	16+193.766	150	40
19	17+300.802	150	40
20	17+718.958	500	60
21	17+816.619	100	30
22	19+571.108	200	50
23	20+426.649	170	50
24	20+516.468	400	50
25	21+971.094	250	60
26	22+436.103	250	60
27	23+022.798	360	70
28	23+123.261	200	50
29	23+596.628	250	60
30	23+722.565	200	50
31	23+832.434	200	50
32	23+949.975	170	40
33	24+062.108	150	50
34	24+146.668	100	30
35	24+261.738	400	50
36	24+425.523	170	40
37	24+559.847	360	70
38	25+122.014	100	40

M.P. ROAD DEVELOPMENT CORPORATION LTD. 45, Vindhyachal Arera Hills Bhopal (M.P.)

HIP No.	HIP Chainage	Radius (m)	Speed kmph
39	25+294.690	100	40
40	26+892.746	400	50
41	27+025.851	100	30
42	28+512.726	200	50
43	28+757.292	200	50
44	28+868.798	400	70
45	29+019.727	100	40
46	29+649.792	400	70
47	29+748.542	200	50
48	29+925.824	400	70
49	30+071.604	200	60
50	30+262.046	250	60
51	30+819.706	300	70
52	31+362.754	500	60
53	31+455.072	250	50
54	31+733.081	300	70
55	32+310.210	200	50
56	32+441.679	100	40
57	32+630.560	360	70
58	32+707.805	500	70
59	32+924.798	200	50
60	33+615.142	400	70
61	33+745.496	400	70
62	34+101.748	200	50
63	34+320.161	500	60
64	34+459.198	200	50
65	34+552.326	360	70
66	34+691.150	80	30
67	34+839.655	41	20
68	34+991.181	250	60
69	35+110.991	150	40
70	35+183.824	100	30
71	35+256.227	160	50
72	35+369.618	50	30
73	35+529.210	55	30
74	35+788.370	250	60
75	36+562.932	350	50
76	36+696.625	120	30
77	36+838.708	150	50
78	36+991.240	200	40
79	37+057.175	110	30
80	37+130.703	500	60
81	37+199.074	80	30
82	37+296.272	300	70
83	37+412.975	400	50
84	37+475.970	150	50
85	37+538.605	150	50
86	37+583.597	200	40
87	37+766.266	100	40
88	37+937.250	70	30
89	38+903.040	300	70
90	39+092.538	300	70

HIP No.	HIP Chainage	Radius (m)	Speed kmph
91	40+258.286	30	20
92	40+422.780	160	50
93	40+693.135	210	50
94	40+815.033	120	30
95	41+077.869	300	70
96	41+219.904	400	70
97	41+671.095	250	60
98	41+764.782	400	50
99	41+874.937	100	40
100	42+238.733	100	40
101	42+553.329	200	60
102	42+738.023	120	30
103	42+906.445	45	20
104	43+059.119	200	50
105	43+324.455	100	30
106	43+425.994	200	50
107	43+645.840	35	20
108	43+812.351	50	30
109	45+589.283	150	50
110	47+859.210	250	60
111	48+203.458	500	70
112	48+332.100	200	50
113	48+452.203	70	30
114	48+550.350	200	50
115	48+994.588	300	70
116	49+074.574	400	70
117	49+157.974	200	50
118	49+908.127	250	60
119	51+319.352	500	60
120	52+794.857	100	30
121	53+078.579	200	50
122	54+339.261	300	70
123	54+447.859	110	30
124	54+632.921	400	70
125	54+769.768	200	50
126	55+343.971	200	50
127	55+491.717	250	60
128	56+076.590	200	50
129	56+426.013	200	50
130	56+825.376	150	50
131	56+922.435	85	30
132	57+066.249	100	30
133	57+183.112	40	20
134	57+379.530	200	40
135	57+471.811	120	30
136	57+594.548	150	40
137	57+773.163	200	50
138	57+895.820	110	30
139	57+945.927	100	30
140	58+147.496	200	40
141	58+276.423	100	30
142	58+333.511	28	20

HIP No.	HIP Chainage	Radius (m)	Speed kmph
143	58+452.213	300	70
144	58+672.225	120	30
145	59+171.795	200	50
146	59+279.655	70	30
147	59+403.048	50	30
148	59+506.116	80	30
149	59+599.005	100	30
150	59+683.725	50	30
151	59+780.010	65	30
152	60+229.627	300	70
153	60+383.589	100	40
154	60+566.490	500	60
155	60+699.433	100	30
156	60+762.959	50	20
157	60+835.839	250	60
158	61+003.522	68	30
159	61+212.939	47.5	20
160	62+004.991	70	30
161	62+174.787	250	60
162	62+427.329	100	40
163	62+548.014	150	50
164	62+665.362	450	60
165	63+632.575	200	50
166	64+266.342	400	70
167	64+466.211	300	70
168	64+697.965	500	60
169	65+173.709	80	30
170	68+422.367	250	60
171	68+987.562	250	60
172	70+154.535	250	60

2.3 Improvement of the existing road geometrics: -

Improvement of the existing road geometrics shall be done in accordance with para 2.1 (v) of the Manual

The above table 2.ii.(a) shows that, improvement of the existing road geometrics to the prescribed standards is not possible at many locations due to unavailability of right of way. As such, the existing road geometrics shall be improved to the extent possible within the given right of way and proper road signs and safety measures shall be provided.

2.4 Right of Way

Details of the proposed Right of Way & date of providing ROW are as per Annex - II of Schedule-A.

2.5 Type of shoulders

Type of shoulders shall conform to paragraph 2.6 of the Manual. Details are as provided below-

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

Sl No	Design Ch. (From)	Design Ch. (To)	Length (Km)	Fully paved shoulders/ footpaths	Ref. TCS
1	14.175	14.800	0.625	0.5 to 1.5 m wide variable Paver Block Flooring on both sides	TCS-II (A) of Schedule D
2	14.800	14.820	0.020		TCS-II (B) of Schedule D
3	14.820	14.900	0.080		TCS-II (G) of Schedule D
4	14.900	15.230	0.330		TCS-II (B) of Schedule D
5	15.230	15.500	0.270		TCS-II (C) of Schedule D
6	18.080	19.380	1.300		TCS-I (D) of Schedule D
7	19.380	19.460	0.080		TCS-I (E) of Schedule D
8	19.460	19.700	0.240		TCS-I (D) of Schedule D
9	21.400	21.900	0.500	1.5m wide paved shoulders + 0.5 to 1.5 m wide variable Paver Block Floorings on both sides	TCS-II (E) of Schedule D
10	21.900	21.960	0.060		TCS-IV (B) of Schedule D
11	21.960	22.030	0.070		TCS-II (H) of Schedule D
12	23.350	23.420	0.070		TCS-II (H) of Schedule D
13	23.420	23.650	0.230		TCS-II (E) of Schedule D
14	23.650	24.040	0.390		TCS-II (D) of Schedule D
15	24.040	24.070	0.030		TCS-II (H) of Schedule D
16	24.950	25.040	0.090		TCS-II (D) of Schedule D
17	25.040	25.180	0.140		TCS-II (H) of Schedule D
18	25.180	25.300	0.120		TCS-II (D) of Schedule D
19	30.780	30.880	0.100		TCS-IV (B) of Schedule D
20	30.880	30.980	0.100		TCS-II (D) of Schedule D
21	30.980	31.060	0.080		TCS-IV (B) of Schedule D
22	31.060	31.150	0.090		TCS-II (H) of Schedule D
23	31.150	31.280	0.130		TCS-II (D) of Schedule D
24	31.280	31.380	0.100		TCS-II (H) of Schedule D
25	31.380	31.520	0.140		TCS-II (D) of Schedule D
26	31.520	31.620	0.100		TCS-II (H) of Schedule D
27	31.620	31.740	0.120		TCS-II (D) of Schedule D
28	31.740	31.820	0.080		TCS-IV (B) of Schedule D
29	31.820	31.900	0.080		TCS-II (D) of Schedule D
30	50.700	50.750	0.050		TCS-II (H) of Schedule D
31	50.750	50.830	0.080		TCS-II (D) of Schedule D
32	50.830	50.920	0.090		TCS-II (H) of Schedule D
33	50.920	51.180	0.260		TCS-II (D) of Schedule D
34	54.550	56.020	1.470		TCS-II (D) of Schedule D
35	56.020	56.100	0.080		TCS-IV (B) of Schedule D
36	56.100	56.300	0.200		TCS-IV (B) of Schedule D
37	56.300	56.620	0.320		TCS-II (E) of Schedule D
38	56.620	56.720	0.100		TCS-IV (B) of Schedule D
39	56.720	57.300	0.580		TCS-II (E) of Schedule D
40	57.300	57.680	0.380		TCS-II (F) of Schedule D
41	57.680	57.740	0.060		TCS-IV (B) of Schedule D
42	57.740	57.920	0.180		TCS-II (F) of Schedule D
43	57.920	58.100	0.180		TCS-II (I) of Schedule D
44	58.100	58.520	0.420		TCS-II (F) of Schedule D
45	58.520	58.620	0.100		TCS-IV (B) of Schedule D
46	58.620	58.725	0.105		TCS-II (F) of Schedule D
47	58.725	58.740	0.015		TCS-II (D) of Schedule D
48	58.740	58.840	0.100		TCS-II (H) of Schedule D
49	58.840	58.980	0.140		TCS-IV (B) of Schedule D
50	58.980	59.060	0.080		TCS-II (D) of Schedule D

Sl No	Design Ch. (From)	Design Ch. (To)	Length (Km)	Fully paved shoulders/ footpaths	Ref. TCS
51	59.060	59.120	0.060		TCS-IV (B) of Schedule D
52	59.120	59.800	0.680		TCS-II (D) of Schedule D
53	60.220	60.310	0.090		TCS-IV (B) of Schedule D
54	61.950	63.000	1.050		TCS-II (D) of Schedule D
55	66.400	66.650	0.250		TCS-IV (B) of Schedule D
56	68.800	69.680	0.880		TCS-II (D) of Schedule D
57	69.680	69.800	0.120		TCS-II (H) of Schedule D
58	69.800	70.340	0.540		TCS-II (D) of Schedule D
59	70.340	70.480	0.140		TCS-II (H) of Schedule D
60	70.480	70.650	0.170		TCS-II (D) of Schedule D

(a) In open country, **paved shoulders of 1.5 m width and hard shoulders of 1.0 m width on both sides** of the carriageway shall be provided as per **TCS-I (A), TCS-I (B), TCS-I (C) and TCS-IV (A), paved shoulders of 1.5 m width on both sides and PCC shoulders of 1.0 m width on valley side** of the carriageway shall be provided as per **TCS-III (A), TCS-III (B), TCS-III (D), TCS-III (E) and TCS-III (G) & paved shoulders of 1.5 m width on both sides and hard shoulders of 1.0 m width on LHS** of the carriageway shall be provided as per **TCS-III (C) and TCS-III (F)** of Schedule-D.

i. **Note:** Earthen shoulders shall conform to the requirements specified in the Manual and having soaked CBR not less than 12% as per instruction of Independent Engineer.

ii. Design and specifications of paved shoulders and granular materials shall confirm to the requirements specified in paragraphs 5.10 and 5.11 of the Manual.

2.6 Lateral and vertical clearances at underpasses: -

2.6.1 Lateral and vertical clearances at underpasses and provision of guardrails/ crash barriers shall be as per paragraphs 2.11 of the manual.

2.6.1 **Vehicular Underpass** shall be constructed at following locations: -

Sl. No.	Design Chainage	Location of Intersecting Roads	Proposed span arrangement (m)	Total width (m)	Remark
Nil					

2.7 Lateral and vertical clearances at overpasses: -

2.7.1 Lateral and vertical clearances at overpasses shall be as per paragraph 2.12 of the Manual.

2.7.2 **Overpass** shall be constructed at following locations: -

Sl. No.	Design Chainage	Location of Intersecting Roads	Proposed span arrangement (m)	Total width (m)	Remark
Nil					

2.8 Service and Slip roads: -

2.8.1 **Service/Slip roads** shall be constructed at the locations as indicated below:

Sr. No.	Design Chainage		Length (km)	Width (m)	Side	Remark
	From	To				
Nil						

Note: Slip roads shall be constructed at all VUP/Flyover/Overpass/PUP locations as per section 3 of Schedule "D" in all four quadrants. Length of slip road shall be provided as per site requirement in consultation with the Authority Engineer.At grade junction below VUP/Flyover/Overpass/PUP with slip road in all four quadrants shall be constructed as per the Manual.

2.9 Grade separated structures

2.9.1 Grade separated structures shall be constructed as per paragraph 2.14 of the Manual. The requisite slip roads of 7.5m width in all four quadrant with RE wall at shall be constructed particulars are given below:
At grade junction below Flyover/Grade separate structure with slip road in all four quadrants shall be constructed as per Fig. 3.12 of the Manual.

Sl. No.	Design Chainage	Location of Intersecting Roads	Proposed span arrangement		Total width of the structure	Remark
			Main Span (m)	Viaduct Span (m)		
Nil						

2.10 Cattle and pedestrian underpass /overpass: -

Cattle/ pedestrian underpasses and provision of guardrails/crash barriers shall be as per paragraph 2.11 of the Manual. Underpass shall be constructed at following locations:-

S. No.	Design Chainage (km)	Location	Proposed Span Arrangement (m)	Width of Structure in m	Remark
Nil					

2.11 Separator, Footpath and Drain in built-up Areas

[Refer to paragraphs 2.14 of the Manual].

RCC Covered Drain of 0.9 m overall width shall be provided at the edge of ROW at the following Built up locations-

Sl No	Design Ch. (From)	Design Ch. (To)	Net Length (Km)	Side	Total Length (Km)	Overall Width (m)	Ref TCS	Remarks
1	14.175	14.800	0.625	BHS	1.250	0.90	TCS-II (A)	Isagarh
2	14.800	14.820	0.020	BHS	0.040	0.90	TCS-II (B)	Isagarh
3	14.820	14.900	0.080	BHS	0.160	0.90	TCS-II (G)	Isagarh
4	14.900	15.230	0.330	BHS	0.660	0.90	TCS-II (B)	Isagarh
5	15.230	15.500	0.270	BHS	0.540	0.90	TCS-II (C)	Isagarh
6	18.080	19.380	1.300	BHS	2.600	0.90	TCS-I (D)	Anandpur Trust
7	19.380	19.460	0.080	BHS	0.160	0.90	TCS-I (E)	Anandpur Trust
8	19.460	19.700	0.240	BHS	0.480	0.90	TCS-I (D)	Anandpur Trust
9	21.400	21.900	0.500	BHS	1.000	0.90	TCS-II (E)	Dhakoni
10	21.900	21.960	0.060	BHS	0.120	0.90	TCS-IV (B)	Dhakoni
11	21.960	22.030	0.070	BHS	0.140	0.90	TCS-II (H)	Dhakoni
12	23.350	23.420	0.070	BHS	0.140	0.90	TCS-II (H)	Dhakoni
13	23.420	23.650	0.230	BHS	0.460	0.90	TCS-II (E)	Dhakoni

Sl No	Design Ch. (From)	Design Ch. (To)	Net Length (Km)	Side	Total Length (Km)	Overall Width (m)	Ref TCS	Remarks
14	23.650	24.040	0.390	BHS	0.780	0.90	TCS-II (D)	Dhakoni
15	24.040	24.070	0.030	BHS	0.060	0.90	TCS-II (H)	Dhakoni
16	24.950	25.040	0.090	BHS	0.180	0.90	TCS-II (D)	Narsu Khedi
17	25.040	25.180	0.140	BHS	0.280	0.90	TCS-II (H)	Narsu Khedi
18	25.180	25.300	0.120	BHS	0.240	0.90	TCS-II (D)	Narsu Khedi
19	30.780	30.880	0.100	BHS	0.200	0.90	TCS-IV (B)	Shankarpur
20	30.880	30.980	0.100	BHS	0.200	0.90	TCS-II (D)	Shankarpur
21	30.980	31.060	0.080	BHS	0.160	0.90	TCS-IV (B)	Shankarpur
22	31.060	31.150	0.090	BHS	0.180	0.90	TCS-II (H)	Shankarpur
23	31.150	31.280	0.130	BHS	0.260	0.90	TCS-II (D)	Shankarpur
24	31.280	31.380	0.100	BHS	0.200	0.90	TCS-II (H)	Shankarpur
25	31.380	31.520	0.140	BHS	0.280	0.90	TCS-II (D)	Shankarpur
26	31.520	31.620	0.100	BHS	0.200	0.90	TCS-II (H)	Shankarpur
27	31.620	31.740	0.120	BHS	0.240	0.90	TCS-II (D)	Shankarpur
28	31.740	31.820	0.080	BHS	0.160	0.90	TCS-IV (B)	Shankarpur
29	31.820	31.900	0.080	BHS	0.160	0.90	TCS-II (D)	Shankarpur
30	50.700	50.750	0.050	BHS	0.100	0.90	TCS-II (H)	Tagari
31	50.750	50.830	0.080	BHS	0.160	0.90	TCS-II (D)	Tagari
32	50.830	50.920	0.090	BHS	0.180	0.90	TCS-II (H)	Tagari
33	50.920	51.180	0.260	BHS	0.520	0.90	TCS-II (D)	Tagari
34	54.550	56.020	1.470	BHS	2.940	0.90	TCS-II (D)	Chanderi
35	56.020	56.100	0.080	BHS	0.160	0.90	TCS-IV (B)	Chanderi
36	56.100	56.300	0.200	BHS	0.400	0.90	TCS-IV (B)	Chanderi
37	56.300	56.620	0.320	BHS	0.640	0.90	TCS-II (E)	Chanderi
38	56.620	56.720	0.100	BHS	0.200	0.90	TCS-IV (B)	Chanderi
39	56.720	57.300	0.580	BHS	1.160	0.90	TCS-II (E)	Chanderi
40	57.300	57.680	0.380	BHS	0.760	0.90	TCS-II (F)	Chanderi
41	57.680	57.740	0.060	BHS	0.120	0.90	TCS-IV (B)	Chanderi
42	57.740	57.920	0.180	BHS	0.360	0.90	TCS-II (F)	Chanderi
43	57.920	58.100	0.180	BHS	0.360	0.90	TCS-II (I)	Chanderi
44	58.100	58.520	0.420	BHS	0.840	0.90	TCS-II (F)	Chanderi
45	58.520	58.620	0.100	BHS	0.200	0.90	TCS-IV (B)	Chanderi
46	58.620	58.725	0.105	BHS	0.210	0.90	TCS-II (F)	Chanderi
47	58.725	58.740	0.015	BHS	0.030	0.90	TCS-II (D)	Chanderi
48	58.740	58.840	0.100	BHS	0.200	0.90	TCS-II (H)	Chanderi
49	58.840	58.980	0.140	BHS	0.280	0.90	TCS-IV (B)	Chanderi
50	58.980	59.060	0.080	BHS	0.160	0.90	TCS-II (D)	Chanderi
51	59.060	59.120	0.060	BHS	0.120	0.90	TCS-IV (B)	Chanderi
52	59.120	59.800	0.680	BHS	1.360	0.90	TCS-II (D)	Chanderi
53	60.220	60.310	0.090	BHS	0.180	0.90	TCS-IV (B)	Chanderi
54	61.950	63.000	1.050	BHS	2.100	0.90	TCS-II (D)	Pranpur
55	66.400	66.650	0.250	BHS	0.500	0.90	TCS-IV (B)	Khairi
56	68.800	69.680	0.880	BHS	1.760	0.90	TCS-II (D)	Kunwarpur
57	69.680	69.800	0.120	BHS	0.240	0.90	TCS-II (H)	Kunwarpur
58	69.800	70.340	0.540	BHS	1.080	0.90	TCS-II (D)	Kunwarpur
59	70.340	70.480	0.140	BHS	0.280	0.90	TCS-II (H)	Kunwarpur
60	70.480	70.650	0.170	BHS	0.340	0.90	TCS-II (D)	Kunwarpur
Total Length					**29.470**			

2.12 Typical Cross Sections of the Project Highway: -

(A) The typical cross-sections schedule for the project section shall be as indicated below-

Sl No	Design Ch. (From)	Design Ch. (To)	Length (Km)	Ref. TCS
1	0.000	14.175	14.175	TCS-I (A) of Schedule D
2	14.175	14.800	0.625	TCS-II (A) of Schedule D
3	14.800	14.820	0.020	TCS-II (B) of Schedule D
4	14.820	14.900	0.080	TCS-II (G) of Schedule D
5	14.900	15.230	0.330	TCS-II (B) of Schedule D
6	15.230	15.500	0.270	TCS-II (C) of Schedule D
7	15.500	15.530	0.030	TCS-I (B) of Schedule D
8	15.530	15.740	0.210	TCS-IV (A) of Schedule D
9	15.740	16.000	0.260	TCS-I (B) of Schedule D
10	16.000	16.220	0.220	TCS-I (C) of Schedule D
11	16.220	16.330	0.110	TCS-I (B) of Schedule D
12	16.330	16.400	0.070	TCS-IV (A) of Schedule D
13	16.400	16.600	0.200	TCS-I (C) of Schedule D
14	16.600	16.660	0.060	TCS-IV (A) of Schedule D
15	16.660	17.080	0.420	TCS-I (B) of Schedule D
16	17.080	17.180	0.100	TCS-I (C) of Schedule D
17	17.180	17.400	0.220	TCS-I (B) of Schedule D
18	17.400	17.475	0.075	TCS-I (C) of Schedule D
19	17.475	17.540	0.065	TCS-IV (A) of Schedule D
20	17.540	17.600	0.060	TCS-I (B) of Schedule D
21	17.600	17.650	0.050	TCS-IV (A) of Schedule D
22	17.650	17.700	0.050	TCS-I (B) of Schedule D
23	17.700	17.760	0.060	TCS-IV (A) of Schedule D
24	17.760	17.960	0.200	TCS-I (B) of Schedule D
25	17.960	18.080	0.120	TCS-IV (A) of Schedule D
26	18.080	19.380	1.300	TCS-I (D) of Schedule D
27	19.380	19.460	0.080	TCS-I (E) of Schedule D
28	19.460	19.700	0.240	TCS-I (D) of Schedule D
29	19.700	20.260	0.560	TCS-I (B) of Schedule D
30	20.260	20.380	0.120	TCS-I (C) of Schedule D
31	20.380	20.640	0.260	TCS-I (B) of Schedule D
32	20.640	20.730	0.090	TCS-IV (A) of Schedule D
33	20.730	20.880	0.150	TCS-I (C) of Schedule D
34	20.880	21.000	0.120	TCS-I (B) of Schedule D
35	21.000	21.200	0.200	TCS-I (C) of Schedule D
36	21.200	21.400	0.200	TCS-I (B) of Schedule D
37	21.400	21.900	0.500	TCS-II (E) of Schedule D
38	21.900	21.960	0.060	TCS-IV (B) of Schedule D
39	21.960	22.030	0.070	TCS-II (H) of Schedule D
40	22.030	22.220	0.190	TCS-I (C) of Schedule D
41	22.220	22.640	0.420	TCS-I (B) of Schedule D
42	22.640	22.980	0.340	TCS-I (C) of Schedule D
43	22.980	23.040	0.060	TCS-I (B) of Schedule D
44	23.040	23.090	0.050	TCS-IV (A) of Schedule D
45	23.090	23.180	0.090	TCS-I (B) of Schedule D
46	23.180	23.290	0.110	TCS-IV (A) of Schedule D
47	23.290	23.350	0.060	TCS-I (C) of Schedule D
48	23.350	23.420	0.070	TCS-II (H) of Schedule D

M.P. ROAD DEVELOPMENT CORPORATION LTD. Arera Hills Bhopal (M.P.)

Sl No	Design Ch. (From)	Design Ch. (To)	Length (Km)	Ref. TCS
49	23.420	23.650	0.230	TCS-II (E) of Schedule D
50	23.650	24.040	0.390	TCS-II (D) of Schedule D
51	24.040	24.070	0.030	TCS-II (H) of Schedule D
52	24.070	24.120	0.050	TCS-III (D) of Schedule D
53	24.120	24.250	0.130	TCS-III (A) of Schedule D
54	24.250	24.560	0.310	TCS-I (A) of Schedule D
55	24.560	24.720	0.160	TCS-I (C) of Schedule D
56	24.720	24.950	0.230	TCS-IV (A) of Schedule D
57	24.950	25.040	0.090	TCS-II (D) of Schedule D
58	25.040	25.180	0.140	TCS-II (H) of Schedule D
59	25.180	25.300	0.120	TCS-II (D) of Schedule D
60	25.300	25.360	0.060	TCS-I (A) of Schedule D
61	25.360	26.500	1.140	TCS-IV (A) of Schedule D
62	26.500	26.660	0.160	TCS-I (C) of Schedule D
63	26.660	26.740	0.080	TCS-I (A) of Schedule D
64	26.740	26.900	0.160	TCS-IV (A) of Schedule D
65	26.900	27.120	0.220	TCS-I (A) of Schedule D
66	27.120	27.280	0.160	TCS-I (C) of Schedule D
67	27.280	27.720	0.440	TCS-I (A) of Schedule D
68	27.720	27.960	0.240	TCS-I (C) of Schedule D
69	27.960	28.220	0.260	TCS-I (A) of Schedule D
70	28.220	28.300	0.080	TCS-IV (A) of Schedule D
71	28.300	28.860	0.560	TCS-III (B) of Schedule D
72	28.860	29.180	0.320	TCS-IV (A) of Schedule D
73	29.180	29.250	0.070	TCS-III (B) of Schedule D
74	29.250	29.420	0.170	TCS-I (A) of Schedule D
75	29.420	29.520	0.100	TCS-IV (A) of Schedule D
76	29.520	29.580	0.060	TCS-III (B) of Schedule D
77	29.580	29.660	0.080	TCS-III (E) of Schedule D
78	29.660	29.750	0.090	TCS-III (B) of Schedule D
79	29.750	30.240	0.490	TCS-III (C) of Schedule D
80	30.240	30.440	0.200	TCS-III (F) of Schedule D
81	30.440	30.520	0.080	TCS-IV (A) of Schedule D
82	30.520	30.600	0.080	TCS-III (C) of Schedule D
83	30.600	30.680	0.080	TCS-I (A) of Schedule D
84	30.680	30.780	0.100	TCS-I (C) of Schedule D
85	30.780	30.880	0.100	TCS-IV (B) of Schedule D
86	30.880	30.980	0.100	TCS-II (D) of Schedule D
87	30.980	31.060	0.080	TCS-IV (B) of Schedule D
88	31.060	31.150	0.090	TCS-II (H) of Schedule D
89	31.150	31.280	0.130	TCS-II (D) of Schedule D
90	31.280	31.380	0.100	TCS-II (H) of Schedule D
91	31.380	31.520	0.140	TCS-II (D) of Schedule D
92	31.520	31.620	0.100	TCS-II (H) of Schedule D
93	31.620	31.740	0.120	TCS-II (D) of Schedule D
94	31.740	31.820	0.080	TCS-IV (B) of Schedule D
95	31.820	31.900	0.080	TCS-II (D) of Schedule D
96	31.900	31.980	0.080	TCS-III (B) of Schedule D
97	31.980	32.160	0.180	TCS-III (E) of Schedule D
98	32.160	32.350	0.190	TCS-III (B) of Schedule D
99	32.350	32.640	0.290	TCS-III (E) of Schedule D

Sl No	Design Ch. (From)	Design Ch. (To)	Length (Km)	Ref. TCS
100	32.640	32.730	0.090	TCS-IV (A) of Schedule D
101	32.730	32.800	0.070	TCS-III (C) of Schedule D
102	32.800	32.880	0.080	TCS-I (A) of Schedule D
103	32.880	32.990	0.110	TCS-I (C) of Schedule D
104	32.990	33.240	0.250	TCS-I (A) of Schedule D
105	33.240	33.360	0.120	TCS-I (C) of Schedule D
106	33.360	33.440	0.080	TCS-I (A) of Schedule D
107	33.440	33.560	0.120	TCS-I (C) of Schedule D
108	33.560	34.280	0.720	TCS-I (A) of Schedule D
109	34.280	34.450	0.170	TCS-IV (A) of Schedule D
110	34.450	34.500	0.050	TCS-I (C) of Schedule D
111	34.500	34.580	0.080	TCS-III (E) of Schedule D
112	34.580	34.660	0.080	TCS-IV (A) of Schedule D
113	34.660	34.720	0.060	TCS-III (E) of Schedule D
114	34.720	34.880	0.160	TCS-IV (A) of Schedule D
115	34.880	34.960	0.080	TCS-III (B) of Schedule D
116	34.960	35.160	0.200	TCS-IV (A) of Schedule D
117	35.160	35.280	0.120	TCS-III (E) of Schedule D
118	35.280	35.460	0.180	TCS-III (B) of Schedule D
119	35.460	35.500	0.040	TCS-III (A) of Schedule D
120	35.500	35.600	0.100	TCS-IV (A) of Schedule D
121	35.600	35.700	0.100	TCS-III (D) of Schedule D
122	35.700	36.020	0.320	TCS-IV (A) of Schedule D
123	36.020	36.100	0.080	TCS-III (D) of Schedule D
124	36.100	36.370	0.270	TCS-IV (A) of Schedule D
125	36.370	36.520	0.150	TCS-III (A) of Schedule D
126	36.520	36.640	0.120	TCS-IV (A) of Schedule D
127	36.640	36.810	0.170	TCS-III (D) of Schedule D
128	36.810	36.900	0.090	TCS-IV (A) of Schedule D
129	36.900	37.100	0.200	TCS-III (A) of Schedule D
130	37.100	37.220	0.120	TCS-IV (A) of Schedule D
131	37.220	37.520	0.300	TCS-III (A) of Schedule D
132	37.520	37.820	0.300	TCS-IV (A) of Schedule D
133	37.820	37.920	0.100	TCS-III (D) of Schedule D
134	37.920	37.980	0.060	TCS-I (C) of Schedule D
135	37.980	40.360	2.380	TCS-I (A) of Schedule D
136	40.360	40.440	0.080	TCS-IV (A) of Schedule D
137	40.440	40.600	0.160	TCS-III (B) of Schedule D
138	40.600	40.840	0.240	TCS-III (E) of Schedule D
139	40.840	40.950	0.110	TCS-III (B) of Schedule D
140	40.950	41.120	0.170	TCS-I (C) of Schedule D
141	41.120	41.300	0.180	TCS-I (A) of Schedule D
142	41.300	41.420	0.120	TCS-I (C) of Schedule D
143	41.420	41.750	0.330	TCS-I (A) of Schedule D
144	41.750	42.300	0.550	TCS-III (A) of Schedule D
145	42.300	42.720	0.420	TCS-III (B) of Schedule D
146	42.720	42.820	0.100	TCS-IV (A) of Schedule D
147	42.820	43.160	0.340	TCS-III (A) of Schedule D
148	43.160	43.740	0.580	TCS-I (A) of Schedule D
149	43.740	43.820	0.080	TCS-I (C) of Schedule D
150	43.820	43.940	0.120	TCS-IV (A) of Schedule D

Sl No	Design Ch. (From)	Design Ch. (To)	Length (Km)	Ref. TCS
151	43.940	45.040	1.100	TCS-I (A) of Schedule D
152	45.040	45.220	0.180	TCS-I (C) of Schedule D
153	45.220	45.380	0.160	TCS-I (A) of Schedule D
154	45.380	45.540	0.160	TCS-I (C) of Schedule D
155	45.540	45.680	0.140	TCS-IV (A) of Schedule D
156	45.680	45.800	0.120	TCS-I (A) of Schedule D
157	45.800	45.860	0.060	TCS-III (A) of Schedule D
158	45.860	45.940	0.080	TCS-III (D) of Schedule D
159	45.940	46.100	0.160	TCS-III (A) of Schedule D
160	46.100	46.490	0.390	TCS-III (D) of Schedule D
161	46.490	46.560	0.070	TCS-IV (A) of Schedule D
162	46.560	46.720	0.160	TCS-III (D) of Schedule D
163	46.720	47.360	0.640	TCS-III (A) of Schedule D
164	47.360	47.470	0.110	TCS-IV (A) of Schedule D
165	47.470	47.720	0.250	TCS-III (A) of Schedule D
166	47.720	47.840	0.120	TCS-IV (A) of Schedule D
167	47.840	48.020	0.180	TCS-III (D) of Schedule D
168	48.020	48.300	0.280	TCS-III (A) of Schedule D
169	48.300	48.460	0.160	TCS-IV (A) of Schedule D
170	48.460	48.620	0.160	TCS-III (D) of Schedule D
171	48.620	48.860	0.240	TCS-III (A) of Schedule D
172	48.860	48.980	0.120	TCS-IV (A) of Schedule D
173	48.980	49.000	0.020	TCS-III (A) of Schedule D
174	49.000	49.100	0.100	TCS-III (D) of Schedule D
175	49.100	49.200	0.100	TCS-III (A) of Schedule D
176	49.200	49.280	0.080	TCS-III (D) of Schedule D
177	49.280	49.820	0.540	TCS-III (A) of Schedule D
178	49.820	50.150	0.330	TCS-IV (A) of Schedule D
179	50.150	50.200	0.050	TCS-IV (A) of Schedule D
180	50.200	50.320	0.120	TCS-III (D) of Schedule D
181	50.320	50.380	0.060	TCS-III (D) of Schedule D
182	50.380	50.420	0.040	TCS-IV (A) of Schedule D
183	50.420	50.490	0.070	TCS-I (C) of Schedule D
184	50.490	50.560	0.070	TCS-IV (A) of Schedule D
185	50.560	50.650	0.090	TCS-I (A) of Schedule D
186	50.650	50.700	0.050	TCS-I (C) of Schedule D
187	50.700	50.750	0.050	TCS-II (H) of Schedule D
188	50.750	50.830	0.080	TCS-II (D) of Schedule D
189	50.830	50.920	0.090	TCS-II (H) of Schedule D
190	50.920	51.180	0.260	TCS-II (D) of Schedule D
191	51.180	51.460	0.280	TCS-I (C) of Schedule D
192	51.460	51.560	0.100	TCS-IV (A) of Schedule D
193	51.560	51.900	0.340	TCS-I (A) of Schedule D
194	51.900	52.000	0.100	TCS-I (C) of Schedule D
195	52.000	52.150	0.150	TCS-IV (A) of Schedule D
196	52.150	52.330	0.180	TCS-I (C) of Schedule D
197	52.330	52.480	0.150	TCS-IV (A) of Schedule D
198	52.480	54.260	1.780	TCS-I (A) of Schedule D
199	54.260	54.380	0.120	TCS-IV (A) of Schedule D
200	54.380	54.550	0.170	TCS-I (A) of Schedule D
201	54.550	56.020	1.470	TCS-II (D) of Schedule D

Sl No	Design Ch. (From)	Design Ch. (To)	Length (Km)	Ref. TCS
202	56.020	56.100	0.080	TCS-IV (B) of Schedule D
203	56.100	56.300	0.200	TCS-IV (B) of Schedule D
204	56.300	56.620	0.320	TCS-II (E) of Schedule D
205	56.620	56.720	0.100	TCS-IV (B) of Schedule D
206	56.720	57.300	0.580	TCS-II (E) of Schedule D
207	57.300	57.680	0.380	TCS-II (F) of Schedule D
208	57.680	57.740	0.060	TCS-IV (B) of Schedule D
209	57.740	57.920	0.180	TCS-II (F) of Schedule D
210	57.920	58.100	0.180	TCS-II (I) of Schedule D
211	58.100	58.520	0.420	TCS-II (F) of Schedule D
212	58.520	58.620	0.100	TCS-IV (B) of Schedule D
213	58.620	58.725	0.105	TCS-II (F) of Schedule D
214	58.725	58.740	0.015	TCS-II (D) of Schedule D
215	58.740	58.840	0.100	TCS-II (H) of Schedule D
216	58.840	58.980	0.140	TCS-IV (B) of Schedule D
217	58.980	59.060	0.080	TCS-II (D) of Schedule D
218	59.060	59.120	0.060	TCS-IV (B) of Schedule D
219	59.120	59.800	0.680	TCS-II (D) of Schedule D
220	59.800	60.220	0.420	TCS-III (G) of Schedule D
221	60.220	60.310	0.090	TCS-IV (B) of Schedule D
222	60.310	60.480	0.170	TCS-III (E) of Schedule D
223	60.480	60.600	0.120	TCS-IV (A) of Schedule D
224	60.600	60.720	0.120	TCS-III (E) of Schedule D
225	60.720	60.840	0.120	TCS-III (B) of Schedule D
226	60.840	61.300	0.460	TCS-III (E) of Schedule D
227	61.300	61.540	0.240	TCS-I (A) of Schedule D
228	61.540	61.680	0.140	TCS-IV (A) of Schedule D
229	61.680	61.950	0.270	TCS-I (A) of Schedule D
230	61.950	63.000	1.050	TCS-II (D) of Schedule D
231	63.000	63.620	0.620	TCS-I (A) of Schedule D
232	63.620	63.740	0.120	TCS-I (C) of Schedule D
233	63.740	63.980	0.240	TCS-I (A) of Schedule D
234	63.980	64.200	0.220	TCS-I (C) of Schedule D
235	64.200	66.400	2.200	TCS-I (A) of Schedule D
236	66.400	66.650	0.250	TCS-IV (B) of Schedule D
237	66.650	66.820	0.170	TCS-I (A) of Schedule D
238	66.820	66.960	0.140	TCS-I (C) of Schedule D
239	66.960	68.140	1.180	TCS-I (A) of Schedule D
240	68.140	68.300	0.160	TCS-IV (A) of Schedule D
241	68.300	68.800	0.500	TCS-I (A) of Schedule D
242	68.800	69.680	0.880	TCS-II (D) of Schedule D
243	69.680	69.800	0.120	TCS-II (H) of Schedule D
244	69.800	70.340	0.540	TCS-II (D) of Schedule D
245	70.340	70.480	0.140	TCS-II (H) of Schedule D
246	70.480	70.650	0.170	TCS-II (D) of Schedule D
247	70.650	70.720	0.070	TCS-I (A) of Schedule D
248	70.720	70.830	0.110	TCS-IV (A) of Schedule D
249	70.830	71.000	0.170	TCS-I (C) of Schedule D
250	71.000	71.160	0.160	TCS-I (A) of Schedule D
251	71.160	71.280	0.120	TCS-I (C) of Schedule D
252	71.280	71.940	0.660	TCS-I (A) of Schedule D

Sl No	Design Ch. (From)	Design Ch. (To)	Length (Km)	Ref. TCS
253	71.940	72.180	0.240	TCS-I (C) of Schedule D
254	72.180	72.480	0.300	TCS-I (A) of Schedule D
255	72.480	72.680	0.200	TCS-I (C) of Schedule D
256	72.680	72.955	0.275	TCS-IV (A) of Schedule D
Total Length			**72.955**	

(B) Summary of length, description & proposed dimensions of each of the proposed typical cross-sections for the project section shall be as indicated below-

Sl No	Ref. TCS	Length (Km)	Description	Proposed Width
1	TCS-I (A)	30.765	Reconstruction & Widening of Existing Intermediate Lane Flexible Pavement to 2-Lane Carriageway with Paved Shoulders Flexible Pavement in Open Country	1 X 7.00 + 2 X 1.50 + 2 x 1.00 = 12.00
2	TCS-I (B)	3.060	Reconstruction & Widening of Existing 2-Lane Flexible Pavement to 2-Lane Carriageway with Paved Shoulders Flexible Pavement in Open Country	1 X 7.00 + 2 X 1.50 + 2 x 1.00 = 12.00
3	TCS-I (C)	5.535	Reconstruction & Widening (With Profile Raising) Of Existing Flexible Pavement to 2-Lane Carriageway with Paved Shoulders Flexible Pavement in Open Country	1 X 7.00 + 2 X 1.50 + 2 x 1.00 = 12.00
4	TCS-I (D)	1.540	Reconstruction & Widening of Existing 2-Lane Flexible Pavement to 4-Lane Divided Carriageway with Rigid Pavement in Open Country (LHS) & Anandpur Trust (RHS)	2 X 7.50 (incl. Kerb Shyness) + 1 X 1.50 (median) + 2 X 1.50 = 19.50
5	TCS-I (E)	0.080	Reconstruction & Widening (With Profile Raising) of Existing 2-Lane Flexible Pavement to 4-Lane Divided Carriageway with Rigid Pavement in Open Country (LHS) & Anandpur Trust (RHS)	2 X 7.50 (incl. Kerb Shyness) + 1 X 1.50 (median) + 2 X 1.50 = 19.50
6	TCS-II (A)	0.625	Reconstruction & Widening of Existing 2-Lane (1x10.00m) Carriageway to 4-Lane Divided Carriageway with RCC Drain in Built-Ups	2 X 7.50 (incl. Kerb Shyness) + 1 X 0.61 (median) + varies (2 x 0.50 to 1.50) = varies 16.61 to 18.61
7	TCS-II (B)	0.350	Reconstruction & Widening of Existing 4-Lane (2x7.00m) Carriageway to 4-Lane Divided Carriageway with RCC Drain in Built-Ups	2 X 7.50 (incl. Kerb Shyness) + 1 X 0.61 (median) + varies (2 x 0.50 to 1.50) = varies 16.61 to 18.61
8	TCS-II (C)	0.270	Reconstruction & Widening of Existing 2-Lane (1x7.00m) Carriageway to 4-Lane Divided Carriageway with RCC Drain in Built-Ups	2 X 7.50 (incl. Kerb Shyness) + 1 X 0.61 (median) + varies (2 x 0.50 to 1.50) = varies 16.61 to 18.61
9	TCS-II (D)	6.395	Reconstruction & Widening of Existing Intermediate Lane Flexible Pavement to 2-Lane with Paved Shoulders Rigid Pavement Including Paver Block Floorings & RCC Drain in Built-Ups	1 X 7.00 + 2 X 1.50 + varies (2 x 0.50 to 1.50) = varies 11.00 to 13.00

Sl No	Ref. TCS	Length (Km)	Description	Proposed Width
10	TCS-II (E)	1.630	Reconstruction & Widening of Existing 2-Lane Flexible Pavement to 2-Lane with Paved Shoulders Rigid Pavement Including Paver Block Floorings & RCC Drain in Built-Ups	1 X 7.00 + 2 X 1.50 + varies (2 x 0.50 to 1.50) = varies 11.00 to 13.00
11	TCS-II (F)	1.085	Reconstruction & Widening of Existing Single Lane Flexible Pavement to 2-Lane with Paved Shoulders Rigid Pavement Including Paver Block Floorings & RCC Drain in Built-Ups	1 X 7.00 + 2 X 1.50 + varies (2 x 0.50 to 1.50) = varies 11.00 to 13.00
12	TCS-II (G)	0.080	Reconstruction & Widening (With Profile Raising) of Existing 4-Lane (2x7.00m) Carriageway to 4-Lane Divided Carriageway with RCC Drain in Built-Ups	2 X 7.50 (incl. Kerb Shyness) + 1 X 0.61 (median) + varies (2 x 0.50 to 1.50) = varies 16.61 to 18.61
13	TCS-II (H)	1.100	Reconstruction & Widening (With Profile Raising) of Existing Flexible Pavement to 2-Lane with Paved Shoulders Rigid Pavement Including Paver Block Floorings & RCC Drain in Built-Ups	1 X 7.00 + 2 X 1.50 + varies (2 x 0.50 to 1.50) = varies 11.00 to 13.00
14	TCS-II (I)	0.180	Reconstruction & Widening (With Profile Raising) of Existing Single Lane Flexible Pavement to 2-Lane with Paved Shoulders Rigid Pavement Including Paver Block Floorings & RCC Drain in Built-Ups	1 X 7.00 + 2 X 1.50 + varies (2 x 0.50 to 1.50) = varies 11.00 to 13.00
15	TCS-III (A)	4.000	Reconstruction of Existing Intermediate Lane Carriageway to 2-Lane Carriageway with Paved Shoulders Flexible Pavement in Ghat Sections (LHS-Hill & RHS-Valley)	1 X 7.00 + 2 X 1.50 + 2 x 1.00 = 12.00
16	TCS-III (B)	2.120	Reconstruction of Existing Intermediate Lane Carriageway to 2-Lane Carriageway with Paved Shoulders Flexible Pavement in Ghat Sections (RHS-Hill & LHS-Valley)	1 X 7.00 + 2 X 1.50 + 1 x 1.00 = 11.00
17	TCS-III (C)	0.640	Reconstruction of Existing Intermediate Lane Carriageway to 2-Lane Carriageway with Paved Shoulders Flexible Pavement in Ghat Sections (RHS-Hill)	1 X 7.00 + 2 X 1.50 + 1 x 1.00 = 11.00
18	TCS-III (D)	1.830	Reconstruction (With Profile Raising) of Existing Intermediate Lane Carriageway to 2-Lane Carriageway with Paved Shoulders Flexible Pavement in Ghat Sections (LHS-Hill & RHS-Valley)	1 X 7.00 + 2 X 1.50 + 1 x 1.00 = 11.00
19	TCS-III (E)	1.800	Reconstruction (With Profile Raising) of Existing Intermediate Lane Carriageway to 2-Lane Carriageway with Paved Shoulders Flexible Pavement in Ghat Sections (RHS-Hill & LHS-Valley)	1 X 7.00 + 2 X 1.50 + 1 x 1.00 = 11.00
20	TCS-III (F)	0.200	Reconstruction (With Profile Raising) of Existing Intermediate Lane Carriageway to 2-Lane Carriageway with Paved Shoulders Flexible Pavement in Ghat Sections (RHS-Hill)	1 X 7.00 + 2 X 1.50 + 1 x 1.00 = 11.00
21	TCS-III (G)	0.420	Reconstruction of Existing Intermediate Lane Carriageway to 2-Lane Carriageway with Paved Shoulders Rigid Pavement in Ghat	1 X 7.00 + 2 X 1.50 + 1 x 1.00 = 11.00

Sl No	Ref. TCS	Length (Km)	Description	Proposed Width
			Sections (RHS-Hill & LHS-Valley)	
22	TCS-IV (A)	7.850	Construction of 2-Lane with Paved Shoulders Flexible Pavement in Open Country (In Cutting)	1 X 7.00 + 2 X 1.50 + 2 x 1.00 = 12.00
23	TCS-IV (B)	1.400	Construction of 2-Lane with Paved Shoulders Rigid Pavement Including Paver Block Floorings & RCC Drain in Built-Ups (In Cutting)	1 X 7.00 + 2 X 1.50 + varies (2 x 0.50 to 1.50) = varies 11.00 to 13.00
Total Length		**72.955**		

3. INTERSECTIONS AND GRADE SEPARATORS

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

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

(a) At-grade intersections

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

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

1. Major Junctions

Sr. No	Design Ch. (Km)	Type of Junction	Link	C/W (m)	Category of Cross Road	Type of Improvement
1	6.120	+	LHS-Chhikari & RHS-Jagra Muhal	3.75	MDR	To be developed within ROW
2	14.200	Y	RHS- Ashok Nagar	7	SH-9	Located in congested built-up section. To be developed within ROW
3	14.850	Y	LHS- Isagarh Town	2 X 7.0	MDR	Located in congested built-up section. To be developed within ROW
4	23.875	T	RHS- Vijaypura	5.5	MDR	Located in congested built-up section. To be developed within ROW
5	42.975	T	RHS- Thubon	7	MDR	To be developed within ROW
6	56.050	Y	RHS- Mungaoli	7	NH-346	Located in congested built-up section. To be developed within ROW
7	56.775	T	LHS- Pichhore	7	SH-1	Located in congested built-up section. To be developed within ROW

2. Minor Junctions

Sr. No	Design Ch. (Km)	Type of Junction	Link	C/W (m)	Category of Cross Road	Type of Improvement
1	0.000	Y	RHS-Toriya	3.75	VR	To be developed within ROW
2	2.750	T	RHS- Parsol	3.75	VR	To be developed within ROW
3	2.760	T	LHS- Sirni	3.75	VR	To be developed within ROW
4	5.435	T	RHS-Jagra Muhal	3.75	VR	To be developed within ROW
5	5.490	T	LHS - Earthen Road	3.75	VR	To be developed within ROW
6	6.485	Y	LHS- Chhapra	3.75	VR	To be developed within ROW
7	8.640	T	LHS- Theka	3.75	VR	To be developed within ROW
8	9.765	+	LHS - Mahuwan & RHS- Koharwas	3.75	VR	To be developed within ROW
9	11.185	T	LHS- VR	3.75	VR	To be developed within ROW
10	11.537	Y	RHS -Koharwas	3.75	VR	To be developed within ROW
11	11.625	T	LHS- VR	3.75	VR	To be developed within ROW
12	12.465	Y	RHS- Koharwas BT	3.75	VR	To be developed within ROW
13	13.250	Y	LHS- Isagarh	3.75	VR	To be developed within ROW
14	16.650	T	RHS- Isagarh	5.5	VR	To be developed within ROW
15	17.540	T	RHS- Aklon	3.75	VR	To be developed within ROW
16	18.265	T	LHS- Anandpur	5.5	VR	To be developed within ROW
17	18.885	Y	LHS- Kabiri urf Ramnagar	5.5	VR	To be developed within ROW
18	19.590	T	RHS- Naithai	10	VR	To be developed within ROW
19	24.190	Y	RHS- Amrod	3.75	VR	To be developed within ROW
20	25.000	T	RHS- Shyama Tori	3.75	VR	To be developed within ROW
21	26.275	T	LHS- Kabiri urf Ramnagar	3.75	VR	To be developed within ROW
22	27.650	T	LHS- Narsu Khedi (Er)	3.75	VR	To be developed within ROW
23	28.765	T	LHS- Kali Tor	3.75	VR	To be developed within ROW
24	29.620	T	LHS- Kali Tor	3.75	VR	To be developed within ROW
25	32.750	T	LHS- Sarjapur	3.75	VR	To be developed within ROW
26	40.250	Y	LHS- Mamon	3.75	VR	To be developed within ROW
27	42.750	T	RHS- Piprod	3.75	VR	To be developed within ROW
28	43.650	Y	LHS- Bhandari	3.75	VR	To be developed within ROW
29	46.550	T	RHS- Gora Seharai	3.75	VR	To be developed within ROW
30	48.050	Y	RHS- Gora Seharai	3.75	VR	To be developed within ROW
31	50.435	T	RHS- Halanpur	3.75	VR	To be developed within ROW
32	50.920	T	LHS- Bankalpur	3.75	VR	To be developed within ROW
33	57.175	Y	RHS- Ramnagar	3.75	VR	To be developed within ROW
34	58.650	Y	LHS - Pichhore	7	VR	To be developed within ROW
35	59.450	Y	RHS- Kila Kothi	3	VR	To be developed within ROW
36	62.840	T	RHS- Khanpur	3.75	VR	To be developed within ROW
37	62.930	Y	LHS- Rajghat Road	5.5	VR	To be developed within ROW
38	65.200	T	LHS- Nanakpur	3.75	VR	To be developed within ROW
39	66.470	T	LHS- Kunwarpur	3.75	VR	To be developed within ROW
40	70.450	Y	LHS- Churari	7	VR	To be developed within ROW

Note:

- It is clarified that if any deficient junction with cross BT/CC roads is identified during

development period the same shall be improved as per standard set forth in Schedule 'D'. Any increase in no of junction specified in the clause of schedule B shall not constitute a change of scope. If the concessioner does not provide the above specified number this shall be treated as negative change of scope.

- The cross road junction shall be regarded to attain similar gradient or up to minimum length 150m, whichever is more & repaved by existing paved material.
- For cross road drainage facility new HP culverts on cross roads shall be constructed as per provisions of the Manual
- Rumble Strips: -The cross road in junctions as mentioned above shall be provided with Rumble strips at the approach of junctions as per IRC: 99.

4. ROAD EMBANKMENT AND CUT SECTION

4.1 Reconstruction and widened 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.

5. PAVEMENT DESIGN

5.1 Pavement design shall be carried out in accordance with Section 5 of the Manual, IRC 58, IRC 37, IRC 81, IRC-SP-76, Section-500 & 600 of MoRT&H Specifications for Road & Bridge Works (5th Revision, 2013), IRC relevant codes and international standards.

5.2 **Type of pavement**

[Refer to paragraph 5.2 of the Manual]

a) **Rigid Pavement** – Rigid pavement shall be constructed in total 14.735 Km length as per TCS-I (D), TCS-I (E), TCS-II, TCS-III (G) & TCS-IV (B) of Schedule-D in built-ups.

b) **Flexible Pavement** – Flexible pavement shall be constructed in total 58.220 Km length as per TCS-I (A), TCS-I (B), TCS-I (C), TCS-III (A), TCS-III (B), TCS-III (C), TCS-III (D), TCS-III (E), TCS-III (F) & TCS-IV (A) of Schedule-D in open country.

5.3 **Design requirements**

[Refer to paragraph 5.4, 5.9, 5.10 and 5.11 of the Manual]

Design of Flexible Pavement shall be done as per IRC: 37-2018, Section 5 of the Manual and Section-500 of MoRT&H Specifications for Road & Bridge Works (5th Revision, 2013). Design of Rigid Pavement shall be done as per IRC-58-2015 & section Section-600 of MoRT&H Specifications for Road & Bridge Works (5th Revision, 2013). Design of Conventional White Toppings shall be as per IRC-SP-76-2015.

Pavement Design shall also be carried out in accordance with MPPWD, GoMP letter no. 1946/2664/2022/19/yo dated 26.05.2022 & ministry circular RW/NH-33044/01/2019-S&R (P&B) dated 26rd September 2023 regarding use of Fly-ash in road/flyover embankment construction on NH works.

(a) Design Period and strategy

Flexible pavement shall be designed for a minimum design period of **20 (Twenty) years**. Minimum crust as indicated in typical cross section has to be provided.

Rigid pavement shall be designed for a minimum design period of **30 (Thirty) years**. Minimum crust as indicated in typical cross section has to be provided.

(b) Design Traffic

Notwithstanding anything to the contrary contained in this Agreement or the Manual, the Contractor shall design the pavement for a -

Design traffic of 469 CVPD (minimum) at traffic opening year and **20.0 MSA (minimum)**

The pavement shall be designed for a **minimum effective CBR of 8%.** Minimum pavement composition should be adopted for new pavement shall be as below:-

(I) Flexible Pavement

i. **New Construction/ Reconstruction Section**

BC	:	30 mm
DBM	:	90 mm
WMM	:	250 mm
GSB	:	200 mm

(II) Rigid Pavement

PQC	:	300mm (PQC M-40)
DLC	:	150mm
GSB	:	150mm

(III) Crust for Paver Block Floorings–

Precast interlocking Concrete Paver Blocks (with M-40 grade of concrete) of 80 mm thick shall be provided on both sides of the carriageway in TCS-I (D), TCS-I (E), TCS-II & TCS-IV (B) of Schedule-D in the project highway. Providing and laying factory made colored chamfered edge Cement Concrete paver blocks of required strength, thickness and size/shape, made by table vibratory method using PU mould, laid in required color and pattern over 50mm thick compacted bed of stone dust, compacting and proper embedding/laying of interlocking paver blocks into the bedding layer through vibratory compaction by using plate vibrator, filling the joints with sand and cutting of paver blocks as per required size and pattern, finishing and sweeping extra sand including locking edges with M 15 cement concrete in footpath, light traffic parking etc. complete as Per direction of Engineer-in-Charge.

For TCS-I (D), TCS-I (E), TCS-II & TCS-IV (B)

Precast Interlocking CC Paver Blocks : 80mm (M-40) over 50mm thick compacted bed of stone dust

WMM : 320 mm (250mm +70 mm to match PQC Level)

5.4 **Reconstruction of stretches**

The following stretches of the existing road shall be reconstructed in accordance with

paragraph 5.9.6 of the Manual. The existing carriageway shall be scarified and fresh pavement starting from sub-base or subgrade level shall be laid laying considering minimum proposed FRL specified in alignment plan and profile drawings.

Sl No	Design Ch. (From)	Design Ch. (To)	Length (Km)	Ref. TCS
1	0.000	14.175	14.175	TCS-I (A) of Schedule D
2	14.175	14.800	0.625	TCS-II (A) of Schedule D
3	14.800	14.820	0.020	TCS-II (B) of Schedule D
4	14.820	14.900	0.080	TCS-II (G) of Schedule D
5	14.900	15.230	0.330	TCS-II (B) of Schedule D
6	15.230	15.500	0.270	TCS-II (C) of Schedule D
7	15.500	15.530	0.030	TCS-I (B) of Schedule D
8	15.530	15.740	0.210	TCS-IV (A) of Schedule D
9	15.740	16.000	0.260	TCS-I (B) of Schedule D
10	16.000	16.220	0.220	TCS-I (C) of Schedule D
11	16.220	16.330	0.110	TCS-I (B) of Schedule D
12	16.330	16.400	0.070	TCS-IV (A) of Schedule D
13	16.400	16.600	0.200	TCS-I (C) of Schedule D
14	16.600	16.660	0.060	TCS-IV (A) of Schedule D
15	16.660	17.080	0.420	TCS-I (B) of Schedule D
16	17.080	17.180	0.100	TCS-I (C) of Schedule D
17	17.180	17.400	0.220	TCS-I (B) of Schedule D
18	17.400	17.475	0.075	TCS-I (C) of Schedule D
19	17.475	17.540	0.065	TCS-IV (A) of Schedule D
20	17.540	17.600	0.060	TCS-I (B) of Schedule D
21	17.600	17.650	0.050	TCS-IV (A) of Schedule D
22	17.650	17.700	0.050	TCS-I (B) of Schedule D
23	17.700	17.760	0.060	TCS-IV (A) of Schedule D
24	17.760	17.960	0.200	TCS-I (B) of Schedule D
25	17.960	18.080	0.120	TCS-IV (A) of Schedule D
26	18.080	19.380	1.300	TCS-I (B) of Schedule D
27	19.380	19.460	0.080	TCS-I (D) of Schedule D
28	19.460	19.700	0.240	TCS-I (E) of Schedule D
29	19.700	20.260	0.560	TCS-I (D) of Schedule D
30	20.260	20.380	0.120	TCS-I (B) of Schedule D
31	20.380	20.640	0.260	TCS-I (C) of Schedule D
32	20.640	20.730	0.090	TCS-I (B) of Schedule D
33	20.730	20.880	0.150	TCS-IV (A) of Schedule D
34	20.880	21.000	0.120	TCS-I (C) of Schedule D
35	21.000	21.200	0.200	TCS-I (B) of Schedule D
36	21.200	21.400	0.200	TCS-I (C) of Schedule D
37	21.400	21.900	0.500	TCS-I (B) of Schedule D
38	21.900	21.960	0.060	TCS-II (E) of Schedule D
39	21.960	22.030	0.070	TCS-IV (B) of Schedule D
40	22.030	22.220	0.190	TCS-II (H) of Schedule D
41	22.220	22.640	0.420	TCS-I (C) of Schedule D
42	22.640	22.980	0.340	TCS-I (B) of Schedule D
43	22.980	23.040	0.060	TCS-I (C) of Schedule D
44	23.040	23.090	0.050	TCS-I (B) of Schedule D
45	23.090	23.180	0.090	TCS-IV (A) of Schedule D
46	23.180	23.290	0.110	TCS-I (B) of Schedule D
47	23.290	23.350	0.060	TCS-IV (A) of Schedule D

Sl No	Design Ch. (From)	Design Ch. (To)	Length (Km)	Ref. TCS
48	23.350	23.420	0.070	TCS-I (C) of Schedule D
49	23.420	23.650	0.230	TCS-I (B) of Schedule D
50	23.650	24.040	0.390	TCS-II (D) of Schedule D
51	24.040	24.070	0.030	TCS-II (H) of Schedule D
52	24.070	24.120	0.050	TCS-III (D) of Schedule D
53	24.120	24.250	0.130	TCS-III (A) of Schedule D
54	24.250	24.560	0.310	TCS-I (A) of Schedule D
55	24.560	24.720	0.160	TCS-I (C) of Schedule D
56	24.720	24.950	0.230	TCS-IV (A) of Schedule D
57	24.950	25.040	0.090	TCS-II (D) of Schedule D
58	25.040	25.180	0.140	TCS-II (H) of Schedule D
59	25.180	25.300	0.120	TCS-II (D) of Schedule D
60	25.300	25.360	0.060	TCS-I (A) of Schedule D
61	25.360	26.500	1.140	TCS-IV (A) of Schedule D
62	26.500	26.660	0.160	TCS-I (C) of Schedule D
63	26.660	26.740	0.080	TCS-I (A) of Schedule D
64	26.740	26.900	0.160	TCS-IV (A) of Schedule D
65	26.900	27.120	0.220	TCS-I (A) of Schedule D
66	27.120	27.280	0.160	TCS-I (C) of Schedule D
67	27.280	27.720	0.440	TCS-I (A) of Schedule D
68	27.720	27.960	0.240	TCS-I (C) of Schedule D
69	27.960	28.220	0.260	TCS-I (A) of Schedule D
70	28.220	28.300	0.080	TCS-IV (A) of Schedule D
71	28.300	28.860	0.560	TCS-III (B) of Schedule D
72	28.860	29.180	0.320	TCS-IV (A) of Schedule D
73	29.180	29.250	0.070	TCS-III (B) of Schedule D
74	29.250	29.420	0.170	TCS-I (A) of Schedule D
75	29.420	29.520	0.100	TCS-IV (A) of Schedule D
76	29.520	29.580	0.060	TCS-III (B) of Schedule D
77	29.580	29.660	0.080	TCS-III (E) of Schedule D
78	29.660	29.750	0.090	TCS-III (B) of Schedule D
79	29.750	30.240	0.490	TCS-III (C) of Schedule D
80	30.240	30.440	0.200	TCS-III (F) of Schedule D
81	30.440	30.520	0.080	TCS-IV (A) of Schedule D
82	30.520	30.600	0.080	TCS-III (C) of Schedule D
83	30.600	30.680	0.080	TCS-I (A) of Schedule D
84	30.680	30.780	0.100	TCS-I (C) of Schedule D
85	30.780	30.880	0.100	TCS-IV (B) of Schedule D
86	30.880	30.980	0.100	TCS-II (D) of Schedule D
87	30.980	31.060	0.080	TCS-IV (B) of Schedule D
88	31.060	31.150	0.090	TCS-II (H) of Schedule D
89	31.150	31.280	0.130	TCS-II (D) of Schedule D
90	31.280	31.380	0.100	TCS-II (H) of Schedule D
91	31.380	31.520	0.140	TCS-II (D) of Schedule D
92	31.520	31.620	0.100	TCS-II (H) of Schedule D
93	31.620	31.740	0.120	TCS-II (D) of Schedule D
94	31.740	31.820	0.080	TCS-IV (B) of Schedule D
95	31.820	31.900	0.080	TCS-II (D) of Schedule D
96	31.900	31.980	0.080	TCS-III (B) of Schedule D
97	31.980	32.160	0.180	TCS-III (E) of Schedule D
98	32.160	32.350	0.190	TCS-III (B) of Schedule D

Sl No	Design Ch. (From)	Design Ch. (To)	Length (Km)	Ref. TCS
99	32.350	32.640	0.290	TCS-III (E) of Schedule D
100	32.640	32.730	0.090	TCS-IV (A) of Schedule D
101	32.730	32.800	0.070	TCS-III (C) of Schedule D
102	32.800	32.880	0.080	TCS-I (A) of Schedule D
103	32.880	32.990	0.110	TCS-I (C) of Schedule D
104	32.990	33.240	0.250	TCS-I (A) of Schedule D
105	33.240	33.360	0.120	TCS-I (C) of Schedule D
106	33.360	33.440	0.080	TCS-I (A) of Schedule D
107	33.440	33.560	0.120	TCS-I (C) of Schedule D
108	33.560	34.280	0.720	TCS-I (A) of Schedule D
109	34.280	34.450	0.170	TCS-IV (A) of Schedule D
110	34.450	34.500	0.050	TCS-I (C) of Schedule D
111	34.500	34.580	0.080	TCS-III (E) of Schedule D
112	34.580	34.660	0.080	TCS-IV (A) of Schedule D
113	34.660	34.720	0.060	TCS-III (E) of Schedule D
114	34.720	34.880	0.160	TCS-IV (A) of Schedule D
115	34.880	34.960	0.080	TCS-III (B) of Schedule D
116	34.960	35.160	0.200	TCS-IV (A) of Schedule D
117	35.160	35.280	0.120	TCS-III (E) of Schedule D
118	35.280	35.460	0.180	TCS-III (B) of Schedule D
119	35.460	35.500	0.040	TCS-III (A) of Schedule D
120	35.500	35.600	0.100	TCS-IV (A) of Schedule D
121	35.600	35.700	0.100	TCS-III (D) of Schedule D
122	35.700	36.020	0.320	TCS-IV (A) of Schedule D
123	36.020	36.100	0.080	TCS-III (D) of Schedule D
124	36.100	36.370	0.270	TCS-IV (A) of Schedule D
125	36.370	36.520	0.150	TCS-III (A) of Schedule D
126	36.520	36.640	0.120	TCS-IV (A) of Schedule D
127	36.640	36.810	0.170	TCS-III (D) of Schedule D
128	36.810	36.900	0.090	TCS-IV (A) of Schedule D
129	36.900	37.100	0.200	TCS-III (A) of Schedule D
130	37.100	37.220	0.120	TCS-IV (A) of Schedule D
131	37.220	37.520	0.300	TCS-III (A) of Schedule D
132	37.520	37.820	0.300	TCS-IV (A) of Schedule D
133	37.820	37.920	0.100	TCS-III (D) of Schedule D
134	37.920	37.980	0.060	TCS-I (C) of Schedule D
135	37.980	40.360	2.380	TCS-I (A) of Schedule D
136	40.360	40.440	0.080	TCS-IV (A) of Schedule D
137	40.440	40.600	0.160	TCS-III (B) of Schedule D
138	40.600	40.840	0.240	TCS-III (E) of Schedule D
139	40.840	40.950	0.110	TCS-III (B) of Schedule D
140	40.950	41.120	0.170	TCS-I (C) of Schedule D
141	41.120	41.300	0.180	TCS-I (A) of Schedule D
142	41.300	41.420	0.120	TCS-I (C) of Schedule D
143	41.420	41.750	0.330	TCS-I (A) of Schedule D
144	41.750	42.300	0.550	TCS-III (A) of Schedule D
145	42.300	42.720	0.420	TCS-III (B) of Schedule D
146	42.720	42.820	0.100	TCS-IV (A) of Schedule D
147	42.820	43.160	0.340	TCS-III (A) of Schedule D
148	43.160	43.740	0.580	TCS-I (A) of Schedule D
149	43.740	43.820	0.080	TCS-I (C) of Schedule D

Sl No	Design Ch. (From)	Design Ch. (To)	Length (Km)	Ref. TCS
150	43.820	43.940	0.120	TCS-IV (A) of Schedule D
151	43.940	45.040	1.100	TCS-I (A) of Schedule D
152	45.040	45.220	0.180	TCS-I (C) of Schedule D
153	45.220	45.380	0.160	TCS-I (A) of Schedule D
154	45.380	45.540	0.160	TCS-I (C) of Schedule D
155	45.540	45.680	0.140	TCS-IV (A) of Schedule D
156	45.680	45.800	0.120	TCS-I (A) of Schedule D
157	45.800	45.860	0.060	TCS-III (A) of Schedule D
158	45.860	45.940	0.080	TCS-III (D) of Schedule D
159	45.940	46.100	0.160	TCS-III (A) of Schedule D
160	46.100	46.490	0.390	TCS-III (D) of Schedule D
161	46.490	46.560	0.070	TCS-IV (A) of Schedule D
162	46.560	46.720	0.160	TCS-III (D) of Schedule D
163	46.720	47.360	0.640	TCS-III (A) of Schedule D
164	47.360	47.470	0.110	TCS-IV (A) of Schedule D
165	47.470	47.720	0.250	TCS-III (A) of Schedule D
166	47.720	47.840	0.120	TCS-IV (A) of Schedule D
167	47.840	48.020	0.180	TCS-III (D) of Schedule D
168	48.020	48.300	0.280	TCS-III (A) of Schedule D
169	48.300	48.460	0.160	TCS-IV (A) of Schedule D
170	48.460	48.620	0.160	TCS-III (D) of Schedule D
171	48.620	48.860	0.240	TCS-III (A) of Schedule D
172	48.860	48.980	0.120	TCS-IV (A) of Schedule D
173	48.980	49.000	0.020	TCS-III (A) of Schedule D
174	49.000	49.100	0.100	TCS-III (D) of Schedule D
175	49.100	49.200	0.100	TCS-III (A) of Schedule D
176	49.200	49.280	0.080	TCS-III (D) of Schedule D
177	49.280	49.820	0.540	TCS-III (A) of Schedule D
178	49.820	50.150	0.330	TCS-IV (A) of Schedule D
179	50.150	50.200	0.050	TCS-IV (A) of Schedule D
180	50.200	50.320	0.120	TCS-III (D) of Schedule D
181	50.320	50.380	0.060	TCS-III (D) of Schedule D
182	50.380	50.420	0.040	TCS-IV (A) of Schedule D
183	50.420	50.490	0.070	TCS-I (C) of Schedule D
184	50.490	50.560	0.070	TCS-IV (A) of Schedule D
185	50.560	50.650	0.090	TCS-I (A) of Schedule D
186	50.650	50.700	0.050	TCS-I (C) of Schedule D
187	50.700	50.750	0.050	TCS-II (H) of Schedule D
188	50.750	50.830	0.080	TCS-II (D) of Schedule D
189	50.830	50.920	0.090	TCS-II (H) of Schedule D
190	50.920	51.180	0.260	TCS-II (D) of Schedule D
191	51.180	51.460	0.280	TCS-I (A) of Schedule D
192	51.460	51.560	0.100	TCS-I (C) of Schedule D
193	51.560	51.900	0.340	TCS-IV (A) of Schedule D
194	51.900	52.000	0.100	TCS-I (A) of Schedule D
195	52.000	52.150	0.150	TCS-I (C) of Schedule D
196	52.150	52.330	0.180	TCS-IV (A) of Schedule D
197	52.330	52.480	0.150	TCS-I (C) of Schedule D
198	52.480	54.260	1.780	TCS-IV (A) of Schedule D
199	54.260	54.380	0.120	TCS-I (A) of Schedule D
200	54.380	54.550	0.170	TCS-IV (A) of Schedule D

Sl No	Design Ch. (From)	Design Ch. (To)	Length (Km)	Ref. TCS
201	54.550	56.020	1.470	TCS-I (A) of Schedule D
202	56.020	56.100	0.080	TCS-II (D) of Schedule D
203	56.100	56.300	0.200	TCS-IV (B) of Schedule D
204	56.300	56.620	0.320	TCS-IV (B) of Schedule D
205	56.620	56.720	0.100	TCS-II (E) of Schedule D
206	56.720	57.300	0.580	TCS-IV (B) of Schedule D
207	57.300	57.680	0.380	TCS-II (E) of Schedule D
208	57.680	57.740	0.060	TCS-II (F) of Schedule D
209	57.740	57.920	0.180	TCS-IV (B) of Schedule D
210	57.920	58.100	0.180	TCS-II (F) of Schedule D
211	58.100	58.520	0.420	TCS-II (I) of Schedule D
212	58.520	58.620	0.100	TCS-II (F) of Schedule D
213	58.620	58.725	0.105	TCS-IV (B) of Schedule D
214	58.725	58.740	0.015	TCS-II (F) of Schedule D
215	58.740	58.840	0.100	TCS-II (D) of Schedule D
216	58.840	58.980	0.140	TCS-II (H) of Schedule D
217	58.980	59.060	0.080	TCS-IV (B) of Schedule D
218	59.060	59.120	0.060	TCS-II (D) of Schedule D
219	59.120	59.800	0.680	TCS-IV (B) of Schedule D
220	59.800	60.220	0.420	TCS-II (D) of Schedule D
221	60.220	60.310	0.090	TCS-III (B) of Schedule D
222	60.310	60.480	0.170	TCS-IV (A) of Schedule D
223	60.480	60.600	0.120	TCS-III (E) of Schedule D
224	60.600	60.720	0.120	TCS-IV (A) of Schedule D
225	60.720	60.840	0.120	TCS-III (E) of Schedule D
226	60.840	61.300	0.460	TCS-III (B) of Schedule D
227	61.300	61.540	0.240	TCS-III (E) of Schedule D
228	61.540	61.680	0.140	TCS-I (A) of Schedule D
229	61.680	61.950	0.270	TCS-IV (A) of Schedule D
230	61.950	63.000	1.050	TCS-I (A) of Schedule D
231	63.000	63.620	0.620	TCS-II (D) of Schedule D
232	63.620	63.740	0.120	TCS-I (A) of Schedule D
233	63.740	63.980	0.240	TCS-I (C) of Schedule D
234	63.980	64.200	0.220	TCS-I (A) of Schedule D
235	64.200	66.400	2.200	TCS-I (C) of Schedule D
236	66.400	66.650	0.250	TCS-I (A) of Schedule D
237	66.650	66.820	0.170	TCS-IV (B) of Schedule D
238	66.820	66.960	0.140	TCS-I (A) of Schedule D
239	66.960	68.140	1.180	TCS-I (C) of Schedule D
240	68.140	68.300	0.160	TCS-I (A) of Schedule D
241	68.300	68.800	0.500	TCS-IV (A) of Schedule D
242	68.800	69.680	0.880	TCS-I (A) of Schedule D
243	69.680	69.800	0.120	TCS-II (D) of Schedule D
244	69.800	70.340	0.540	TCS-II (H) of Schedule D
245	70.340	70.480	0.140	TCS-II (D) of Schedule D
246	70.480	70.650	0.170	TCS-I (A) of Schedule D
247	70.650	70.720	0.070	TCS-I (C) of Schedule D
248	70.720	70.830	0.110	TCS-I (A) of Schedule D
249	70.830	71.000	0.170	TCS-IV (A) of Schedule D
250	71.000	71.160	0.160	TCS-I (C) of Schedule D
251	71.160	71.280	0.120	TCS-I (A) of Schedule D

Sl No	Design Ch. (From)	Design Ch. (To)	Length (Km)	Ref. TCS
252	71.280	71.940	0.660	TCS-I (C) of Schedule D
253	71.940	72.180	0.240	TCS-I (A) of Schedule D
254	72.180	72.480	0.300	TCS-I (C) of Schedule D
255	72.480	72.680	0.200	TCS-I (A) of Schedule D
256	72.680	72.955	0.275	TCS-I (C) of Schedule D
Total Length			**72.955**	

Note: The chainages given in above table are indicative and stretches may increase or decrease than as specified above as per Manual. However, this shall not be treated as change of scope. If the concessioner does not provide the above specified length this shall be treated as negative change of scope.

5.5 **Realignment –**

The existing road shall be realigned at the following locations for curve improvements/ geometric improvements.

Sl No	Design Ch. (From)	Design Ch. (To)	Length (Km)	Remarks	Ref. TCS
Nil.					

6. ROADSIDE DRAINAGE

Drainage system including surface and subsurface drains for the Project Highway shall be provided as per Section 6 of the Manual.

I. **RCC Covered Drain** of 0.9 m overall width shall be provided at the edge of ROW at the following Built up locations-

Sl No	Design Ch. (From)	Design Ch. (To)	Net Length (Km)	Side	Total Length (Km)	Overall Width (m)	Ref TCS	Remarks
1	14.175	14.800	0.625	BHS	1.250	0.90	TCS-II (A)	Isagarh
2	14.800	14.820	0.020	BHS	0.040	0.90	TCS-II (B)	Isagarh
3	14.820	14.900	0.080	BHS	0.160	0.90	TCS-II (G)	Isagarh
4	14.900	15.230	0.330	BHS	0.660	0.90	TCS-II (B)	Isagarh
5	15.230	15.500	0.270	BHS	0.540	0.90	TCS-II (C)	Isagarh
6	18.080	19.380	1.300	BHS	2.600	0.90	TCS-I (D)	Anandpur Trust
7	19.380	19.460	0.080	BHS	0.160	0.90	TCS-I (E)	Anandpur Trust
8	19.460	19.700	0.240	BHS	0.480	0.90	TCS-I (D)	Anandpur Trust
9	21.400	21.900	0.500	BHS	1.000	0.90	TCS-II (E)	Dhakoni
10	21.900	21.960	0.060	BHS	0.120	0.90	TCS-IV (B)	Dhakoni
11	21.960	22.030	0.070	BHS	0.140	0.90	TCS-II (H)	Dhakoni
12	23.350	23.420	0.070	BHS	0.140	0.90	TCS-II (H)	Dhakoni
13	23.420	23.650	0.230	BHS	0.460	0.90	TCS-II (E)	Dhakoni
14	23.650	24.040	0.390	BHS	0.780	0.90	TCS-II (D)	Dhakoni
15	24.040	24.070	0.030	BHS	0.060	0.90	TCS-II (H)	Dhakoni
16	24.950	25.040	0.090	BHS	0.180	0.90	TCS-II (D)	Narsu Khedi
17	25.040	25.180	0.140	BHS	0.280	0.90	TCS-II (H)	Narsu Khedi
18	25.180	25.300	0.120	BHS	0.240	0.90	TCS-II (D)	Narsu Khedi
19	30.780	30.880	0.100	BHS	0.200	0.90	TCS-IV (B)	Shankarpur
20	30.880	30.980	0.100	BHS	0.200	0.90	TCS-II (D)	Shankarpur
21	30.980	31.060	0.080	BHS	0.160	0.90	TCS-IV (B)	Shankarpur

Sl No	Design Ch. (From)	Design Ch. (To)	Net Length (Km)	Side	Total Length (Km)	Overall Width (m)	Ref TCS	Remarks
22	31.060	31.150	0.090	BHS	0.180	0.90	TCS-II (H)	Shankarpur
23	31.150	31.280	0.130	BHS	0.260	0.90	TCS-II (D)	Shankarpur
24	31.280	31.380	0.100	BHS	0.200	0.90	TCS-II (H)	Shankarpur
25	31.380	31.520	0.140	BHS	0.280	0.90	TCS-II (D)	Shankarpur
26	31.520	31.620	0.100	BHS	0.200	0.90	TCS-II (H)	Shankarpur
27	31.620	31.740	0.120	BHS	0.240	0.90	TCS-II (D)	Shankarpur
28	31.740	31.820	0.080	BHS	0.160	0.90	TCS-IV (B)	Shankarpur
29	31.820	31.900	0.080	BHS	0.160	0.90	TCS-II (D)	Shankarpur
30	50.700	50.750	0.050	BHS	0.100	0.90	TCS-II (H)	Tagari
31	50.750	50.830	0.080	BHS	0.160	0.90	TCS-II (D)	Tagari
32	50.830	50.920	0.090	BHS	0.180	0.90	TCS-II (H)	Tagari
33	50.920	51.180	0.260	BHS	0.520	0.90	TCS-II (D)	Tagari
34	54.550	56.020	1.470	BHS	2.940	0.90	TCS-II (D)	Chanderi
35	56.020	56.100	0.080	BHS	0.160	0.90	TCS-IV (B)	Chanderi
36	56.100	56.300	0.200	BHS	0.400	0.90	TCS-IV (B)	Chanderi
37	56.300	56.620	0.320	BHS	0.640	0.90	TCS-II (E)	Chanderi
38	56.620	56.720	0.100	BHS	0.200	0.90	TCS-IV (B)	Chanderi
39	56.720	57.300	0.580	BHS	1.160	0.90	TCS-II (E)	Chanderi
40	57.300	57.680	0.380	BHS	0.760	0.90	TCS-II (F)	Chanderi
41	57.680	57.740	0.060	BHS	0.120	0.90	TCS-IV (B)	Chanderi
42	57.740	57.920	0.180	BHS	0.360	0.90	TCS-II (F)	Chanderi
43	57.920	58.100	0.180	BHS	0.360	0.90	TCS-II (I)	Chanderi
44	58.100	58.520	0.420	BHS	0.840	0.90	TCS-II (F)	Chanderi
45	58.520	58.620	0.100	BHS	0.200	0.90	TCS-IV (B)	Chanderi
46	58.620	58.725	0.105	BHS	0.210	0.90	TCS-II (F)	Chanderi
47	58.725	58.740	0.015	BHS	0.030	0.90	TCS-II (D)	Chanderi
48	58.740	58.840	0.100	BHS	0.200	0.90	TCS-II (H)	Chanderi
49	58.840	58.980	0.140	BHS	0.280	0.90	TCS-IV (B)	Chanderi
50	58.980	59.060	0.080	BHS	0.160	0.90	TCS-II (D)	Chanderi
51	59.060	59.120	0.060	BHS	0.120	0.90	TCS-IV (B)	Chanderi
52	59.120	59.800	0.680	BHS	1.360	0.90	TCS-II (D)	Chanderi
53	60.220	60.310	0.090	BHS	0.180	0.90	TCS-IV (B)	Chanderi
54	61.950	63.000	1.050	BHS	2.100	0.90	TCS-II (D)	Pranpur
55	66.400	66.650	0.250	BHS	0.500	0.90	TCS-IV (B)	Khairi
56	68.800	69.680	0.880	BHS	1.760	0.90	TCS-II (D)	Kunwarpur
57	69.680	69.800	0.120	BHS	0.240	0.90	TCS-II (H)	Kunwarpur
58	69.800	70.340	0.540	BHS	1.080	0.90	TCS-II (D)	Kunwarpur
59	70.340	70.480	0.140	BHS	0.280	0.90	TCS-II (H)	Kunwarpur
60	70.480	70.650	0.170	BHS	0.340	0.90	TCS-II (D)	Kunwarpur
Total Length					**29.470**			

II. RCC Open Drain of 0.90 m overall width shall be provided at the following section-

Sl No	Design Ch. (From)	Design Ch. (To)	Net Length (Km)	Side	Total Length (Km)	Overall Width (m)	Ref TCS	Remarks
1	24.070	24.120	0.050	LHS	0.050	0.90	TCS-III (D)	Hilly Area
2	24.120	24.250	0.130	LHS	0.130	0.90	TCS-III (A)	Hilly Area
3	28.300	28.860	0.560	RHS	0.560	0.90	TCS-III (B)	Hilly Area
4	29.180	29.250	0.070	RHS	0.070	0.90	TCS-III (B)	Hilly Area
5	29.520	29.580	0.060	RHS	0.060	0.90	TCS-III (B)	Hilly Area

Sl No	Design Ch. (From)	Design Ch. (To)	Net Length (Km)	Side	Total Length (Km)	Overall Width (m)	Ref TCS	Remarks
6	29.580	29.660	0.080	RHS	0.080	0.90	TCS-III (E)	Hilly Area
7	29.660	29.750	0.090	RHS	0.090	0.90	TCS-III (B)	Hilly Area
8	29.750	30.240	0.490	RHS	0.490	0.90	TCS-III (C)	Hilly Area
9	30.240	30.440	0.200	RHS	0.200	0.90	TCS-III (F)	Hilly Area
10	30.520	30.600	0.080	RHS	0.080	0.90	TCS-III (C)	Hilly Area
11	31.900	31.980	0.080	RHS	0.080	0.90	TCS-III (B)	Hilly Area
12	31.980	32.160	0.180	RHS	0.180	0.90	TCS-III (E)	Hilly Area
13	32.160	32.350	0.190	RHS	0.190	0.90	TCS-III (B)	Hilly Area
14	32.350	32.640	0.290	RHS	0.290	0.90	TCS-III (E)	Hilly Area
15	32.730	32.800	0.070	RHS	0.070	0.90	TCS-III (C)	Hilly Area
16	34.500	34.580	0.080	RHS	0.080	0.90	TCS-III (E)	Hilly Area
17	34.660	34.720	0.060	RHS	0.060	0.90	TCS-III (E)	Hilly Area
18	34.880	34.960	0.080	RHS	0.080	0.90	TCS-III (B)	Hilly Area
19	35.160	35.280	0.120	RHS	0.120	0.90	TCS-III (E)	Hilly Area
20	35.280	35.460	0.180	RHS	0.180	0.90	TCS-III (B)	Hilly Area
21	35.460	35.500	0.040	LHS	0.040	0.90	TCS-III (A)	Hilly Area
22	35.600	35.700	0.100	LHS	0.100	0.90	TCS-III (D)	Hilly Area
23	36.020	36.100	0.080	LHS	0.080	0.90	TCS-III (D)	Hilly Area
24	36.370	36.520	0.150	LHS	0.150	0.90	TCS-III (A)	Hilly Area
25	36.640	36.810	0.170	LHS	0.170	0.90	TCS-III (D)	Hilly Area
26	36.900	37.100	0.200	LHS	0.200	0.90	TCS-III (A)	Hilly Area
27	37.220	37.520	0.300	LHS	0.300	0.90	TCS-III (A)	Hilly Area
28	37.820	37.920	0.100	LHS	0.100	0.90	TCS-III (D)	Hilly Area
29	40.440	40.600	0.160	RHS	0.160	0.90	TCS-III (B)	Hilly Area
30	40.600	40.840	0.240	RHS	0.240	0.90	TCS-III (E)	Hilly Area
31	40.840	40.950	0.110	RHS	0.110	0.90	TCS-III (B)	Hilly Area
32	41.750	42.300	0.550	LHS	0.550	0.90	TCS-III (A)	Hilly Area
33	42.300	42.720	0.420	RHS	0.420	0.90	TCS-III (B)	Hilly Area
34	42.820	43.160	0.340	LHS	0.340	0.90	TCS-III (A)	Hilly Area
35	45.800	45.860	0.060	LHS	0.060	0.90	TCS-III (A)	Hilly Area
36	45.860	45.940	0.080	LHS	0.080	0.90	TCS-III (D)	Hilly Area
37	45.940	46.100	0.160	LHS	0.160	0.90	TCS-III (A)	Hilly Area
38	46.100	46.490	0.390	LHS	0.390	0.90	TCS-III (D)	Hilly Area
39	46.560	46.720	0.160	LHS	0.160	0.90	TCS-III (D)	Hilly Area
40	46.720	47.360	0.640	LHS	0.640	0.90	TCS-III (A)	Hilly Area
41	47.470	47.720	0.250	LHS	0.250	0.90	TCS-III (A)	Hilly Area
42	47.840	48.020	0.180	LHS	0.180	0.90	TCS-III (D)	Hilly Area
43	48.020	48.300	0.280	LHS	0.280	0.90	TCS-III (A)	Hilly Area
44	48.460	48.620	0.160	LHS	0.160	0.90	TCS-III (D)	Hilly Area
45	48.620	48.860	0.240	LHS	0.240	0.90	TCS-III (A)	Hilly Area
46	48.980	49.000	0.020	LHS	0.020	0.90	TCS-III (A)	Hilly Area
47	49.000	49.100	0.100	LHS	0.100	0.90	TCS-III (D)	Hilly Area
48	49.100	49.200	0.100	LHS	0.100	0.90	TCS-III (A)	Hilly Area
49	49.200	49.280	0.080	LHS	0.080	0.90	TCS-III (D)	Hilly Area
50	49.280	49.820	0.540	LHS	0.540	0.90	TCS-III (A)	Hilly Area
51	50.200	50.320	0.120	LHS	0.120	0.90	TCS-III (D)	Hilly Area
52	50.320	50.380	0.060	LHS	0.060	0.90	TCS-III (D)	Hilly Area
53	59.800	60.220	0.420	RHS	0.420	0.90	TCS-III (G)	Hilly Area
54	60.310	60.480	0.170	RHS	0.170	0.90	TCS-III (E)	Hilly Area
55	60.600	60.720	0.120	RHS	0.120	0.90	TCS-III (E)	Hilly Area

Sl No	Design Ch. (From)	Design Ch. (To)	Net Length (Km)	Side	Total Length (Km)	Overall Width (m)	Ref TCS	Remarks
56	60.720	60.840	0.120	RHS	0.120	0.90	TCS-III (B)	Hilly Area
57	60.840	61.300	0.460	RHS	0.460	0.90	TCS-III (E)	Hilly Area
Total Length					**11.010**			

Note:

a) Invert levels of the longitudinal drains shall be decided as per adjoining draining area and properties.

b) Cross Sectional dimensions of the drains shown in TCS are minimum to be adopted and will vary as per invert level.

III. Kerb Channel

PCC Kerb Channel along with the RCC Covered Drains in Built-ups shall be provided at the following section-

Sl No	Design Ch. (From)	Design Ch. (To)	Net Length (Km)	Side	Total Length (Km)	Overall Width (m)	Ref TCS	Remarks
1	14.175	14.800	0.625	BHS	1.250	0.90	TCS-II (A)	Isagarh
2	14.800	14.820	0.020	BHS	0.040	0.90	TCS-II (B)	Isagarh
3	14.820	14.900	0.080	BHS	0.160	0.90	TCS-II (G)	Isagarh
4	14.900	15.230	0.330	BHS	0.660	0.90	TCS-II (B)	Isagarh
5	15.230	15.500	0.270	BHS	0.540	0.90	TCS-II (C)	Isagarh
6	18.080	19.380	1.300	BHS	2.600	0.90	TCS-I (D)	Anandpur Trust
7	19.380	19.460	0.080	BHS	0.160	0.90	TCS-I (E)	Anandpur Trust
8	19.460	19.700	0.240	BHS	0.480	0.90	TCS-I (D)	Anandpur Trust
9	21.400	21.900	0.500	BHS	1.000	0.90	TCS-II (E)	Dhakoni
10	21.900	21.960	0.060	BHS	0.120	0.90	TCS-IV (B)	Dhakoni
11	21.960	22.030	0.070	BHS	0.140	0.90	TCS-II (H)	Dhakoni
12	23.350	23.420	0.070	BHS	0.140	0.90	TCS-II (H)	Dhakoni
13	23.420	23.650	0.230	BHS	0.460	0.90	TCS-II (E)	Dhakoni
14	23.650	24.040	0.390	BHS	0.780	0.90	TCS-II (D)	Dhakoni
15	24.040	24.070	0.030	BHS	0.060	0.90	TCS-II (H)	Dhakoni
16	24.950	25.040	0.090	BHS	0.180	0.90	TCS-II (D)	Narsu Khedi
17	25.040	25.180	0.140	BHS	0.280	0.90	TCS-II (H)	Narsu Khedi
18	25.180	25.300	0.120	BHS	0.240	0.90	TCS-II (D)	Narsu Khedi
19	30.780	30.880	0.100	BHS	0.200	0.90	TCS-IV (B)	Shankarpur
20	30.880	30.980	0.100	BHS	0.200	0.90	TCS-II (D)	Shankarpur
21	30.980	31.060	0.080	BHS	0.160	0.90	TCS-IV (B)	Shankarpur
22	31.060	31.150	0.090	BHS	0.180	0.90	TCS-II (H)	Shankarpur
23	31.150	31.280	0.130	BHS	0.260	0.90	TCS-II (D)	Shankarpur
24	31.280	31.380	0.100	BHS	0.200	0.90	TCS-II (H)	Shankarpur
25	31.380	31.520	0.140	BHS	0.280	0.90	TCS-II (D)	Shankarpur
26	31.520	31.620	0.100	BHS	0.200	0.90	TCS-II (H)	Shankarpur
27	31.620	31.740	0.120	BHS	0.240	0.90	TCS-II (D)	Shankarpur
28	31.740	31.820	0.080	BHS	0.160	0.90	TCS-IV (B)	Shankarpur
29	31.820	31.900	0.080	BHS	0.160	0.90	TCS-II (D)	Shankarpur
30	50.700	50.750	0.050	BHS	0.100	0.90	TCS-II (H)	Tagari
31	50.750	50.830	0.080	BHS	0.160	0.90	TCS-II (D)	Tagari
32	50.830	50.920	0.090	BHS	0.180	0.90	TCS-II (H)	Tagari
33	50.920	51.180	0.260	BHS	0.520	0.90	TCS-II (D)	Tagari

Sl No	Design Ch. (From)	Design Ch. (To)	Net Length (Km)	Side	Total Length (Km)	Overall Width (m)	Ref TCS	Remarks
34	54.550	56.020	1.470	BHS	2.940	0.90	TCS-II (D)	Chanderi
35	56.020	56.100	0.080	BHS	0.160	0.90	TCS-IV (B)	Chanderi
36	56.100	56.300	0.200	BHS	0.400	0.90	TCS-IV (B)	Chanderi
37	56.300	56.620	0.320	BHS	0.640	0.90	TCS-II (E)	Chanderi
38	56.620	56.720	0.100	BHS	0.200	0.90	TCS-IV (B)	Chanderi
39	56.720	57.300	0.580	BHS	1.160	0.90	TCS-II (E)	Chanderi
40	57.300	57.680	0.380	BHS	0.760	0.90	TCS-II (F)	Chanderi
41	57.680	57.740	0.060	BHS	0.120	0.90	TCS-IV (B)	Chanderi
42	57.740	57.920	0.180	BHS	0.360	0.90	TCS-II (F)	Chanderi
43	57.920	58.100	0.180	BHS	0.360	0.90	TCS-II (I)	Chanderi
44	58.100	58.520	0.420	BHS	0.840	0.90	TCS-II (F)	Chanderi
45	58.520	58.620	0.100	BHS	0.200	0.90	TCS-IV (B)	Chanderi
46	58.620	58.725	0.105	BHS	0.210	0.90	TCS-II (F)	Chanderi
47	58.725	58.740	0.015	BHS	0.030	0.90	TCS-II (D)	Chanderi
48	58.740	58.840	0.100	BHS	0.200	0.90	TCS-II (H)	Chanderi
49	58.840	58.980	0.140	BHS	0.280	0.90	TCS-IV (B)	Chanderi
50	58.980	59.060	0.080	BHS	0.160	0.90	TCS-II (D)	Chanderi
51	59.060	59.120	0.060	BHS	0.120	0.90	TCS-IV (B)	Chanderi
52	59.120	59.800	0.680	BHS	1.360	0.90	TCS-II (D)	Chanderi
53	60.220	60.310	0.090	BHS	0.180	0.90	TCS-IV (B)	Chanderi
54	61.950	63.000	1.050	BHS	2.100	0.90	TCS-II (D)	Pranpur
55	66.400	66.650	0.250	BHS	0.500	0.90	TCS-IV (B)	Khairi
56	68.800	69.680	0.880	BHS	1.760	0.90	TCS-II (D)	Kunwarpur
57	69.680	69.800	0.120	BHS	0.240	0.90	TCS-II (H)	Kunwarpur
58	69.800	70.340	0.540	BHS	1.080	0.90	TCS-II (D)	Kunwarpur
59	70.340	70.480	0.140	BHS	0.280	0.90	TCS-II (H)	Kunwarpur
60	70.480	70.650	0.170	BHS	0.340	0.90	TCS-II (D)	Kunwarpur
Total Length					**29.470**			

Note: Above length is indicative and minimum specified. The actual length shall be determined by the Contractor in accordance with the requirements of the Manual. Any increase in the numbers specified in this Clause of Schedule B shall not constitute a Change of Scope. If the concessioner does not provide the above specified length this shall be treated as negative change of scope.

7. DESIGN OF STRUCTURES

(i) General

a. All bridges, culverts and structures shall be designed and constructed in accordance with Section 7 of the 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 per provisions of the paragraph 7.3 of the Manual.

c. Provision of footpath on structures shall be in accordance with paragraph 7.2 (ii) of the Manual.

d. All bridges shall be high-level bridges. [Refer to paragraph 7.1 (iii) of the Manual].

e. All new bridges, flyovers, ROB/RUBs, Vehicular/Pedestrians structures shall be designed for utility services such as OFC & telephone cable to be carried by the

structures shall be made in the design as per relevant circular of MORTH. Provision of water pipeline and, Gas line shall not be allowed. [Refer to paragraph 7.1 (v) of the Manual].

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 section 7 of the and deviations if any given at Schedule D.

(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 as per paragraph 7.3 (i) of the Manual:

(1) The existing culverts at following locations shall be reconstructed as HPC: 63 Nos.

Sr. No.	Existing Ch. (Km)	Design Ch. (Km)	Detail of Existing Structure			Details of Proposed structure			
			Type of Structure	Span Arrangement	Overall Width (m)	Proposal	Type of Structure	Span Arrangement	Overall Width (m)
1	0+205	0+205	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	17.50
2	0+675	0+675	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	17.50
3	1+375	1+380	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	17.50
4	2+045	2+045	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	17.50
5	3+110	3+110	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	17.50
6	3+450	3+450	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	17.50
7	5+325	5+325	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	17.50
8	5+505	5+505	Pipe Culvert	2X1.00	12.50	Reconstruction	Pipe Culvert	2X1.20	17.50
9	6+420	6+425	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	17.50
10	7+245	7+245	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	17.50
11	9+670	9+670	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	17.50
12	11+155	11+155	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	17.50
13	11+590	11+590	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	17.50
14	13+360	13+355	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	17.50
15	14+440	14+440	Pipe Culvert	1X1.00	15.80	Reconstruction	Pipe Culvert	1X1.20	25.00
16	15+295	15+300	Pipe Culvert	1X1.00	10.00	Reconstruction	Pipe Culvert	1X1.20	25.00
17	16+140	16+140	Pipe Culvert	1X1.00	13.00	Reconstruction	Pipe Culvert	1X1.20	20.00
18	16+540	16+540	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	17.50
19	16+740	16+745	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	17.50
20	19+160	19+160	Pipe Culvert	1X0.60	12.50	Reconstruction	Encased Pipe Culvert	1X1.20	25.00
21	22+085	22+090	Pipe Culvert	2X1.00	12.50	Reconstruction	Pipe Culvert	2X1.20	20.00
22	22+545	22+550	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	17.50
23	22+730	22+730	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	20.00
24	22+945	22+940	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	17.50
25	23+610	23+605	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	20.00
26	24+590	24+585	Pipe Culvert	1X1.00	11.40	Reconstruction	Pipe Culvert	1X1.20	17.50
27	24+990	24+985	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	17.50
28	26+545	26+545	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	17.50
29	27+225	27+220	Pipe Culvert	1X1.00	15.00	Reconstruction	Pipe Culvert	1X1.20	17.50
30	27+875	27+870	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	20.00
31	28+160	28+155	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	17.50
32	29+645	29+640	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	12.50
33	30+400	30+400	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	17.50
34	30+720	30+710	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	17.50
35	30+950	30+955	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	20.00

Sr. No.	Existing Ch. (Km)	Design Ch. (Km)	Detail of Existing Structure			Details of Proposed structure			
			Type of Structure	Span Arrangement	Overall Width (m)	Proposal	Type of Structure	Span Arrangement	Overall Width (m)
36	31+105	31+100	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	20.00
37	31+685	31+685	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	17.50
38	32+050	32+050	FCW	-	12.00	Reconstruction	Encased Pipe Culvert	1X1.20	12.50
39	32+150	32+140	FCW	-	12.00	Reconstruction	Encased Pipe Culvert	1X1.20	12.50
40	32+400	32+390	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	12.50
41	33+010	33+000	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	17.50
42	33+490	33+485	FCW	-	12.00	Reconstruction	Encased Pipe Culvert	1X1.20	12.50
43	35+670	35+665	Pipe Culvert	1X1.00	12.00	Reconstruction	Pipe Culvert	1X1.20	12.50
44	36+460	36+455	Pipe Culvert	1X1.00	12.00	Reconstruction	Pipe Culvert	1X1.20	12.50
45	37+065	37+055	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	12.50
46	37+335	37+330	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	12.50
47	38+060	38+050	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	17.50
48	43+460	43+450	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	15.00
49	46+275	46+265	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	12.50
50	46+585	46+570	Pipe Culvert	2X1.00	12.50	Reconstruction	Pipe Culvert	2X1.20	12.50
51	47+270	47+260	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	12.50
52	47+655	47+650	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	12.50
53	47+965	47+955	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	12.50
54	48+470	48+460	FCW	-	12.00	Reconstruction	Encased Pipe Culvert	1X1.20	12.50
55	49+135	49+120	Pipe Culvert	1X1.00	12.50	Reconstruction	Pipe Culvert	1X1.20	12.50
56	51+965	51+950	FCW	-	12.00	Reconstruction	Pipe Culvert	1X1.20	17.50
57	60+715	60+700	FCW	-	12.00	Reconstruction	Encased Pipe Culvert	1X1.20	12.50
58	61+810	61+800	Pipe Culvert	1X1.00	12.00	Reconstruction	Pipe Culvert	1X1.20	17.50
59	62+275	62+260	Pipe Culvert	2X1.00	12.50	Reconstruction	Pipe Culvert	2X1.20	20.00
60	62+500	62+485	Pipe Culvert	1X0.90	23.6/17.5	Reconstruction	Pipe Culvert	1X1.20	17.50
61	62+935	62+920	Pipe Culvert	1X0.90	10.10	Reconstruction	Pipe Culvert	1X1.20	17.50
62	64+485	64+470	Pipe Culvert	2X1.00	10.50	Reconstruction	Pipe Culvert	2X1.20	17.50
63	68+330	68+315	Pipe Culvert	1X1.00	10.00	Reconstruction	Pipe Culvert	1X1.20	17.50

Note: -

A. It is clarified that as per site requirement new culverts if required for drainage arrangement shall be identified & constructed if any during development shall be constructed as per standard set forth in Schedule 'D'.

B. The Pipe diameter and numbers given above are minimum and the proposal dimensions shall be based on hydraulic calculation. Any changes of above dimension shall not constitute a change of scope. If the concessioner does not provide the above specified length and number this shall be treated as negative change of scope.

C. The Barrel length of HPC shall vary as per height of embankment and shall be got approval from the Authority.

(2) The existing culverts at following locations shall be reconstructed as RCC Box: 11 Nos.

Sr. No.	Existing Ch. (Km)	Design Ch. (Km)	Detail of Existing Structure			Details of Proposed structure			
			Type of Structure	Span Arrangement	Overall Width (m)	Proposal	Type of Structure	Span Arrangement	Overall Width (m)
1	17+260	17+260	Pipe Culvert	3X1.00	7.30	Reconstruction	RCC Box Culvert	1X3.0	12.00
2	36+740	36+735	Pipe	1X1.00	12.00	Reconstruction	RCC Box	1X3.0	12.00

Sr. No.	Existing Ch. (Km)	Design Ch. (Km)	Detail of Existing Structure			Details of Proposed structure			
			Type of Structure	Span Arrangement	Overall Width (m)	Proposal	Type of Structure	Span Arrangement	Overall Width (m)
			Culvert				Culvert		
3	40+810	40+800	Pipe Culvert	3X1.00	17.5/12.5	Reconstruction	RCC Box Culvert	1X3.0	12.00
4	55+315	55+300	Pipe Culvert	2X0.60	10.20	Reconstruction	RCC Box Culvert	1X3.0	12.00
5	55+320	55+305	RCC Box Culvert	1X2.00	10.20	Reconstruction	RCC Box Culvert	1X3.0	12.00
6	65+690	65+675	RCC Slab Culvert	1X2.00	10.50	Reconstruction	RCC Box Culvert	1X3.0	12.00
7	68+055	68+045	RCC Slab Culvert	1X2.00	10.00	Reconstruction	RCC Box Culvert	1X3.0	12.00
8	69+505	69+490	RCC Slab Culvert	1X2.00	10.00	Reconstruction	RCC Box Culvert	1X3.0	12.00
9	69+825	69+805	RCC Slab Culvert	1X2.00	10.00	Reconstruction	RCC Box Culvert	1X3.0	12.00
10	71+055	71+040	RCC Slab Culvert	1X3.00	10.00	Reconstruction	RCC Box Culvert	1X3.0	12.00
11	72+660	72+645	RCC Slab Culvert	1X2.00	8.40	Reconstruction	RCC Box Culvert	1X3.0	12.00

Note: -

A. It is clarified that as per site requirement new culverts if required for drainage arrangement shall be identified & constructed if any during development shall be constructed as per standard set forth in Schedule 'D'.

(3) The existing culverts at following locations shall be reconstructed as RCC Slab Culverts: Nil.

Sr. No.	Existing Ch. (Km)	Design Ch. (Km)	Detail of Existing Structure			Details of Proposed Structure			
			Type of Structure	Span Arrangement	Overall Width (m)	Proposal	Type of Structure	Span Arrangement	Overall Width (m)
Nil.									

Note: - It is clarified that as per site requirement new culverts if required for drainage arrangement shall be identified & constructed if any during development shall be constructed as per standard set forth in Schedule 'D'.
The Width shall vary as per the variable proposed Formation Width and shall be got approval from the Authority.

c. Widening of existing culverts:

The following culverts shall be widened to the roadway width of the Project Highway as per the typical cross section given in section 7 of the Manual. Repairs and strengthening of existing structures where required shall be carried out.

(1) Widening (with repair) of existing Hume Pipe Culverts: Nil.

Sr. No.	Existing Ch. (Km)	Design Ch. (Km)	Detail of Existing Structure			Details of Proposed Structure			
			Type of Structure	Span Arrangement	Overall Width (m)	Proposal	Type of Structure	Span Arrangement	Formation Width (m)
Nil.									

Note:

Repairs and strengthening of existing structures where required shall be carried out. However this shall not be treated as change of scope.
The dismantling of existing culverts and disposal of the material with all lead & lifts shall

be carried out.
The diversion works if required during construction shall be provided with suitable vents for the waterway.
Contractor to assess the requirement of additional land for diversion road, Additional cost of land (if required) in same context shall be borne by the contractor and shall not constitute change of scope. If the concessioner does not provide the above specified length and number this shall be treated as negative change of scope

(2) Widening (with repair) of existing RCC Slab Culverts: Nil.

Sr. No.	Existing Ch. (Km)	Design Ch. (Km)	Detail of Existing Structure			Details of Proposed Structure			
			Type of Structure	Span Arrangement	Overall Width (m)	Proposal	Type of Structure	Span Arrangement	Overall Width (m)
Nil.									

Note:
Repairs and strengthening of existing structures where required shall be carried out. However, this shall not be treated as change of scope.
The dismantling of existing culverts and disposal of the material with all lead & lifts shall be carried out.
The diversion works if required during construction shall be provided with suitable vents for the waterway.
Contractor to assess the requirement of additional land for diversion road, Additional cost of land (if required) in same context shall be borne by the contractor and shall not constitute change of scope.

d. Retaining of existing culverts

The following culverts shall be retained with strengthening and repairing works of existing structures where required shall be carried out: -

(1) Slab Culvert/ Box Culverts/Arch Culverts: 03 Nos.

Sr. No.	Existing Ch. (Km)	Design Ch. (Km)	Detail of Existing Structure			Proposal
			Type of Structure	Span Arrangement	Overall Width (m)	
1	37+490	37+485	RCC Box Culvert	1X4.00	12.00	Retained With Rehabilitation
2	51+370	51+360	RCC Box Culvert	1X6.00	12.00	Retained With Rehabilitation
3	54+905	54+895	RCC Box Culvert	1X2.00	12.00	Retained With Rehabilitation

(2) Hume Pipe Culvert: Nil.

Sr. No.	Existing Ch. (Km)	Design Ch. (Km)	Detail of Existing Structure			Proposal
			Type of Structure	Span Arrangement	Formation Width (m)	
Nil.						

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

(1) Hume Pipe Culvert: 24 Nos.

Sr. No.	Design Ch. (Km)	Details of Proposed Structure			
		Proposal	Type of Structure	Span Arrangement	Overall Width (m)
1	4+960	New Proposed	Pipe Culvert	1X1.20	17.50
2	5+890	New Proposed	Pipe Culvert	1X1.20	17.50
3	8+185	New Proposed	Pipe Culvert	1X1.20	17.50
4	9+015	New Proposed	Pipe Culvert	1X1.20	17.50

Sr. No.	Design Ch. (Km)	Details of Proposed Structure			
		Proposal	Type of Structure	Span Arrangement	Overall Width (m)
5	10+555	New Proposed	Pipe Culvert	1X1.20	17.50
6	11+435	New Proposed	Pipe Culvert	1X1.20	17.50
7	12+085	New Proposed	Pipe Culvert	1X1.20	17.50
8	12+830	New Proposed	Pipe Culvert	1X1.20	17.50
9	13+840	New Proposed	Pipe Culvert	1X1.20	17.50
10	14+060	New Proposed	Pipe Culvert	1X1.20	17.50
11	29+860	New Proposed	Pipe Culvert	1X1.20	15.00
12	30+605	New Proposed	Pipe Culvert	1X1.20	17.50
13	31+885	New Proposed	Pipe Culvert	1X1.20	17.50
14	35+185	New Proposed	Pipe Culvert	1X1.20	12.50
15	39+060	New Proposed	Pipe Culvert	1X1.20	17.50
16	39+740	New Proposed	Pipe Culvert	1X1.20	17.50
17	42+195	New Proposed	Pipe Culvert	1X1.20	12.50
18	43+770	New Proposed	Pipe Culvert	1X1.20	17.50
19	51+250	New Proposed	Pipe Culvert	1X1.20	17.50
20	52+795	New Proposed	Pipe Culvert	1X1.20	17.50
21	53+250	New Proposed	Pipe Culvert	1X1.20	17.50
22	61+980	New Proposed	Pipe Culvert	1X1.20	17.50
23	67+640	New Proposed	Pipe Culvert	1X1.20	17.50
24	68+420	New Proposed	Pipe Culvert	1X1.20	15.00

Note: -

A. It is clarified that as per site requirement new culverts if required for drainage arrangement shall be identified & constructed if any during development shall be constructed as per standard set forth in Schedule 'D'.

B. The Pipe diameter and numbers given above are minimum and the proposal dimensions shall be based on hydraulic calculation. Any changes of above dimension shall not constitute a change of scope. If the concessioner does not provide the above specified length and number this shall be treated as negative change of scope.

C. The Barrel length of HPC shall vary as per height of embankment and shall be got approval from the Authority.

(2) Box Culvert: 01 No.

Sr. No.	Design Ch. (Km)	Details of Proposed Structure			
		Proposal	Type of Structure	Span Arrangement	Overall Width (m)
1	55+340	New Proposed	RCC Box Culvert	1X3.0	12.00

(3) RCC Slab Culvert: Nil.

Sr. No.	Design Ch. (Km)	Details of Proposed Structure			
		Proposal	Type of Structure	Span Arrangement	Overall Width (m)
Nil.					

Note: In addition to above culverts, new culverts as per site requirement shall be constructed for drainage arrangement at following junctions as per standard set forth in Schedule 'D'.

Sr. No.	Type of Junction	Nos.	Details of proposed Structure	
			Span	Width (m)

1	T/Y/+ - junction	19	1 Row 1200	As per Type Junction improvement (IRC-SP-41)
	Total	**19**		

Note: - It is clarified that if any other deficient junctions with cross BT/CC roads is identified during development period shall be improved with drainage facilities with pipe culvert & as per standard set forth in Schedule 'D', it shall not be consider under COS. If the concessioner does not provide the above specified length and number this shall be treated s negative change of scope.

f. Repairs/replacements of railing/parapets, flooring and protection works of the existing culverts shall be undertaken as per para 7.22 of the Manual.

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

h. Existing Culvert Abandoned:

The following existing culverts shall be abandoned

Sr. No	Location (Km)	Existing Structure		Proposed Structure
	Existing Ch.	Type	Span (m)	
Nil.				

(iii) Bridges

a. Reconstruction/widening of existing bridges:

i. The existing bridges at the following locations shall be re-constructed as new structures as per paragraph 7.3. (ii) of the Manual.

(1) Reconstruction of Major Bridges: Nil.

Sr. No.	Existing Ch. (Km)	Design Ch. (Km)	Detail of Existing Structure			Details of Proposed Structure			
			Type of Structure	Span Arrangement	Overall Width (m)	Proposal	Type of Structure	Span Arrangement	Overall Width (m)
Nil.									

(2) Reconstruction of Minor Bridges: 4 Nos.

Sr. No.	Existing Ch. (Km)	Design Ch. (Km)	Detail of Existing Structure			Details of Proposed Structure			
			Type of Structure	Span Arrangement	Overall Width (m)	Proposal	Type of Structure	Span Arrangement	Overall Width (m)
1	21+120	21+125	RCC Slab Bridge	2X8.90	8.50	Reconstruction	RCC Girder Bridge	1X20.0	12.00
2	64+045	64+040	RCC Slab Bridge	5X2.00	13.00	Reconstruction	RCC Slab Bridge	2X15.0	12.00
3	70+430	70+410	RCC Slab Bridge	2X9.00	8.40	Reconstruction	RCC Girder Bridge	1X20.0	12.00
4	72+065	72+050	RCC Slab Culvert	1X4.00	8.40	Reconstruction	RCC Slab Bridge	1X8.0	12.00

General arrangement drawings are attached in Annex - I of Schedule – I

Note 1: The dismantling of existing bridges and disposal of the material with all lead & lifts shall be carried out.

Note 2: A temporary diversion works at these locations shall be constructed as per the Manual and as per para 112 of standards and specifications of Indian Road Congress (MORTH) fifth Revision - 2013 with adequate cross drainage structure

and traffic safety and control devices. The diversions shall be maintained in satisfactory condition till such time they are required under original scope. Miminum specifications of Diversion Road shall be as under:

1. Width of diversion road shall not be less than 10m to allow smooth movement of the traffic.

2. CBR Value of 8% shall be attained in the embankment construction of the diversion road.

3. Minimum of 250mm Grading 1 GSB shall be laid before laying Open Graded Premixed Carpet of 20mm thickness (Minimum) along with the laying of Seal coat.

4. NP4 Pipes of 1200mm diameter shall be used for cross drainage (if any) beneath the diversion road.

Note 3: Contractor to assess the requirement of additional land for diversion road, Additional cost of land (if required) in same context shall be borne by the contractor and shall not constitute change of scope.

Note 4: Structural reinforcement shall be HYSD bars of grade Fe 500 conforming to IS-1786.

Note 5: RCC crash barrier in M-40 grade concrete and RCC railing in M-30 grade of concrete shall be provided.

Note 6: Two coats of water-based cement paint to un-plastered concrete surface after cleaning the surface of dirt, dust, oil, grease, etc. shall be provided as per Ministry's specifications and IRC codal provisions.

Note 7: Besides, Retro-reflectorized cautionary, mandatory and informatory sign as per IRC-67-2001, hazard maker sign boards, hot applied thermoplastic compound 2.5 mm thick as per IRC: 35, road studs, delineators shall be provided to serve the appropriate structural and functional need of the bridge and approaches.

ii. The following narrow bridges shall be widened including strengthening & repairing of existing bridges:

(1) Widening with strengthening of Major Bridge: Nil.

Sr. No.	Existing Ch. (Km)	Design Ch. (Km)	Detail of Existing Structure			Details of Proposed Structure			
			Type of Structure	Span Arrangement	Overall Width (m)	Proposal	Type of Structure	Span Arrangement	Overall Width (m)
Nil.									

(2) Widening with strengthening of Minor Bridges: Nil.

Sr. No.	Existing Ch. (Km)	Design Ch. (Km)	Detail of Existing Structure			Details of Proposed Structure			
			Type of Structure	Span Arrangement	Overall Width (m)	Proposal	Type of Structure	Span Arrangement	Overall Width (m)
Nil.									

Note 1: Strengthening & repairing of existing bridge shall be carried out where

ever required. However, this shall not be treated as change of scope.

Note 2: The diversion works if any required during construction shall be provided with suitable vents for the waterway.

Note 3: Contractor to assess the requirement of additional land for diversion road, Additional cost of land (if required) in same context shall be borne by the contractor and shall not constitute change of scope.

b. Retaining of existing Major/Minor bridges with strengthening & repairing: 8 Nos.

(1) Retaining of existing Major bridges with repair: 02 Nos.

Sr. No.	Existing Ch. (Km)	Design Ch. (Km)	Detail of Existing Structure			Proposal
			Type of Structure	Span Arrangement	Overall Width (m)	
1	40+345	40+345	RCC Slab Bridge	8X11.50	12.00	Retained With Rehabilitation
2	43+225	43+220	RCC Slab Bridge	4X12.0+5X15.0 +4X12.0	12.00	Retained With Rehabilitation

(2) Retaining of existing Minor bridges with strengthening & repairing: 06 Nos.

Sr. No.	Existing Ch. (Km)	Design Ch. (Km)	Detail of Existing Structure			Proposal
			Type of Structure	Span Arrangement	Overall Width (m)	
1	29+200	29+200	RCC Box Bridge	3X3.00	12.00	Retained With Rehabilitation
2	35+445	35+440	RCC Slab Bridge	5X6.40	12.00	Retained With Rehabilitation
3	42+910	42+900	RCC Slab Bridge	3X3.00	12.00	Retained With Rehabilitation
4	43+710	43+700	RCC Slab Bridge	4X6.40	12.00	Retained With Rehabilitation
5	45+850	45+840	RCC Slab Bridge	2X6.30	12.00	Retained With Rehabilitation
6	52+255	52+245	RCC Box Bridge	6X3.00	12.00	Retained With Rehabilitation

c. Additional new bridges

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

(1) Major Bridges in New Proposed: Nil.

Sr. No.	Existing Ch. (Km)	Design Ch. (Km)	Detail of Existing Structure			Details of Proposed Structure			
			Type of Structure	Span Arrangement	Overall Width (m)	Proposal	Type of Structure	Span Arrangement	Overall Width (m)
Nil.									

(2) Minor Bridges in New Construction: Nil.

Sr. No.	Existing Ch. (Km)	Design Ch. (Km)	Detail of Existing Structure			Details of Proposed Structure			
			Type of Structure	Span Arrangement	Overall Width (m)	Proposal	Type of Structure	Span Arrangement	Overall Width (m)
Nil									

d. The railings of existing bridges shall be replaced by crash barriers as per paragraphs 7.17 (iv) of the Manual

e. Repairs/replacements of railing/parapets of the existing bridges as per paragraphs 7.22 (i) (a) of the Manual shall be undertaken as follows:

Sr. No	Location (Km)		Existing Structure			Proposal
	Existing Ch.	Design Ch.	Type	Span (m)	Width (m)	
1	29+200	29+200	RCC Box Bridge	3X3.00	12.00	Retained With Rehabilitation
2	35+445	35+440	RCC Slab Bridge	5X6.40	12.00	Retained With Rehabilitation
3	40+345	40+345	RCC Slab Bridge	8X11.50	12.00	Retained With Rehabilitation
4	42+910	42+900	RCC Slab Bridge	3X3.00	12.00	Retained With Rehabilitation
5	43+225	43+220	RCC Slab Bridge	4X12.0+5X15.0 +4X12.0	12.00	Retained With Rehabilitation
6	43+710	43+700	RCC Slab Bridge	4X6.40	12.00	Retained With Rehabilitation
7	45+850	45+840	RCC Slab Bridge	2X6.30	12.00	Retained With Rehabilitation
8	52+255	52+245	RCC Box Bridge	6X3.00	12.00	Retained With Rehabilitation

f. Drainage system for bridge decks

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

g. Structures in marine environment

[Refer to paragraph 7.21 of the Manual and specify the necessary measures / treatments for protecting structures in marine environment, where applicable]

Nil.

(iv) Rail-road bridges

a. Design, construction and detailing of ROB/RUB shall be as specified in paragraph 7.18 of the Manual.

b. Road over-bridges

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

Sl. No.	Existing Ch. (Km)	Design Ch. (Km)	Remarks
Nil.			

c. Road under-bridges

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

Sl. No.	Existing Ch. (Km)	Design Ch. (Km)	Remarks
Nil.			

(v) Grade separated structures

(Refer to paragraph 7.19 of the Manual)

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

Sl. No.	Existing Ch. (Km)	Design Ch. (Km)	Remarks
Nil.			

(vi) Repairs and strengthening of bridges and structures

The existing bridges and structures to be repaired/strengthened as per paragraph 7.22 of the Manual, and the nature and extent of repairs /strengthening required are given below:

A. Bridges: 08 nos.

Sr. No	Location (Km)		Nature and extent of repairs /strengthening to be carried out
	Existing Ch.	Design Ch.	
1	29+200	29+200	The followings repairs /strengthening work where required shall be carried out - • Wearing Coat Replacement • Repair & replacement of railing/ Crash Barriers • Replacement of expansion joints & bearings • Painting of railing/ crash barriers • Epoxy grouting for crack filling & Epoxy plaster on exposed reinforcement surface • Repairing of substructure & foundation etc. • Installation of utility carrier • Weed removal in upstream & downstream including cleaning of waterway
2	35+445	35+440	
3	40+345	40+345	
4	42+910	42+900	
5	43+225	43+220	
6	43+710	43+700	
7	45+850	45+840	
8	52+255	52+245	

Note: The nature and extent of repairs /strengthening works required as mentioned in the table above are minimum specified and may vary as per site condition which shall not constitute any change in scope. If the concessioner does not provide the above specified number this shall be treated as negative change of scope.

B. ROB / RUB

The existing bridges and structures to be repaired/strengthened as per paragraph 7.22 of the Manual, and the nature and extent of repairs /strengthening required are given below:

(1) ROB: Nil.

(2) RUB: Nil.

C. Overpasses/Underpasses and other structures

Nil.

8. TRAFFIC CONTROL DEVICES AND ROAD SAFETY WORKS

8.1 Traffic control devices and road safety works shall be provided in accordance with Section 9 of the Manual.

8.2 Specifications of the reflective sheeting. [Refer to paragraph 9.3 of the Manual and specify]

Note: All Traffic Signs for Road Users would be provided as per Manual. However, the Contractor Shall provide minimum numbers of Cautionary, Mandatory, Warning and Informatory Traffic Sign Boards on main highway and for junction improvement as mentioned below:

Sl No	Size	Minimum Nos. on Main Highway	Minimum Nos. for junction improvement
1	90 cm Equilateral Triangle (Warning Sign)	524	8
2	60 cm Equilateral Triangle (Warning Sign)	-	43
3	90 cm High Octagon (Stop Sign)	-	49

Sl No	Size	Minimum Nos. on Main Highway	Minimum Nos. for junction improvement
4	60 cm Circular (Speed Restriction)	180	22
5	800mm X 600mm Rectangular (Information & Facility)	158	-
6	600mm X 500mm Rectangular (Chevron Sign)	2739	-
7	900mm X 300mm Rectangular (Object Hazard Marker)	456	-
8	Route Marker Signs	30	-
9	Overhead Gantry Sign	2	-
10	Cantilever Gantry Sign	7	-
11	Direction & place identification signs (upto 0.9 sqm)	102	85
12	Direction & place identification signs (>0.9 sqm)	24	-
13	Road delineators	1783	1910
14	Road Studs	7803	3302

Above numbers of traffic signs are indicative and minimum specified. The actual numbers of traffic signs shall be determined by the Contractor in accordance with the requirements of the Manual. Any increase in the numbers specified in this Clause of Schedule B shall not constitute a Change of Scope. If the concessioner does not improve, minimum above mention nos this shall be treated as negative change of scope.

9. ROADSIDE FURNITURE

9.1 Roadside furniture shall be provided in accordance with the provisions of Section 9 of the Manual.

9.2 **Overhead traffic signs:** The locations are mentioned in below table and the size shall be evolved based on design of sign boards given in IRC 67-

Minimum nos. of Overhead gantry signs shall not be less than 2 nos. & cantilever gantry sign shall not be less than 7 nos.

Note-1: Overhead sign boards shall be provided at as per provisions of the Manual and shall not constitute a Change of Scope. If the concessioner does not provide minimum above mention nos this shall be treated as negative change of scope.

Note-2: Above numbers & type are indicative and minimum specified. The actual numbers shall be determined by the Contractor in accordance with the requirements of the Manual. Any increase in the numbers specified in this Clause of Schedule B shall not constitute a Change of Scope.

9.3 **Temporary Diversion**
Temporary diversion works at required locations during construction shall be provided as per IRC guidelines.

9.4 **Compulsory Afforestation**
Compulsory afforestation shall be done by the contractor as per paragraph 11.1 of IRC SP 73:2018. Avenue Tree Plantation (As per IRC:21) In Single row @ 20m interval both side in staggered way in along open area. Number of trees to be planted shall not

be less than **4861 Nos.** trees which is higher shall be done by the Contractor as per paragraph 11.1 of the Manual or as per the conditions stipulated in permission letter by concerning Authority.

9.5 **Road side Avenue trees**

Planting of trees at least **4861 nos**. by the road side (Avenue trees) in 0.60 m dia holes, 1 m deep dug in the ground, mixing the soil with decayed farm yard/sludge mannure, planting the saplings, backfilling the trench, watering, and maintaining the plants for one year.

9.6 **Hazardous Locations**

The safety barriers shall be provided at the following hazardous locations in accordance with the provisions of the Manual.

(i) **W-beam crash barriers** shall be provided at the following hazardous locations:

Sl No	Design Ch. (From)	Design Ch. (To)	Length (Km)	Side	Total Length (Km)	Remarks
1	15.300	15.550	0.250	RHS	0.250	Outside of Curve
2	15.750	15.850	0.100	LHS	0.100	Outside of Curve
3	16.000	16.100	0.100	LHS	0.100	Outside of Curve + High Embankment
4	16.100	16.200	0.100	RHS	0.100	Outside of Curve + High Embankment
5	20.960	21.110	0.150	BHS	0.300	Structure Approach
6	21.140	21.290	0.150	BHS	0.300	Structure Approach
7	24.100	24.200	0.100	RHS	0.100	Outside of Curve + High Embankment
8	25.250	25.350	0.100	LHS	0.100	Outside of Curve + High Embankment
9	28.275	28.850	0.575	LHS	0.575	Outside of Curve + High Embankment
10	28.850	29.100	0.250	RHS	0.250	Outside of Curve + High Embankment
11	29.450	29.750	0.300	LHS	0.300	Outside of Curve + High Embankment
12	34.450	35.300	0.850	LHS	0.850	Outside of Curve + High Embankment
13	35.300	35.420	0.120	BHS	0.240	Structure Approach
14	35.460	35.560	0.100	BHS	0.200	Structure Approach
15	35.560	37.800	2.240	RHS	2.240	Outside of Curve + High Embankment
16	37.800	37.875	0.075	BHS	0.150	High Embankment
17	37.875	38.000	0.125	RHS	0.125	Outside of Curve + High Embankment
18	40.145	40.295	0.150	BHS	0.300	Structure Approach
19	40.395	40.545	0.150	BHS	0.300	Structure Approach
20	40.545	40.800	0.255	LHS	0.255	Outside of Curve + High Embankment
21	42.977	43.127	0.150	BHS	0.300	Structure Approach
22	43.312	43.462	0.150	BHS	0.300	Structure Approach
23	43.583	43.683	0.100	BHS	0.200	Structure Approach
24	43.718	43.818	0.100	BHS	0.200	Structure Approach

Sl No	Design Ch. (From)	Design Ch. (To)	Length (Km)	Side	Total Length (Km)	Remarks
25	45.730	45.830	0.100	BHS	0.200	Structure Approach
26	45.850	45.950	0.100	BHS	0.200	Structure Approach
27	48.150	49.250	1.100	RHS	1.100	Outside of Curve + High Embankment
28	50.100	50.200	0.100	LHS	0.100	Outside of Curve + High Embankment
29	52.133	52.233	0.100	BHS	0.200	Structure Approach
30	52.258	52.358	0.100	BHS	0.200	Structure Approach
31	59.800	60.450	0.650	LHS	0.650	Outside of Curve + High Embankment
32	60.450	60.700	0.250	BHS	0.500	Outside of Curve + High Embankment
33	60.700	61.100	0.400	LHS	0.400	Outside of Curve + High Embankment
34	61.100	61.375	0.275	RHS	0.275	Outside of Curve + High Embankment
35	61.375	61.550	0.175	BHS	0.350	High Embankment
36	63.920	64.020	0.100	BHS	0.200	Structure Approach
37	64.060	64.160	0.100	BHS	0.200	Structure Approach
38	70.295	70.395	0.100	BHS	0.200	Structure Approach
39	70.425	70.525	0.100	BHS	0.200	Structure Approach
40	71.940	72.040	0.100	BHS	0.200	Structure Approach
41	72.060	72.160	0.100	BHS	0.200	Structure Approach
Total Length					**13.510**	

Note: Above length is indicative and minimum specified. The actual length shall be determined by the Contractor in accordance with the requirements of the Manual. Any increase in the numbers specified in this Clause of Schedule B shall not constitute a Change of Scope. If the concessioner does not provide minimum above mention length this shall be treated as negative change of scope.

(ii) **13510 nos. Guard Stones** shall be provided at hazardous locations.

Note: Above numbers are indicative and minimum specified. The actual numbers shall be determined by the Contractor in accordance with the requirements of the Manual. Any increase in the numbers specified in this Clause of Schedule B shall not constitute a Change of Scope. If the concessioner does not provide minimum above mention nos this shall be treated as negative change of scope.

(iii) Side slope shall be protected by using suitable slope protection measures like pitching works as per the Manual and shall not constitute a Change of Scope.

(iv) Guard rails shall be provided at hazardous locations, junctions, schools, bus stops, and medians etc. as per provisions given in the Manual and shall not constitute a Change of Scope.

9.7 Special Requirement for Hill roads

The following provisions shall be made.

(a) Toe Wall

RCC Toe Wall shall be provided at the following locations to restrict embankment toe.

Sl No	Design Ch. (From)	Design Ch. (To)	Length (Km)	Side	Total Length (Km)	Avg. Height above GL (m)
1	6.300	6.380	0.080	BHS	0.160	0.80
2	14.830	14.870	0.040	BHS	0.080	0.80
3	16.000	16.135	0.135	BHS	0.270	1.50
4	16.145	16.220	0.075	BHS	0.150	1.50
5	20.780	20.820	0.040	BHS	0.080	0.80
6	21.140	21.200	0.060	RHS	0.060	0.80
7	21.980	22.085	0.105	LHS	0.105	0.80
8	22.095	22.180	0.085	BHS	0.170	0.80
9	22.660	22.725	0.065	BHS	0.130	1.20
10	22.735	22.770	0.035	BHS	0.070	1.20
11	23.320	23.380	0.060	BHS	0.120	1.20
12	24.590	24.680	0.090	BHS	0.180	1.00
13	27.180	27.215	0.035	BHS	0.070	1.00
14	27.225	27.260	0.035	BHS	0.070	1.00
15	27.780	27.865	0.085	BHS	0.170	1.20
16	27.875	27.920	0.045	BHS	0.090	1.20
17	30.750	30.770	0.020	BHS	0.040	0.80
18	31.080	31.095	0.015	BHS	0.030	0.80
19	31.105	31.120	0.015	BHS	0.030	0.80
20	34.470	34.540	0.070	BHS	0.140	1.00
21	36.650	36.670	0.020	BHS	0.040	1.20
22	36.770	36.790	0.020	BHS	0.040	1.00
23	37.840	37.940	0.100	BHS	0.200	1.50
24	40.720	40.795	0.075	BHS	0.150	0.80
25	40.805	40.820	0.015	BHS	0.030	0.80
26	45.440	45.480	0.040	BHS	0.080	0.80
27	45.890	45.910	0.020	BHS	0.040	0.80
28	46.170	46.230	0.060	BHS	0.120	0.80
29	46.340	46.440	0.100	BHS	0.200	0.80
30	50.220	50.350	0.130	BHS	0.260	1.20
31	51.930	51.945	0.015	BHS	0.030	0.80
32	51.955	51.970	0.015	BHS	0.030	0.80
33	58.040	58.080	0.040	BHS	0.080	0.80
34	60.400	60.440	0.040	BHS	0.080	0.80
35	60.610	60.700	0.090	BHS	0.180	1.00
36	60.840	60.940	0.100	BHS	0.200	1.20
37	61.120	61.280	0.160	BHS	0.320	1.50
38	64.055	64.160	0.105	BHS	0.210	0.80
39	68.000	68.040	0.040	RHS	0.040	1.20
40	68.050	68.125	0.075	RHS	0.075	1.20
41	70.380	70.395	0.015	BHS	0.030	1.20
42	70.425	70.460	0.035	BHS	0.070	1.20
43	71.125	71.260	0.135	RHS	0.135	1.20
44	72.540	72.640	0.100	BHS	0.200	0.80
Total Length of RCC Toe Wall					**5.055**	

M.P. ROAD DEVELOPMENT CORPORATION LTD. 45-W Arera Hills Bhopal (M.P.)

Note: Above length is indicative and minimum specified. The actual length shall be determined by the Contractor in accordance with the requirements of the Manual. Any increase in the numbers specified in this Clause of Schedule B shall not constitute a Change of Scope. If the concessioner does not provide minimum above mention length this shall be treated as negative change of scope.

(b) Retaining Wall

RCC Retaining Wall shall be provided at the following locations.

Sl No	Design Ch. (From)	Design Ch. (To)	Length (Km)	Side	Total Length (Km)	Avg. Height above GL
1	36.670	36.730	0.060	BHS	0.120	2.5
2	36.740	36.770	0.030	BHS	0.060	2.5
Total					**0.180**	

Note: Above length is indicative and minimum specified. The actual length shall be determined by the Contractor in accordance with the requirements of the Manual. Any increase in the numbers specified in this Clause of Schedule B shall not constitute a Change of Scope. If the concessioner does not provide minimum above mention length this shall be treated as negative change of scope.

(c) RCC Open Drain shall be provided the following along Ghat section-

Sl No	Design Ch. (From)	Design Ch. (To)	Length (Km)	Side	Total Length (Km)	Overall Width (m)	Ref TCS	Remarks
1	24.070	24.120	0.050	LHS	0.050	0.90	TCS-III (D)	Hilly Area
2	24.120	24.250	0.130	LHS	0.130	0.90	TCS-III (A)	Hilly Area
3	28.300	28.860	0.560	RHS	0.560	0.90	TCS-III (B)	Hilly Area
4	29.180	29.250	0.070	RHS	0.070	0.90	TCS-III (B)	Hilly Area
5	29.520	29.580	0.060	RHS	0.060	0.90	TCS-III (B)	Hilly Area
6	29.580	29.660	0.080	RHS	0.080	0.90	TCS-III (E)	Hilly Area
7	29.660	29.750	0.090	RHS	0.090	0.90	TCS-III (B)	Hilly Area
8	29.750	30.240	0.490	RHS	0.490	0.90	TCS-III (C)	Hilly Area
9	30.240	30.440	0.200	RHS	0.200	0.90	TCS-III (F)	Hilly Area
10	30.520	30.600	0.080	RHS	0.080	0.90	TCS-III (C)	Hilly Area
11	31.900	31.980	0.080	RHS	0.080	0.90	TCS-III (B)	Hilly Area
12	31.980	32.160	0.180	RHS	0.180	0.90	TCS-III (E)	Hilly Area
13	32.160	32.350	0.190	RHS	0.190	0.90	TCS-III (B)	Hilly Area
14	32.350	32.640	0.290	RHS	0.290	0.90	TCS-III (E)	Hilly Area
15	32.730	32.800	0.070	RHS	0.070	0.90	TCS-III (C)	Hilly Area
16	34.500	34.580	0.080	RHS	0.080	0.90	TCS-III (E)	Hilly Area
17	34.660	34.720	0.060	RHS	0.060	0.90	TCS-III (E)	Hilly Area
18	34.880	34.960	0.080	RHS	0.080	0.90	TCS-III (B)	Hilly Area
19	35.160	35.280	0.120	RHS	0.120	0.90	TCS-III (E)	Hilly Area
20	35.280	35.460	0.180	RHS	0.180	0.90	TCS-III (B)	Hilly Area
21	35.460	35.500	0.040	LHS	0.040	0.90	TCS-III (A)	Hilly Area
22	35.600	35.700	0.100	LHS	0.100	0.90	TCS-III (D)	Hilly Area
23	36.020	36.100	0.080	LHS	0.080	0.90	TCS-III (D)	Hilly Area
24	36.370	36.520	0.150	LHS	0.150	0.90	TCS-III (A)	Hilly Area
25	36.640	36.810	0.170	LHS	0.170	0.90	TCS-III (D)	Hilly Area
26	36.900	37.100	0.200	LHS	0.200	0.90	TCS-III (A)	Hilly Area
27	37.220	37.520	0.300	LHS	0.300	0.90	TCS-III (A)	Hilly Area

Sl No	Design Ch. (From)	Design Ch. (To)	Length (Km)	Side	Total Length (Km)	Overall Width (m)	Ref TCS	Remarks
28	37.820	37.920	0.100	LHS	0.100	0.90	TCS-III (D)	Hilly Area
29	40.440	40.600	0.160	RHS	0.160	0.90	TCS-III (B)	Hilly Area
30	40.600	40.840	0.240	RHS	0.240	0.90	TCS-III (E)	Hilly Area
31	40.840	40.950	0.110	RHS	0.110	0.90	TCS-III (B)	Hilly Area
32	41.750	42.300	0.550	LHS	0.550	0.90	TCS-III (A)	Hilly Area
33	42.300	42.720	0.420	RHS	0.420	0.90	TCS-III (B)	Hilly Area
34	42.820	43.160	0.340	LHS	0.340	0.90	TCS-III (A)	Hilly Area
35	45.800	45.860	0.060	LHS	0.060	0.90	TCS-III (A)	Hilly Area
36	45.860	45.940	0.080	LHS	0.080	0.90	TCS-III (D)	Hilly Area
37	45.940	46.100	0.160	LHS	0.160	0.90	TCS-III (A)	Hilly Area
38	46.100	46.490	0.390	LHS	0.390	0.90	TCS-III (D)	Hilly Area
39	46.560	46.720	0.160	LHS	0.160	0.90	TCS-III (D)	Hilly Area
40	46.720	47.360	0.640	LHS	0.640	0.90	TCS-III (A)	Hilly Area
41	47.470	47.720	0.250	LHS	0.250	0.90	TCS-III (A)	Hilly Area
42	47.840	48.020	0.180	LHS	0.180	0.90	TCS-III (D)	Hilly Area
43	48.020	48.300	0.280	LHS	0.280	0.90	TCS-III (A)	Hilly Area
44	48.460	48.620	0.160	LHS	0.160	0.90	TCS-III (D)	Hilly Area
45	48.620	48.860	0.240	LHS	0.240	0.90	TCS-III (A)	Hilly Area
46	48.980	49.000	0.020	LHS	0.020	0.90	TCS-III (A)	Hilly Area
47	49.000	49.100	0.100	LHS	0.100	0.90	TCS-III (D)	Hilly Area
48	49.100	49.200	0.100	LHS	0.100	0.90	TCS-III (A)	Hilly Area
49	49.200	49.280	0.080	LHS	0.080	0.90	TCS-III (D)	Hilly Area
50	49.280	49.820	0.540	LHS	0.540	0.90	TCS-III (A)	Hilly Area
51	50.200	50.320	0.120	LHS	0.120	0.90	TCS-III (D)	Hilly Area
52	50.320	50.380	0.060	LHS	0.060	0.90	TCS-III (D)	Hilly Area
53	59.800	60.220	0.420	RHS	0.420	0.90	TCS-III (G)	Hilly Area
54	60.310	60.480	0.170	RHS	0.170	0.90	TCS-III (E)	Hilly Area
55	60.600	60.720	0.120	RHS	0.120	0.90	TCS-III (E)	Hilly Area
56	60.720	60.840	0.120	RHS	0.120	0.90	TCS-III (B)	Hilly Area
57	60.840	61.300	0.460	RHS	0.460	0.90	TCS-III (E)	Hilly Area
Total Length					**11.010**			

Note:

a) Above length is indicative and minimum specified. The actual length shall be determined by the Contractor in accordance with the requirements of the Manual. Any increase in the numbers specified in this Clause of Schedule B shall not constitute a Change of Scope. If the concessioner does not provide minimum above mention length this shall be treated as negative change of scope.

b) Invert levels of the longitudinal drains shall be decided as per adjoining draining area and properties.

c) Cross Sectional dimensions of the drains shown in TCS are minimum to be adopted and will vary as per invert level.

(d) Wire Fencing shall be provided the following at Cutting Section:

Sl No	From Ch	To Ch	Length (Km)	Side	Net Length (Km)	Ref TCS
Nil.						

Note:

Above length is indicative and minimum specified. The actual length shall be determined by the Contractor in accordance with the requirements of the Manual. Any increase in the numbers specified in this Clause of Schedule B shall not constitute a Change of Scope. If the concessioner does not provide minimum above mention length this shall be treated as negative change of scope.

9.8 **Road Markings:** Road Markings shall cover road marking for the entire Project Highway as per clause 9.3 of Manual.

Transverse bar markings/ zebra crossings markings across the project highway shall be provided on either side of junction locations as per IRC-35.

Stop sign markings shall be provided across the side roads at each junction locations as per IRC-35.

Speed breakers shall be provided on side roads to cater safety.

9.9 **Road Side & Median Safety Barriers:** All Road Side & Median Safety Barriers would be provided as per clause 9.7 of Manual. However, the Contractor shall provide Metal (W) beam crash barrier in minimum **13510 m length, the length may increase as per site condition and requirement. The Project Road is the Service Road of the existing Canal and as per MP govt. circular dated, February 2021 for safety of vehicles W-beam crash barriers shall be provided on the entire length of project road along with other safety measures** as mentioned at RHS of Road edge throughout the entire length/ outer edge of sharp curves/ high embankment locations including approach sides of all major and minor bridges in each direction as per the Fig: 9.11 of the manual.

9.10 **Reflective Pavement Markers (Road Studs): minimum numbers for main highway and for junction improvements 7803 nos. and 3302 nos. respectively, the numbers may increase as per site condition and requirement** of road studs (100mm x 100m x 10mm) with reflective panels of dual prismatic cube capable of providing total reflection of light entering the lens face for lane marking and delineation for night time visibility for the entire Project Highway shall be provided as per table 9.1 of the manual.

9.11 **Road delineators: minimum numbers for main highway and for junction improvements 1783 nos. and 1910 nos. respectively, the numbers may increase as per site condition and requirement** of Road delineators shall be provided as per clause 9.4 of Manual.

9.12 **Pedestrian Facilities:** The additional pedestrians' facilities in the form of guard rails, footpath, pedestrian crossings etc. shall be provided as per clause 9.8 of the manual.

10. SPECIAL REQUIREMENTS FOR HILL ROADS: -

Special requirement for hill roads in accordance with the provisions of section 13 of the manual and in consultation with Independent Engineer.

Retaining Wall / Breast wall/ other protection measures shall be provided along the main carriageway / service road in the cutting portion or high embankment more than 3m

consultation with the Independent Engineer as per manual. For this stretch, suitable drainage system shall also be designed and constructed in consultation with Independent Engineer.

11. UTILITIES SHIFTING

Shifting of obstructing existing utilities indicated in Schedule A to an appropriate location in accordance with the standards and specifications of concerned Utility Owning Department is part of the scope of work of the Contractor. The bidders may visit the site and assess the quantum of shifting of utilities for the project before submission of their bid. Copy of utility relocation plan is enclosed with Schedule- A. The specifications of concerned Utility Owning Department shall be applicable and followed.

Note 1: -

A. The type/spacing/size/specifications of poles/towers/lines/cables/ pipes etc. to be used in shifting work shall be as per the guidelines of Utility Owning Department and it is to be agreed solely between the Contractor and the Utility Owning Department. No change of scope shall be admissible and no cost shall be paid for using different type/spacing/size/specifications in shifted work in comparison to those in the existing work or for making any overhead crossings to underground as per requirement of Utility Owning Department and/or construction of project highway. The Contractor shall carry out joint inspection with Utility Owning Department and get the estimates from Utility Owning Department. The assistance of the Authority is limited to giving forwarding letter on the proposal of Contractor to Utility Owning Department whenever asked by the Contractor. The decision/approval of Utility owning Department shall be binding on the Contractor.

B. The supervision charges at the rates/charges applicable of the Utility Owning Department shall be paid directly by the Authority to the Utility owning Department as and when Concessionaire furnishes demand of Utility Owning Department along with a copy of estimated cost given by the latter.

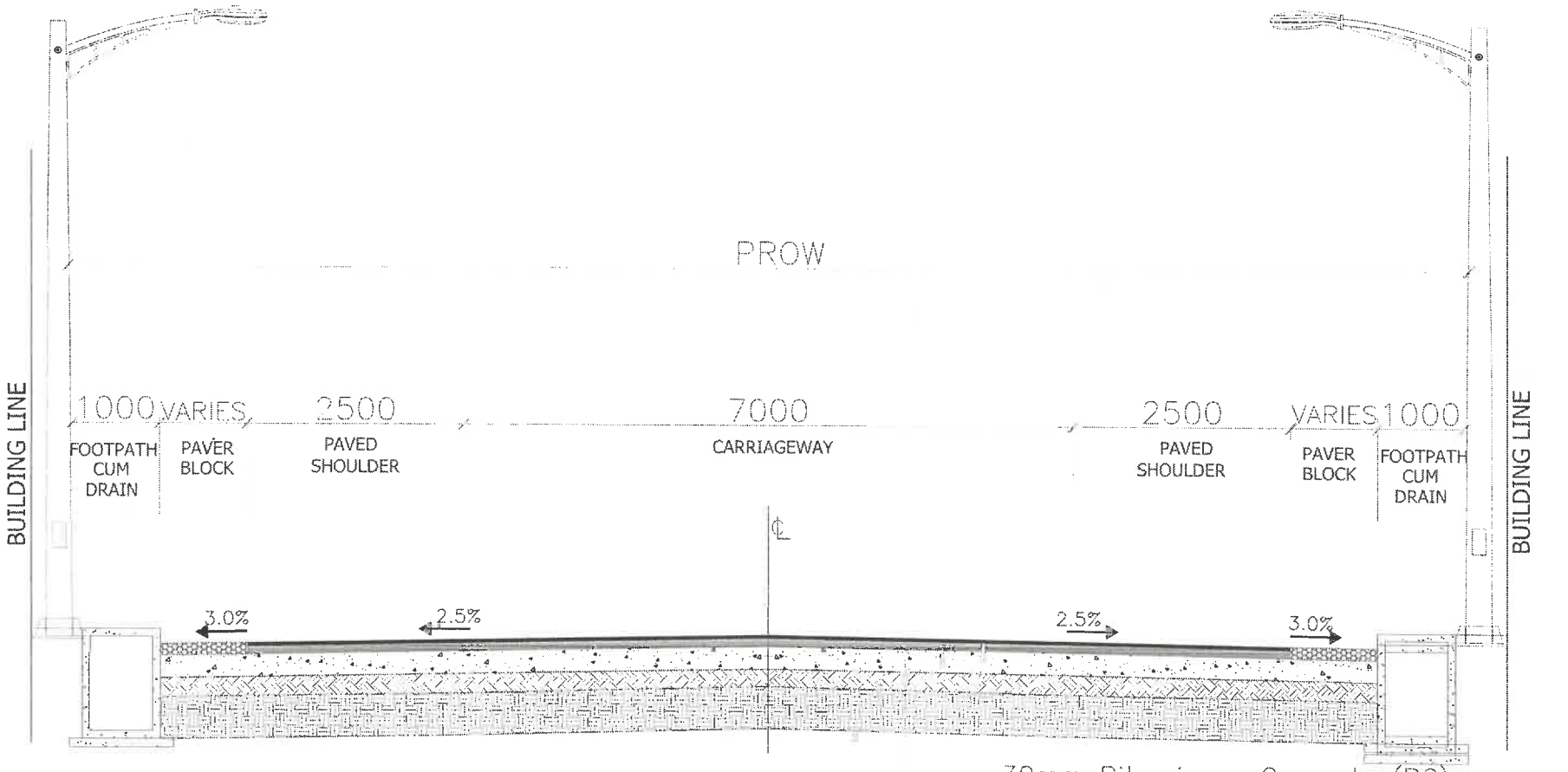
C. The dismantled material /scrap of existing Utility to be shifted/dismantled shall belong to the Contractor who would be free to dispose-off the dismantled material as deemed fit by them unless the Concessionaire is required to deposit the dismantled material to Utility Owning Department as per the norms and practice and, in that case the amount of credit for dismantled material may be availed by the Concessionaire as per the estimate agreed between them.

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

12. CHANGE OF SCOPE

The length of Structures and bridges specified hereinabove shall be treated as an approximate assessment. The lengths of structures and bridges as required on the basis of actual requirement and/or detailed investigations shall be determined by the Concessionaire in accordance with the applicable Specifications and Standards. Any variations in quantities/ the lengths/ type specified in this Schedule-B shall not constitute a Change of Scope, save and except any variations in actual quantities of utilities or

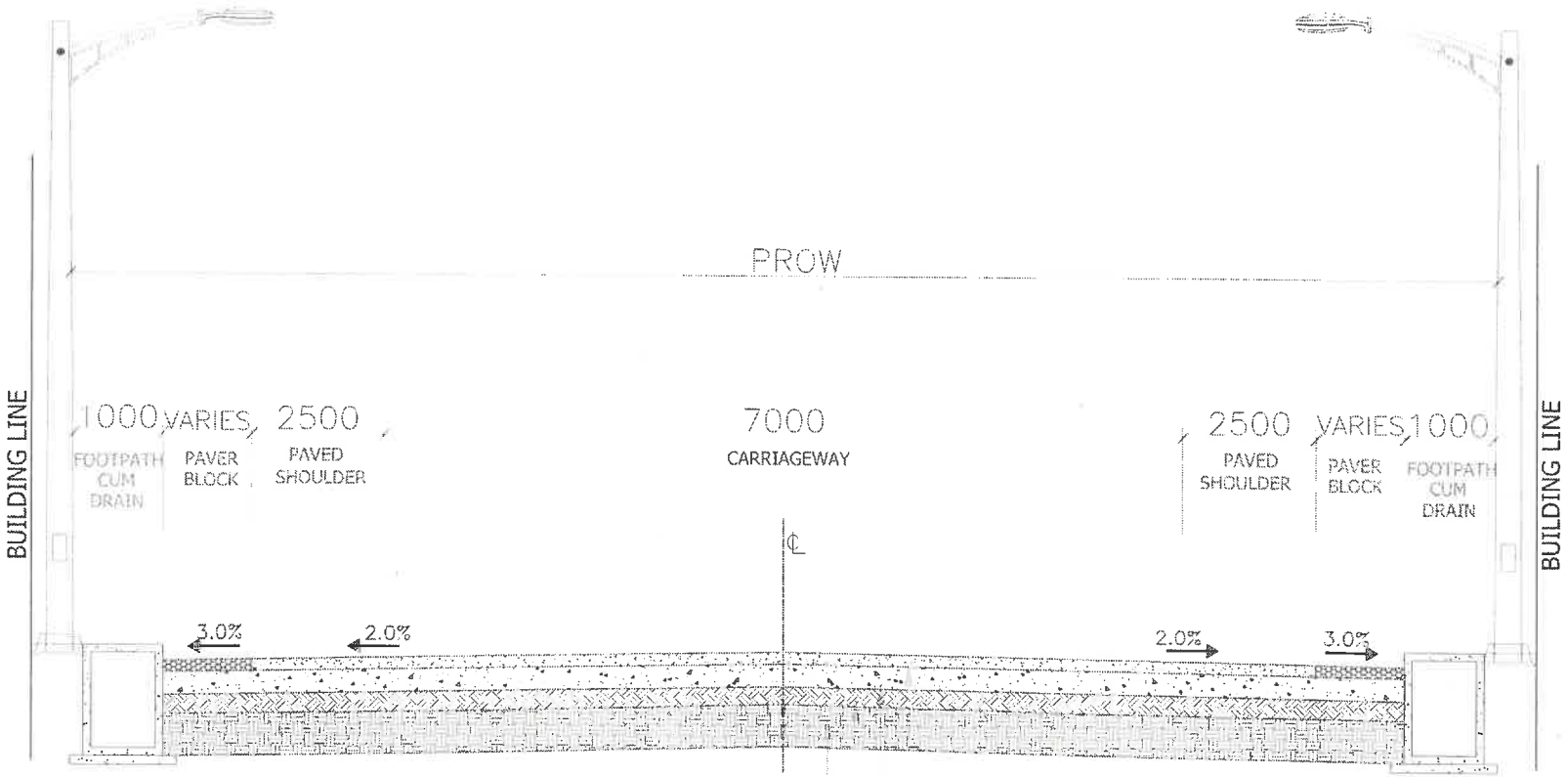
lengths of structures and bridges arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 16.



TCS-1

Typical Cross Section for 2-Lane Carriageway With Paved Shoulder Flexible Pavement (Built-Up Area)

CONSULTANT :-	CLIENT :-	PROJECT TITLE :-	SCALE :-	TYPICAL CROSS SECTIONS
LN MALVIYA INFRA PROJECTS PVT.LTD. BHOPAL Registered Office :- Plot No 29,F/F Sector-1 Dwarka, New Delhi-110078 Email: *lnmalviya@lninfra.com* Corporate Office -1 T-10,Third Floor above Vishal Mega Mart Press Complex M.P. Nagar Zone-1 Bhopal, Email: *lnmalviya@lninfra.com* Phone: 0755-4295421 Corporate Office -2 205-206, 2nd Floor, N.M Tower Near Chappan Dukan, New Palasia, Indore-452001 Email: *lnm.indore2@gmail.com* Phone:0731-4956760	MADHYA PRADESH ROAD DEVELOPMENT CORPORATIONLTD. (GOVT. OF M.P. UNDERTAKING)	CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT FOR 2 LANE WITH PAVED SHOULDER CONFIGURATION OF *PACKAGE-D IN THE STATE OF MADHYA PRADESH*	DIMENTIONS AS MENTION	Road Name:- Shivpuri-Pohari-Karahal-Goras (SH-51A) TCS NO. - 01

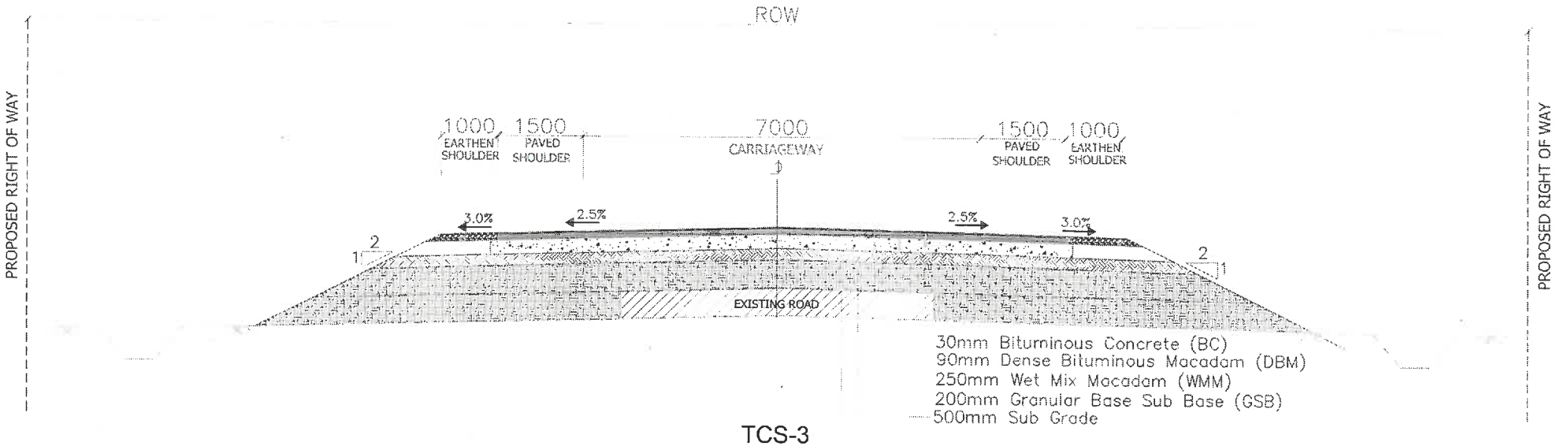


TCS-2

Typical Cross Section for 2-Lane Carriageway With Paved Shoulder Rigid Pavement (Built-Up Area)

CONSULTANT :-	CLIENT :-	PROJECT TITLE :-	SCALE :-	TYPICAL CROSS SECTIONS
LN MALVIYA INFRA PROJECTS PVT.LTD. BHOPAL Registered Office :- Plot No 29,F/F Sector-1 Dwarka, New Delhi-110078 Email: lnmalviya@lninfra.com Corporate Office -1 T-10,Third Floor above Vishal Mega Mart Press Complex M.P. Nagar Zone-1 Bhopal, Email: lnmalviya@lninfra.com Phone: 0755-4295421 Corporate Office -2 205-206, 2nd Floor, N.M Tower Near Chappan Dukan, New Palasia, Indore-452001 Email: lnm.indore2@gmail.com Phone:0731-4958780	MADHYA PRADESH ROAD DEVELOPMENT CORPORATIONLTD. (GOVT. OF M.P. UNDERTAKING)	CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT FOR 2 LANE WITH PAVED SHOULDER CONFIGURATION OF *PACKAGE-D IN THE STATE OF MADHYA PRADESH*	DIMENTIONS AS MENTION	Road Name- Shivpuri-Pohari-Karahal-Goras (SH-51A) TCS NO. - 02

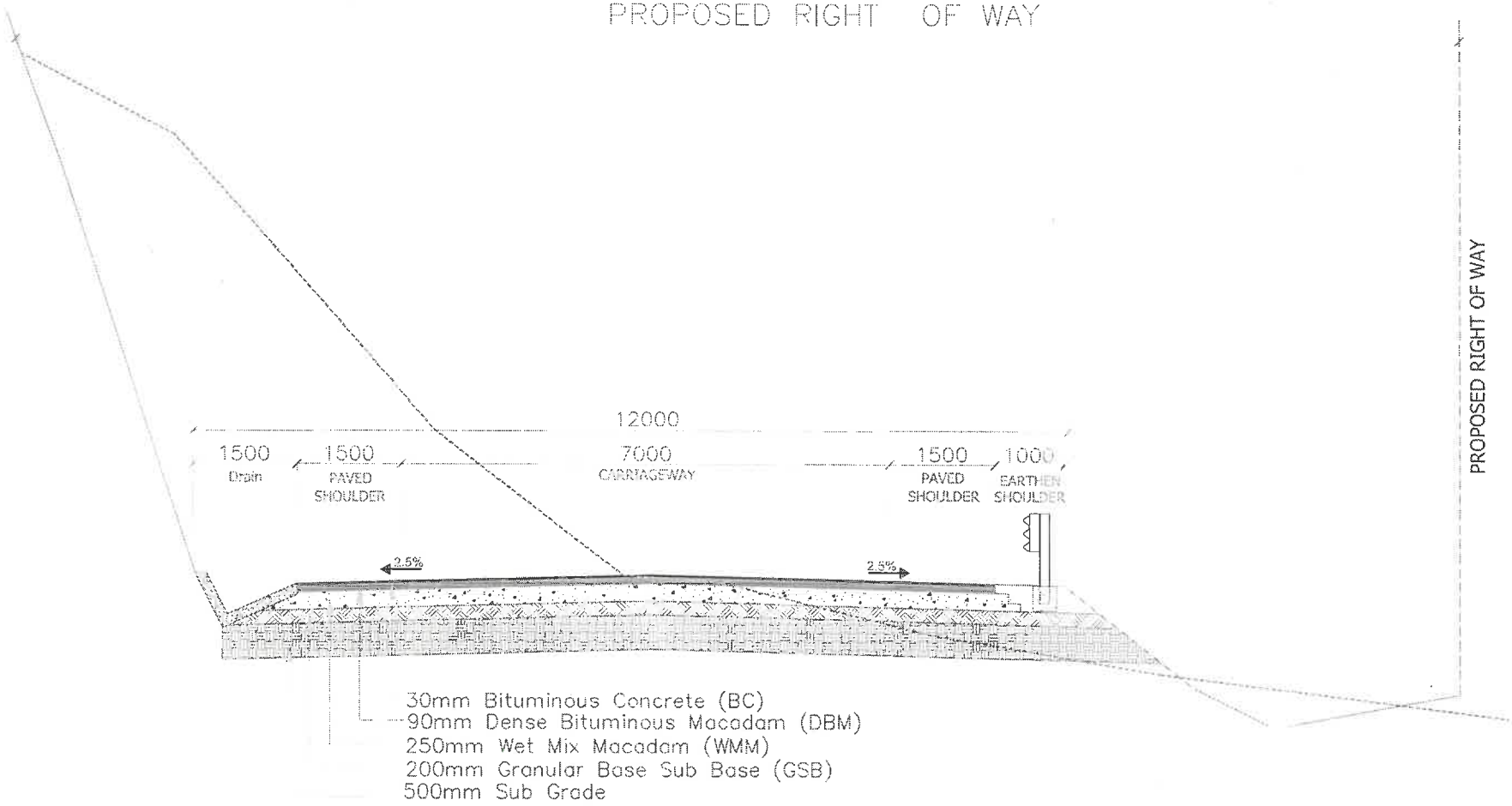
M.P. ROAD DEVELOPMENT CORPORATION LTD. Area Bhopal (M.P.)



TCS-3

Typical Cross Section for 2-Lane Carriageway With Paved Shoulder Flexible Pavement (Open Area)

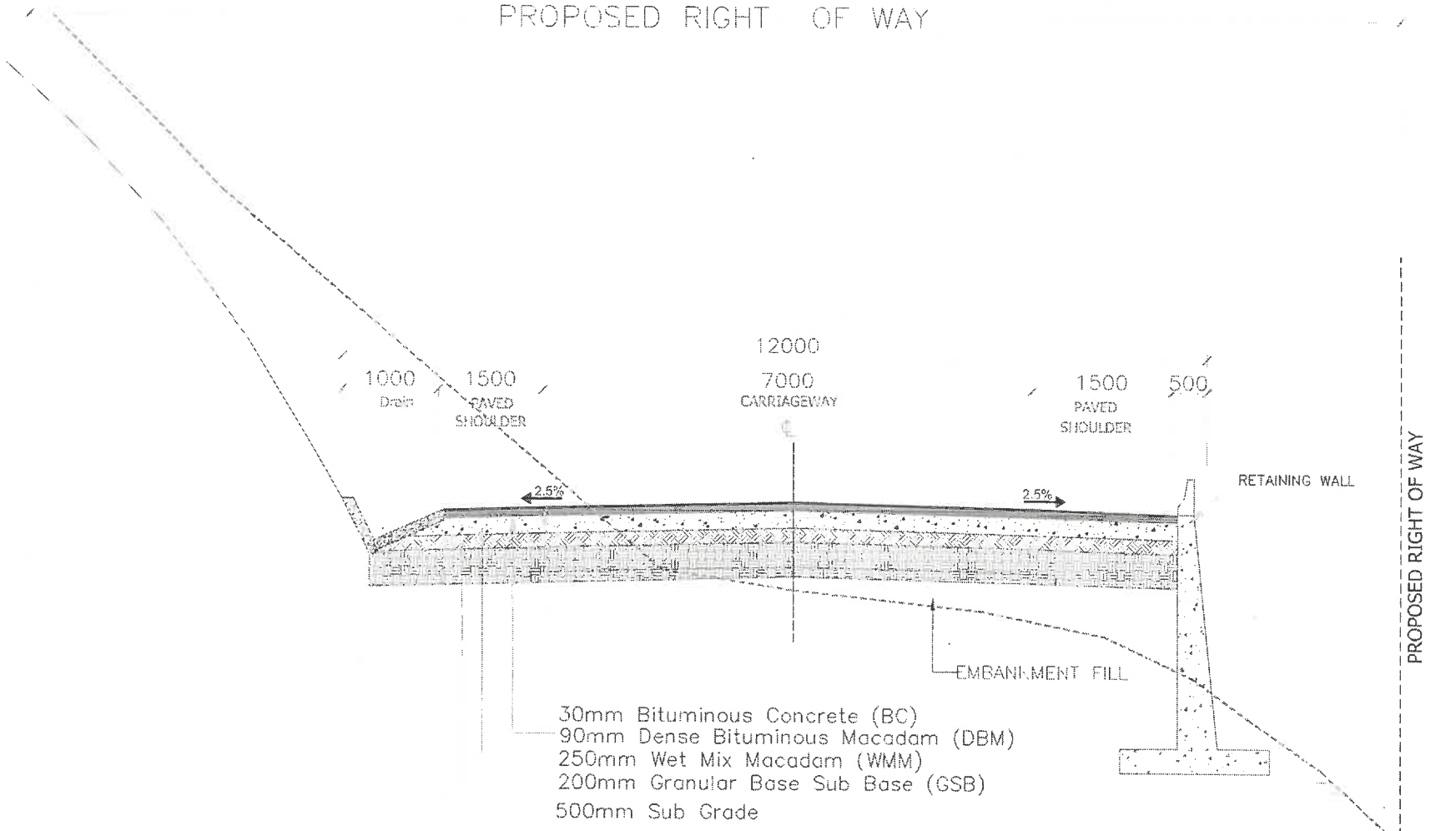
CONSULTANT :-	CLIENT :-	PROJECT TITLE :-	SCALE :-	TYPICAL CROSS SECTIONS
LN MALVIYA INFRA PROJECTS PVT.LTD. BHOPAL Registered Office :- Plot No 29,F/F Sector-1 Dwarka, New Delhi-110078 Email :lnmalviya@lninfra.com Corporate Office -1 T-10,Third Floor above Vishal Mega Mart Press Complex M.P. Nagar Zone-1 Bhopal, Email: lnmalviya@lninfra.com Phone: 0755-4295421 Corporate Office -2 205-206, 2nd Floor, N.M Tower Near Chappan Dukan, New Palasia, Indore-452001 Email: lnm.indore2@gmail.com Phone:0731-4958780	MADHYA PRADESH ROAD DEVELOPMENT CORPORATIONLTD. (GOVT. OF M.P. UNDERTAKING)	CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT FOR 2 LANE WITH PAVED SHOULDER CONFIGURATION OF *PACKAGE-D IN THE STATE OF MADHYA PRADESH*	DIMENTIONS AS MENTION	Road Name- Shivpuri-Pohari-Karahal-Goras (SH-51A) TCS NO. - 03



TCS-4
Typical Cross Section for 2-Lane with Paved Shoulder in one side Cut Section

CONSULTANT :-	CLIENT :-	PROJECT TITLE :-	SCALE :-	TYPICAL CROSS SECTIONS
LN MALVIYA INFRA PROJECTS PVT.LTD. BHOPAL Registered Office :- Plot No.29,F/F Sector-1 Dwarka, New Delhi-110078 Email. lnmalviya@lninfra.com Corporate Office -1 T-10,Third Floor above Vishal Mega Mart Press Complex M.P. Nagar Zone-1 Bhopal, Email: lnmalviya@lninfra.com Phone: 0755-4295421 Corporate Office -2 205-206, 2nd Floor, N.M Tower Near Chappan Dukan, New Palasia, Indore-452001 Email: lnm.indore2@gmail.com Phone:0731-4956780	MADHYA PRADESH ROAD DEVELOPMENT CORPORATIONLTD. (GOVT. OF M.P. UNDERTAKING)	CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT FOR 2 LANE WITH PAVED SHOULDER CONFIGURATION OF *PACKAGE-D IN THE STATE OF MADHYA PRADESH*	DIMENTIONS AS MENTION	Road Name- Shivpuri-Pohari-Karahal-Goras (SH-51A) TCS NO. - 04

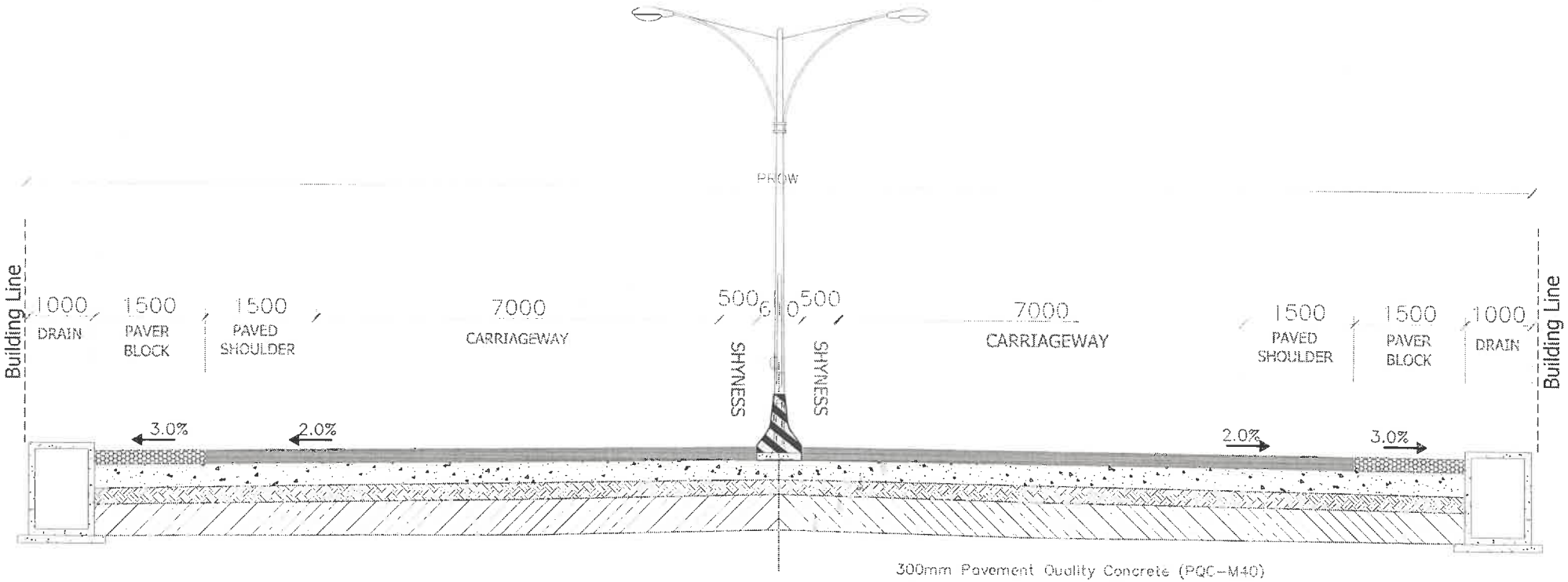
M.P. ROAD DEVELOPMENT CORPORATION LTD. 45-'A' Arera Hills Bhopal (M.P.)



TCS-5

Typical Cross Section for Upgradation to 2-Lane with Paved Shoulder at Fill Section with Valley side Retaining wall

CONSULTANT :-	CLIENT :-	PROJECT TITLE :-	SCALE :-	TYPICAL CROSS SECTIONS
LN MALVIYA INFRA PROJECTS PVT.LTD. BHOPAL Registered Office :- Plot No.29,F/F Sector-1 Dwarka, New Delhi-110078 Email: lnmalviya@lninfra.com Corporate Office -1 T-10,Third Floor above Vishal Mega Mart Press Complex M.P. Nagar Zone-1 Bhopal, Email: lnmalviya@lninfra.com Phone: 0755-4295421 Corporate Office -2 205-206, 2nd Floor, N.M Tower Near Chappan Dukan, New Palasia, Indore-452001 Email: lnm.indore2@gmail.com Phone:0731-4958780	MADHYA PRADESH ROAD DEVELOPMENT CORPORATIONLTD. (GOVT. OF M.P. UNDERTAKING)	CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT FOR 2 LANE WITH PAVED SHOULDER CONFIGURATION OF *PACKAGE-D IN THE STATE OF MADHYA PRADESH*	DIMENTIONS AS MENTION	Road Name- Shivpuri-Pohari-Karahal-Goras (SH-51A) TCS NO. - 05

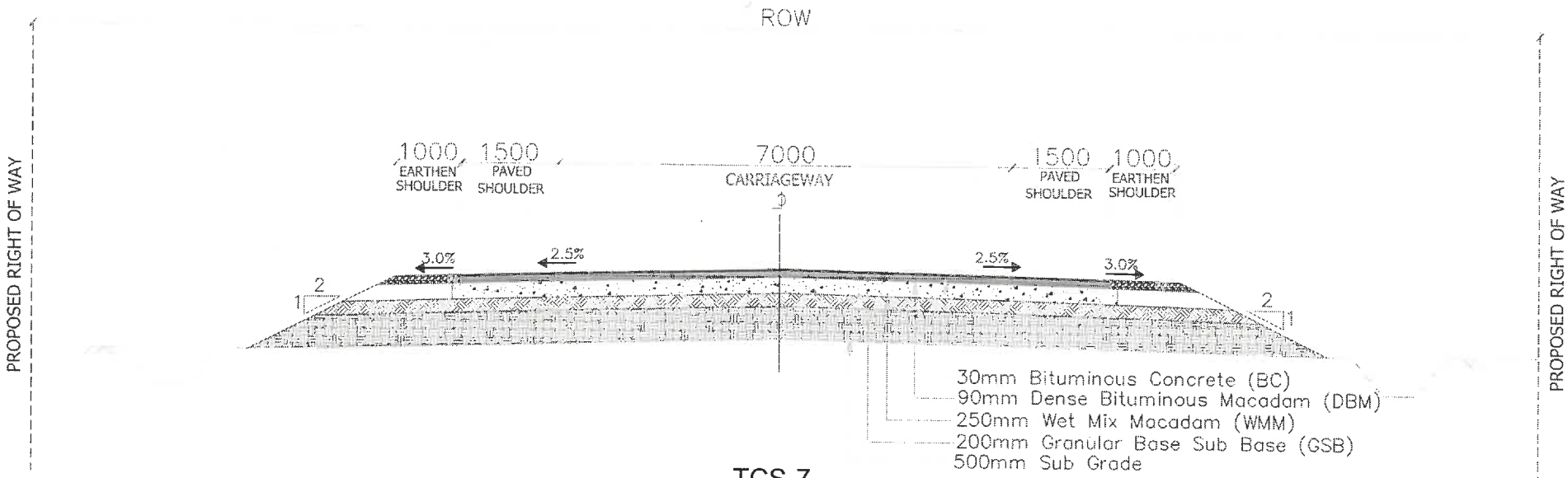


TCS-6

Typical Cross Section for 4 Lane Carriageway+PS with Paver Block Rigid Pavement (Built-Up Area)

CONSULTANT :-	CLIENT :-	PROJECT TITLE :-	SCALE :-	TYPICAL CROSS SECTIONS
LN MALVIYA INFRA PROJECTS PVT.LTD. BHOPAL Registered Office :- Plot No.29,F/F Sector-1 Dwarka, New Delhi-110078 Email: lnmalviya@lninfra.com Corporate Office -1 T-10,Third Floor above Vishal Mega Mart Press Complex M.P. Nagar Zone-1 Bhopal, Email: lnmalviya@lninfra.com Phone: 0755-4295421 Corporate Office -2 205-206, 2nd Floor, N.M Tower Near Chappan Dukan, New Palasia, Indore-452001 Email: lnm.indore2@gmail.com Phone:0731-4958780	MADHYA PRADESH ROAD DEVELOPMENT CORPORATIONLTD. (GOVT. OF M.P. UNDERTAKING)	CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT FOR 2 LANE WITH PAVED SHOULDER CONFIGURATION OF *PACKAGE-D IN THE STATE OF MADHYA PRADESH*	DIMENTIONS AS MENTION	Road Name- Shivpuri-Pohari-Karahal-Goras (SH-51A) TCS NO. - 06

ROAD DEVELOPMENT CORPORATION LTD. Arera Hills Bhopal (M.P.)



TCS-7

Typical Cross Section for 2-Lane Carriageway With Paved Shoulder (Realignment)

CONSULTANT :-	CLIENT :-	PROJECT TITLE :-	SCALE :-	TYPICAL CROSS SECTIONS
LN MALVIYA INFRA PROJECTS PVT.LTD. BHOPAL Registered Office :- Plot No.29,F/F Sector-1 Dwarka, New Delhi-110078 Email: lnmalviya@lninfra.com Corporate Office -1 T-10,Third Floor above Vishal Mega Mart Press Complex M.P. Nagar Zone-1 Bhopal, Email: lnmalviya@lninfra.com Phone 0755-4295421 Corporate Office -2 205-206, 2nd Floor, N.M Tower Near Chappan Dukan, New Palasia, Indore-452001 Email: lnm.indore2@gmail.com Phone:0731-4958780	MPRDC MADHYA PRADESH ROAD DEVELOPMENT CORPORATIONLTD. (GOVT. OF M.P. UNDERTAKING)	CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT FOR 2 LANE WITH PAVED SHOULDER CONFIGURATION OF *PACKAGE-D IN THE STATE OF MADHYA PRADESH*	DIMENTIONS AS MENTION	Road Name- Shivpuri-Pohari-Karahal-Goras (SH-51A) TCS NO. - 07

MADHYA PRADESH ROAD DEVELOPMENT CORPORATION LTD. 45-'A' Arera Hills Bhopal (M.P.)

Revised Annex - II

(Schedule-A)

Details of Right of Way

The Authority further acknowledges and agrees that prior to the Appointed Date, it shall have procured issuance of the statutory notification under Applicable Laws for vesting of all the land comprising the Project in the Authority and has taken possession of area for Construction Zone for at least 80% (eighty per cent) of the total length of the Project Highway except forest reaches RoW shall be provided within 30 days from the date of agreement.

Design Chainage		Length (Km)	Existing RoW (m)	Proposed RoW (m)	Date of Providing RoW
From (Km)	To (Km)				
0.000	13.700	13.700	20 - 25	20 - 25	ROW will be provided on appointed date
13.700	15.700	2.000	5.5	25	Existing ROW will be provided on appointed date and balance ROW 180 days from appointed date
15.700	16.300	0.600	20 - 25	20 - 25	ROW will be provided on appointed date
16.300	16.700	0.400	5.5	25	Existing ROW will be provided on appointed date and balance ROW 180 days from appointed date
16.700	17.600	0.900	0	30	ROW will be provided within 180 days from appointed date
17.600	18.200	0.600	20 - 25	20 - 25	ROW will be provided on appointed date
18.200	19.000	0.800	5.5	25	Existing ROW will be provided on appointed date and balance ROW 180 days from appointed date
19.000	19.400	0.400	20 - 25	20 - 25	ROW will be provided on appointed date
19.400	19.650	0.250	10	30	Existing ROW will be provided on appointed date and balance ROW 180 days from appointed date
19.650	20.480	0.830	20 - 25	20 - 25	ROW will be provided on appointed date
20.480	20.600	0.120	20	30	Existing ROW will be provided on appointed date and balance ROW 180 days from appointed date
20.600	20.900	0.300	20 - 25	20 - 25	ROW will be provided on appointed date
20.900	21.100	0.200	10	30	Existing ROW will be provided on appointed date and balance ROW 180 days from appointed date
21.100	26.150	5.050	20 - 25	20 - 25	ROW will be provided on appointed date
26.150	28.600	2.450	25 - 30	25 - 30	ROW will be provided on appointed date
28.600	28.950	0.350	0	30	ROW will be provided within 180 days from appointed date
28.950	30.500	1.550	25 - 30	25 - 30	ROW will be provided on appointed date
30.500	31.750	1.250	0	30	ROW will be provided within 180

Design Chainage		Length (Km)	Existing RoW (m)	Proposed RoW (m)	Date of Providing RoW
From (Km)	To (Km)				
					days from appointed date
31.750	32.000	0.250	30 - 33	30 - 33	ROW will be provided on appointed date
32.000	32.600	0.600	0	30	ROW will be provided within 180 days from appointed date
32.600	33.200	0.600	25 - 30	25 - 30	ROW will be provided on appointed date
33.200	33.650	0.450	0	30	ROW will be provided within 180 days from appointed date
33.650	33.850	0.200	25 - 30	25 - 30	ROW will be provided on appointed date
33.850	33.950	0.100	5.5	30	Existing ROW will be provided on appointed date and balance ROW 180 days from appointed date
33.950	36.550	2.600	25 - 30	25 - 30	ROW will be provided on appointed date
36.550	36.650	0.100	5.5	25 - 30	Existing ROW will be provided on appointed date and balance ROW 180 days from appointed date
36.650	40.100	3.450	25 - 30	25 - 30	ROW will be provided on appointed date
40.100	40.400	0.300	5.5	30	Existing ROW will be provided on appointed date and balance ROW 180 days from appointed date
40.400	41.750	1.350	25 - 35	25 - 35	ROW will be provided on appointed date
41.750	41.950	0.200	15	30	Existing ROW will be provided on appointed date and balance ROW 180 days from appointed date
41.950	44.750	2.800	30 - 35	30 - 35	ROW will be provided on appointed date
44.750	44.950	0.200	10	30	Existing ROW will be provided on appointed date and balance ROW 180 days from appointed date
44.950	45.500	0.550	25 - 30	25 - 30	ROW will be provided on appointed date
45.500	45.700	0.200	15	30	Existing ROW will be provided on appointed date and balance ROW 180 days from appointed date
45.700	47.600	1.900	25 - 30	25 - 30	ROW will be provided on appointed date
47.600	49.200	1.600	15	15	ROW will be provided on appointed date
49.200	51.600	2.400	25 - 30	25 - 30	ROW will be provided on appointed date
51.600	51.800	0.200	10	30	Existing ROW will be provided on appointed date and balance ROW 180 days from appointed date
51.800	52.250	0.450	25 - 30	25 - 30	ROW will be provided on appointed date
52.250	52.450	0.200	10	30	Existing ROW will be provided on

Design Chainage		Length (Km)	Existing RoW (m)	Proposed RoW (m)	Date of Providing RoW
From (Km)	To (Km)				
					appointed date and balance ROW 180 days from appointed date
52.450	53.300	0.850	20 - 30	20 - 30	ROW will be provided on appointed date
53.300	54.350	1.050	15 - 20	15 - 20	ROW will be provided on appointed date
54.350	54.500	0.150	25 - 30	25 - 30	ROW will be provided on appointed date
54.500	54.700	0.200	10	30	Existing ROW will be provided on appointed date and balance ROW 180 days from appointed date
54.700	56.150	1.450	25 - 30	25 - 30	ROW will be provided on appointed date
56.150	56.450	0.300	0	30	ROW will be provided within 180 days from appointed date
56.450	56.850	0.400	5.5	25	Existing ROW will be provided on appointed date and balance ROW 180 days from appointed date
56.850	57.050	0.200	5.5	30	Existing ROW will be provided on appointed date and balance ROW 180 days from appointed date
57.050	57.500	0.450	5.5	25	Existing ROW will be provided on appointed date and balance ROW 180 days from appointed date
57.500	58.700	1.200	25 - 30	25 - 30	ROW will be provided on appointed date
58.700	59.000	0.300	10	30	Existing ROW will be provided on appointed date and balance ROW 180 days from appointed date
59.000	61.500	2.500	25 - 30	25 - 30	ROW will be provided on appointed date
61.500	62.500	1.000	5.5	25	Existing ROW will be provided on appointed date and balance ROW 180 days from appointed date
62.500	62.900	0.400	5.5	30	ROW will be provided within 180 days from appointed date
62.900	64.100	1.200	5.5	30	Existing ROW will be provided on appointed date and balance ROW 180 days from appointed date
64.100	65.100	1.000	25 - 30	25 - 30	ROW will be provided on appointed date
65.100	65.200	0.100	5.5	30	Existing ROW will be provided on appointed date and balance ROW 180 days from appointed date
65.200	68.050	2.850	25 - 30	25 - 30	ROW will be provided on appointed date
68.050	68.150	0.100	5.5	30	Existing ROW will be provided on appointed date and balance ROW 180 days from appointed date
68.150	70.850	2.700	25 - 35	25 - 35	ROW will be provided on appointed date

M.P. ROAD DEVELOPMENT CORPORATION LTD. Arera Hills Bhopal (M.P.)

Design Chainage		Length (Km)	Existing RoW (m)	Proposed RoW (m)	Date of Providing RoW
From (Km)	To (Km)				
70.850	70.950	0.100	5.5	30	Existing ROW will be provided on appointed date and balance ROW 180 days from appointed date
70.950	73.000	2.050	25 - 30	25 - 30	ROW will be provided on appointed date
73.000	76.250	3.250	15	15	ROW will be provided on appointed date
76.250	80.300	4.050	20 - 25	20 - 25	ROW will be provided on appointed date
80.300	81.100	0.800	15 - 25	15 - 25	ROW will be provided on appointed date
81.100	82.000	0.900	20 - 30	20 - 30	ROW will be provided on appointed date
82.000	86.100	4.100	25 - 35	25 - 35	ROW will be provided on appointed date
86.100	86.300	0.200	10	30	Existing ROW will be provided on appointed date and balance ROW 180 days from appointed date
86.300	88.950	2.650	25 - 35	25 - 35	ROW will be provided on appointed date
88.950	90.000	1.050	15	15	ROW will be provided on appointed date
90.000	90.850	0.850	20 - 25	20 - 25	ROW will be provided on appointed date
90.850	92.200	1.350	5.5	25	Existing ROW will be provided on appointed date and balance ROW 180 days from appointed date
92.200	95.650	3.450	25 - 35	25 - 35	ROW will be provided on appointed date
95.650	95.850	0.200	5.5	25	Existing ROW will be provided on appointed date and balance ROW 180 days from appointed date
95.850	98.600	2.750	25 - 35	25 - 35	ROW will be provided on appointed date
98.600	98.850	0.250	5.5	30	Existing ROW will be provided on appointed date and balance ROW 180 days from appointed date
98.850	99.820	0.970	5.5	25	Existing ROW will be provided on appointed date and balance ROW 180 days from appointed date

M.P. ROAD DEVELOPMENT CORPORATION LTD. 45-'A' Arera Hills Bhopal (M.P.)