



Feasibility study and Preparation of DPR for construction of four laning of Hyderabad-Karimnagar-Chanda road (Mancherial to Maharashtra State border) in the state of Telangana.

Draft DPR  
Project Description

## 2.0 Project Description

### 2.1 INTRODUCTION

National Highways Authority of India acting through the Project Director (NHAI) has engaged in the development of the State Highways. As part of this endeavor, NHAI has invited bidders for the project namely **“Consultancy services for feasibility study and preparation of Detailed project report for four laning of Hyderabad-karimnagar-Chanda road (Mancherial to Maharashtra state border) in the state of Telangana”**.

National Highways Authority of India has awarded the Design Consultancy Services for “Consultancy services for feasibility study and preparation of Detailed project report for four laning of Hyderabad-karimnagar-Chanda road (Mancherial to Maharashtra state border) in the state of Telangana” to **M/s Aarvee Associates Architects Engineers & Consultants Pvt. Ltd.** The Consultancy Agreement was signed on 28<sup>th</sup> Nov 2015.

### 2.2 LOCATION OF THE PROJECT AREA

The entire project stretch of “Mancherial-Maharashtra” border falls in Adilabad district.

The location map of project stretch is shown below in Fig – 2.1.

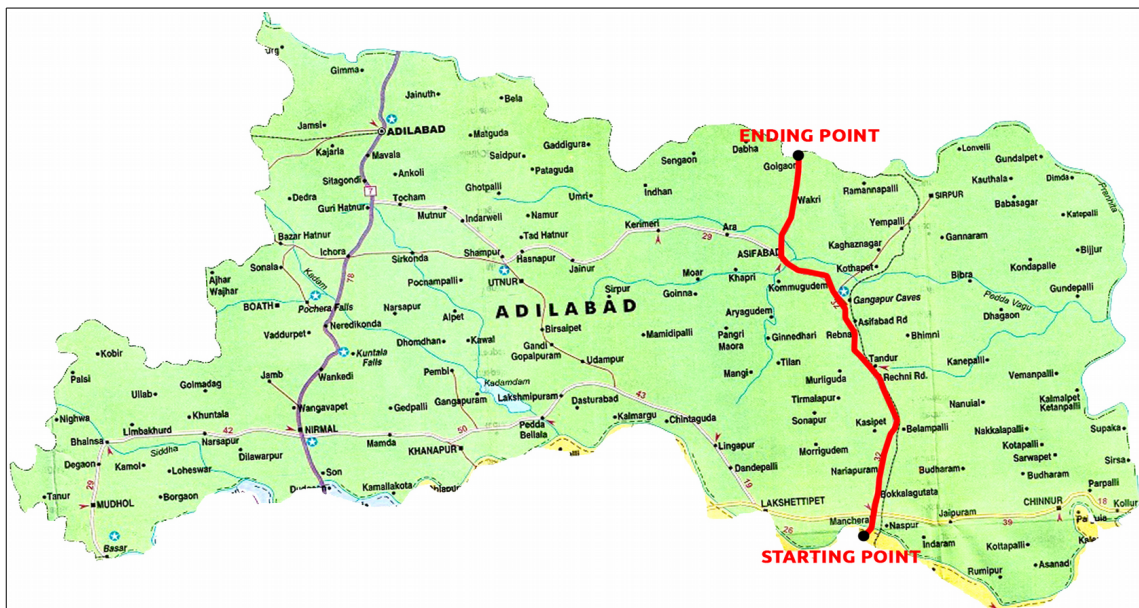



Fig-2.1: Project Stretch

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The project stretch starts at Km 251.900 located at Mancherial and ends at Km 342.000 at Maharashtra Border on Hyderabad – Karimnagar – Chanda road. The Project stretch passes through major built up areas of Mancherial, Gadderegadi, Pulimadugu, Andugulapeta, Mandamari, Somagudem, Bellampalli, Tandur, PuliKunta, Rebbena, Kharigaon, Motiguda, Burgada, Asifabad, Wankadi, Neemgaon, Bambara, Gaogaon, Boyapally.

The stretch is having four lane of 6.3 km in urban areas with width varying between 15.0m to 20.0m and two lane carriageway configuration in open areas with width varying between 10.0m to 12.0m for about 83.8 km. Fig. 1.2(a)&1.2(b) shows the start and end points of the project stretches.

The project stretch starts at Km 251.900 located at Mancherial and ends at Km 342.000 at Maharashtra Border on Hyderabad – Karimnagar – Chanda road.

It is observed that 74.5% of the project stretch traverses through plain terrain, 25.1% passes through rolling terrain and 0.3% passes through hilly terrain. The majority of the stretch is observed to be built up sections and Barren land. The Project stretch passes through major built up areas of Mancherial, Gadderegadi, Pulimadugu, Andugulapeta, Mandamari, Somagudem, Bellampalli, Tandur, Puli Kunta, Rebbena, Kharigaon, Motiguda, Burgada, Asifabad, Wankadi, Neemgaon, Bambara, Gaogaon, Boyapally.




**Fig. 2.2(a): Start of the Project Stretch**



**Fig. 2.2(b): End of the Project Stretch**

## 2.3 CLIMATE

The climate of the region is characterized as tropical. The climate, wind and wave pattern are governed by the annually changing monsoons and transition periods between them, dividing the year into four seasons as given below.

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**Table – 2.1: Seasons of the Region**


Season	Months	Characteristics
Summer	March–May	Hottest part of the year, May is the hottest month
South-West monsoon	June–Sept	Characterised by predominantly SW winds. Generally strong and persistent winds prevail.
North-East monsoon	Oct–Nov	Characterised by predominantly NE winds. Fair weather with the variable winds.
Winter	Dec–Feb	Cool season of the year, December is the coldest month

- The maximum temperature often exceeds 40 °C and minimum temperature dips to 10 °C.
- The average humidity of the area 75% in rainy seasons and it is comparatively low in summer which is varies between 15-20%.
- The rainfall in the district, in general increases from the south-west towards the north east. About 85% of annual rainfall is received during the south-west monsoon season. July being the peak rainy month. The variation in the Annual rainfall from year is not large. The normal Annual rainfall of the district is 1044.5m.m. (Source: adilabad.nic.in)
- The wind speed normally ranges between 0 mph to 14 mph across the year.

In order to analyse the past meteorological and climatological data near to the proposed project site, the following data was collected.

**Table – 2.2: Comparison of Average Maximum & Average Minimum Temperature (2012)**

Month	Temperature (°C)	
	Max	Min
January	28.8	15.2
February	31.9	17.6
March	35.4	20.8
April	37.9	24.3

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Month	Temperature (°C)	
	Max	Min
May	39	26.2
June	34.5	24
July	30.8	22.6
August	29.8	22.1
September	30.5	22
October	30.6	20.3
November	29	16.9
December	28	14.5

Source: Meteorological centre, Hyderabad

## 2.4 TERRAIN

Terrain is classified by the general slope of the country across the highway alignment. Based on this criteria, project stretch traverses through plain terrain and rolling terrain.




**Fig-2.3: Plain and Rolling Terrains**

**Table –2.3: Classification of Terrain**

Type of Terrain	Percentage
Plain	74.5
Rolling	25.1
Hilly	0.3



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## 2.5 LAND USE

The predominant land observed is build up followed by agriculture land and barren.

The Project road passes through the built up areas of Mancherial, Gadderegadi, Pulimadugu, Andugulapeta, Mandamari, Chopparapalli, Somagudem, Bellampalli, Rechini, Tandur, Repallewada, Takkalapalli, Puli Kunta, Rebbera, Rampur, Kharigaon, Motiguda, Burgada, Asifabad, Wankadi, Neemgaon, Bambara, Gaogaon, Boyapally. The type of land use pattern that exists along the project stretch is presented in Table-2.4 and Fig: 2.4(a) & 2.4(b) as shown below.



**Fig. 2.4(a): Built-up area**




**Fig. 2.4(b): Agricultural Land**

**Table –2.4: Land Use Pattern**

Type of Land Use	Percentage of Road length	
	LHS	RHS
Agriculture	46	50
Barren	11	11
Builtup	32	30
Open	6	4
Forest Land	6	4

## 2.6 SURFACING TYPE

The existing pavement is of flexible type with bitumen surfacing throughout the Project stretch.

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## 2.7 VILLAGES

The list of villages through which the project road passes are given below in Table-2.5 with respective to their corridors.

**Table –2.5: List of Villages**

Sl.No	Village
1	Mancherial
2	Gadderegadi
3	Pulimadugu
4	Andugulapeta
5	Mandamari
6	somagudem
7	Bellampalli
8	Tandur
9	Pulikunta
10	Rebbena
11	Kharigaon
12	Motiguda
13	Burgada
14	Asifabad
15	Wankidi
16	Neemgaon
17	Bambara
18	Boyapally
19	Gaogaon

## 2.8 ROAD GEOMETRY

It is observed that the project highway has a straight and curved alignment throughout its length. All the horizontal curves confirm to acceptable geometric standards in terms of super elevation. The project stretch has number of horizontal and vertical curves as the existing ground profile is uneven in nature. The following Fig. 1.5 shows typical horizontal curve that exist on project road. The location of curves are given in Table – 2.6.



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**Fig. 2.5: Typical Horizontal Curve**

**Table –2.6: Location of Horizontal Curves**

Sl.No	Existing Chainage	Curve type
1	254.900	RHC
2	257.900	RHC
3	259.200	LHC
4	260.300	RHC
5	263.300	RHC
6	267.200	LHC
7	268.400	LHC
8	272.200	LHC
9	272.500	RHC
10	273.800	LHC
11	273.500	LHC
12	276.000	RHC
13	278.700	RHC
14	279.100	LHC
15	279.300	LHC
16	279.400	LHC
17	279.900	RHC
18	280.500	LHC
19	284.000	RHC
20	281.100	RHC
21	282.200	LHC
22	283.400	RHC
23	285.600	S Curve



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Sl.No	Existing Chainage	Curve type
24	287.400	RHC
25	287.900	RHC
26	290.600	LHC
27	292.700	LHC
28	293.400	RHC
29	294.400	LHC
30	294.800	LHC
31	295.300	LHC
32	296.300	LHC
33	296.400	LHC
34	296.700	RHC
35	299.800	LHC
36	300.700	RHC
37	301.200	LHC
38	301.500	RHC
39	302.800	RHC
40	304.100	RHC
41	304.200	RHC
42	304.400	RHC
43	304.800	LHC
44	306.300	LHC
45	308.500	LHC
46	309.900	RHC
47	313.200	RHC
48	314.700	RHC
49	314.900	LHC
50	315.300	LHC
51	316.700	RHC
52	317.700	RHC
53	318.400	LHC
54	319.100	RHC
55	319.200	RHC
56	319.600	LHC
57	320.800	LHC
58	321.300	S Curve






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Sl.No	Existing Chainage	Curve type
59	321.400	RHC
60	321.900	LHC
61	322.100	RHC
62	322.400	LHC
63	322.500	RHC
64	322.600	S curve
65	322.800	RHC
66	323.700	LHC
67	324.400	RHC
68	324.800	LHC
69	325.100	RHC
70	325.400	LHC
71	325.900	LHC
72	326.500	LHC
73	327.600	RHC
74	327.800	RHC
75	328.700	LHC
76	329.400	LHC
77	329.700	LHC
78	330.700	RHC
79	331.700	LHC
80	332.000	S curve
81	334.400	LHC
82	334.700	LHC
83	334.700	LHC
84	335.400	RHC
85	335.800	LHC
86	336.500	RHC
87	337.200	LHC
88	337.500	LHC
89	337.900	RHC
90	338.200	LHC
91	338.800	LHC
92	339.000	LHC
93	339.400	RHC

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Sl.No	Existing Chainage	Curve type
94	337.700	LHC
95	340.400	RHC
96	340.600	LHC
97	341.000	S Curve
98	341.200	RHC
99	341.500	S Curve
100	341.700	RHC
101	341.800	LHC
102	342.000	S Curve
103	342.100	RHC

## 2.9 ROAD JUNCTIONS


There are Major junctions exist along the project road. Apart from these, there are local gravel and earthen roads leading to cluster of houses in villages and semi-urban stretches. The major junctions along the project stretch, with State Highways, district roads and village roads are given below in Table –2.7. The following fig. 2.5 shows the mandamari junction.



**Fig. 2.6: Mandamari Junction**

**Tables –2.7: The list of Existing Junctions**

Sl. no	Existing Chainage (Km)	Junction	Left	Right	Name	Type of Cross Road
1	251.900	T	Hyderabad	Lakshapet	Mancherial Junction	NH

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Sl. no	Existing Chainage (Km)	Junction	Left	Right	Name	Type of Cross Road
2	265.000	T	-	Singereni	Mandamari Junction	MDR
3	269.600	T	Somagudem	-	Somagudem Cross Road	MDR
4	285.800	Y	Mahbubabad	-	Tandur Cross Road	ODR
5	294.300	T	Goleti	-	Goleti Junction	ODR
6	302.500	T	-	Kagaznagar	Kagaznagar Cross Road	MDR
7	309.604	T	Appepalle	-	Appepalle Cross Road	ODR
8	311.000	T	-	Rahapalli	Rahapalli Cross Road	ODR
9	317.900	T	Yellaram	-	Janakapur Cross Road	ODR
10	319.500	T	Adilabad	-	Adilabad Cross Road	MDR
11	331.344	T	Akini	-	Akini Cross Road	ODR

## 2.10 EXISTING ROW

The Right of Way details shall be ascertained from the revenue records to clarify on the exact land availability for construction.

The proposed ROW for entire stretch is 60m.

From (Km)	To (Km)	Width in Mtrs.
13.35	13.97	45
14.56	19.9	45
19.9	21.85	45
21.85	23.68	45
23.68	24.6	44
24.6	25.85	45
30.25	35.4	45
35.4	35.9	45
35.9	37.2	45



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From (Km)	To (Km)	Width in Mtrs.
37.2	37.9	43.5
37.9	38.22	45
38.22	39.07	45
39.07	41.12	43
41.12	42.53	45
42.53	42.8	45
42.8	47.9	45
47.9	48.07	45
48.07	49.32	45
49.79	52.36	42
52.36	55.39	45
56.14	58.07	45
59	61.2	45
61.2	61.5	45
61.5	62.51	45
63.37	63.9	45
63.9	64.5	45
64.5	65.4	45
65.4	65.62	45
65.62	69.12	45
73.15	73.52	45
73.52	75.9	45
76.62	78.85	45
79.52	84.42	45
84.42	85.3	40
85.9	86.9	40
86.9	88.9	45
88.9	89	45
89	92.49	45
93.14	93.4	45
93.4	94.07	45
94.73	95.87	45

## 2.11 CROSS DRAINAGE STRUCTURES

As a part of upgrading of the project, it is required to make an assessment of existing structures with regard to their adequacies to ensure that they meet the objectives of the project. The existing structures in the project corridor comprise as follows:

- ✓ Major bridges
- ✓ Minor bridges
- ✓ Box Culverts

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- ✓ Slab Culverts
- ✓ Pipe Culverts

**Table-2.9: List of Existing Cross Drainage Structures**

S.No	Name of the structure	No.
1	Maior bridges	2
2	Minor bridges	31
3	Box Culverts	nil
4	No. of pipe culvert	79
5	No. of Slab culvert	48

## ROB/RUB

There are no existing ROB's and RUB's along the project stretch

### 2.11.1 Proposed Structures

After reviewing the existing stretch and existing structures, the proposed structures are listed below

**Table-2.10: List of Proposed Structues on Stretch**


#### Major Bridges

S.No	Name of the structure	No.
1	Major bridges	2
2	Minor bridges	40
3	Box Culverts and Pipe Culverts	132

**Table-2.11: List of Major Bridges with Span Lengths**

S No.	Locati on	Bridge No.	Design Chainage (Km)	Type of crossing	Proposed span arrangement (m)	Total width (m)
1	-	70/1	69.555	Skew	6 x 32.0	12.5+3+12.5
2	-	77/3	76.268	Skew	1 x 20 + 4 x 26.5 + 1 x 20	12.5+3+12.5




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## Minor Bridges

**Table-2.12: List of Minor Bridges with Span Lengths**


S.No	Bridge Location			Proposed Width (m)	Remarks	
	Bridge No.	Design Chainage	Side		Proposed span	Proposed Improvement
1	2/3	1.879	LCW	11(Service) + 12.25(Main CW)	1 x 8.0	Mancherial Bypass
			RCW	11(Service) + 12.25(Main CW)	1 x 8.0	Mancherial Bypass
2	3/3	2.815	LCW	11(Service) + 12.25(Main CW)	1 x 8.0	Mancherial Bypass
			RCW	11(Service) + 12.25(Main CW)	1 x 8.0	Mancherial Bypass
3	6/1	5.416	LCW	11(Service) + 12.25(Main CW)	1 x 9.65	Mancherial Bypass
			RCW	11(Service) + 12.25(Main CW)	1 x 9.65	Mancherial Bypass
4	7/1	6.387	LCW	12.5+3+12.5	1 x 8.0	Mancherial Bypass
			RCW	12.5+3+12.5	1 x 8.0	Mancherial Bypass
5	8/1	7.660	LCW	12.5+3+12.5	2 x 8.50	Mancherial Bypass
			RCW	12.5+3+12.5	2 x 8.50	Mancherial Bypass
6	11/6	10.194	LCW	11(Service) + 12.25(Main CW)	2 x 11.0	Mancherial Bypass
			RCW	11(Service) + 12.25(Main CW)	2 x 11.0	Mancherial Bypass
7	13/3	12.150	LCW	12.5	1 x 10.50	Mancherial Bypass
			RCW	12.5	1 x 10.50	Mancherial Bypass
8	15/2	14.292	LCW	12.5	1 x 30.00	New on

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S.No	Bridge Location			Proposed Width (m)	Remarks	
	Bridge No.	Design Chainage	Side		Proposed span	Proposed Improvement
						Realignment
			RCW	12.5	1 x 30.00	New on Realignment
9	24/1	23.521	LCW	11(Service) +12.25(Main CW)	1 x 8.00	New on Realignment
			RCW	11(Service) +12.25(Main CW)	1 X 8.00	New on Realignment
10	26/1	25.926	LCW	12.5+3+12.5	2 x 7.00	New on Realignment
			RCW	12.5+3+12.5	2 x 7.00	New on Realignment
11	27/1	26.376	LCW	12.5	2 x 8.83	Bellampally Bypass
			RCW	12.5	2 x 8.83	Bellampally Bypass
12	28/1	27.504	LCW	12.5	5 x 9.0	Bellampally Bypass
			RCW	12.5	5 x 9.0	Bellampally Bypass
13	28/2	27.950	LCW	12.5	5 x 9.0	Bellampally Bypass
			RCW	12.5	5 x 9.0	Bellampally Bypass
14	29/1	28.615	LCW	12.5	3 x 8.0	Bellampally Bypass
			RCW	12.5	3 x 8.0	Bellampally Bypass
15	37/1	36.033	LCW	12.5+3+12.5	3 x 5.00	New on Realignment
			RCW	12.5+3+12.5	3 x 5.00	New on Realignment
16	37/1	36.355	LCW	12.5+3+12.5	4 x 4.40	New on Realignment
			RCW	12.5+3+12.5	4 x 4.40	New on Realignment
17	39/1	38.257	LCW	12.5+3+12.5	3 x 4.70	New on Realignment

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S.No	Bridge Location			Proposed Width (m)	Remarks	
	Bridge No.	Design Chainage	Side		Proposed span	Proposed Improvement
			RCW	12.5+3+12.5	3 x 4.70	New on Realignment
18	45/1	44.210	LCW	12.5+3+12.5	1 x 8.00	New on Realignment
			RCW	12.5+3+12.5	1 x 8.00	New on Realignment
19	50/1	49.966	LCW	12.5+3+12.5	3 x 17.00	New on Realignment
			RCW	12.5+3+12.5	3 x 17.00	New on Realignment
20	54/2	53.053	LCW	12.5+3+12.5	2 x 5.90	New on Realignment
			RCW	12.5+3+12.5	2 x 5.90	New on Realignment
21	55/1	54.781	LCW	12.5+3+12.5	2 x 6.00	New on Realignment
			RCW	12.5+3+12.5	2 x 6.00	New on Realignment
22	56/1	55.792	LCW	12.5	2 x 7.33	New on Realignment
			RCW	12.5	2 x 7.33	New on Realignment
23	59/1	58.412	LCW	12.5+3+12.5	2 x 19.00	New on Realignment
			RCW	12.5+3+12.5	2 x 19.00	New on Realignment
24	60/2	59.664	LCW	12.5+3+12.5	2 x 4.80	New on Realignment
			RCW	12.5+3+12.5	2 x 4.80	New on Realignment
25	61/2	60.931	LCW	12.5+3+12.5	3 x 4.20	New on Realignment
			RCW	12.5+3+12.5	3 x 4.20	New on Realignment
26	63/2	62.942	LCW	12.5	4 x 8.00	New on Realignment
			RCW	12.5	4 x 8.00	New on Realignment
27	66/3	65.176	LCW	12.5+3+12.5	3 x 4.10	New on

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S.No	Bridge Location			Proposed Width (m)	Remarks	
	Bridge No.	Design Chainage	Side		Proposed span	Proposed Improvement
						Realignment
			RCW	12.5+3+12.5	3 x 4.10	New on Realignment
28	71/3	70.664	LCW	11(Service) + 12.25(Main CW)	1 x 8.0	Asifabad Bypass
			RCW	11(Service) + 12.25(Main CW)	1 x 8.0	Asifabad Bypass
29	71/4	70.776	LCW	11(Service) + 12.25(Main CW)	1 x 12.0	Asifabad Bypass
			RCW	11(Service) + 12.25(Main CW)	1 x 12.0	Asifabad Bypass
30	73/3	72.270	LCW	12.5	2 x 8.0	Asifabad Bypass
			RCW	12.5	2 x 8.0	Asifabad Bypass
31	75/2	74.248	LCW	12.5+3+12.5	1 x 11.50	New on Realignment
			RCW	12.5+3+12.5	1 x 11.50	New on Realignment
32	80/2	79.026	LCW	12.5+3+12.5	3 x 10.00	New on Realignment
			RCW	12.5+3+12.5	3 x 10.00	New on Realignment
33	83/1	82.529	LCW	12.5+3+12.5	2 x 6.90	New on Realignment
			RCW	12.5+3+12.5	2 x 6.90	New on Realignment
34	85/2	84.151	LCW	12.5+3+12.5	2 x 8.20	New on Realignment
			RCW	12.5+3+12.5	2 x 8.20	New on Realignment
35	86/1	85.491	LCW	12.5+3+12.5	2 x 30.00	New on Realignment
			RCW	12.5+3+12.5	2 x 30.00	New on Realignment
36	86/2	85.957	LCW	12.5+3+12.5	1 x 6.70	New on

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S.No	Bridge Location			Proposed Width (m)	Remarks	
	Bridge No.	Design Chainage	Side		Proposed span	Proposed Improvement
						Realignment
			RCW	12.5+3+12.5	1 x 6.70	New on Realignment
37	88/1	87.442	LCW	12.5+3+12.5	2 x 8.70	New on Realignment
			RCW	12.5+3+12.5	2 x 8.70	New on Realignment
38	90/3	89.568	LCW	12.5+3+12.5	1 x 7.20	New on Realignment
			RCW	12.5+3+12.5	1 x 7.20	New on Realignment
39	92/1	91.774	LCW	12.5+3+12.5	1 x 9.60	New on Realignment
			RCW	12.5+3+12.5	1 x 9.60	New on Realignment
40	95/3	94.288	LCW	12.5	1 x 9.54	New on Realignment
			RCW	12.5	1 x 9.54	New on Realignment

## ROB/RUB

**Table –2.13: Rail Road Structures**

S.No	Location	ROB/RUB	Design Chainage (km)	Name of crossing	Proposed span arrangement c/c (m)	Total width of the structure (m)
1	Mancherial Bypass	ROB	4.981	-	1 x 15 + 1 x 37.2 + 1 x 15	12.5+3+12.5
2	Mancherial Bypass	ROB	7.284	-	1x37.2	12.5+3+12.5
3	Mancherial Bypass	ROB	11.545	-	(1x15)+(1x46)+(1x15)	12.5+3+12.5
4	Mancherial Bypass	ROB	20.270	-	1 x 37.2	12.5+3+12.5



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## Box Culverts

**Table-2.14: List of Culverts with Spans**

S. No.	Location	New Chainage	C.D. No.	Proposed Type	Proposed Span Arrangement (SK)	Proposed Width (m)
1	Mancherial Bypass	0.969	1/2	RCC Box	1 x 2.70	26 (Normal) 35 (Skew)
2	Mancherial Bypass	1.592	2/1	RCC Box	1 x 4.17	40 (Normal) 55.61 (Skew)
3	Mancherial Bypass	1.949	2/4	RCC Box	1 x 3.00	40
4	Mancherial Bypass	2.697	3/2	HPC	3 x 1.20	52.5
5	Mancherial Bypass	3.026	4/1	RCC Box	1 x 2.00	40
6	Mancherial Bypass	3.313	4/2	HPC	6 x 1.20	52.5
7	Mancherial Bypass	4.328	5/1	HPC	1 x 1.20	52.5
8	Mancherial Bypass	4.414	5/2	HPC	1 x 1.20	30
9	Mancherial Bypass	6.077	7/1	RCC Box	1 x 4.00	26
10	Mancherial Bypass	7.212	8/1	HPC	4 x 1.20	30
11	Mancherial Bypass	8.118	9/1	HPC	1 x 1.20	52.5
12	Mancherial Bypass	8.561	9/3	RCC Box	1 x 5.00	40
13	Mancherial Bypass	9.467	10/1	HPC	1 x 1.20	52.5
14	Mancherial Bypass	9.593	10/2	RCC Box	1 x 3.00	40
15	Mancherial Bypass	9.670	10/3	HPC	1 x 1.20	52.5
16	Mancherial Bypass	9.873	10/4	HPC	1 x 1.20	52.5
17	Mancherial Bypass	11.620	12/2	HPC	4 x 1.20	30
18	258+785	13.649	14/2	RCC Box	1 x 6.00	26
19	260+380	15.222	16/1	RCC Box	1 x 2.00	40
20	260+780	15.531	16/2	HPC	1 x 1.20	47.5
21	261+480	16.325	17/1	HPC	2 x 1.00	30.10
22	262+240	17.081	18/1	HPC	2 x 1.00	32.60
23	263+260	18.088	19/1	RCC Box	1 x 2.00	40
24	263+870	18.698	19/2	RCC Box	1 x 2.00	40



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S. No.	Location	New Chainage	C.D. No.	Proposed Type	Proposed Span Arrangement (SK)	Proposed Width (m)
25	265+210	20.033	21/1	HPC	1 x 1.20	30
26	265+710	20.530	21/3	HPC	1 x 1.20	30
27	265+850	20.669	21/4	RCC Box	1 x 5.00	29
28	267+970	22.778	23/1	HPC	1 x 1.20	31.55
29	268+140	22.948	23/2	HPC	1 x 1.20	27.5
30	268+210	23.024	24/1	RCC Box	1 x 2.00	26
31	270+010	24.828	25/2	HPC	1 x 1.20	47.5
32	270+750	25.552	26/1	HPC	1 x 1.20	30
33	270+760	25.565	26/2	HPC	1 x 1.20	27.5
34	Bellampally Bypass	27.038	28/1	RCC Box	1 x 2.0	40
35	276+280	31.100	32/1	RCC Box	1 x 2.10	26
36	277+650	32.450	33/1	HPC	1 x 1.20	47.60
37	278+170	32.949	33/2	HPC	1 x 0.90	30.00
38	278+500	33.291	34/1	HPC	1 x 1.20	30.70
39	278+850	33.657	34/2	RCC Box	1 x 3.50	26
40	280+550	35.324	36/1	RCC Box	1 x 4.50	26
41	281+740	36.492	37/3	HPC	1 x 1.00	33.75
42	284+620	39.385	40/1	RCC Box	1 x 2.50	40
43	284+750	39.509	40/2	HPC	1 x 1.20	47.5
44	285+020	39.776	40/3	HPC	1 x 1.20	47.5
45	286+400	41.157	42/1	RCC Box	1 x 3.00	26
46	287+995	42.737	43/1	RCC Box	1 x 2.00	26
47	289+795	44.550	45/1	HPC	1 x 1.20	27.5
48	290+350	45.094	46/1	HPC	1 x 1.20	30.50
49	292+150	46.885	47/1	HPC	1 x 0.90	32.40
50	292+790	47.547	48/1	HPC	3 x 1.20	28.50
51	293+620	48.366	49/1	HPC	1 x 1.20	32.5
52	294+180	48.900	49/2	RCC Box	1 x 4.00	40
53	294+560	49.265	50/1	HPC	1 x 1.20	47.5
54	295+900	50.631	51/1	HPC	2 x 1.20	28.95
55	296+585	51.308	52/2	HPC	1 x 0.90	45.85
56	296+870	51.591	52/1	HPC	2 x 1.20	46.45
57	297+960	52.669	53/1	HPC	1 x 1.20	35.20
58	299+190	53.898	54/2	HPC	1 x 1.00	29.30
59	300+385	55.098	56/1	HPC	1 x 1.20	37.5
60	300+560	55.269	56/2	HPC	1 x 0.90	27.10
61	301+620	56.220	57/1	HPC	1 x 1.20	45
62	301+710	56.311	57/2	HPC	1 x 1.20	35
63	301+950	56.536	57/3	RCC Box	1 x 2.00	40



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S. No.	Location	New Chainage	C.D. No.	Proposed Type	Proposed Span Arrangement (SK)	Proposed Width (m)
64	302+205	56.831	57/4	RCC Box	1 x 5.00	40
65	303+020	57.622	58/2	HPC	3 x 1.00	47.2
66	304+405	58.913	59/2	RCC Box	1 x 2.00	26
67	304+780	59.293	60/1	HPC	2 x 1.00	41.35
68	304+940	59.432	60/2	HPC	1 x 1.00	28.65
69	305+640	60.145	61/1	HPC	1 x 1.00	27.80
70	305+900	60.399	61/2	HPC	2 x 1.00	35.00
71	307+020	61.567	62/1	HPC	2 x 1.00	30.20
72	307+585	62.117	63/1	RCC Box	1 x 5.20	26
73	307+790	62.326	63/2	HPC	2 x 0.90	35.30
74	307+900	62.417	63/3	HPC	1 x 0.90	28.45
75	309+050	63.477	64/1	HPC	1 x 1.20	31.25
76	309+100	63.527	64/2	HPC	1 x 1.20	32.5
77	309+750	64.133	65/1	HPC	1 x 1.20	30.10
78	310+100	64.516	65/2	HPC	1 x 1.20	30
79	310+320	64.723	65/3	RCC Box	1 x 2.00	26
80	312+170	66.596	67/1	HPC	1 x 1.20	30
81	312+230	66.666	67/2	HPC	2 x 0.90	35.00
82	312+820	67.254	68/1	HPC	3 x 1.00	30.30
83	313+020	67.453	68/2	HPC	1 x 1.20	31.25
84	313+405	67.826	68/3	RCC Box	1 x 2.00	26
85	313+820	68.250	69/1	HPC	1 x 1.20	31.25
86	314+385	68.833	69/2	RCC Box	1 x 5.50	26
87	314+615	69.124	70/1	HPC	2 x 1.20	35.10
88	Asifabad Bypass	69.890	70/3	HPC	1 x 1.20	41.25
89	Asifabad Bypass	70.415	71/1	HPC	2 x 1.20	52.5
90	Asifabad Bypass	71.629	72/1	RCC Box	1 x 3.00	26
91	Asifabad Bypass	71.696	72/2	RCC Box	1 x 3.76	32.56
92	Asifabad Bypass	72.353	73/1	HPC	1 x 1.20	52.5
93	Asifabad Bypass	72.500	73/2	HPC	1 x 1.20	52.5
94	Asifabad Bypass	72.714	73/3	RCC Box	1 x 7.5	33.94
95	319+430	73.288	74/2	HPC	1 x 0.90	50.42
96	319+850	73.710	74/3	RCC Box	1 x 2.00	26
97	321+090	74.949	75/2	HPC	1 x 1.20	40
98	321+710	75.563	76/1	HPC	1 x 1.20	42.5



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S. No.	Location	New Chainage	C.D. No.	Proposed Type	Proposed Span Arrangement (SK)	Proposed Width (m)
99	321+850	75.730	76/2	HPC	1 x 1.20	37.30
100	323+250	77.031	78/1	HPC	1 x 1.20	31.15
101	323+730	77.519	78/2	HPC	1 x 0.90	35.10
102	324+190	78.003	79/1	RCC Box	1 x 2.00	26
103	324+680	78.455	79/2	HPC	1 x 1.20	29.70
104	325+870	79.594	80/2	HPC	1 x 1.20	31.45
105	326+040	79.806	80/3	RCC Box	1 x 2.00	26
106	326+920	80.682	81/1	HPC	2 x 0.90	33.95
107	327+850	81.661	82/1	HPC	2 x 1.00	28.30
108	328+010	81.807	82/2	HPC	2 x 0.90	29.70
109	328+240	81.978	82/3	HPC	2 x 1.00	30.40
110	328+450	82.188	83/1	HPC	1 x 1.00	30.95
111	330+375	84.107	85/1	HPC	1 x 1.20	27.5
112	330+900	84.722	85/3	HPC	1 x 1.20	47.5
113	331+440	85.201	86/1	HPC	1 x 1.20	47.5
114	332+395	86.128	87/1	HPC	1 x 1.20	30
115	332+900	86.720	87/2	HPC	2 x 1.20	28.75
116	334+025	87.836	88/2	HPC	2 x 1.00	32.50
117	335+150	88.857	89/1	RCC Box	1 x 3.50	26
118	335+300	89.006	90/1	HPC	1 x 1.20	37.5
119	335+617	89.354	90/2	HPC	1 x 0.90	30.50
120	335+637	89.378	90/3	HPC	2 x 1.20	30
121	336+100	89.926	90/4	RCC Box	1 x 4.00	26
122	336+760	90.591	91/1	RCC Box	1 x 2.50	26
123	336+990	90.829	91/2	RCC Box	1 x 2.00	26
124	337+430	91.169	92/1	RCC Box	1 x 1.80	26
125	338+900	92.950	93/1	RCC Box	1 x 2.00	26
126	339+660	93.316	94/1	HPC	1 x 1.20	27.5
127	339+700	93.381	94/2	RCC Box	1 x 1.80	26
128	340+370	94.022	95/1	HPC	1 x 1.20	31.25
129	340+900	94.468	95/2	RCC Box	1 x 2.00	26
130	341+575	95.189	96/1	HPC	1 x 1.20	37.5
131	341+650	95.405	96/2	HPC	1 x 1.20	65
132	341+855	95.592	96/3	RCC Box	1 x 2.77	26 (Normal) 35.98 (Skew)

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### Grade Separated Structures/VUP/LVUP


**Table – 2.15: List of Light Vehicular Underpasses(LVUP) with spans**

S. No.	Location	C.D. No.	Design Chainage (Km)	Proposed Type	Proposed Span Arrangement (m)	Proposed Width (m)
1	Mancherial Bypass	239/3	4.336	LVUP	1 x 12.00	14.5 + 3 + 14.5
2	Mancherial Bypass	243/3	8.225	LVUP	1 x 12.00	14.5 + 3 + 14.5
3	260+550	251/1	15.513	LVUP	1 x 12.00	14.5 + 1.5 + 14.5
4	263+500	254/1	18.375	LVUP	1 x 12.00	14.5 + 1.5 + 14.5
5	Bellampally Bypass	262/2	27.033	LVUP	1 x 12.00	14.5 + 3 + 14.5
6	Bellampally Bypass	264/2	29.331	LVUP	1 x 12.00	14.5 + 3 + 14.5
7	297+030	287/2	51.891	LVUP	1 x 12.00	14.5 + 1.5 + 14.5
8	Asifabad Bypass	306/2	70.513	LVUP	1 x 12.00	14.5 + 3 + 14.5
9	331+000	-	84.736	LVUP	1 x 12.00	14.5 + 1.5 + 14.5

**Table – 2.16: List of Vehicular Underpasses (VUP) with spans**

S. No.	Location	C.D. No.	Design Chainage (Km)	Proposed Type	Proposed Span Arrangement	Proposed Width (m)
1	Mancherial Bypass	236/1	0.430	VUP	2 x 30.0	14.5 + 3+ 14.5
2	Mancherial Bypass	237/2	1.615	VUP	1 x 15.0	14.5 + 3 + 14.5
3	Mancherial Bypass	238/1	2.673	VUP	1 x 15.0	14.5 + 3 + 14.5
4	Mancherial Bypass	239/1	3.410	VUP	1 x 15.0	14.5 + 3 + 14.5
5	Mancherial Bypass	241/2	5.436	VUP	-	14.5 + 3 + 14.5
6	Mancherial Bypass	245/5	9.885	VUP	1 x 15.0	14.5 + 3 + 14.5
7	Mancherial Bypass	249/1	13.284	VUP	-	14.5 + 3 + 14.5



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8	265+850	256/3	20.710	VUP	1x15.0+1x30.0+1x15.0	14.5 + 1.5 + 14.5
9	269+550	260/1	24.404	VUP	1 x 30.0	14.5 + 1.5 + 14.5
10	Bellampally Bypass	265/1	30.250	VUP	-	14.5 + 3 + 14.5
11	285+580	276/1	40.445	VUP	1 x 30.0	14.5 + 1.5 + 14.5
12	294+060	284/3	48.921	VUP	1 x 30.0	14.5 + 1.5 + 14.5
13	302+320	292/3	57.180	VUP	1 x 30.0	14.5 + 1.5 + 14.5
14	Asifabad Bypass	308/4	73.050	VUP	-	14.5 + 3 + 14.5

**Table – 2.17: List of Grade Separated Structure**

S.No	Bridge Location		Side	Remarks	
	Existing chainage	Design Chainage		Proposed span c/c (m)	Proposed Improvement.
1	-	0.430	LCW	2x30	6-lane section
			RCW	2X30	6-lane section
Ramp & Loop Details					
S.No	Name of the Structure		Length(m)		Proposed Improvement
2	Loop 1		350		2 – lane section
3	Ramp 1		430		2– lane section
4	Loop 2		350		2 – lane section
5	Ramp 2		430		2 – lane section
6	Loop 3		350		2 – lane section
7	Ramp 3		430		2 – lane section
8	Loop 4		350		2 – lane section
9	Ramp 4		430		2 – lane section