Name of the Project	**:**	**VISUAL INSPECTION OF ROB NO. 871A**
Location	**:**	**NEAR GUNTAKAL RAILWAY STATION**
Location Co-ordinates	**:**	**15°10'23.3"N 77°22'19.6"E**
Date of Inspection	**:**	**25th NOVEMBER, 2019**

Summary:

a) Spalling is observed at all the piers and slab of Span-5.
b) Reinforcement exposure is observed at Span-1, 3 & 5 slabs and piers-2, 3 & 4.
c) Cracks and Reinforcement exposure observed at parapets of bridge.
d) Leaching observed at slabs of the all spans.
e) Patch work is observed at overhanging portions of pier cap of Abutment-2 & Pier-3.

Tests to be conducted:

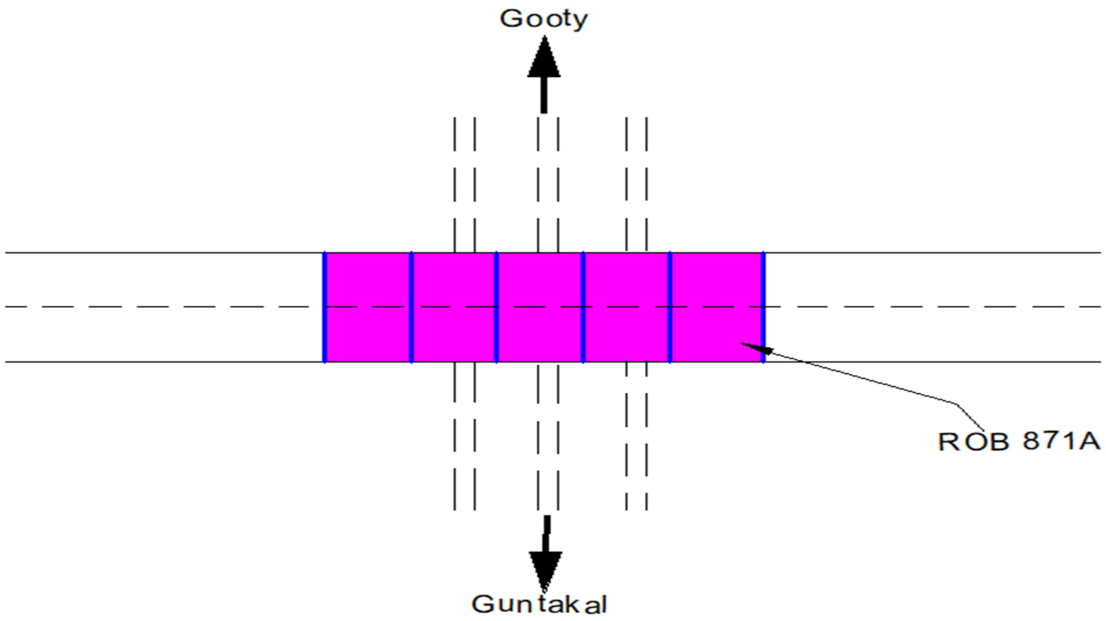
a) Rebound Hammer test to measure surface strength of the concrete.
b) Ultrasonic Pulse Velocity (UPV) Test to determine the Quality of concrete, such as uniformity and homogeneity of concrete, location of internal defects in concrete, porosity.
c) Profometer Test for the concrete cover and diameter of rebar.
d) Half-cell Potential Meter to measure the probability of corrosion.
e) Micrometer/card comparator is to determine the Crack width and depth.
g) Tests for Carbonation, pH and Chloride Content to determine the extent of chemical attack on concrete.

VISUAL INSPECTION OF ROAD OVER BRIDGE

Name of the Project	Visual inspection of ROB 871A near Guntakal Railway Station
Location	Near Guntakal Railway Station
Date of Inspection	25th November, 2019.

PART 1 GENERAL INFORMATION AND OBSERVATION		
1.1	Name of the Bridge	ROB No. 871A
1.2	Location Location co-ordinates	Near Guntakal Railway Station 15°10'23.3"N 77°22'19.6"E
1.3	Type of Bridge	RCC-Slab
1.4	Year of Construction	Data Not Available
1.5	Grade of Concrete (Slab)	Data Not Available
1.6	Design Load	Data Not Available
1.7	Carriageway Width	7.5 m
1.8	Overall Deck Width	10.8 m
1.9	Average Skew	No skew
1.10	Span arrangement (no x Span in meters)	5x 4.7 m (Clear)
1.11	No of Railway Lines Crossings	3 tracks
1.12	Vertical Clearance (from rail top to girder bottom)	5.812 m
1.13	History of Repair/ Maintenance	Patch work is observed. (Refer Fig-7)
1.14	Original Structural Drawings	Not available

1.15 Key Plan



	PART 2 STRUCTURAL SYSTEM OF THE BRIDGE		
			Note
2.1	**Foundation details**		Not visible at site
	Type of foundation		
	Foundation Details (if available…)		
	Foundation Status (Check Settlement, abnormal Scour and Tilting, if any etc…)		
	Type Of Damage (Check cracking, disintegration, decay, erosion, Cavitation's etc.,)		
2.2	**Abutment (A1 & A2)**		
	Type	Retaining wall and stone pitching cum Portal Frame	
	Maximum height of Abutment from Ground level	Not Available	
	Abutment width along the Track	10.8m	
	Abutment thickness	Not Accessible	
	Condition (Crack, Settlement, Scour, Tilting, Steel Corrosion, Strains and other damages etc...)	Fair Condition	Cracks, Spalling, Delamination and Reinforcement exposure observed
	Efficiency of drainage of backfill Behind Abutments (Check functioning of weep holes, evidence of moisture on Abutment faces, etc.)	No weep holes	Retaining wall at abutment-2 is damaged due to Earth Pressure. (Refer Fig:18)
2.3	**Pier**		
	Type (Shape)	Portal Frame	There are 3 nos. of rectangular columns in each Pier.
	Material		
	No. of Piers in a row/column		
	Maximum Height of Pier		
	Pier Diameter/Dimension	0.6m x 0.75m	
	Pier Cap Material		
	Pier Cap Condition		
	Pier Condition (Crack, Settlement, Scour, Tilting, Steel Corrosion, Strains and other Damages etc...)		
	Efficiency of drainage of backfill behind Abutments (Check functioning of weep holes, evidence of moisture on Abutment faces, etc...)	Not Available	

2.4	**Bearing & Pedestal**		
	Type of Bearings	No bearings provided	
	General condition (Check Corrosion, cleanliness, seizing of plates silting, accumulations of dirt in case of submersible bridges)	-	
	Type/ shape of Pedestal	-	
	General condition (Check Corrosion, cleanliness, seizing of plates silting)	-	
2.5	**Super Structure (Concrete Girder)**	RCC Slab	
	Type/Shape of Girder (I-beam, box-Girder etc.)	-	
	Material of Girder	-	
	No of Girder	RCC	
	Dimensions of Girder	-	
	Structural System of Girder	-	
	Condition of Girder	-	
	Type/Shape of Secondary Girder	-	
	Material of Secondary Girder	-	
	No of Secondary Girders	-	
	Condition of Secondary Girder	-	
2.6	**Slab**		
	Material of Slab	RCC	
	Thickness of Slab	0.85m	
	Condition of Slab from Bottom	Distress Found	Cracks, Spalling & Reinforcement exposure has been Observed. (Refer Fig:10, 15)
	Condition of Slab from Top	Wearing Course	Not visible, as covered with wearing coat
	Condition of Flooring/Wearing Coat	Fair	
	Parapet wall/Railing		
	Type of Parapet wall/Railing	RCC	
	Height	1.1 m	1.8 m height Protective screen Provided
	Condition of Wall/Railing		Cracks and Reinforcement exposure observed. ***(Refer Fig:17)***

PART 3 SURVEY OF SIGNS OF DISTRESS, DEFORMATION IN BRIDGES			
	Defects	**Location**	**Notes**
	Cracking in RCC components	Slab & Parapet	cracks are observed in Slab (***Refer Fig:6,8***) & Parapet (***Refer Fig:17***)
	Water seepage		Water seepage is observed at all the spans
	Spalling	Slab & Piers	Spalling is observed at all the piers of Bridge (***Refer Fig: 5, 6, 7, 9)*** and also at Span-5. (***Refer Fig:16***)
	Reinforcement Exposure	Slab, Piers	Reinforcement exposure is observed at Span-1, 3 & 5 slabs and also at piers-2, 3 & 4. (***Refer Fig:5,6,7,9 and Fig:10,16***)

Fig: 1 View of ROB

Fig: 2 View of Abutment (A1 and A2)

Fig: 3 *B*ottom view of Slab

Fig: 4 Deterioration of cantilever portion of bedblock observed at Abutment -2

Fig: 5 Reinforcement Exposure observed at Pier-1

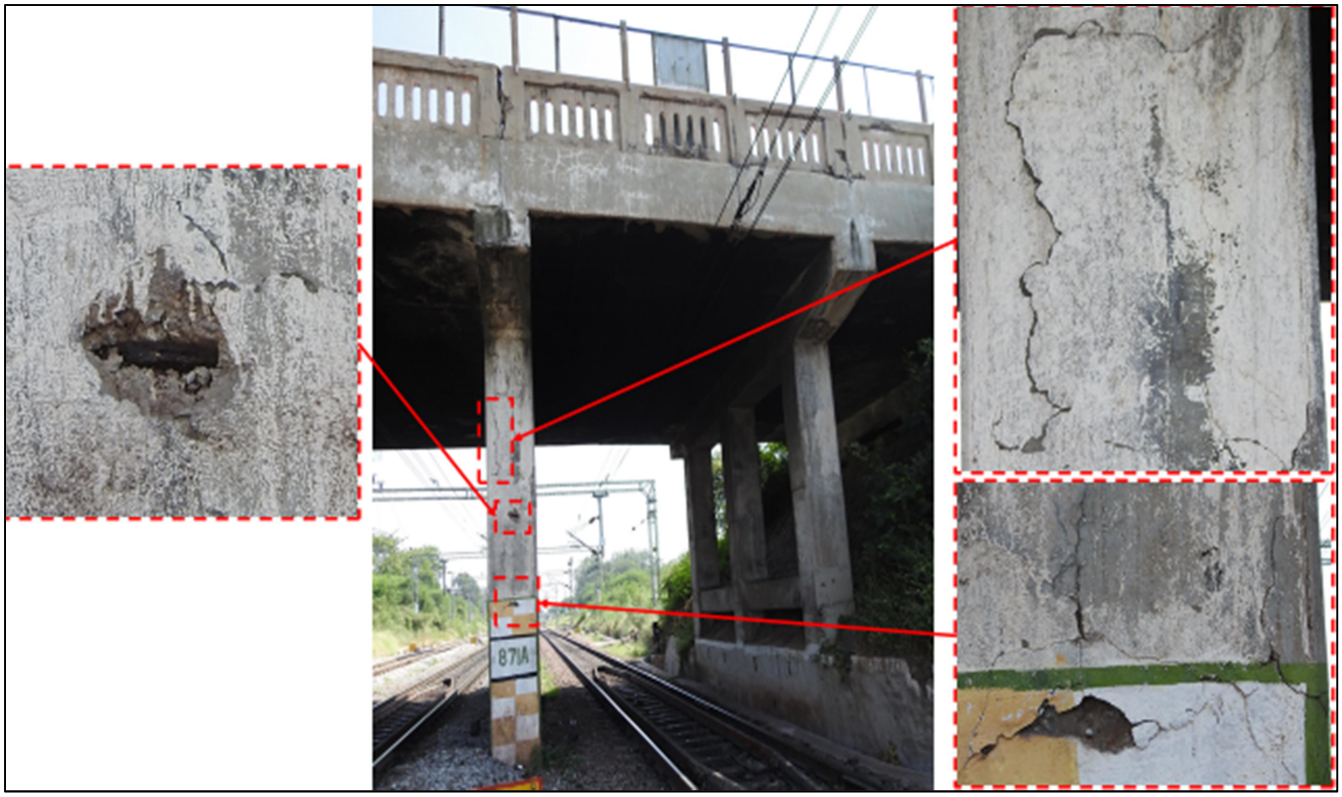


Fig: 6 Cracks observed and Reinforcement Exposure observed at Pier-2

Fig: 7 Reinforcement exposure & Patch work observed at Pier-3

Fig: 8 Spalling and Cracks observed at Pier-4

Fig: 9 Reinforcement exposure & Spallling observed at Pier cap-4

Fig: 10 Reinforcement exposure observed at Slab of Span-1

Fig: 11 Leaching observed at slab of Span-1

Fig: 12 Leaching observed at slab of Span-2

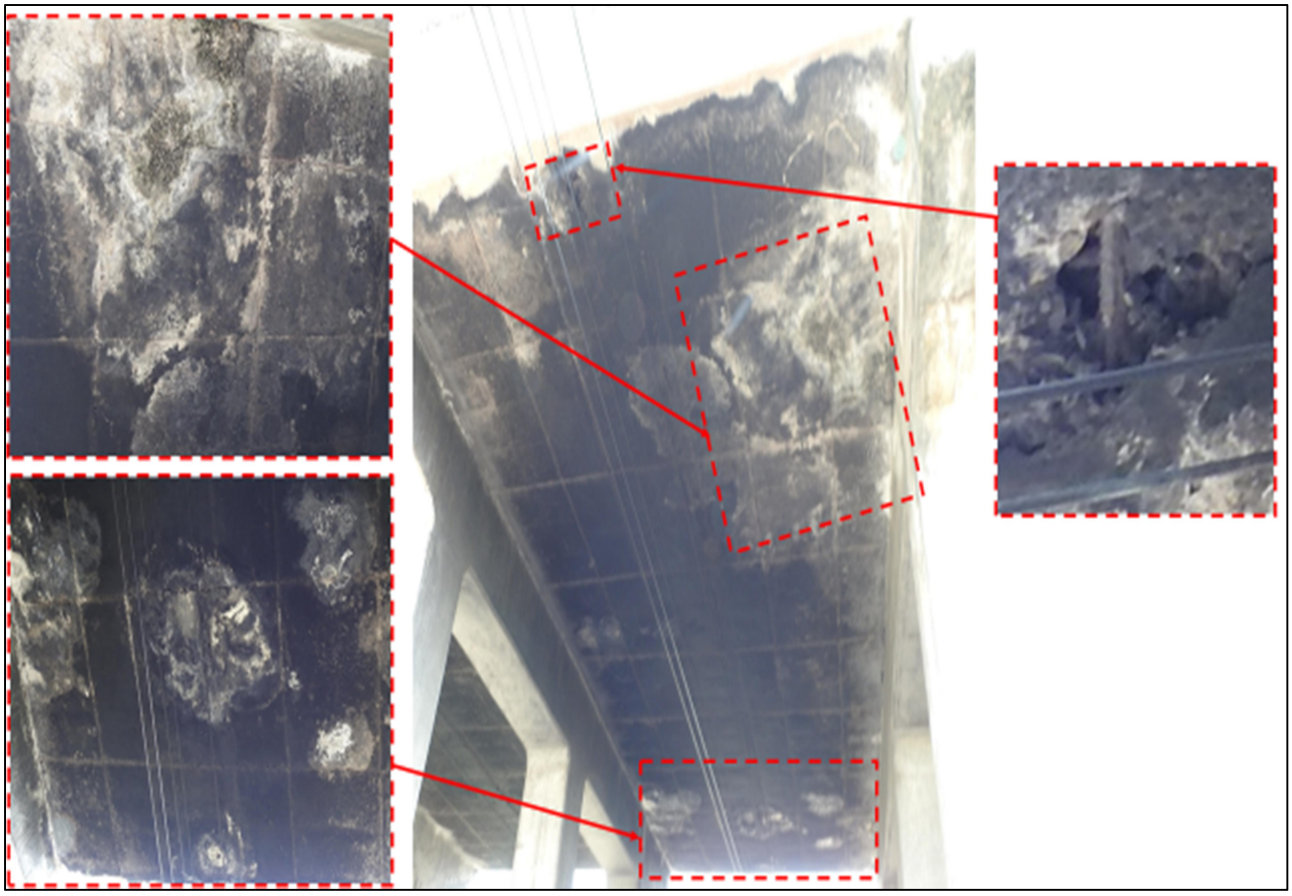


Fig: 13 Leaching observed at slab of Span-3

Fig: 14 Leaching observed at slab of Span-4

Fig: 15 Leaching observed at slab of Span-5

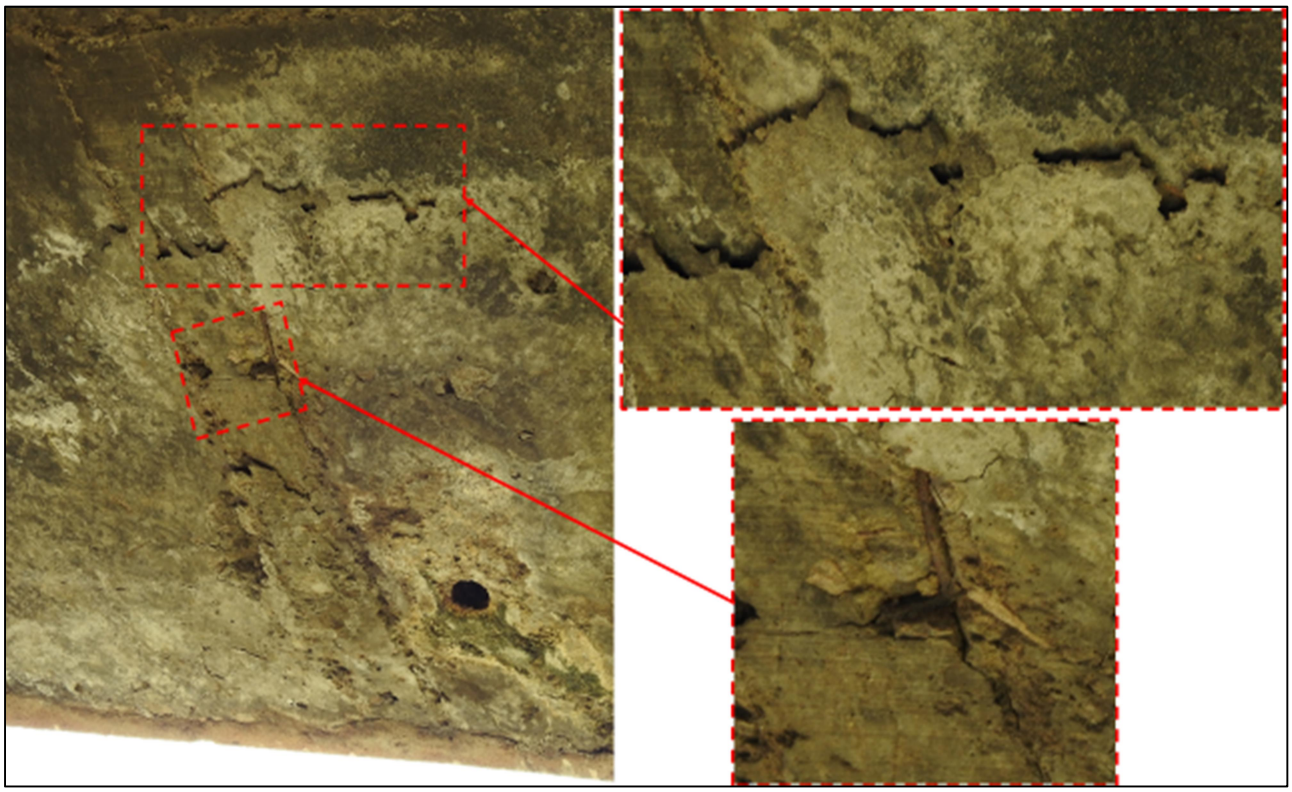


Fig: 16 Spalling & Reinforcement exposure observed at slab of Span-5

Fig: 17 Cracks & Reiforcement exposure observed in Railing

Fig: 18 Retaining wall damaged at Abutment-2