

Name of the Project	:	VISUAL INSPECTION OF ROB 437
Location	:	NEAR ALLURU RAILWAY STATION (Km 202/16-18)
Location Co-ordinates	:	14°42'52.3"N 79°59'19.1"E
Date of Inspection	:	29th NOVEMBER, 2019



Summary:

- a) **The Bridge is closed to traffic**
- b) Cracks have been observed at Girders, Slab, Abutment & Piers
- c) Spalling & Reinforcement exposure observed at Abutment & Piers.
- d) Severe Spalling & Reinforcement exposure observed at Exterior Girders of the Bridge.
- e) Major Cracks, Spalling & Reinforcement exposure observed at Girder Ends.
- f) Deflection is observed in the Exterior girder of span-3.
- g) Leaching is observed on the slab bottom at drainage spout locations.

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

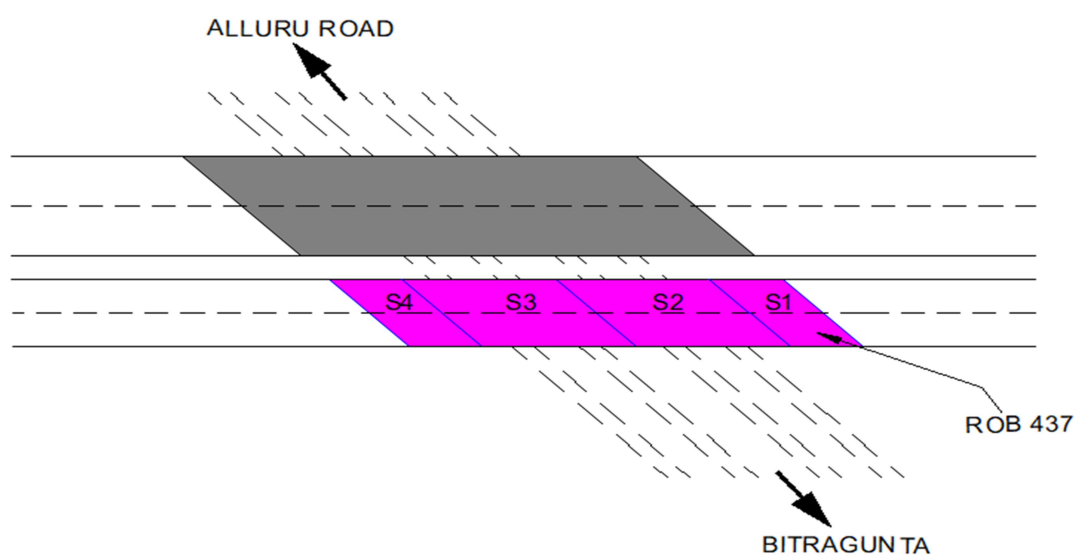
VISUAL INSPECTION OF ROAD OVER BRIDGE

Name of the Project	Visual inspection of ROB 437
Location	Near Alluru Railway station (Km 202/16-18)
Date of Inspection	28 th November, 2019.

PART 1 GENERAL INFORMATION AND OBSERVATION

1.1	Name of the Bridge	ROB 437
1.2	Location Location co-ordinates	Near Alluru Railway station (Km 202/16-18) 14°42'52.3"N 79°59'19.1"E
1.3	Type of Bridge	RCC Bridge
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	Roadway Width	7.5 m
1.8	Overall Deck Width	8.5 m
1.9	Average Skew	45 ⁰
1.10	Span arrangement (no x Span in meters)	1x 7.75 + 2x 18.6 + 1x 7.75
1.11	No of Railway Lines Crossings	4 tracks
1.12	Vertical Clearance (from rail top to girder bottom)	6.40 m
1.13	History of Repair/ Maintenance	Yes, Patch works observed
1.14	Original Structural Drawings	Not available

1.15 Key Plan



PART 2 STRUCTURAL SYSTEM OF THE BRIDGE			
			Notes
2.1	Foundation details		Not visible at site
	Type of foundation	-NA-	
	Foundation Details (if available...)	-NA-	
	Foundation Status (Check Settlement, abnormal Scour and Tilting, if any etc...)	-NA-	
	Type Of Damage (Check cracking, disintegration, decay, erosion, Cavitation's etc.,)	-NA-	
2.2	Abutment (A1 & A2)		
	Type	Concrete	
	Maximum height of Abutment from Ground level	7.8 m	
	Abutment width along the Track	15.3 m	
	Abutment thickness	2.5 m	
	Condition (Crack, Settlement, Scour, Tilting, Steel Corrosion, Strains and other damages etc...)	Distresses Found	Cracks & Spalling Observed (Refer Fig-4 & 7)
	Efficiency of drainage of backfill Behind Abutments (Check functioning of weep holes, evidence of moisture on Abutment faces, etc.)		Weep holes are functioning properly.
2.3	Pier	03 Nos.	
	Type (Shape)	Wall Type	Spalling, Cracks, Reinforcement exposure and Leaching observed at Pier.
	Material	RCC	
	No. of Piers in a row/column	-	
	Maximum Height of Pier	5.9 m	
	Pier Diameter/Dimension	1.2 m	Patch works done on Piers.
	Pier Cap Material	RCC	 (Refer Fig-5 & 8)
	Pier Cap Condition	Distresses Found	
	Pier Condition (Crack, Settlement, Scour, Tilting, Steel Corrosion, Strains and other Damages etc...)	Distresses Found	

2.4	Bearing & Pedestal		
	Type of Bearings		Not Visible
	General condition (Check Corrosion, cleanliness, seizing of plates silting, accumulations of dirt in case of submersible bridges)		Debris accumulated at all bearing locations
	Type/ shape of Pedestal		
	General condition (Check Corrosion, cleanliness, seizing of plates silting)		There is no Pedestal
2.5	Super Structure		
	Type/Shape of Girder (I-beam, box-	I-Girder	RCC Slab for Span-1 & 4 RCC Girder for Span-2 & 3
	Material of Girder	RCC	
	No of Girder	5 Nos.	
	Dimensions of Girder		Depth = 1.1 m Width of the bottom flange = 0.6 m
	Structural System of Girder		Simply Supported
	Condition of Girder	Severe Distresses Found	Severe Spalling, Reinforcement exposure and Corrosion observed Deflection is observed in exterior girder (Refer Fig- 9, 11, 12, 14, 16 & 17)
	Type/Shape of Secondary Girder	Rectangular	
	Material of Secondary Girder	RCC	
	No of Secondary Girders	8 Nos.	
	Condition of Secondary Girder	Distresses Found	Cracks, Spalling and Reinforcement exposure observed
2.6	Slab		
	Material of Slab	RCC	
	Thickness of Slab	-	0.6 m for Span-1 & 4 0.2 m for Span-2 & 3
	Condition of Slab from Bottom		Spalling & Reinforcement exposure has been Observed. (Refer Fig-10 & 15)
	Condition of Slab from Top		Not visible, as covered with wearing coat
	Condition of Flooring/Wearing Coat	Fair	...(Refer Fig-19)
	Parapet wall/Railing		
	Type of Parapet wall/Railing	RCC Crash Barrier	
	Height	1.1 m	

Condition of Wall/Railing	Spalling is observed (Refer Fig-19)
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PART 3 SURVEY OF SIGNS OF DISTRESS, DEFORMATION IN BRIDGES			
	Defects	Location	Note
	Cracking in RCC components	Girders, Slab, Abutments & Piers	Severe cracks observed at Girders, Slab, Abutments & Piers
	Water seepage	-	No Water seepage is observed in the Bridge
	Spalling	Girders, Slab, Abutments & Piers	Severe Spalling observed at Girders, Slab, Abutments & Piers
	Reinforcement Exposure	Girders, Slab, Abutments & Piers	Reinforcement Exposure is observed at Girders, Slab, Abutments & Piers



Fig 1: View of ROB



Fig: 2 Abutments (A1 and A2)



Fig: 3 Bottom view of the Bridge



Fig 4: Spalling and reinforcement exposed in abutment



Fig 5 Spalling & Reinforcement exposed at Pier-1



Fig 6: Reinforcement exposure at slab and Corroded Rail sections (Shuttering Support) at Abutment



Fig 7: Distresses observed at Retaining Walls & Abutment



Fig 8: Spalling & Reinforcement exposed at Pier



Fig 9: Severe Spalling & Reinforcement exposure at exterior girder of Span-2



Fig 10: Spalling & Reinforcement exposure in slab at drainage spout location



Fig 11: Severe Spalling & Reinforcement exposure at exterior girder of Span-3



Fig 12: Severe Spalling & Reinforcement exposure at girder ends



Fig 13: Spalling & Reinforcement exposure at exterior girder & parapet



Fig 14: Severe Spalling & Reinforcement exposure at girders



Fig 15: Spalling & Reinforcement exposure at Slab of Span-4 & Abutment



Fig 16: Severe Spalling & Reinforcement exposure at exterior girders



Fig 17: Deflection Observed at Exterior Girder of Span-3



Fig 18: Vegetation at Pier cap & Abutment Retaining Walls



Fig 19: Top View/ Condition of Road surface and Crash Barrier