

Name of the Project	:	VISUAL INSPECTION OF FOB AT ELAMANCHILI RAILWAY STATION
Location	:	ELAMANCHILI RAILWAY STATION
Location Co-ordinates	:	17°33'10.0"N, 82°51'08.1"E
Date of Inspection	:	8th NOVEMBER, 2019



Summary:

- a) Cracks, Spalling and Reinforcement exposure observed in RCC slab panels of Landings of Staircases.
- b) Deformations are observed in Slab Panels of Spans.
- c) Corrosion is observed in Floor Beams of Spans.
- d) Corrosion is observed in Gusset Plates of Spans & Staircases.
- e) Vibrations are Observed in the Overall Bridge

Tests to be conducted:

- a) Ultrasonic Thickness gauge to measures local thickness of a solid element.
- b) Elcometer (Coating thickness Gauge) to measures dry film thickness on steel surfaces.
- c) Ultrasonic Flaw detector to detect hidden cracks, voids, porosity, and other internal discontinuities in metals.
- d) Fillet weld gauge to measures the size of the weld.
- e) Profometer Test for concrete cover and diameter of rebar.
- f) Rebound Hammer test surface strength of concrete (For Pre-cast slab panels and staircase)
- g) Vibration analysis

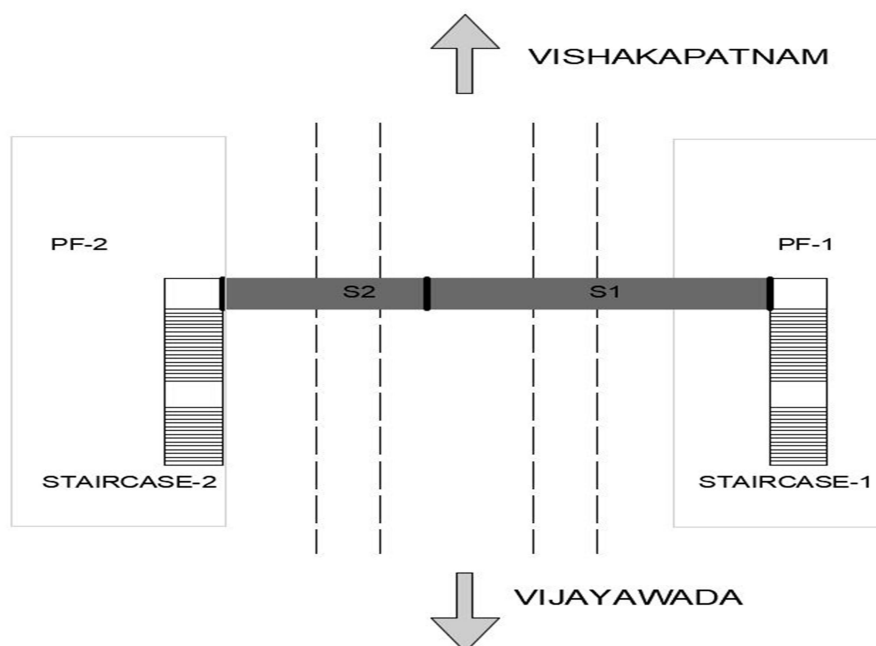
VISUAL INSPECTION OF STEEL FOOT OVER BRIDGE

Name of the Project	Visual inspection of FOB at Elamanchili Railway Station
Location	Elamanchili Railway Station
Date of Inspection	08-11-2019

PART 1 GENERAL INFORMATION AND OBSERVATION

1.1	Name of the Bridge	FOB
1.2	Location Location co-ordinates	Elamanchili Railway Station 17°33'10.0"N, 82°51'08.1"E
1.3	Type of truss Structure	Warren Truss with Verticals
1.4	Year of Construction	Not available
1.5	Description of the main use of the bridge	Pedestrians Crossing
1.6	Major Materials used in different parts of bridge	a. NG Rail b. Pre-cast RCC Slab panels (Floor slab, Staircase)
1.7	Width of the Pathway (m)	1.7 m
1.8	Length of the Pathway (m)	16.2 m
1.9	No of Railway Lines Crossings	2 tracks Span 1 = 1 Span 2 = 1
1.10	Span arrangement (no x Span in meters)	1 x 7.6 m + 1 x 4.4 m
1.11	Vertical Clearance (from rail top to girder bottom)	5.95 m
1.12	Head Room	No Roof Truss
1.13	Damages due to accidental hitting, Grazing Marks	No Visible signs appear
1.14	History of Repair/ Maintenance	Patch work Observed at Slab Panels of Staircases
1.15	Original Structural Drawings	Not available

1.16 Key Plan



PART 2 IDENTIFICATION OF LOADS ON BRIDGE

		Yes/No	Notes
	Dead Loads at Roof level		
2.1	a) Pipeline - Utilities	No	
	b) Cables	Yes	a. Cables are protected with 2-inch HDPE pipe.
	c) Roof Truss	No	(Refer fig :2)
	d) Roof Sheet	No	b. No Roof Truss is provided.
	e) load of advertising hoarding	No	
	f) load of train/coach display boards	No	No train coach display boards are provided
	g) Electrical equipment (OHE), signal	No	No electrical equipment and signal are provided
2.2	Dead Loads at Floor level		
	a) Additional wearing coat on Floor	No	No wearing coat (Refer fig :2)
	b) Provision of protective screen for passengers	Yes	Fence made of galvanized wire of 2 mm gauge and 2 mm galvanized sheet is used above OHE Line on both side of pathway is used for passengers Protection.
	c) Type of Material used for mesh	GI wire mesh	(Refer fig :2)

PART 3 STRUCTURAL SYSTEM OF THE BRIDGE

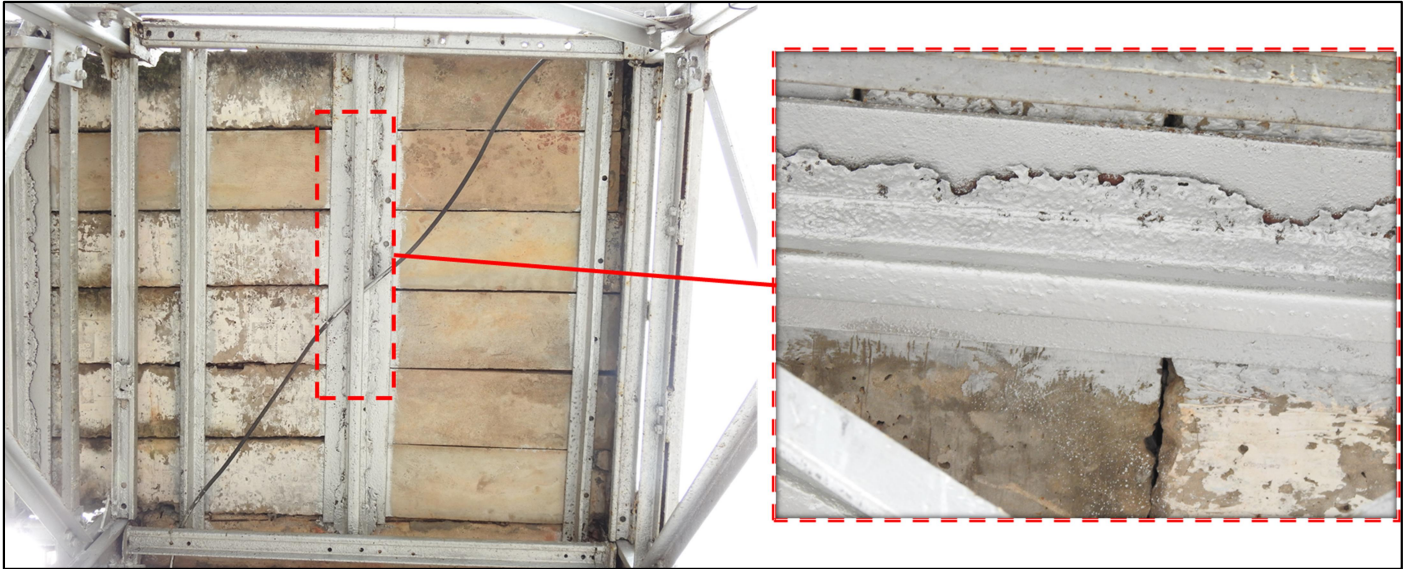
			Notes
3.1	Foundation details		Not visible at site
3.2	Pedestals		
	Trestles Connection Details	Not visible at site	
	No. of Bolts and size	Not visible at site	
	Thickness of Base Plate	Not visible at site	

3.3	Roof Truss		
	Element of roof truss section		No Roof truss, FOB is Open to Sky.
	Size of roof truss		
	Connection of Roof elements		
3.4	Steel Truss		
	Type /Shape of Truss Section	NG Rail sections	a) Top Chord & Bottom Chord members are 45 x 80 x 80 (Head x Height x Base) Rail sections b) 45 x 80 x 80 (Head x Height x Base) Rail sections are used as vertical members. c) 45 x 80 x 80 (Head x Height x Base) Rail sections are used as Floor beams. d) 45 x 80 x 80 (Head x Height x Base) Rail sections are used as Bracings. (Refer fig :4)
	Height of Girder/Truss (H)	1.85 m	
	Truss Support Condition	Rigid Connection	
	Type/Shape of Floor beam /Bracings	Rail Section	
	No of Floor beams/bracings	Span 1 = 4 No's Span 2 = 2 No's	
	Arrangement of Bracings	Zigzag bracings	
	Type of Beam-Column Joint (shape of gusset plate if any)	Cleat Angle	
3.5	COLUMN		
	Type/Shape of Column section	Bull headed Rail Sections	a. Trestles & Stanchion Columns are 65 x 135 x 135 (Head x Height x Base) bull headed Rail sections. b. Cross Bracings in Stanchions are 65 x 65 x 8 mm Angles are used. (Refer fig :3)
	No of Columns/ support	4/2	
	Dimensions of Column		
	BEAM-Column joint (bolted, welded, riveted)	Bolted	
3.6	Floor of the Pathway		
	Material of Slab	Pre-cast slab panels for Spans	a. Pre-cast Reinforced concrete slab panels are used for floor slab of 100 mm thick, RCC slab panels are resting on Floor Beam members. (Refer fig :5)
	Thickness of Slab	100 mm	
	Condition of Slab from Bottom	Deflection Observed Spalling is observed	
	Condition of Slab from Top	Spalling is observed	
3.7	Staircase Details		
	Number of Staircase	2 No's	Staircase is observed as Pre cast RCC Slab panels supported on 45 x 45 x 80 (Head x Height x Base) Rail Stringers on both sides. (Refer fig :6)
	Number of Steps from Circulating Area – 1	32 no's	
	Number of Steps from Circulating Area – 2	32 no's	
	Material used for Staircase Slab	Pre-cast RCC Slab Panel	
3.8	Staircase Railing		
	Type of Parapet Railing	Steel Railing	Staircases are provided with railing on both sides using 45 x 45 x 80 (Head x Height x Base)
	Height of Railing	1.1 m	

PART 4 SURVEY OF SIGNS OF DISTRESS, DEFORMATION IN BRIDGES

- 4.1 ✓ Corrosion of floor beams along the span of FOB, coated with Al paint.





Corrosion of Floor beam coated with silver oxide paint

4.2	✓ Corrosion of floor beam in staircase landing and stringer beam of FOB
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(a) Corrosion of floor beam and stringer beam in staircase-1



(b) Corrosion of floor beam in staircase-2



(c) Corroded angle section in staircase -1

4.3 | ✓ Leaching and cracks observed in slab panels



(a) Leaching and cracks in slab panels

PART 4 SURVEY OF SIGNS OF DISTRESS, DEFORMATION IN BRIDGES			
	Defects	Location	Notes
	Cracking in Steel Members	-	No cracks are observed in Steel during visual inspection
	Cracking in RCC components	Slab panels	Cracks are observed in Pre-cast RCC slab panels of Staircase & Main Slab. (Refer: Part 4.3, Fig- a).
	Water seepage	-	Seepage not observed
	Spalling		No Spalling is observed
	Rust straining/ corrosion	Floor Beams and staircase landing beam	Corrosion is observed at all the joints & floor beams of FOB and staircase landing beam. (Refer: Part 4.1 and 4.2, Fig- a, b, c).
	Condition of Painting of steel structure		Painting is not in good condition.



Fig 1: Front view of FOB



Fig 2: FOB pathway, protective screen and Additional loads of PVC pipes



Fig 3: Trestles and Stanchion column details



Fig 4: Arrangement of truss



Fig 5: Bottom view of FOB



Fig 6: Staircase details



Fig 7: Patch work and reinforcement exposed in staircase -1