

Name of the Project	:	VISUAL INSPECTION OF FOB/ PF-1 - PF-2 AT POTKAPALLI RAILWAY STATION
Location	:	POTKAPALLI RAILWAY STATION
Location Co-ordinates	:	18°25'43.2"N 79°27'51.1"E
Date of Inspection	:	22nd September 2019



Summary:

- a) Leaching effect is observed at bottom of slab panels and near joints.
- b) Cracks are observed in Pre cast slab panels in 2nd span of FOB.
- c) Corrosion is observed in secondary girder at 1st span of FOB in some locations and Rusting is observed in Double Angular sections and cleat angle at beam column joint.
- d) Heavy vibration of FOB is observed.

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

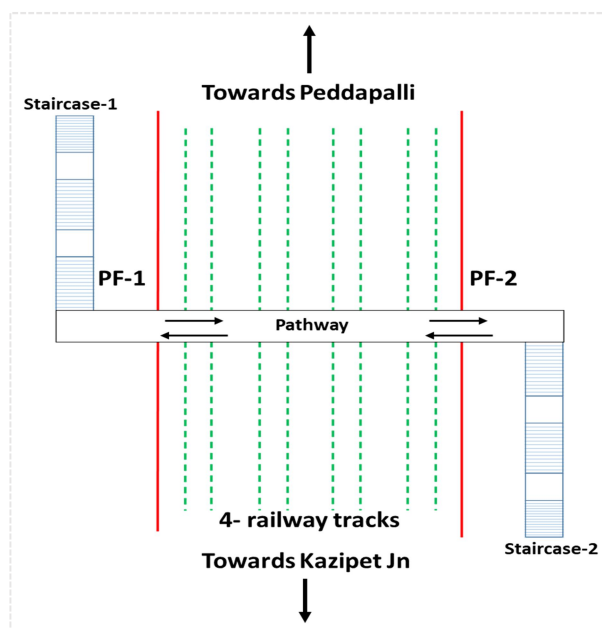
FORMAT FOR VISUAL INSPECTION OF STEEL FOOT OVER BRIDGE

Name of the Project	Visual inspection of FoB/ PF-1 - PF-2 at Potkapalli railway station
Location	Potkapalli Railway Station
Date of Inspection	22 nd September, 2019

PART 1 GENERAL INFORMATION AND OBSERVATION

1.1	Name of the Bridge	FOB/ PF-1 - PF-2
1.2	Location Location co-ordinates	Potkapalli Railway Station 18°25'43.2"N 79°27'51.1"E
1.3	Type of truss Structure	Pratt Truss
1.4	Year of Construction, Maintenance History	Not available
1.5	Description of the main use of the bridge	Pedestrians Crossing
1.6	Type of Materials used in different parts of bridge	Structural Steel, RCC Slab
1.7	Width of the Pathway (m)	2 m
1.8	Length of the Pathway (m)	a) Span 1 = 14.05 m (Clear span) b) Span 2 = 12.5 m
1.9	No of Railway Lines Crossings	Span 1 = 2 tracks Span 2 = 2 tracks
1.10	Span arrangement (no x Span in meters)	1x14.05 m + 1x12.5m = 26.1 m (Clear span)
1.11	Vertical Clearance (from rail top to girder bottom)	7.135 m
1.12	Head Room	No roof
1.13	Damages due to accidental hitting, Grazing Marks	No Visible signs appear
1.14	History of Repair (if any...)	Patch works are observed below slabs
1.15	Original Structural Drawings	Not available

1.16 Key Plan



PART 2 IDENTIFICATION OF LOADS ON BRIDGE			
		Yes/No	Photo ID
	Dead Loads at Roof level		
2.1	a) Pipeline - Utilities	No	No Pipelines- Utilities are available
	b) Cables	Yes	Cables are protected with 2-inch and 1-inch HDPE pipe. (Refer <i>fig :1</i>)
	c) Roof Truss	No	No roof truss
	d) Roof Sheet	No	
	e) load of advertising hoarding	No	No advertising boards are provided.
	f) load of train/coach display boards	No	No train display boards are provided
	g) Additional load of overhead electrical equipment (OHE), Signal	No	No Additional load of overhead electrical equipment (OHE), Signal
2.2	Dead Loads at Floor level		
	a) Additional wearing coat on Floor	Yes	Plain wearing coat
	b) Provision of protective screen for passengers	Yes	Chain link fence made of galvanized wire of 2 mm gauge and 2mm galvanized sheet is used above OHE line on both side of gangway is used for protection (Refer <i>fig :1</i>).
	c) Type of Material used for mesh	Galvanized wire mesh	

PART 3 STRUCTURAL SYSTEM OF THE BRIDGE			
			Photo ID
3.1	Foundation details		
3.2	Pedestals		
	Type	RCC	a) Column base plate is observed at PF-1 and stanchion in between tracks. b) Concrete encasement is observed below vertical supports only at PF-2. (Refer <i>fig :2 and 3</i>)
	a) No of Bolts and size	4 bolts X 18 mm dia	
	b) Base Plate	300 x 540 x 18 mm	
3.3	Roof Truss		
	Element of roof truss section		No Roof truss
	Size of roof truss		
	Connection of Roof elements		
3.4	Steel Truss		
	Type/Shape of Girder Section	Double angular sections	a. Top and bottom main chord members 75x75x8 mm Double angular section b. 65 x 65 x 8 mm double angular are used as bracing members c. 10 mm thick gusset plate is used for welded joint. d. For 1 st and 2 nd span 100x100x10 mm Double angular section are connected with
	Height of Girder/ Truss (H)	2.55 m	
	Truss Support Condition	Simply supported	
	Type/Shape of Floor Beam /Bracings	Double angular section	

	No of Floor beam/bracings for span	1 st span :9 no's 2 nd span: 7 no's	main chord member using bolts and bracing are connected to tie members using welding (Refer fig :4)
	Arrangement of Bracings	Diagonal	
	Type of Beam-Column Joint (shape of gusset plate if any)	Cleat angles	
3.5	COLUMN		
	Type/Shape of Column section	I – Section	FOB is supported on vertical column of Four - ISMB 300. (Refer fig :2)
	No of Columns per support	4	
	Dimensions of Column	300x150 mm	
	BEAM-Column joint (bolted, welded, riveted)	Bolted	
3.6	Floor of the Gangway		
	Material of Slab	Pre-cast panels	For 1 st and 2 nd span Pre-cast Reinforced concrete slab panels are used for floor slab of 100 mm thick, RCC slab panels are resting on floor beams. Flooring coat is laid on the top of the slab panels (Refer fig :5)
	Thickness of Slab	120 mm	
	Condition of Slab from Bottom	Leaching effect is observed	
	Condition of Slab from Top	Patch work is done and cracks are observed on flooring	
3.7	Staircase Details		
	Number of staircases	2 No's	Staircase steps are observed as Precast RCC slab panels of size 300 x 100 mm used. Steps are supported on ISMC 200 channel Stringer beam using cleat angles. Staircase landing of 2.02 m wide is supported on vertical and horizontal channels members. (Refer fig :6)
	Number of steps from PF – 1	45 no's	
	Number of steps from PF – 2	45 no's	
	Material used for steps	RCC Precast slab panel	
3.8	Staircase Railing		
	Type of Parapet Railing	Steel railing	Staircase is provided with railing on both sides of one-meter height using 65 x 65 x 6 mm angular and 50 x 6 mm M.S flats are used. (Refer fig :6)
	Height of Railing	1 m	

PART 4 SURVEY OF SIGNS OF DISTRESS, DEFORMATION IN BRIDGES

4.1

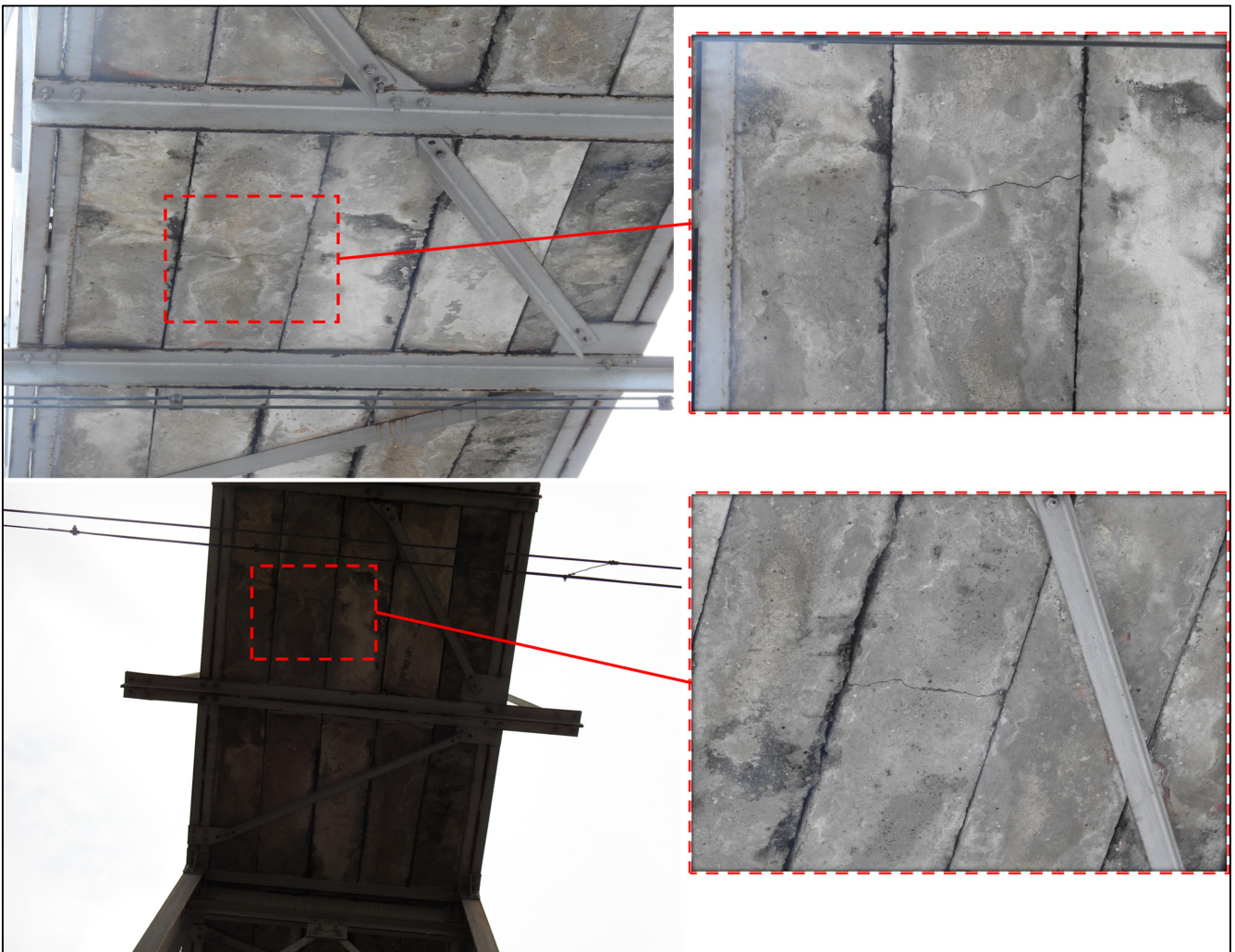
- ✓ Leaching effect is observed at bottom of slab panels and near joints



leaching effect observed at bottom of slab panels of FOB

4.2

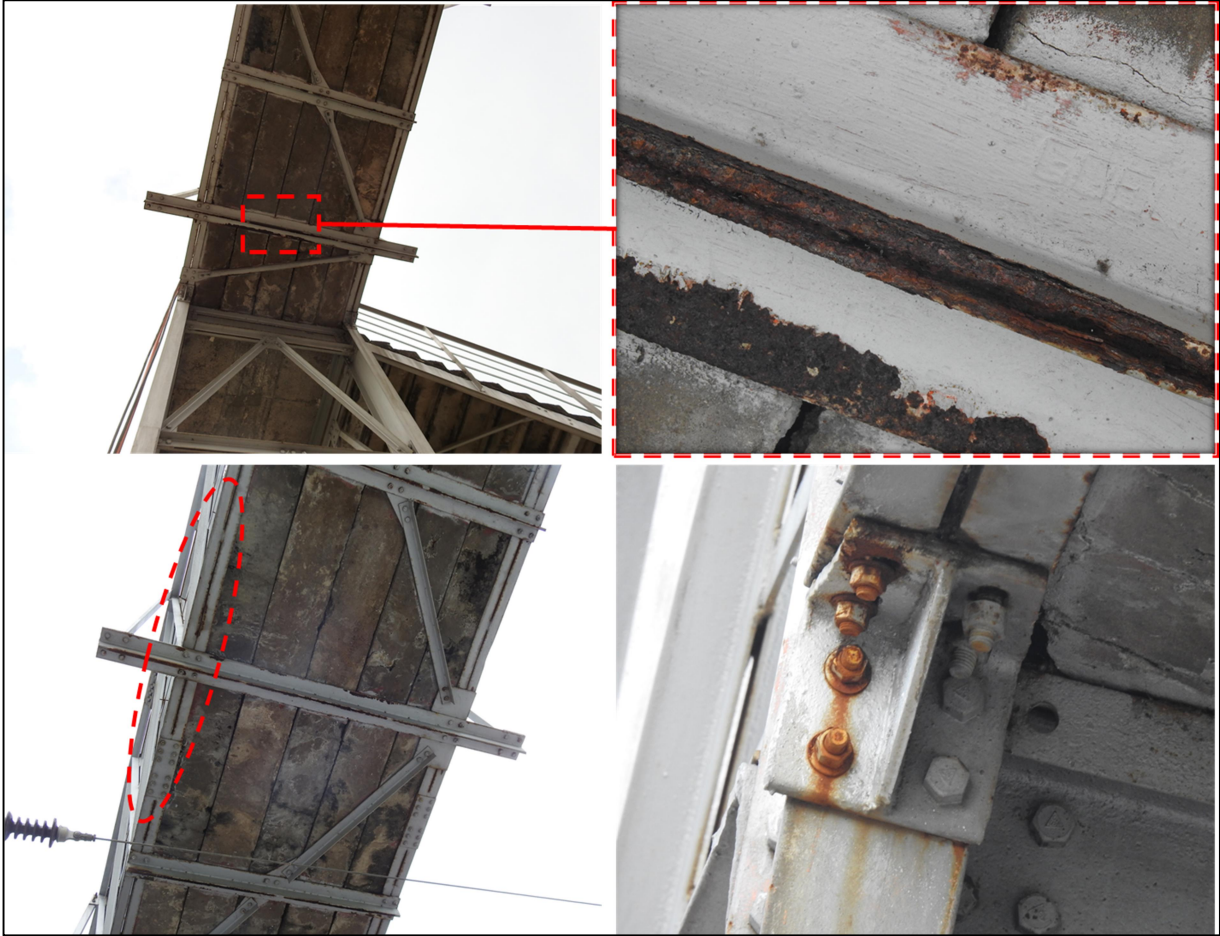
- ✓ Cracks are observed in Pre cast slab panels in 2nd span of FOB



Cracks observed in slab panels

4.3

- ✓ Corrosion is observed in floor beam at 1st span of FOB in some locations and Rusting is observed in Double Angular sections and cleat angle at beam column joint.



Corrosion and rusting is observed

PART 4 SURVEY OF SIGNS OF DISTRESS, DEFORMATION IN BRIDGES			
	Defects	Location	
	Cracking in steel members		No cracks are observed in Steel during visual inspection
	Cracking in RCC components	Slab Panels	cracks are observed in Pre-casted RCC slab panels (Refer <i>Part 4- 4.2</i>)
	Water seepage		No water seepage is observed
	Spalling		No Spalling is observed
	Rust straining	Double angular sections and cleat angle	Rusting is observed at all the joints of FOB at floor level (Refer <i>Part 4- 4.3</i>)
	Extent Of Corrosion	Secondary girder	Corrosion is observed in floor beam in 1 st span of FOB (Refer <i>Part 4- 4.3</i>)
	Corrosion in Gusset plate	near base slab	Rusting is observed in Gusset plates and cleat angle

***Rust:** Rust is a part of corrosion and is a chemical process which results in the formation of red or orange coating on the surface of metals.

***Corrosion:** it is the process of deterioration of materials as a result of chemical, electrochemical or other reactions.



Fig 1: Cables and protective screen



Fig 2: Trestles and Stanchions



Fig 3: Base plate observed at PF-1 and Stanchions



Fig 4: Top and bottom main chord, vertical, diagonal and Shape of floor beams



Fig 5: Bottom and top view of FOB



Fig 6: Staircase details