

Name of the Project	:	VISUAL INSPECTION OF FOB AT PEDDAVADLAPUDI RAILWAY STATION
Location	:	PEDDAVADLAPUDI RAILWAY STATION
Location Co-ordinates	:	16°24'50.8"N 80°36'47.2"E
Date of Inspection	:	21 st October 2019



Summary:

- a) Spalling is observed at staircase RCC panels and slab panels of span 1 and 2.
- b) Leaching effect and cracks are observed at slab panels of Span 1 & 2
- c) Corrosion is observed at Floor beams of span1 & 2, Steel concrete joints
- d) Cleat Angles supports stair case at Pathway are Corroded.
- e) Corrosion of Bottom Chord is observed at span 2.
- f) Rusting is observed at Top chord and steel concrete joints

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)

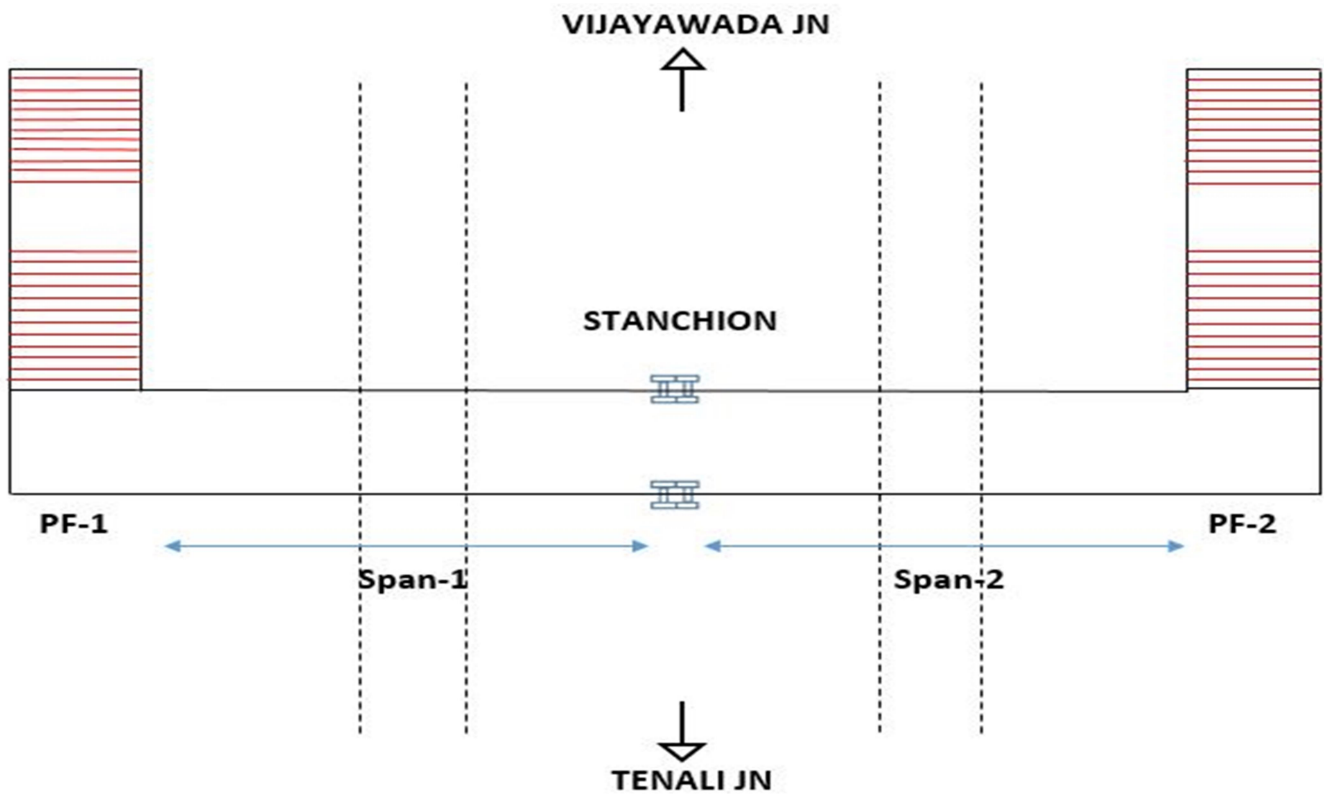
VISUAL INSPECTION OF STEEL FOOT OVER BRIDGE

Name of the Project	Visual Inspection of FOB at Peddavadlapudi Railway Station
Location	Peddavadlapudi Railway Station
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PART 1 GENERAL INFORMATION AND OBSERVATION

1.1	Name of the Bridge	FOB
1.2	Location Location co-ordinates	Peddavadlapudi Railway Station 16°24'50.8"N 80°36'47.2"E
1.3	Type of truss Structure	Warren truss (fabricated with NG rail)
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	a. Rail (Frame, truss) b. Pre-cast RCC Slab panels (Floor slab, staircase steps)
1.7	Width of the Pathway (m)	1.72 m
1.8	Length of the Pathway (m)	12.23 m
1.9	No of Railway Lines Crossings	2 tracks Span 1 = 1 track Span 2 = 1 track
1.10	Span arrangement (no x Span in meters)	1 x 7.9 m + 1 x 8.02 m (Clear span)
1.11	Vertical Clearance (from rail top to girder bottom)	6.061 m
1.12	Head Room	Open to sky
1.13	Damages due to accidental hitting, Grazing Marks	No Visible signs appear
1.14	History of Repair (if any...)	Patch work is observed
1.15	Original Structural Drawings	Not available

1.16 Key Plan



PART 2 IDENTIFICATION OF LOADS ON BRIDGE

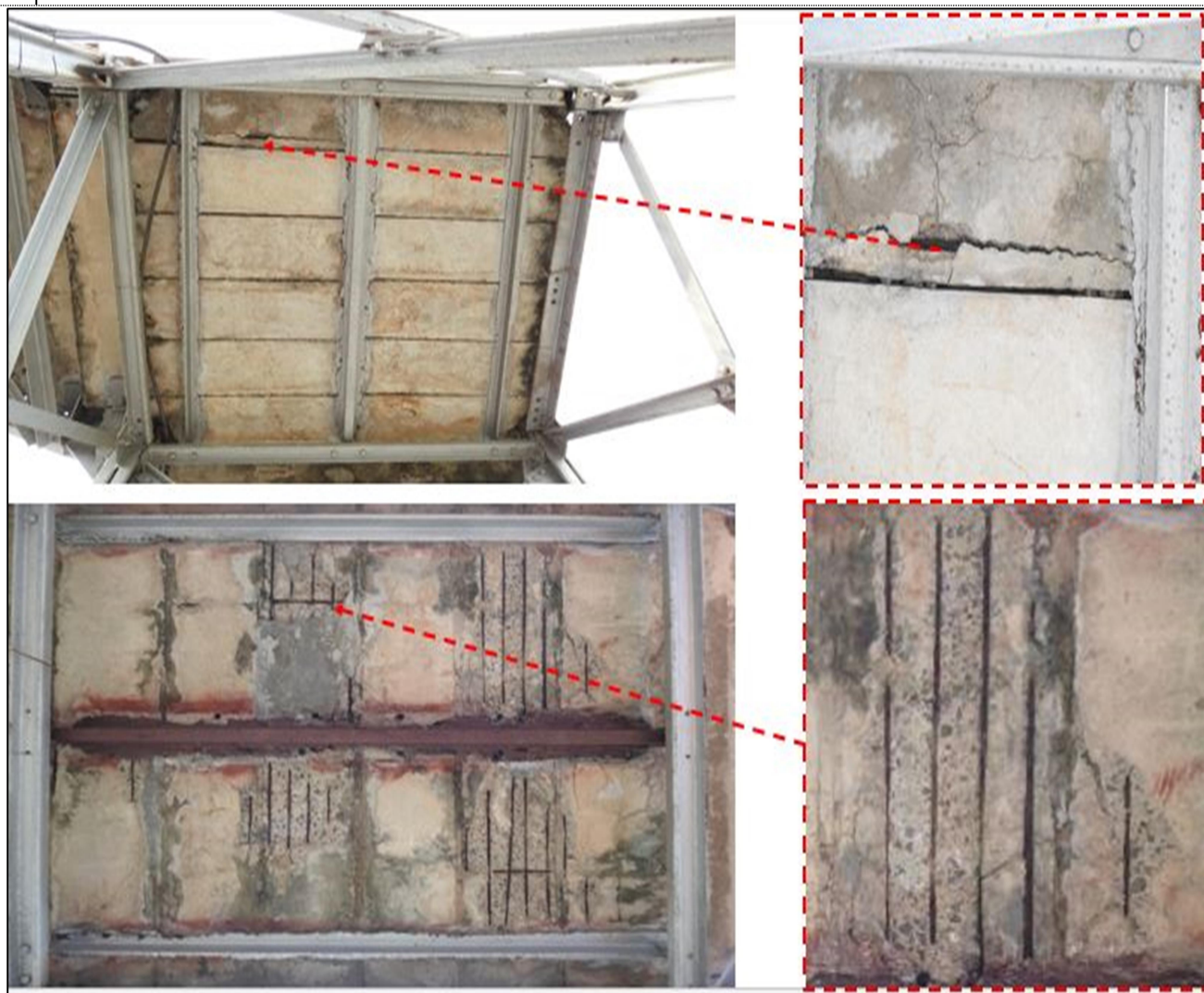
		Yes/No	Photo ID
	Dead Loads at Roof level		
2.1	a) Pipeline - Utilities	No	Not observed at site.
	b) Cables	Yes	Cables are running in 20mm dia. 2 No's HDPE pies and 25mm dia. 1 No. HDPE pipe.(Refer fig :1&3)
	c) Roof Truss	No	No Roof Truss is provided
	d) Roof Sheet	No	No Roof
	e) load of advertising hoarding, Light post	Yes	Light post with 50 mm dia. GI pipe is supported on Trestle railing at both corners of FOB.(Refer fig :1)
	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) or Signal
2.2	Dead Loads at Floor level		
	a) Additional wearing coat on Floor	Yes	Plain Cement concrete layer is used for flooring (Refer fig :5).
	b) Provision of protective screen for passengers	Yes	XPM mesh of 2 mm gauge and 2mm galvanized sheet is used above OHE line on both side of gangway is used for protection (Refer fig :5)
	c) Type of Material used for mesh	Galvanized wire mesh	

PART 3 STRUCTURAL SYSTEM OF THE BRIDGE			
			Photo ID
3.1	Foundation details		Not visible at site
3.2	Pedestal details		Not visible at site
	Type of material for bottom encasement		
	No of Bolts and size		
	Thickness of Base Plate		
3.3	Roof Truss		No roof truss is provided.
	Element of roof truss section		
	Size of roof truss		
	Connection of Roof elements		
3.4	Steel Truss		
	Type/Shape of Girder Section	NG Rail section	a) Top and bottom Chord members are 50 x 80 x 80 (Head x Hight x Base) Rail section. b) (Refer fig :8) c) 50 x 80 x 80 Rail section are used as diagonal bracing members. d) 50 x 80 x 80 Rail section are used as Floor beams supported with Knee bracing of 50 x 80 x 80 Rail section. e) Bottom Lateral Bracings 50 x 80 x 80 Rail section in Zig-zag pattern are used
	Height of Girder/ Truss (H)	1.68 m	
	Truss Support Condition	Cleat Angle	
	Type/Shape of floor beams /Bracings	NG Rail Section	
	No of Floor beams/bracings for span	7 per Span	
	Arrangement of Bracings	Zig-Zag bracing.	
	Type of Beam-Column Joint (shape of gusset plate if any)	Cleat angles	
3.5	COLUMN		
	Type/Shape of Column section	Bull Headed Rail	a. FOB is supported on vertical column of 2 Bull Headed Rail section 65 x 130 x 65, with bracings of 65 x 65 x 10 mm angle section(Refer fig :9) b. Trestles 1 and 3 have 4 columns whereas Trestles 2 (Stanchion) has only 2 columns. c. Staircase landing is supported by Trestle column of 2 Rail section 65 x 130 x 65, with bracings of 65 x 65 x 10 mm angle section
	No of Columns per support	4, 2	
	Dimensions of Column	135x130 mm	
	BEAM-Column joint (bolted, welded, riveted)	Bolted	
3.6	Floor of the Pathway		
	Material of Slab	Pre-cast panels	a. Pre-cast Reinforced concrete slab panels are used for floor slab of 70 mm thick, RCC slab panels are resting on Floor beams and Bottom chord member in Span 1 & 2. b. Cement concrete flooring is laid on the top of the slab panels.(Fig-5)
	Thickness of Slab	70 mm	
	Condition of Slab from Bottom	Cracks & Leaching Observed	
	Condition of Slab from Top	RCC slab is not visible, Covered with CC flooring	
3.7	Staircase Details		

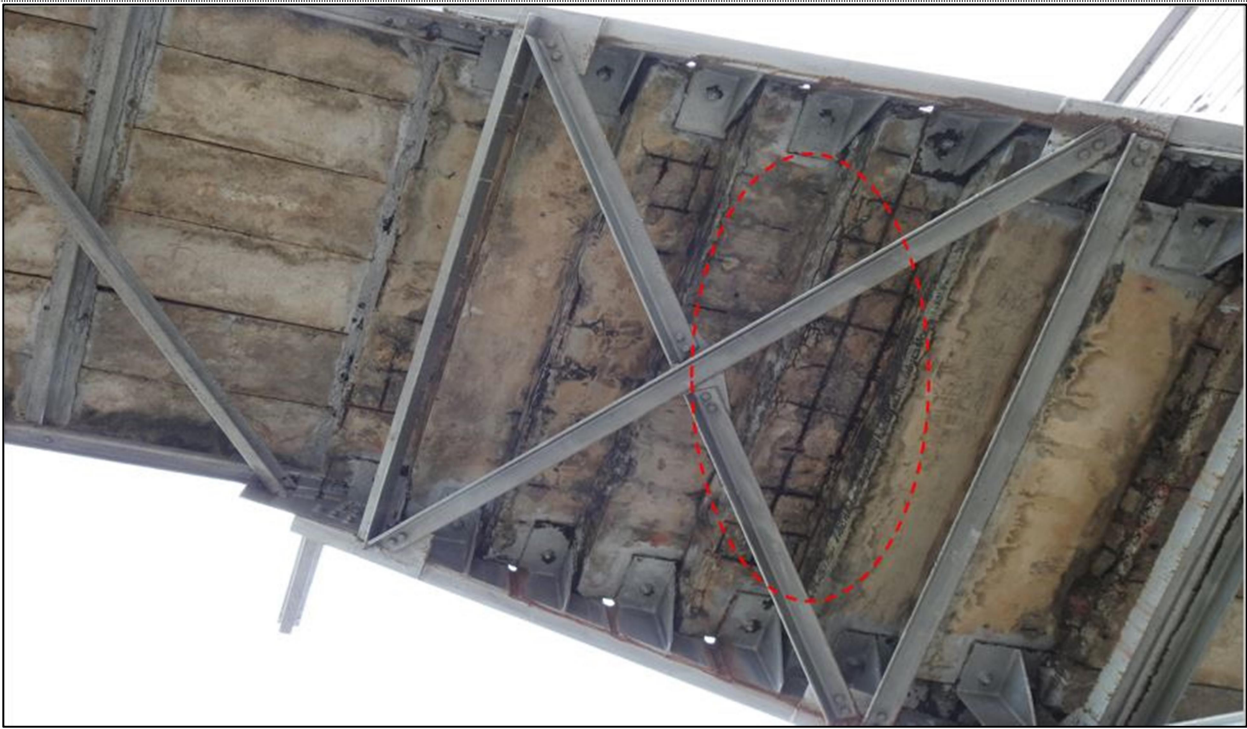
	Number of staircases	2 No's	a. Pre cast RCC Slab used in Staircase supported on 50 x 80 x 80 Rail section Stringer beam and 50 x 80 x 80 Rail tie beam on both sides of stair case. (Refer fig :8)
	Number of steps from PF-1	37 no's	
	Number of steps from PF – 2	35 no's	
	Material used for steps	Pre cast RCC slab panels	
3.8	Staircase Railing		
	Type of Parapet Railing	Steel railing	a. Staircase is provided with railing on both sides of 50 x 80 x 80 mm Rail section and 50 x 8 mm M.S flats are used. (Refer fig :8)
	Height of Railing	1.55 m	

PART 4 SURVEY OF SIGNS OF DISTRESS, DEFORMATION IN BRIDGES

- 4.1 ✓ Exposed reinforcement is observed at Staircase Landing slab panels at plat form 1 and 2.



a).Exposed reinforcement is observed on staircase Landing slab at plat form 1 and 2

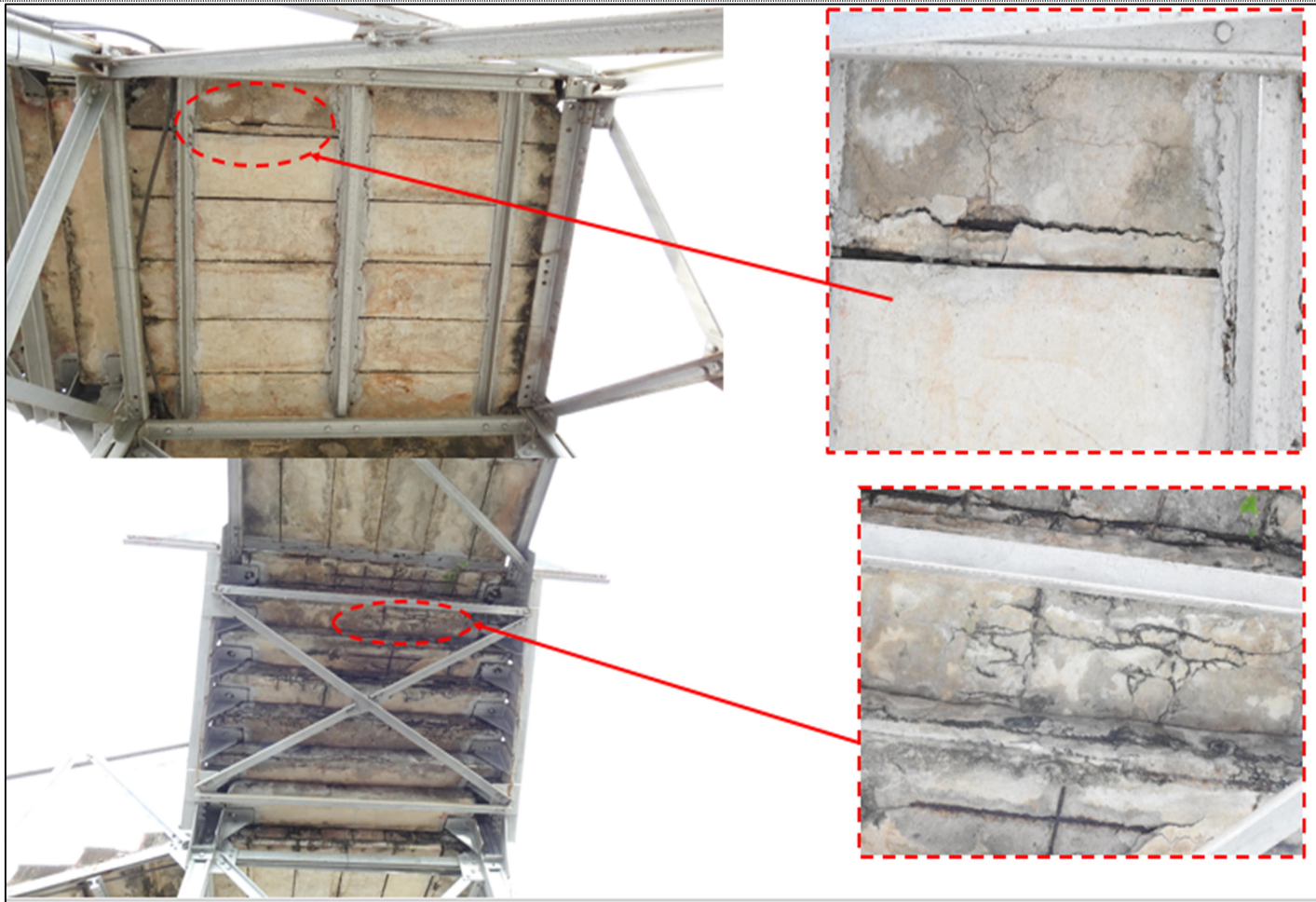


b. Reinforcement exposed at Stair Case flight of Clear span

4.2 ✓ Cracks are observed at bottom of the span and below the stair case



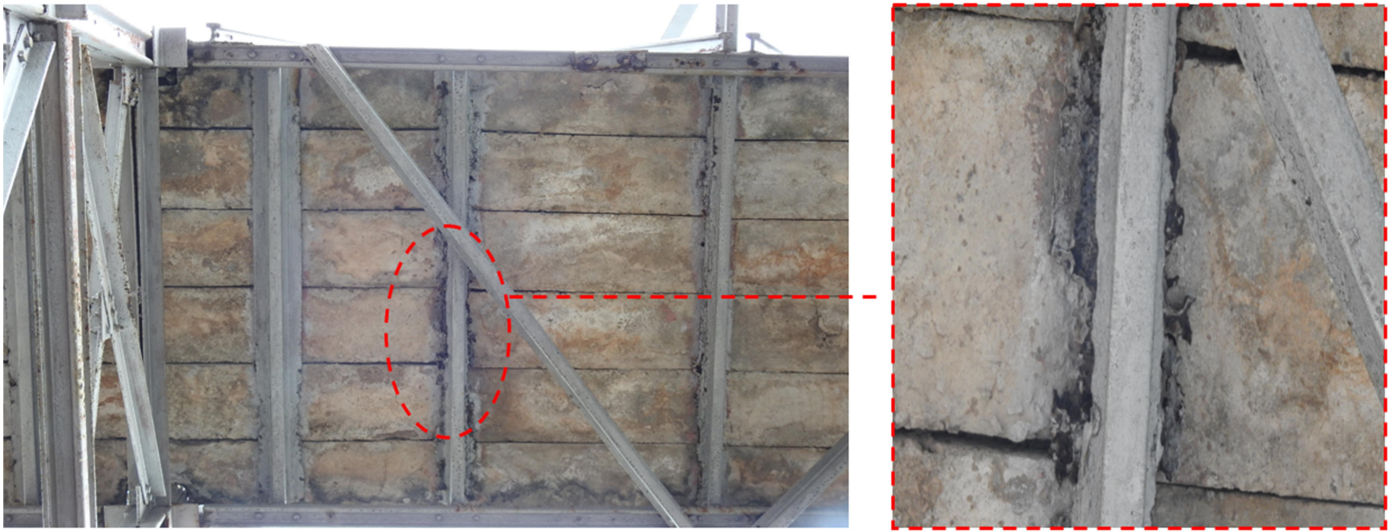
a) Cracks observed at Span-1 & Span 2



b) Spalling and Cracks Observed at Stair case 2



c) Leaching and water seepage is observed at slab panels



a) Corrosion of Floor Beams at Span-2



b) Corrosion of Floor Beams at Span-2



c) Corrosion at Cleat Angles of Stair Case



d) Corrosion of Bottom chord in Span 2



e) Corrosion of Floor beam at landing

PART 4 SURVEY OF SIGNS OF DISTRESS, DEFORMATION IN BRIDGES			
	Defects	Location	Remarks
	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 panels (Refer Part 4.2)
	Water seepage	Slab panels	water seepage is observed at slab panels (Refer Part 4.2 c)
	Spalling	Slab panels, Stair case	Spalling and reinforcement exposure is observed in Precast RCC panels of Stair Case and Landings (Refer Part 4.1)
	Rust straining	Chord members, joints	Rusting is observed at all the joints of FOB& Top chord member (Refer Fig.3)
	Extent Of Corrosion	Floor beams, bottom chord	Corrosion of floor beam is observed in both spans of FOB. (Refer Part 4.3)
	Corrosion in Gusset plate	Cleat angles	Corrosion is observed on Cleat angles of Staircase(Refer Part 4.3)
	Corrosion at steel-Concrete joint		Corrosion is observed at steel concrete joint. (Refer Part 4.3)
	Condition of Painting of steel structure		Painting is affected only at distressed places.

***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: Light Post attached to landing Trestles Pf. 1



Fig 2: Red oxide coating observed at FOB



Fig 3: Rusting observed at steel joint & Top chord



Fig 4: Corrosion is observed at Stringer beam joint



Fig 5: Path Way, Protective screen of FOB



Fig 6: Vegetation growth at FOB



Fig 7: Front View of FOB



Fig 8: Railing, Trestle of FOB



Fig 9: Trestle and Stanchion of FOB



Fig 10: Inspection Team