



## SOUTH CENTRAL RAILWAY

Headquarters Office,  
Works Branch,  
Rail Nilayam, 5<sup>th</sup> Floor  
Secunderabad-500025

No. W.71/Br.L/Genl/Correspondence/Vol-II

Dated: 03-05-2021

**Sr.DEN/Co/GTL**

**Sub:** Bridge Inspection – Bridges under ORN-2 & 3 category – Reg.

During the review of annual inspection of bridges in GTL division on 27-04-2021 it is revealed that a large number of bridges have been placed under the category of ORN-2 & 3 by the inspecting officials. One bridge is also kept under ORN-1 category. It is noted that some of the bridges which have now been placed under ORN-1/ORN-2 category after the latest bridge inspection were previously under ORN-5 category as per the earlier annual inspection records. In this regard, it is not understood as to how the condition of these bridges deteriorated so rapidly in one year requiring placement under ORN-1/ORN-2 category, unless there has been a cumulative neglect in prompt attention to the repairs of the bridges over a period of time. There could also be dereliction of duties on the part of officials who inspected these bridges earlier by projecting the condition of the bridges as sound duly ignoring signs of deterioration.

From the statistics projected by the division, it is noticed that a majority of the bridges under ORN-1/2/3 are RCC slab bridges where the reason for rehabilitation is shown as reinforcement exposure underneath the slabs. Such large scale exposure of rebar does not happen in one year and it is a failure of the bridge inspection system in giving prompt attention to the slab as and when the exposure was noticed. It also appears that sufficient amount of time has not been spent for inspecting these bridges at SrDEN/DEN level to assess its present strength, rehabilitation requirement, ORN category etc.

Since RCC slabs are generally designed for 0.25mm crack width in tension under moderate exposure conditions, there is a tendency of cracking of reinforcement cover under the slab under dynamic train loading which results in spalling of concrete, exposure of reinforcement and resultant corrosion. In such cases, prompt action of sealing the exposed reinforcement with epoxy mortar will prevent further deterioration. Important point of inspection in such cases is to watch for corrosion in the reinforcement and loss of cross sectional area of tension reinforcement. The life of slabs can be extended considerably by taking up prompt repairs to the exposed rebar with properly applied epoxy mortar of reputed brand.

Therefore, a review of all such bridges shall be made at your level after a thorough and detailed inspection of these bridges by DEN/SrDEN duly examining all relevant details of the bridge like completion drawings, reinforcement drawings, past attention, nature of attention given earlier etc. Wherever necessary, deflection of the slabs under train loads shall be

measured along with recovery after load removal so to assess the present strength of super structure. Only those slabs where there is considerable loss of cross section of tension rebar due to corrosion should be planned for replacement on a programmed basis duly furnishing the details to Headquarters along with records of the past 10 year inspections.

A special report after undertaking the above review shall be sent to Headquarters.

(K. Rama Krishna)  
Chief Bridge Engineer

**Copy:** CE/BRH for information and further follow up.

Sr.DEN/Br.lines/BZA & SC, DEN/Br/SC, BZA, HYB, GTL for n.a.

Sr.DEN/Co/SC, BZA, HYB, GNT, NED for information and similar action.