

Title: Assessment of structural adequacy of selected spans of RDSO's standard composite girder of 12.2m constructed Bridge No. 203 & 213 between Muzaffarpur-Sagauli Section of Samastipur, East Central railway

Duration: 01-04-2025 to 31-12-2025

Deliverables: The project will help the East Central Railway to assess the structural adequacy and safety of the two composite bridges (BR203 and BR213) superstructures under the present and 25t load scenarios.

Significant Achievements:

1. Instrumentation of the two composite bridges was carried out, namely BR 203 and BR213, using strain gages, displacement transducers, and accelerometers for static and dynamic response measurements
2. Field investigations of the bridge span were carried out for different static and dynamic test cases with varying speeds of test train formation, tractive/braking cases
3. The recorded data was processed and presented in the report. It is found that the composite superstructure of the bridge is intact and functioning as intended through complete composite action.
4. Non-destructive testing (NDT) was also conducted on the concrete deck slab using ultrasonic pulse velocity (UPV) and rebound hammer to assess the overall quality of the concrete.
5. As the field study could not be conducted using the intended 25T loading, it was assessed using a validated numerical model. Numerical simulation is carried out for response evaluation (both static and dynamic) of the superstructure under 25T loading. The composite superstructure performs well under all load cases considered in the present study.
6. Technical reports were prepared on field investigations, observations, NDT Testing, Numerical Modeling, and specific recommendations

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