

Title: Condition assessment and retrofitting of masonry arch bridge at Kamaraj Salai, Puducherry

Sponsoring Agency: PWD, Puducherry

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Scope/Objectives:

The scope of the above mentioned work is given below.

1. Condition assessment and damage mapping of masonry arch bridge through visual inspection
2. Instrumentation of the bridge for response measurement
3. Load testing of the bridge for assessing the performance and load carrying capacity of the superstructure under incremental loading
4. Analytical investigations of the bridge for assessing its load carrying capacity and for formulations of suitable repair and retrofitting schemes (if any)
5. Formulation of strengthening/retrofit measures (if any) and report preparation

Objectives Achieved/ Progress made:

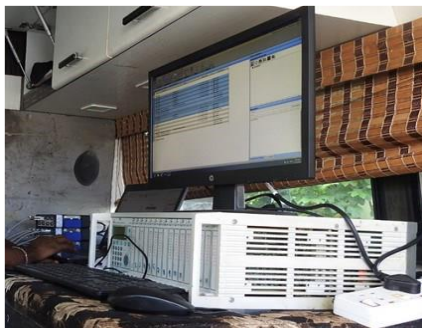
Experimental and numerical investigations carried out on the masonry arch bridge at Kamaraj Salai, Puducherry. It was decided that the prevailing condition of the bridge needs to be checked through visual inspection and structural adequacy of the bridge for the current and future traffic is to be evaluated. This is to be assessed through detailed load testing. During visual inspection, presence of large cracks was observed in spandrel wall at pier location and visible cracks at arch crown. Further, the load tests were carried out using two test vehicles with five different load levels. The loaded vehicles were placed in critical locations with incremental loadings. The critical structural responses obtained during the field tests were processed. Based on the responses, specific recommendations on the possibility of the usage of the bridge for further use are also made. It is found that a comprehensive retrofitting needs to be carried out on the bridge to make the bridge usable with load rating (reduced allowable loading). It is also recommended that for allowing full IRC loading, a new bridge may be constructed with innovative design and erection procedure to cater the need for fast construction of the bridge.



Fig. 1: General view of the bridge



Fig. 2: Distress in the connection between pier and arch crown



(a)



(b)

Fig. 3: (a) Data acquisition system and (b) test vehicle used for the load