Study on the Structural Behaviour of Integral Bridge

Environment Creation, 1st year

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1. Scope of Study and Method

Integral bridge has eminent merits in economical aspect, easy maintenance, seismic performance, serviceability and etc., which is widely employed in Europe and North America, while not widely applied in Japan. The rehabilitation by integration of the superstructure and abutments would also improve the structural strength and serviceability.

The scope of the study is to clarify the structural behaviour of the integral bridge on followings to apply it widely in Japan considering local circumstances- e.g. seismic load, heavy traffic condition on soft ground.

(1) Static behaviour of integral bridge

(2) Serviceability of the integral bridge under the traffic load with comparison to the conventional bridge, bridge with extended deck and semi-integral bridge

(3) Seismic performance and displacement based design of integral bridge

(4) Applicability of high performance lightweight aggregate concrete for integral bridge

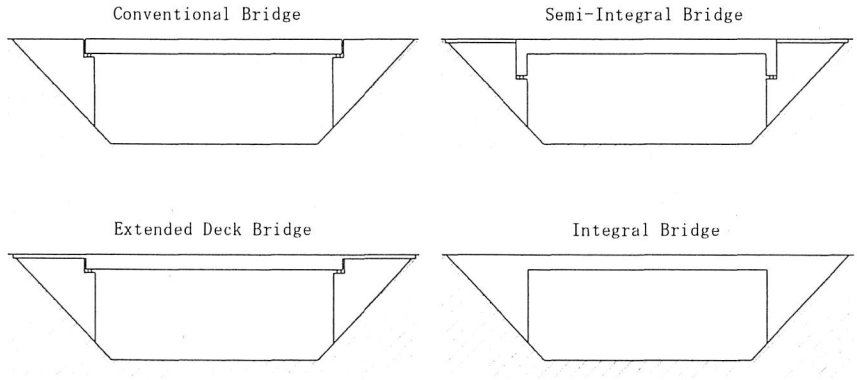

Fig.-1 Profile of Structural Systems of the Alternatives

Related Paper and Report Already Presented

1) Hiroshi AKIYAMA, Yutaka YAMAHANA, Masashi FUNAHASHI and Yuzuru HAMADA: A Study on the Creep and Shrinkage of High Performance Lightweight Aggregate Concrete, Proceedings of the Japan Concrete Institute, Vol.27, pp.1363-1368, Japan Concrete Institute, June. 2005.

2) Junichi TANAKA, Hiroshi AKIYAMA: Elegant Prestressed Concrete Foot Bridge with Roundly Curved Girder – Kujira Bridge (Whale Bridge) –, National Report of fib 2002 Congress, pp.49-52, Japan Prestressed Concrete Engineering Association, Oct. 2002.