

STAGE CONSTRUCTION

Non-Redundant Superstructures

Existing Bridges

For concrete girder bridges, providing a minimum of three existing concrete girders in every stage is preferable. An existing concrete two-girder system is acceptable provided there is internal redundancy in the girders. Internal redundancy in reinforced t-beam girders is provided if there are multiple layers of flexural reinforcement with multiple bars in each layer. Internal redundancy in prestressed girders is provided by multiple layers of strands.

For steel girder bridges, provide a minimum of three existing steel girders in every stage unless approved by the ITD Group Leader.

Proposed New Bridges

A new bridge with a non-redundant two-steel girder system during stage construction is acceptable provided the girders are designed for the non-redundant steel tension member (NSTM) condition. If the two-girder system does not carry traffic for more than 12 months it would not require a NSTM inspection; only a routine inspection would be required before being opened to traffic. If the two-girder system will carry traffic for 12 or more months, a routine inspection is required before being opened to traffic, and an NTSM inspection is required within the first 12 months of the bridge opening to traffic.

A new prestressed concrete two-girder bridge is acceptable. A routine inspection would be required before being opened to traffic. Consult your Group Leader if the two-girder system will be in operation for more than 12 months.

Load Rating

If staged construction is used

At all times during construction, the operating load rating of the existing bridge or portions thereof shall not drop below the operating load rating for the existing bridge. This ensures that the over legal weight annual permit holders will not have reduced access to the bridge during construction. The designer must provide some method by which to control over legal weight single trip permits during stages of construction. This can be by means of a BrR model of the various stages of construction which can be run for permit requests. If approved by the District Engineer, a recommendation of no single trip permits during construction can be made.

If a temporary highway bridge is to be used

All temporary bridges that carry highway traffic must be designed in accordance with the AASHTO LRFD Bridge Design Specifications, current edition, and the ITD Bridge Design LRFD Manual, current edition. The designer must provide some method by which to control over legal weight single trip permits while the temporary bridge is open to the public. This can be by means of a BrR model which can be run for permit requests. If approved by the District Engineer, a recommendation of no single trip permits during construction can be made.

Revisions:

Oct 2016	Added new article.
Nov 2019	Changed reference to AASHTO LRFD Bridge Design Specifications to “current edition”. Changed ““If the political climate permits” to “If approved by the District Engineer”.
Oct 2023	Added directions for two-girder non-redundant bridges.