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Tube Flange Girders for Curved Bridges

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Abstract

The proposed project will investigate the use of tube flange girders in curved bridges. Curved bridges develop significant levels of torsion. In conventional curved I-girder bridges, cross-frames between the I-girders work with the I-girders to resist the torsion. However, significant lateral bending of the I-girders occurs, and the forces in the cross-frames can be quite large. The proposed project will investigate whether the large torsional stiffness of tube flange girders can be used to resist the torsion that develops in curved bridges without significant lateral bending of the girders and large cross-frame forces. The anticipated advantage of using tube flange girders in this application is more economical girders and cross-frames.