



# Iowa Department of Transportation

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Dear Consultants:

It has been recently brought to my attention that the ConSpan program may not be calculating camber correctly for Prestressed Concrete beam designs that use the transformed section. In comparison runs that were made, there were large differences in release camber and erection camber using transformed section compared to runs using gross section. For example, a comparison run of the 130 ft standard beam using transformed and gross section gave the following results:

	Release Camber (in.)	Erection Camber (in.)
Transformed Section	5.01	8.85
Gross Section	3.95	6.94
Differences	1.06	1.91

In addition, actual cambers during erection for two bridges recently built using the bulb tee section were lower than estimated cambers shown on plans. Plan values were taken directly from the Conspan program output using transformed section properties. The actual camber for beams at 42<sup>nd</sup> St., West Des Moines over I-235 (125 ft. spans) was 1 in. lower than plan value and 28<sup>th</sup> St., West Des Moines over I-235 (135 ft spans) was 1 ½ in. lower than plan value. In each case, the profile grade had to be revised to avoid excess beam haunches.

While realizing that plan camber is an estimate at best, our hope is to improve camber estimates to avoid potential problems during construction in the future. Therefore, until we can resolve this difference in the ConSpan program with the Leap Company, the following guidelines should be used.

When using ConSpan to analyze a nonstandard prestressed beam, the release and erection camber shall be calculated by hand or using the gross section option in the program. If the program is used to calculate camber values, the designer will need to run it twice. Once using the transformed section for the analysis and second using the gross section for the camber estimates. Please contact our Office if you have questions.

Sincerely,

Gary A. Novey  
Assistant Bridge Engineer

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