

# STRUCTURE BULLETIN

## Construction Unit

[Website email](#)

### Current Issues: Staged Construction



While not generally our first choice, staged construction of bridges is often necessary to maintain traffic. Depending on the span lengths and anticipated deflections, most bridges will be detailed with a closure pour between the two stages. You are basically building two parallel bridges that will be connected later to produce one structure. The closure bay allows a separation between the two stages so that each stage will deflect independently of the other one. If there are any positive connections between stages that resist the deflection, the deck elevation of the stages will not match and will result in an incorrect deck cross section. Diaphragm bolts should be left loose or not installed in the closure pour bay unless otherwise noted and any falsework should allow the two decks to act independently during the pours. Rebar in the closure bay should not be tied between stages until after both stages are poured.

Except in rare cases, the screed should only be supported by the girders in the stage being cast. In the picture on the right, one leg of the screed was set on the previously cast deck from Stage I and the other leg on the undeflected Stage II side. During the pour, one side of the screed deflects, while the other does not. This can create issues with the cross section as well as rebar cover issues. If a Contractor requests to set the screed up like this or eliminate a closure pour shown on the plans, discuss this with your Area Construction Engineer.



1. Staged Construction
2. Trimming Girder Stirrups
3. Grooving Transverse Joints
4. Training Videos

### Videos:

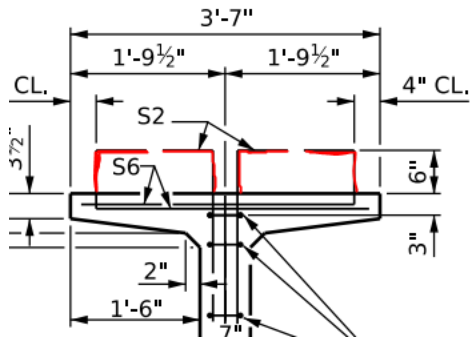
Inspection training videos can be found on the [Construction Unit YouTube playlist](#).

### Training:

The 2024 Structure Inspector Training series on Bridge Rehabilitation is complete. The final versions of the PDF presentations can be found at this link - [Final PDF's of 2024 Structure Training](#). The sessions were videoed again this year and will be available on the [YouTube channel](#) when editing is completed in the coming weeks.

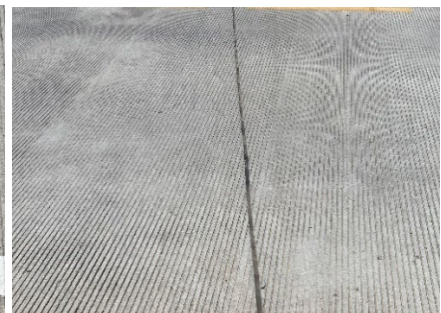
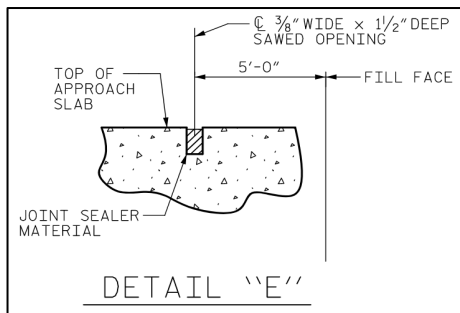
Structure Bulletins are archived on the [Construction Unit website](#) under [Construction Resources](#).

## Trimming Girder Stirrups



Stirrup bars, or “S” bars in the top flanges of concrete girders are there to help the deck and girders act compositely, or as one single unit. In phased construction these can sometimes interfere with placement of the side forms. In the picture above, they were cut off to make room for the form. While some cutting of the horizontal leg may be permissible, this case was excessive. If you have this situation, call your Area Construction Engineer for advice prior to trimming the “S” bars.

## Grooving Transverse Joints



Some plans call for tooled or sawed transverse joints in the deck. This is normally found on integral abutments, link slabs, or concrete wearing surface overlays. When grooving the deck, these should be treated as expansion joints (middle picture), so do not groove within 2” of the joint (Article 420-14(B)). Grooving too close to the joints (right picture), especially on skewed joints, creates wedge shaped areas between the groove and saw cut, which will easily spall off.

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If you have a topic you would like to see addressed in a future edition of the Structure Bulletin, please [email](mailto:aeerwood@ncdot.gov) us at either [aeerwood@ncdot.gov](mailto:aeerwood@ncdot.gov) or [aegriffith@ncdot.gov](mailto:aegriffith@ncdot.gov)