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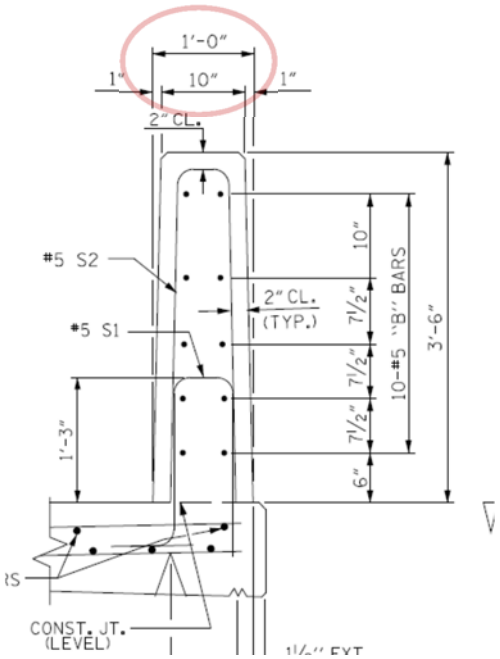
STRUCTURE BULLETIN

NCDOT Construction Unit

Website email



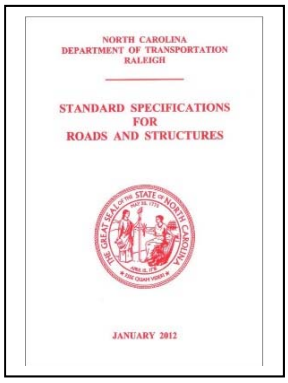
Current Issues: Vertical Barrier

Several years ago the Department began detailing Vertical Concrete Barrier Rail. These are normally used on Sub-Regional Tier structures when possible. Part of the reason for adopting this rail geometry was to comply with fall protection standards requiring a 42" height. These rails may be slip formed or hand formed.

A common question regarding these rails is "Do I have to batter the face of the rail?" Notice above that the top of the rail is detailed to be 10" wide, while the bottom is detailed at 1'-0" wide. This difference is called a "draft" (which results in battered sides). The dictionary defines draft as "the taper given to a pattern or die so that the work can be easily withdrawn." The higher rails could not be easily extruded from the slip-form machines which produced our jersey shapes and shorter parapets, so in order to make it easier to slip-form, the sides were tapered. If a contractor choses to hand-form the barrier he may eliminate the draft and have vertical faces resulting in a uniform 12" width of the wall.

Rebar Cover:

The Bridge above is only 20 years old. One of the biggest problems Maintenance faces is deterioration resulting from insufficient concrete cover. This is a problem that is entirely avoidable with proper inspection and construction methods. By checking the forms to make sure you have the required cover on all faces before pouring concrete, you can avoid this and save future maintenance money.


NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD SPECIFICATIONS
FOR
ROADS AND STRUCTURES

JANUARY 2012

Special Provision Questions:

Question: Section 440-8(C)5 states

"*Provide a tension indicating device on the project for determining the tension imposed on a fastener when the protrusions on direct tension indicator are properly compressed.*" If the only bolted connection on my job is for metal diaphragms on concrete girders am I still required to do this?

Answer: This specification requires the contractor to supply a Skidmore-Wilhelm bolt tension measuring devices, or other equal device, so the DTI washers can be tested on site. See the training video at the right if you are not familiar with this. On any structural steel bridge the device is requires. On reinforced concrete girder bridges this requirement is normally waived. This is due to the low number of DTI's necessary on the structure and the reduced risk of the connection involving the DTI's on this structure type.

If you have other questions regarding this matter please contact us at the links below ore ask your Area Construction Engineer.

If you have a topic you would like to see addressed in a future edition of the Structure Bulletin please email us at either acochran@ncdot.gov or aearwood@ncdot.gov

New Training

NCDOT Construction Unit Training YouTube playlist.

Relating to the article at the left: Field Testing of Direct Tension Indicators

Just for fun, a time lapse video of a concrete deck pour.

Time Lapse