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STRUCTURE BULLETIN

NCDOT Construction Unit

Website email

Current Issue: Non-Shrink Grout Samples

NCDOT has seen an increasing number of failing grout sample cubes when tested for compressive strength. Improper batching errors (i.e. not properly measuring water, use of cold water, etc) can affect strength; however, we have also seen instances of improperly made cubes.

Video – Preparing Grout Cubes

When making test specimens, it is very important that proper procedures are followed. This includes properly wiping off excessive lubrication or Vaseline. Not doing so can create irregularities in the faces of the cube which can lead to low compressive strength results. Structure Bulletin *Volume 4, Issue 2*, and *Volume 8, Issue 2* cover grouting issues. Please review these past bulletins, and if you are making grout cubes, watch the above video on how to properly make and handle grout cubes.

Coating Grout Molds - "the residue coating should be just sufficient to allow a distinct fingerprint to remain following light finger pressure."

Bridge Member Orientation

Some of you may have wondered how NCDOT bridges and the associated members are labeled on your bridge plans. How do you know which is Endbent #1 or Bent #1? Generally, our bridge plans are oriented as follows:

W to E, S to N, L to R

If you are standing on the most Western or Southern end of the Bridge and looking across the structure, then the end which you are standing is End Bent #1. **If the bridge is on a -Y- Line, this may not always be the case. Always refer to the plans to confirm the proper orientation.**

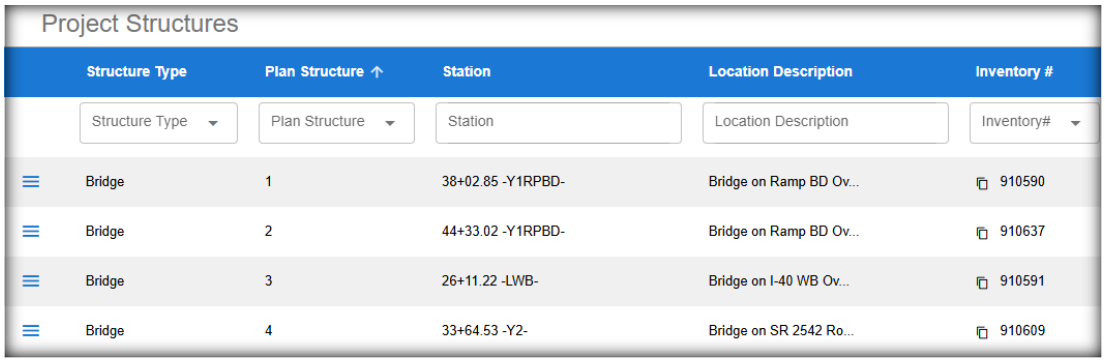
Once you have established longitudinal orientation, Piles, Shafts, and Columns are labeled in a Left-to-Right manner. For example, the first pile from the left at End bent #1 is Pile #1.

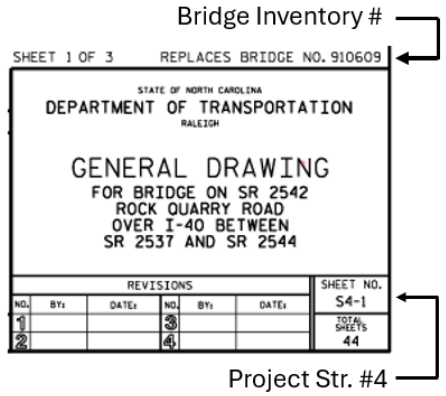
While there are rare cases of structures landing somewhere on a diagonal between Southeast and Northwest, you should generally be able to apply the above rule.

Bridge Numbering System

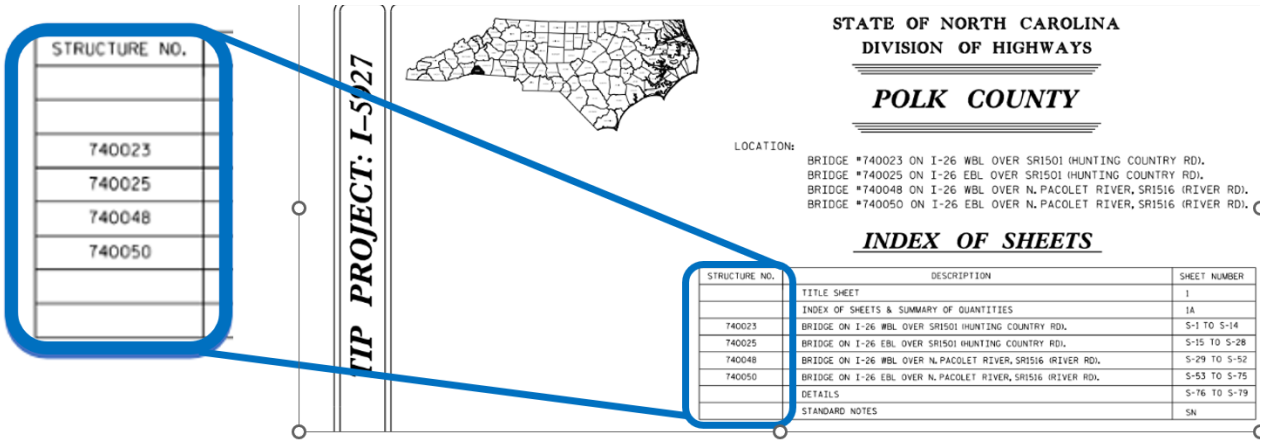
In North Carolina, bridges are numbered using a system that incorporates the County Code and the relative number of the structure within that County. Each bridge is assigned a unique **6 digit #**, often referred to as a **"Bridge Number"** or **"Inventory #"** which is used for identification and tracking purposes. Here's how it works:

- **County Code**: The first two digits of the bridge number reflects the County it's located in. For example, a bridge in Yancey County will begin with "99xxxx".
- **Sequential Number**: After the County Code, there will typically be a sequence number that is unique to each bridge in that particular County. For instance, if the last bridge added to the State Inventory System in a County is 330, then the Bridge Number is "xx0330".
- Combining these two produces the actual Bridge Number, 990330, as indicated within the State Bridge Inventory List particularly for internal tracking by NCDOT.
- Construction projects will have Plan Structure #'s, beginning with 1, 2, 3…and so on. Each one will corresond with the Bridge Inventory # of the bridge it is replacing. Each of these #'s can be found in the plans and can also be found on the newly formated Project Structures page within the SharePoint Teams site (see below). It is important that our "Project Structures" page on the SharePoint Team site is correct so that project records can be linked to the correct bridge inventory number. If your Project Structures page has not been pre-populated, you can manually enter each bridge for your project.





Below is another example of a plan set for a preservation project where you can see the bridge inventory #s associated with each bridge.



NCDOT uses the bridge number as a key reference when inspecting, maintaining, and managing bridges. While there are various GIS maps with NC bridge numbers listed, this link shows all the bridges in NC, and can be viewed in table format as well.

Structure Inspector Training

Don't miss this year's structure inspector training. We are about half way through the schedule so if you have not been signed up, speak to the Resident Engineer you work for. We are focusing this year's training on Basic Structure Inspector training and targeting folks with 0-5 years of experience. Resident Engineers can register their staff and CEI technicians at the link or QR code in the flyer below:

2025 Structure Inspector Training – Basic Structures

1 High Point
Guilford Tech Community College
Charles A Greene Bldg (H5)
933 S Main St
High Point, NC 27260

2 Winterville
Pitt Community College
Russell Bldg – Rm 144
Reedy Branch Rd
Winterville, NC 28590

3 Waynesville
Haywood Community College
High Tech Center
112 Industrial Park Dr
Waynesville, NC 28786

4 Castle Hayne
Div 3 Traffic Services
5310 Tortugas Dr
Castle Hayne, NC 28429

5 Charlotte
NCDOT Metrolina Regional
Transportation Mgmt Center
2327 Tipton Dr
Charlotte, NC 28206

6 Fayetteville
Fayetteville Tech
Community College
General Classroom Bldg
2817 Fort Bragg Rd
Fayetteville, NC 28303

7 Hickory
Catawba Valley
Community College
2550 Hwy 70 SE
Hickory, NC 28602

8 Raleigh
Wake Tech – Perry Health Sciences
Campus (Bldg A)
2901 Holston Ln
Raleigh, NC 27610

Date	Site	Location
Feb 18	1	High Point
Feb 19	1	Cancelled (Snow)
Feb 26	2	Winterville
Feb 27	2	Winterville
Feb 26	3	Waynesville
Feb 27	3	Waynesville
Mar 4	4	Castle Hayne
Mar 5	4	Castle Hayne
Mar 4	5	Charlotte
Mar 5	5	Charlotte
Mar 19	6	Fayetteville
Mar 20	6	Fayetteville
Mar 19	7	Hickory
Mar 20	7	Hickory
Apr 2	8	Raleigh
Apr 3	8	Raleigh

The 2025 Structure Inspector Training will cover basic structure inspection. The training is geared towards newer structure inspectors (5 years +/- or less) or roadway technicians looking to cross train. The training is one day from 8:30 – 4:30 and will be held according to the schedule on the left. We ask that RE's distribute NCDOT and CEI staff equally over the available days. In accordance with the CEI Guidelines, the CEI technician's time is not reimbursable; therefore, CEI Managers should be consulted prior to the RE registering the CEI employees for this training. Register at the link or QR Code to the right. Once a location reaches capacity, participants must select a different location and/or date. If necessary, additional dates may be added. For questions, email: aearwood@ncdot.gov

Register Here

Area Construction Engineers

	Div	Contact	Phone
EAST	1&2	Vacant	
	3&4	David Candela	910-524-4931
	5	Meredith Hayes	336-266-2463
	6&8	John Partin	336-847-1226
WEST	7&9	Marcus Kiser	336-972-3412
	10	Christopher Fine	336-225-4266
	11&12	Mark Biggerstaff	828-803-9954
	13&14	Aaron Powell	828-417-2629

Regional Bridge Construction Engineers

Div	Contact	Phone
1-4	Randy Hall	282-402-9957
5,6,8	Patrick Cheeves	678-602-8504
7,9,10,12	Aaron Griffith	336-215-9170
11,13,14	Tyler Rogers	828-593-7028