



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

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E. NORRIS TOLSON
SECRETARY

April 3, 1998

MEMORANDUM TO: Mr. G. T. Shearin, P.E., State Roadway Design Engineer
Mr. W. R. Brown, P.E., State Design Services Engineer
Division Engineers

FROM: R. L. Hill, P.E. *R. L. Hill*
State Design Engineer

SUBJECT: Plan Preparation

DESIGN SERVICES UNIT					
CO	EC	SO			
VM	S & F	WP			
GLB	JG				
APR 2 1998					
TAKE APPROPRIATE ACTION					
FOR YOUR INFORMATION					
PREPARE REPLY FOR					

As a result of the last CEC/NC/DOT joint conference it became apparent that there was confusion over what information is needed to be shown on highway plans and in what manner it should be shown.

We have taken notes from this meeting to address some of these problems and possibly make it clearer as to how some of the problems can be eliminated. Some of the issues addressed did not originate at this meeting but are known to cause confusion due to past experiences in preparing plans.

Our goal is to make the plans less cluttered, easier to understand, and less time intensive. If all plan preparers adopt the following procedures we can go a long way toward reaching this goal.

1) Title Sheet

- a) Only "Vicinity Map" is required to be labeled in the vicinity map title block
- b) Begin or end construction labels are not needed for minor -Y- line construction

2) Typical Sections

- a) Typical sections or part sections are not needed for auxiliary lanes or tapers (Plans cover this)
- b) Typical sections are not needed to cover super-elevation unless there are no normal crown conditions on the segment of roadway for which the typical section applies. (Roadway standard drawings 560.01 and 560.02 show this method of construction).



- c) A typical diamond interchange usually has wider full depth pavement on the right side for ramps A and C. Ramps B and D have the wide full depth pavement to the left. If all ramps have the same pavement design a single typical section can cover them by labeling "reverse" on the listings as applicable.
- d) When typical sections cover a length of roadway that is typically a uniform width do not put variable dimensions to cover turning lanes, tapers, etc. Plans will cover these variations.

3) Details

- a) Currently almost all plans show a ditch detail on the plan sheet for each ditch location. This can result in many ditch details drawn on an already cluttered plan sheet. The same detail may also need to be shown on a series of plan sheets to cover the ditch configuration each time it occurs on a project. D. R. Henderson, P.E. of the Hydraulics Unit and Garry Lee, P.E. of the Design Services Unit met March 23, 1998 to devise a better method. It is recommended that a ditch detail sheet be placed in the 2 series sheets of the plans on projects with multiple applications of a single ditch detail. The locations shown on the plan sheets should be cross-referenced to the correct ditch detail. Uncluttered projects with few ditches may be shown by the current method. (See attachment 'A')

4) Summary Sheets

- a) Items shown on summary sheets in plans do not need to be included in the calculation of quantities packet.
- b) In the past earthwork "Loss due to clearing and grubbing" has been deducted from unclassified excavation and waste on projects with waste. It was only deducted from unclassified excavation on projects with borrow. W. L. Moore, III, PG, P.E., and Njoroge W. Wainaina, P.E. of the Geotechnical Unit met with Garry Lee, P.E. of the Design Services Unit on March 23, 1998 to discuss these procedures. It was decided it would be best to continue doing waste projects as we have in the past. Borrow projects should have "Loss due to clearing and grubbing" deducted from the unclassified excavation and added to borrow. (See attachment 'B')

5) Plan Sheets

- a) Superelevation (and runoff for simple curves) needs to show under curve data only in standard applications.
- b) Label superelevation rates (with stations) on pavement only if situation is different than illustrated on roadway standard drawings no. 225.04 or 225.05.
- c) Cross-reference ditches to ditch detail sheet.

d) Structure numbers are required for all drainage items including side drains.

6) Pay Items

- a) There has been confusion over the pay items "Foundation conditioning material, minor structures" and "Bedding material, pipe culvert". Presently they are being used concurrently with the same quantity for each pay item on all projects with pipe culverts. It was agreed at the joint AGC/NCDOT roadway subcommittee meeting to use the pay item "Foundation conditioning material, minor structures" as we are presently using it. The pay item "Bedding material, pipe culvert" will only be used for structural plate pipe.

Recommended changes related to the "Earthwork Summary" and "Bedding material, pipe culvert" shall begin with projects scheduled for June 16, 1998 letting or later. Other recommendations can be introduced as deemed prudent by the project engineer.

Hopefully, this will help us become more effective and efficient in preparation of roadway plans. If anyone has any suggestions for other improvements that could be made please contact us so they can be evaluated.

cc: D. R. Morton, P.E.
C. H. Casey, P.E.
E. T. Cozart, P.E.

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