



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

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SECRETARY

MEMORANDUM TO: Project Engineers
Project Design Engineers

FROM: G. R. Perfetti, P. E.
State Structures Engineer

DATE: February 17, 2012

SUBJECT: DESIGN MANUAL REVISION

The Preface and Chapters 1 and 7 of the Design Manual have been revised. The Preface was updated to properly reference the Structures Management Unit. Revisions to Chapters 1 and 7 entailed reorganizing the chapters and incorporating policy memoranda issued after November 2007. However, the sections listed below contain revisions that provide clarification and/or new guidance on current design practice.

Section	Comment
7.1	Updated guidance on assigning a Seismic Zone to a bridge site.
7.2.2.1	Revised typical depth of end bent caps from 2'-6" to 4'-0" and height of berm above bottom of cap.
7.2.2.4	Clarified when to use "shadow" steel and when to step-up main reinforcement, and updated Figure 7-2 for consistency with the text.
7.2.4	Introduced the following new figures: 7-15a – Required length of wings for 4'-0" caps. 7-16a – Guide for wing wall brace pile details for 4'-0" caps. 7-19 – Wing wall Reinforcement. 7-23a – Standard brace pile details for 4'-0" caps. 7-24a – Standard brace pile details for 4'-0" caps (double row of piles). Revised the following figures: 7-1 – Deleted lateral guide and added minimum cap clearance for cored slabs and box beams. 7-18 – Deleted lateral guide and revised width of joint material between approach slab and blockout from 1½" to 1".
7.2.6.2	Provided guidance on sloping end bent and bent caps for cored slab and box beam bridges.
7.3.1	Revised orientation of integral end bent piles for consistency with non-integral end bents.

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- 7.3.3 Deleted requirement for piles supporting integral abutments to be oriented for bending about the weak axis.
- 7.3.5 Deleted requirement for a sleeper slab to support the roadway end of the approach slab for bridges with integral abutments.
- 7.4.1 Added verbiage to promote consideration of the boundary conditions when using a frame to model a bent.
- 7.4.4.1 Revised spiral in Figures 7-32 and 7-33 for consistency with standard Drawings.
- 7.4.5.2 Clarified guidance on detailing short columns on drilled piers.
- 7.4.5.3 Revised Figure 7-37 to show all piles vertical.

The revised Preface and Chapters 1 and 7 have been incorporated into the online Design Manual, which is available via the Structures Management Unit web page.

GRP/BCH/GM

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