



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY  
GOVERNOR

ANTHONY J. TATA  
SECRETARY

MEMORANDUM TO: Project Engineers  
Project Design Engineers

FROM: T. K. Koch, P. E.  
State Structures Engineer

DATE: January 23, 2015

SUBJECT: DESIGN MANUAL REVISION

The following sections of the Design Manual have been revised:

Section	Summary of Revision(s)
2.1.2.1	Added the weights of the 32" Alaska Rail and 42" Oregon Rail, each including an 8½" tall concrete curb.
6.2.4.1	Added parapets and curbs with rails for required expansion joints and grooved contraction joints.
6.2.4.2	Provided guidance for detailing expansion joint and grooved contraction joint locations in the "Plan of Rail Post Spacing's" for various metal rail types. Added detailing information for the 32" Alaska Rail and 42" Oregon Rail. Provided clarification for Two Bar Metal Rails detailed for anticipated future sidewalks.
6.3.1.1	Added the requirement to ensure the deflection due to dead loads does not exceed the camber of the girder alone in place for high strength concrete girders and girders with concrete strengths greater than 10,000 psi.
6.3.1.2	Added the requirement to ensure the draped strands at the end of prestressed members are not detailed in the top 8 inches of the girder.
6.3.2	Added the requirement to ensure the deflection due to dead loads does not exceed the camber of the girder alone in place for prestressed concrete girders.
6.4.1	Provided guidance and reference information for various rail types on cored slabs.
6.4.4	Added the requirement to ensure the deflection due to dead loads does not exceed the camber of the girder alone in place for prestressed concrete cored slabs.
6.5.1	Provided guidance and reference information for various rail types on box beams.
6.5.4	Added the requirement to ensure the deflection due to dead loads does not exceed the camber of the girder alone in place for prestressed concrete box beams.

**MAILING ADDRESS:**  
NC DEPARTMENT OF TRANSPORTATION  
STRUCTURES MANAGEMENT UNIT  
1581 MAIL SERVICE CENTER  
RALEIGH NC 27699-1581

TELEPHONE: 919-707-6400  
FAX: 919-250-4082

WEBSITE: [WWW.NCDOT.ORG](http://WWW.NCDOT.ORG)

**LOCATION:**  
CENTURY CENTER COMPLEX  
BUILDING A  
1000 BIRCH RIDGE DRIVE  
RALEIGH NC 27610

The following Design Manual figures have been added:

<b>Figure</b>	<b>Summary of Revision(s)</b>
6-35a	Added to show slab reinforcement, curb reinforcement, and anchor bolt details for the 32" Alaska Rail on a deck slab.
6-35b	Added to show slab reinforcement, curb reinforcement, and anchor bolt details for the 42" Oregon Rail on a deck slab.
6-35c	Added to show curb and end post details for the 32" Alaska Rail on a deck slab; these details are similar for cored slabs and box beams.
6-35d	Added to show curb and end post details for the 42" Oregon Rail on a deck slab; these details are similar for cored slabs and box beams.
6-37a	Added to show curb reinforcement and anchor bolt details for the 32" Alaska Rail on cored slabs and box beams.
6-37b	Added to show curb reinforcement and anchor bolt details for the 42" Oregon Rail on cored slabs and box beams.
6-81b	Added to show the section properties of exterior 21" and 24" cored slab units with modified voids to accommodate the required anchorage for the 32" Alaska Rail and 42" Oregon Rail.
6-88a	Added to show the section properties of exterior box beam units with modified voids to accommodate the required anchorage for the 32" Alaska Rail and 42" Oregon Rail.

The following Design Manual figures have been revised:

<b>Figure</b>	<b>Summary of Revision(s)</b>
6-68	Revised the width of the embedded plate perpendicular to the girder in the section view.
6-69	Revised the width of the embedded plate perpendicular to the girder in the section view.

The Design Manual and Design Manual Figures are available online.

TKK/TMG/kaw

Cc: B. C. Hanks, P. E.  
E. B. Nelson, P. E.  
G. Muchane, P. E.  
R. A. Hancock, P. E.; Attn: K. G. Bowen, P. E.  
Director of Transportation Program Management Unit  
E. E. Dubin, P. E., FHWA  
Division Bridge Program Managers