STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

MEMORANDUM TO: Project Engineers
Project Design Engineers

FROM: G. R. Perfetti, P. E.
State Bridge Design Engineer

DATE: February 4, 2003

SUBJECT: ELECTRICAL CONDUIT

Effective immediately, Electrical Conduit System plans will be prepared by the Structure Design Unit. The Project Design Engineer should continue to send a letter to Terry Hopkins of the Traffic Congestion and Engineering Operations Unit to determine if an Electrical Conduit System is required.

New Structure Design Standards and a cell library have been developed for the Electrical Conduit System. Standards ECS1 and ECS1SM are to be used along with the cell library to assist in the layout and design of the Electrical Conduit System. The cell library is available through the "Cell Tutorial" found within Microstation.

The design of the Electrical Conduit System is categorized by its attachment to the superstructure. The three options are attachment to SIP forms, precast deck panels, or overhangs. Use the overhang option only when designing a stream crossing or a railroad crossing.

The designer will use the design standards and the cell library to choose the appropriate details for the respective attachment to complete the design of the conduit system. It will be the responsibility of the designer to determine the dimension from the bottom of the deck to the conduit.

Every structure designed with an electrical conduit system shall use a conduit Expansion Joint Fitting and a Transition Adapter at each end bent and an Expansion Joint Fitting at each expansion joint in the deck. A Stabilizer should also be detailed midway between deck expansion joints. A Deflection Coupling is to be used only on structures on a horizontal curve that require the conduit to bend laterally to complete the installation. When a Deflection Coupling is required, place the following note on ECS1 or ECS1SM:

Install Deflection Coupler at each bent. See Detail "F".

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
STRUCTURE DESIGN
1581 MAIL SERVICE CENTER
RALEIGH NC 27699-1581

TELEPHONE: 919-250-4037
FAX: 919-250-4082

WEBSITE: WWW.DOH.DOT.STATE.NC.US

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

When the Electrical Conduit System is used on bridges designed for precast deck panels, place the following note on the Precast Panel Standard PDP1:

> ***¾" (19 mm) diameter pipe sleeve inserts shall be installed at a maximum of 10 foot (3m) centers to accommodate the Electrical Conduit System. See Electrical Conduit Systems Details.***

Payment for the Electrical Conduit System will be as "Lump Sum". No bill of material for the Conduit System will be required. A new Project Special Provision, "Electrical Conduit System" has been developed and is attached. Also attached are the Structure Design Standard Sheets ECS1 and ECS1SM along with an example project, which includes details for an Integral Bridge.

This policy is effective immediately. The standard drawings are available on both the S: Drive and the Structure Design Homepage. The Design Manual and the Structure Design Standards will be revised to reflect this policy change at a later date.

GRP/DBM

Attachments
Examplesht1
Examplesht2

cc: R. V. Keith, P. E., with Attachments
R. A. Raynor, P. E., with Attachments
R. A. Hancock, P. E., with Attachments
P. A. Simon, P. E., with Attachments