



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

TRAFFIC ENGINEERING
GREENFIELD PARKWAY
RECEIVED

xc
Wygth
MAR 25 2011

Refer To Lacy

EUGENE A. CONTI, JR. TAA
SECRETARY SEE ME YES

REVIEW & COMMENT
 OBJECTS & PERMIT
 PURPOSE & PLAN
 REPLY FOR MY SIGNATURE

MEMO TO: Jay A. Bennett, PE – State Roadway Design Engineer
Dewayne L. Sykes, PE – State Utilities Manager

FROM: Art McMillan, PE *Art McMillan*
State Highway Design Engineer

DATE: February 25, 2011

SUBJECT: **Proposed Right of Way, Permanent Utility Easement and
Utility Pole/Fixed Object Placement**

The purpose of this memo is to serve as updated technical guidance regarding proposed Right of Way (R/W), Permanent Utility Easement (PUE) and utility pole/fixed object placement along but not limited to Transportation Improvement Program (TIP) projects. As noted in the 2006 AASHTO Roadside Design Guide, motor vehicle crashes with utility poles account for approximately 10% of all fixed object crashes. It is therefore prudent to put utilities underground or place utility poles as far away from the roadway edge as is feasible.

The project footprint, construction method, operation and maintenance are things to be considered when setting proposed R/W. The clear zone and recovery area as defined by the 2006 AASHTO Roadside Design Guide should also be considered when setting proposed R/W. The Proposed Design Criteria sheet created by the roadway design engineer for each TIP project will list the appropriate clear zone. The following are typical applications when setting proposed R/W, PUE and placing utility poles/fixed objects:

Shoulder Section with Limited or Full Control of Access (C/A)

Proposed R/W with C/A should be set at a dimension that includes the project footprint and encompasses the clear zone as defined by the 2006 AASHTO Roadside Design Guide. All new or relocated utility poles shall be placed outside the proposed R/W and C/A. Please see the attached sketch.

Shoulder Section with partial or no C/A

Proposed R/W should be set at a dimension that encompasses the project footprint and the clear zone as defined by the 2006 AASHTO Roadside Design Guide. All new or relocated utility poles shall be placed outside the clear zone, but not necessarily beyond the proposed R/W. A PUE may be provided beyond the proposed R/W to encompass the utility poles and preferably along only one side of the highway. Please see the attached sketch.

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Curb and Gutter Section

Proposed R/W should be set at a dimension that encompasses the berm and protects the clear zone. For a curb and gutter section posted at 45 mph, the clear zone is defined as 12 feet. All new or relocated utility poles shall be placed at or just outside the R/W and consequently beyond the 12 foot clear zone. For a curb and gutter section posted at 35 mph, the clear zone is defined as 10 feet. All new or relocated utility poles shall be placed at or just outside the R/W and consequently beyond the 10 foot clear zone. For a curb and gutter section posted at 25 mph, the clear zone is defined as 8 feet. All new or relocated utility poles shall be placed at or just outside the R/W and consequently beyond the 8 foot clear zone. A PUE may be provided beyond the proposed R/W to encompass the utility poles and preferably along only one side of the highway. Please see the table below and the attached sketches.

Posted Speed Limit	Clear Zone with Curb and Gutter
45 mph	12 ft.
35 mph	10 ft.
25 mph	8 ft.

Site specific constraints such as insufficient R/W available, prohibitive slopes and other factors may make implementation of the full clear zone not feasible. In such cases good engineering judgment should be used. Relocated and new utility poles should be placed as far as practical from the roadway, consistent with other fixed objects along the subject road. The Proposed Design Criteria sheet created by the roadway design engineer for each TIP project will list the appropriate clear zone. During the planning stages for TIP projects, consideration should be given to the need for additional R/W and PUE for the placement of utility poles.

This memo supersedes Debbie Barbour's memo dated December 10, 2003 to Jay Bennett and Victor Barbour with the subject of Utility Pole Placement. This memo uses findings and conclusions presented in the technical report from the Center for Transportation Research and Education titled "Clear Zone – A Synthesis of Practice and an Evaluation of the Benefits of Meeting the 10 ft Clear Zone Goal on Urban Streets", authored by Thomas Maze, Christian Sax and Neal Hawkins. Supplementary notes of this report can be found at www.ctre.iastate.edu. Please begin using these guidelines immediately on all TIP and other applicable projects. If anyone should have any questions, please contact Dewayne Sykes at (919) 250-4128 or dsykes@ncdot.gov or Jay Bennett at (919) 250-4016 or jbennett@ncdot.gov.

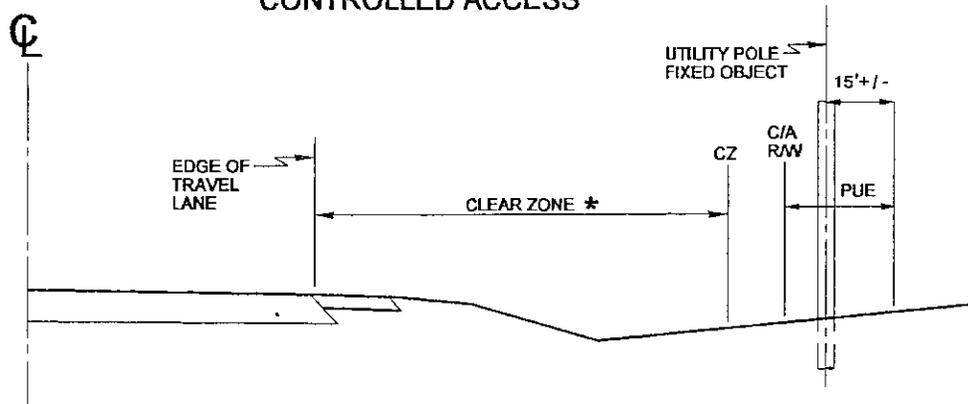
DLS/JAB

Attachments

cc: Terry Gibson, PE
Deborah Barbour, PE
✓ Kevin Lacy, PE
Virgil Pridemore
Division Engineers
Roadway Design Project Engineers
Utility Squad Leaders
Glenn Mumford, PE
Roger Thomas, PE
Greg Thorpe, PhD
Jon Nance, PE
Victor Barbour, PE
Roger Worthington, PE
DDC Engineers
Robert Memory
Utility Area Agents
Doug Taylor, PE
Ron Hancock, PE

SHOULDER SECTION

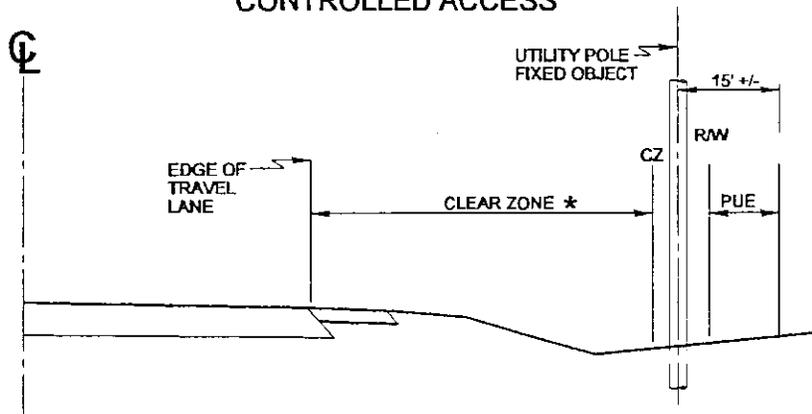
w/ FULL & LIMITED
CONTROLLED ACCESS



UTILITY POLE PLACED OUTSIDE CLEAR ZONE & RIGHT OF WAY
*AS DEFINED BY THE MOST CURRENT AASHTO ROADSIDE DESIGN GUIDE

SHOULDER SECTION

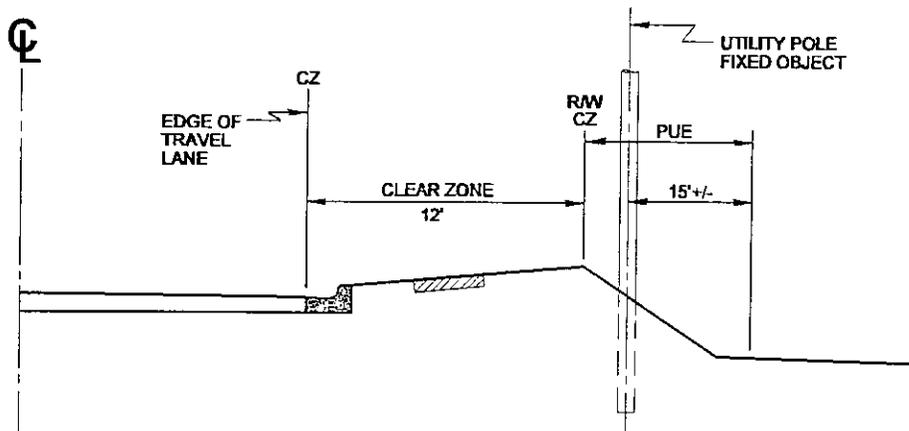
w/ PARTIAL OR NO
CONTROLLED ACCESS



UTILITY POLE PLACED OUTSIDE CLEAR ZONE BUT NOT NECESSARILY
OUTSIDE RIGHT OF WAY
*AS DEFINED BY THE MOST CURRENT AASHTO ROADSIDE DESIGN GUIDE

CURB & GUTTER SECTION

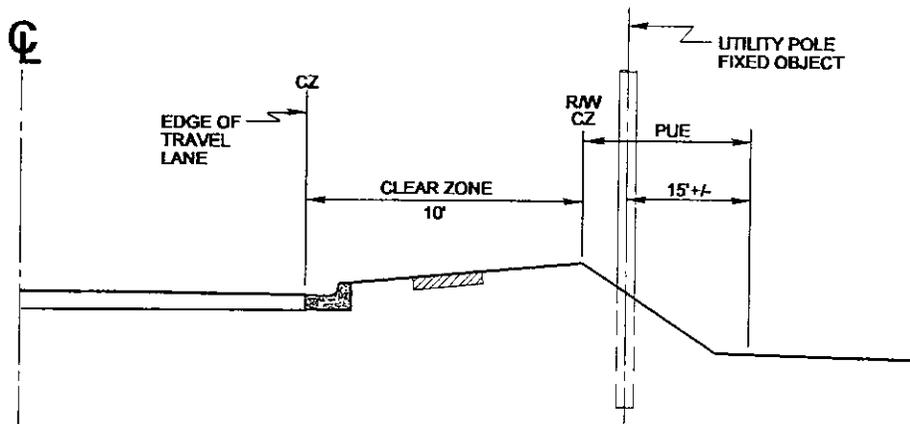
(POSTED AT 45 MPH)



UTILITY POLE PLACED OUTSIDE 12' CLEAR ZONE, SIDEWALK & RIGHT OF WAY

CURB & GUTTER SECTION

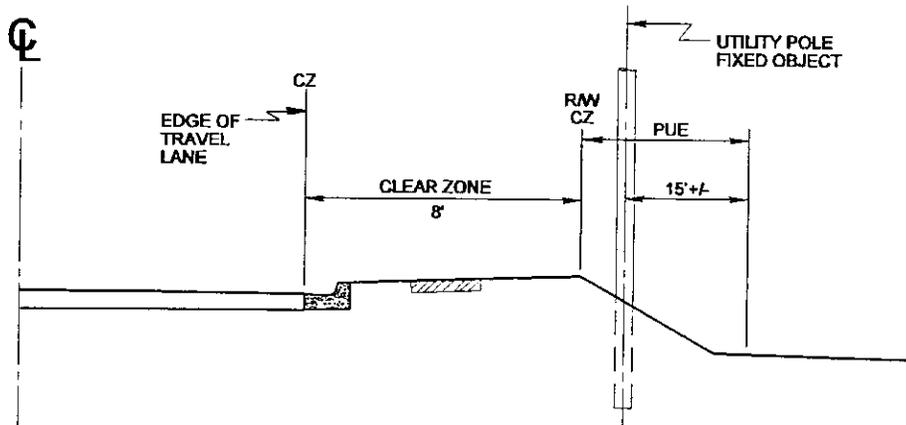
(POSTED AT 35 MPH)



UTILITY POLE PLACED OUTSIDE 10' CLEAR ZONE, SIDEWALK & RIGHT OF WAY

CURB & GUTTER SECTION

(POSTED AT 25 MPH)



UTILITY POLE PLACED OUTSIDE 8' CLEAR ZONE, SIDEWALK & RIGHT OF WAY