STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

December 1, 2011

MEMORANDUM

TO: Division Maintenance and District Engineers

FROM: Dewayne L. Sykes, P.E.
State Utilities Manager

SUBJECT: Encroachments Review
Policy Issue Clarifications

Below are explanations and clarifications of some recommended general policy issues when dealing with encroachments within our rights of way or easements, particularly concerning location. Please note that this list is not all inclusive of all of our policies and procedures and the below may be adjusted provided justification/extreme hardship can be documented by the Applicant as shown in Item 9 below. Illustrations are provided for clarity application and intent of the policies. We hope this will provide guidance and aid in your reviews. Please share with all applicants. If you need any clarifications or have any comments or concerns, please contact us.

The following shall apply:

1. Longitudinal Locations-General
    a. For all utilities, apply an "OUT to IN" philosophy. The intent is to keep out of our maintenance area. The installation must be nearest to the R/W line as possible. When used, markers used to identify the utility location shall also be placed at the R/W line. If this cannot be achieved, the exceptions may be provided (with justification) as per below. Large groves of trees, conflicts with nearby utilities, CA fence preservation are a few examples of potential justification.

        i. If cannot get within 5' of the Right of Way line:
            1. The installation shall be placed nearest the tree line (outside the NCDOT maintained area) and/or on the backside of any ditch.
            2. Installation and hand holes/vaults shall be at least 5' on the backside (away from traffic) of guardrail assemblies with 10' preferred.
            3. Markers may be placed at tree line.
        ii. Keep uniformity (consistency) as much as possible.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
UTILITIES UNIT
1555 MAIL SERVICE CENTER
RALEIGH, NC 27699-1555

TELEPHONE: 919.707.6690
FAX: 919.250.4151
WEBSITE: NCDOT.GOV/DOH/PRECONSTRUCT/PS/DESIGN/
EMAIL ASSISTANCE:ENCR@NCDOT.GOV

LOCATION:
CENTURY CENTER COMPLEX
ENTRANCE B2
1020 BIRCH RIDGE DRIVE
RALEIGH, NC 27610

1. Push to Right of Way, but sometimes use consistent Edge of Pavement (EOP)/Back of Curb (BOC) dimensions, i.e. sometimes do not follow right of way exactly
2. Directional boring of groves of trees or hills/slopes would be required if the "obstructed" area is approximately 500'-750' longitudinally or less, i.e. keep installation as parallel as reasonably possible to either the roadway or the R/W line and near to the R/W line. The intent is to provide for as much consistency as possible in larger segments (approximately 0.5 mile or more).

b. Illustration shown below:

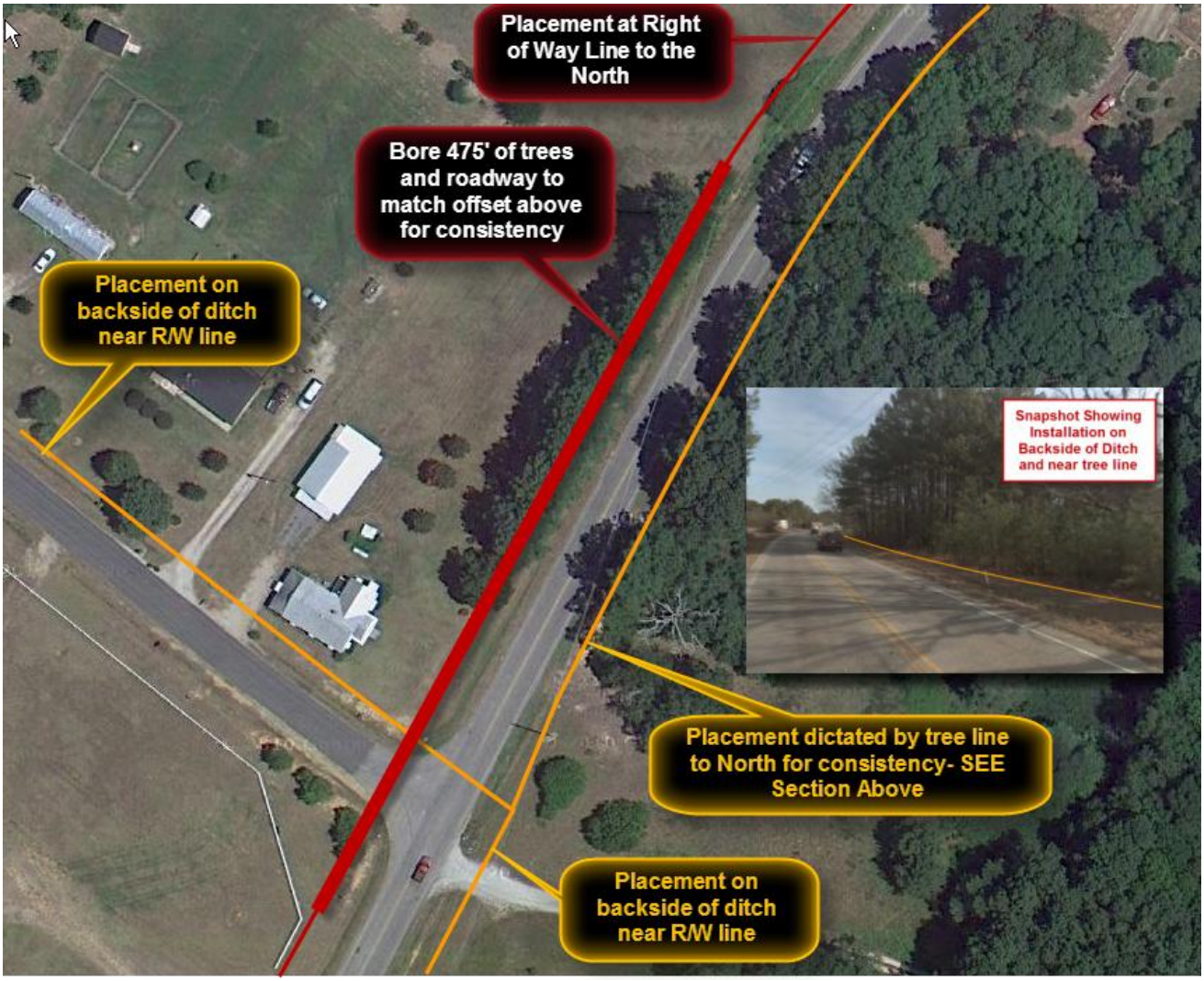

Figure 1

2. Bridge Structure Avoidance
   i. Avoid installing under bridges if State Maintained Roadway under the bridge unless justification/extreme hardship is provided or if existing conduit is available and of sufficient size and acceptable material as determined by the NCDOT. If the installation is allowed under the bridge, 10' clear from all parts of the structure shall be provided and shown including underground bridge information.

ii. Install Minimum of 20’ clear from approach slabs unless justification/extreme hardship is provided and adequate installation detail is provided to reduce the distance, but a minimum of 10’ clear from any part of the structure (including wingwalls and associated piling/tiebacks) shall be provided.

iii. Illustration shown below

Figure 2

iv. 50’ clear minimum from rail on Y-line bridge (shown in Figure 3)

3. Bridge attachments on existing structures
    1. Not allowed except if bridge length is 1 mile or over unless adequate justification/extreme hardship is documented.
    2. NC Professional Engineering Design and Calculations shall be provided for review and approval (follow attached checklist)

4. Full Control of Access - Interchange Avoidance
    i. Underground: Install near the Right of Way Line if possible along ramp areas. Follow any exception policies listed in Item No. 1 Longitudinal Locations.
    ii. Aerial installations may parallel to Y-lines. It should be as far from the Y-line as possible but poles shall be outside of any clear recovery zones at a minimum.

iii. Illustration shown below

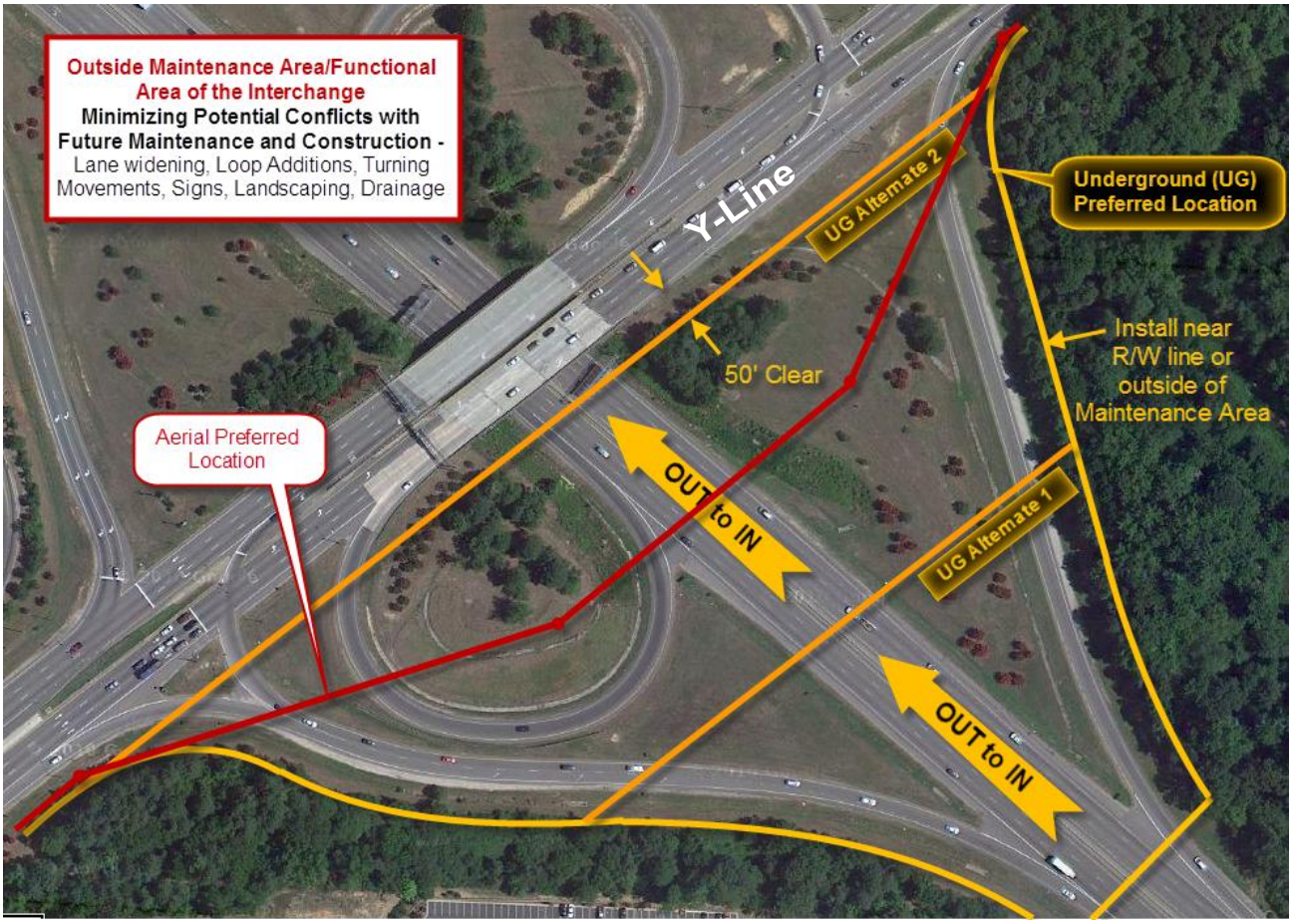

Figure 3

5. Full Control of Access – Other Policies
   i. Longitudinal encroachments are not allowed. NO EXCEPTIONS.
   ii. The Right of Way Disposal and Control of Access Review Committee will review any proposed permanent breaks or proposed exceptions to policy in Control of Access Areas.
   iii. Temporary C/A Fence breaks are allowed to help facilitate construction of crossings of roadways. Restrictions need to be in place to prevent access from Control of Access roadways. All work shall be conducted outside the clear recovery zone plus 5' or behind the ditch lines whichever is a greater distance from the edge of pavement of the Control of Access roadway at a minimum. Access shall be from outside of the break in the fence. Fence break shall be limited to a maximum of 20'.
   iv. No handholes, vaults, and manholes shall be allowed within the Control of Access unless justification/extreme hardship can be provided followed by placement only along the Y-line.
   v. Any poles shall be placed outside of the Control of Access fence
   vi. Illustration shown below

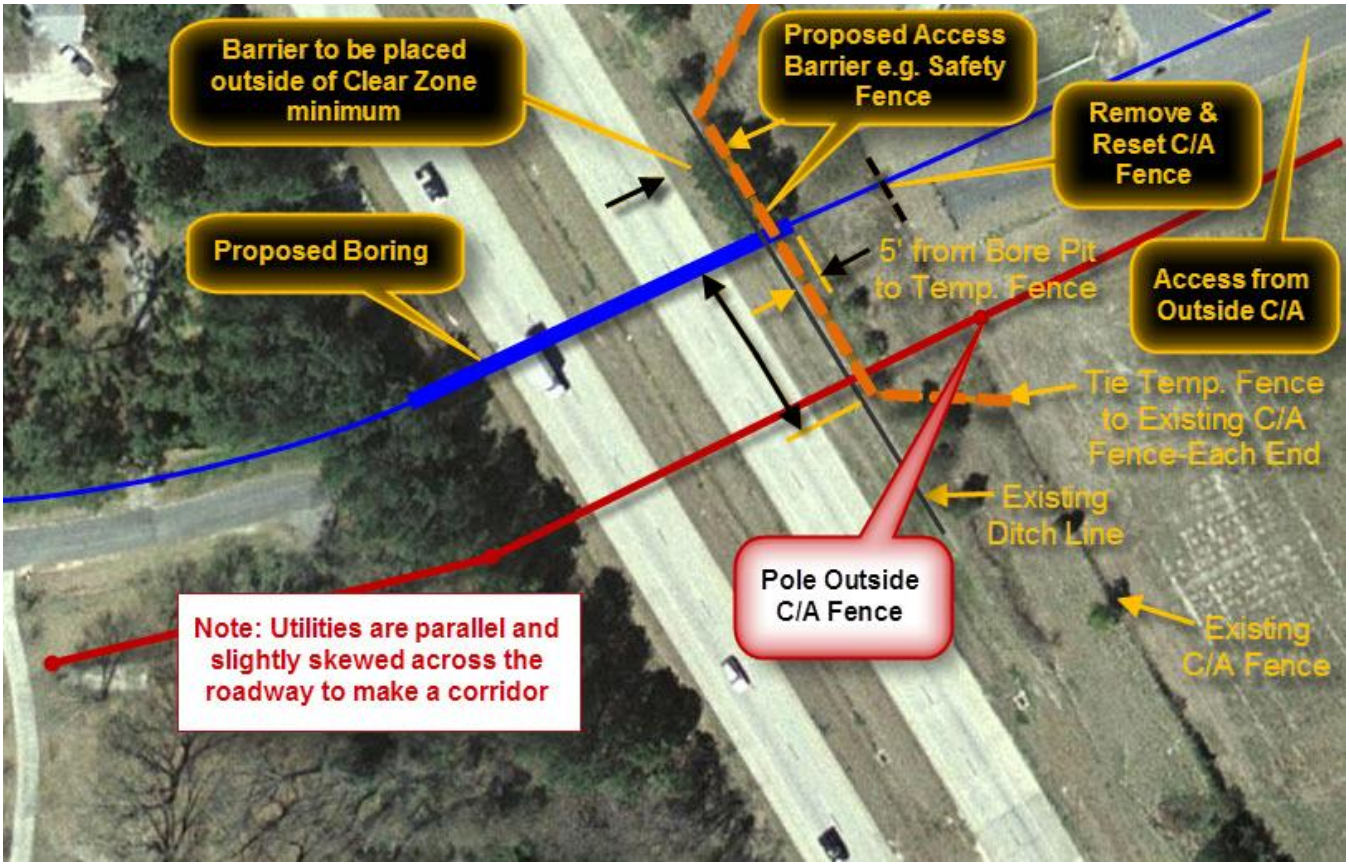

Figure 4

6. Horizontal location of roadway crossings
    i. Generally normal (perpendicular) to the highway alignment unless the following can be shown and subsequently authorized by the NCDOT:
        1. Existing utilities are at a skew and the installation would be part of, extend, or create a corridor; or
        2. Existing structures are at a skew and the installation would be part of, extend, or create a corridor
    ii. Maximum skew shall be 45 degrees if the above are met
    iii. Illustration is shown above (Figure 4)

7. Pavement Cuts/Pavement Repair
    i. No pavement cuts allowed unless authorized by the District Engineer and following the justification/extreme hardship criteria shown below.
    ii. The extent of pavement repair shall be determined by the District Engineer.

8. Utility Facility Design
    i. All manholes, vaults, handholes shall be designed for HS-20 live load with traffic bearing covers, rings, or frames. Material types shall be approved by the Central Office before use and may be added to the Approved Products List (contact Quality Enhancement Unit). However, if appropriate information is provided and deemed acceptable with our policies and procedures by the NCDOT, exceptions may be made for materials not on the Approved Products List.

ii. No above ground structures are allowed in the clear recovery zone, as defined by the applicant and confirmed by the NCDOT.
iii. Installation shall be 5' clear minimum of guardrails; 5' clear minimum from signal facilities/foundations, high mast lighting and overhead foundations; and 10' clear minimum from other structures.

9. Justification/Extreme Hardship cases will be handled on a case by case basis. The information below is required to justify potential variations to the policies shown above or if variances from other NCDOT policies are requested by the Applicant.
   i. Consideration shall have been given to locating the proposed facility outside of any Control of Access area
   ii. Alternatives to proposed route are detailed and shown in plan drawings
   iii. Detailed cost analysis of each alternative
   iv. Total cost for the proposed installation
   v. Total cost of the entire project which would include the proposed installation.
   vi. Funding mechanisms for the costs
   vii. Table of cost comparisons
   viii. Life cycle cost analyses as appropriate
   ix. Physical site limitations
   x. Material limitations
   xi. Time constraints
   xii. Construction procedure limitations
   xiii. Environmental Impacts (e.g. Agency Reports)

BMS/bms

Encroachment Review

PRELIMINARY

NCDOT ENCROACHMENT CRITERIA CHECKLIST

Bridge/Structure Attachments

10/22/2011

Notes:

Allow 4-8 weeks minimum processing/review time

Intent:

To facilitate and manage the relocation, adjustment, removal, and addition of utilities along NCDOT highways (including bridges) and rights of way while maintaining the integrity of the highways system and ensuring the safety of its users and the public. The goal is to not cause damage, increased maintenance, or other hardships with regard to any NCDOT facility.

GENERAL

- ☐ Extreme Hardship Analysis/Justification
- ☐ Hydraulic Unit Review-if in waterway
- ☐ Utilities Engineering Unit Review
- ☐ No attachment to beams
- ☐ Structures Management Unit Review

Consideration Criteria (not listed in order of importance):

- ☐ No vertical adhesive anchorages allowed
- ☐ Increased maintenance inspection time
- ☐ Decreased maintenance inspection safety
- ☐ Potential for increased maintenance costs
- ☐ Poor transition at bridge ends
- ☐ Bridge condition
- ☐ No structural compromise
- ☐ Capital costs
- ☐ Traffic Control Issues
  During Construction, Maintenance
- ☐ Poor transition at bridge ends
- ☐ Exposure to elements
- ☐ Constructability Issues
- ☐ Potential other future costs for the NCDOT
- ☐ Harboring wildlife
- ☐ Poor transition at bridge ends
- ☐ Life Cycle Costs
- ☐ Failure impacts with regard to NCDOT
- ☐ Potential to Hamper bridge maintenance
  Increased time, potential for relocations

REPORTS

General (all reports):

- ☐ Name of Project, Preparer Information/Contact, Owner Information provided
- ☐ Cover sheet NC PE certified and bear the name, address and license number of the licensee's firm

Extreme Hardship Analysis/Justification

- ☐ Alternatives shown
- ☐ Detailed cost analysis provided for all alternatives
- ☐ Detailed Life Cycle Cost analysis Provided
- ☐ Any time constraints detailed
- ☐ Construction limitations detailed
- ☐ Funding mechanisms for costs provided
- ☐ Total project vs. evaluated portion(s) costs
- ☐ Any physical limitations detailed
- ☐ Any material limitations detailed
- ☐ Any environmental impacts detailed (e.g. agency rpts)

Calculations:

- ☐ Full set of calculations for proposed new structure, NC PE Certification per sheet
- ☐ Calculation basis shall be provided, i.e. LRFD, ASD, ACI, AISC, etc.
- ☐ All assemblies must be designed in accordance with the latest AASHTO and/or AISC.

PLANS

General:

See General Checklist

Location/Vicinity Map:

See General Checklist

General Plan View:

See General Checklist except for the following:

- ☐ Shoring Locations shown
- ☐ Note adjacent utilities/conduit
- ☐ Restoration shown
- ☐ Show locations of drain pipes
- ☐ Topography shown at least 30' each side of excavation
- ☐ Plans sealed, signed & dated by NC PE (certified)
- ☐ Show locations of transitions, boxes, elevation changes
- ☐ Show bridge configuration

Encroachment Review

PRELIMINARY

NCDOT ENCROACHMENT CRITERIA CHECKLIST

Bridge/Structure Attachments

10/22/2011

General Profile Overview:

See General Checklist except for the following:

- ☐ Plans sealed, signed & dated by NC PE (certified)
- ☐ Depths of Excavations shown

General Structural Details:

- ☐ Plans sealed, signed & dated by NC PE (certified)
- ☐ All structural components shown
- ☐ Any junction boxes shall be detailed
- ☐ Show clearances to existing features
- ☐ Lateral Bracing shall be shown
- ☐ Show all bridge features
- ☐ NC PE certification and required notation per 21 NCAC 56.1106 required for all standard design plans used

Structures in Floodways

- ☐ Copy of 401 submittal?
- ☐ CLOMR submittal?

General Design Checks:

See General Checklist

Other requirements

Field welding shall not be allowed

Vertical adhesive anchors shall not be allowed.

See General Checklist

Provide concurring Signature, that the applicant has, to the best of his/her abilities and belief, provided complete and factual representations of the information requested above:

_____ _____

Applicant or Applicant's Agent ***Date***

** **Note to all applicants or agents.** This transmittal check list and necessary accompanying information shall be submitted to the District Office.*