STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

April 18, 2017

To: Division Engineers, Division of Highways
    Unit Heads, Technical Services

From: Mr. Mike L. Holder, PE
      Chief Engineer, Division of Highways

Subject: Mapping Requirements for Transportation Facility Plans

The following concerns have been expressed by the NC Board of Examiners for Engineers and Surveyors (NCBEEES) regarding NCDOT highway and Secondary Road plans:

1. Lack of public availability of plans for NCDOT land acquisition.
2. Lack of metadata on plans, including coordinate system, control points set, and closures.
3. Complexity of plans (readability, alignments).
4. Lack of consistency in locating, documenting, and representing property boundaries.
5. Complexity of right of way deeds, based on station/offset.
6. Chain of responsible charge for the PLS doing survey/mapping work.
7. Proper monumentation of the right of way (not part of the committee discussion but as a result of conversation with NCBEEES).

The Recommendations to address these concerns are as follows:

**Issue #1: Lack of public availability of plans for NCDOT land acquisition.**

**Recommended Solution: Prepare and record maps for all property acquired by NCDOT through fee simple, easement, or condemnation proceedings.**

For property not contiguous with highway/secondary road projects (ex. wetland mitigation properties), this action would require the preparation and recordation of a map meeting the requirements of GS 47-30 (attached). This follows a statewide standard for public/private property acquisition.

For rights of way and easements acquired through fee or condemnation in association with a major or secondary road project (any project going through the Design-Bid-Build or Design-Build process), this would require preparation and recordation of plans. These plans would need to meet certain criteria which will address the other items of concern as listed above.

For new secondary roads accepted onto the NCDOT system and not previously recorded, a set of plans showing as-built road features and as-acquired right of way (by easement...
agreement) should be prepared. These plans should meet the conditions stated in Issues 2, 3, 4, and 7 below.

**Issue #2:** Lack of metadata on plans, including coordinate system, control points set, and closures.

**Recommended Solution:** Include basic metadata on all project plans (Sheets 1C-1 thru 1C-7 in attached “B-3159” plans).

This metadata would be defined in the survey control sheets, and should include:

1. Horizontal and vertical datum used for project coordinates (datum description, Sheet 1C series of sheets – see attachments) with statement of localized (ground) distances,
2. North reference (Sheet 1C series – North Arrow),
3. Survey control points, with coordinates, established on each project, both in graphic and tabular form (Sheets 1C series),
4. Closure Report (Sheet 1C series) with RMSE of GPS controls set, Error of Closure for primary traverse points set,
   Note: RMSE and error of closure not included in the attached examples
5. Table of Centerline Alignments: Control Points (Sheet 1D series of sheets – see attachments; Final Alignments),
6. Table of Right Of Way/Permanent Easement points set (Sheets E series of sheets – see attachments).

Items 1-4 are typical procedures for most firms that perform survey work for NCDOT. Items 5-6 are semi-automated functions using an mdl (Microstation Development Language) application developed by NCDOT and available to all in-house and private design/survey personnel.

**Issue #3:** Complexity of plans (readability, alignments).

**Recommended Solution:** Provide a coordinate list for key points on projects, along with a separate set of plans showing existing topography, property and proposed rights of way and easements (new design removed).

Items 5 and 6 above (tables of alignment controls and right of way/easement points) will greatly relieve the need to compute entire centerlines. Because any portion of the proposed right of way or design alignments can be isolated, this will reduce the complexity for private industry.

To address the readability, it is recommended that a separate set of “Right Of Way” sheets, including existing topography, property, centerline data, and proposed rights of way and easements (no design information) be developed and included in the plan/profile sheets that are recorded at the appropriate date. These R/W sheets would need to be signed and sealed by a Professional Land Surveyor.

To allow for property sales and development prior to construction, and to allow for public availability of Design-Build property acquisition prior to project completion, these RW sheets could be placed on a public site such as Connect NCDOT (http://connect.ncdot.gov/) at the time right of way is approved for purchase. These plans would be labelled as “Preliminary” and revised as necessary during the right of way acquisition phase.
Issue #4: Lack of consistency in location, documentation, and representation of property boundaries.

Recommended Solution: Locate and document front property corners when found.

When NCDOT realigns a road, existing centerlines may be obliterated. In many cases this may or may not be a property line. By inclusion of existing centerlines on plans, private surveyors can determine if in fact a centerline was a boundary, and where it was.

Note: NCDOT should not label this line as a boundary, only as existing centerline. (See Issue #2, Item #3)

During initial surveys, efforts should be made to locate and survey front property corners on all affected properties. This information should be shown on plans, with those corners accurately identified (EIP, Axle, etc.) and related to the appropriate centerline (ex., Sheet RW-6, properties of Bobby R. Callicutt and Richard Purvis, show existing iron pins found, tied to centerline with distance along an extension of the property lines).

Issue #5: Complexity of right of way deeds, based on station/offset.

Recommended Solution: The above mentioned recommendations.

NCDOT provides a metes and bounds description of property obtained for right of way on major projects. Secondary road rights of way may be defined by the road “as built.” Publically available maps and deeds/easement agreements, with those items described above, will provide the property owner, surveyor, or other interested parties with the necessary information to understand the deeds.

Issue #6: Chain of responsible charge for the PLS doing survey/mapping work.

Recommendation: A public facing web address or some other offer of public access, providing signed/sealed *.PDF’s of the original mapping or survey reports provided.

As a part of the process of developing base mapping for any project, the surveyor(s) and mapper(s) involved would be responsible to provide any required sealed *.PDF’s of the CADD files and reports delivered. Once final mapping is compiled,*.PDF’s of individual components would be made available through some publicly accessible source. The address per each project would be included in the notes on plans. One option could be placing those on the Connect NCDOT site (https://connect.ncdot.gov/) as part of the project data. These files could include a complete set of base mapping compiled and signed/sealed by a PLS.

Issue #7: Proper monumentation of the right of way/easement lines.

Recommendation: All right of way / permanent easement monuments will be placed by a PLS prior to construction, with concrete markers identified as “Witness Post” or similar to be placed later by others.

As a part of the process of developing the “Right of Way” sheets for any project, a PLS will set proper monumentation prior to the time that the plans are recorded. This monumentation would be an iron pin and cap. For those Divisions still using concrete markers, the contractor would be responsible for providing a PLS supervising that placement of those concrete markers at the locations previously designated. That surveyor would then need to provide the Resident Engineer and Location & Surveys with a signed/sealed statement of the replacement of iron pin and cap with concrete monuments, as per general survey practices and procedures. One alternative would be the placement of
a concrete “Witness Post” which can be placed alongside the previously set monument. 
This Witness Post may be placed by others, not under the supervision of a PLS.

These requirements should be followed on all projects involving right of way or land acquisition 
as of July 1, 2017, where plan sheets are not in existence. The Location & Surveys Unit has agreed 
to assist in implementation of these requirements. The Location & Surveys Unit will make 
available training in the necessary applications and procedures involved in meeting these 
requirements. Additionally, Location & Surveys personnel in each Division can assist in 
negotiating with any private firms as to scope and procedures.

Thank you for your time and consideration in this matter.

MLH/jdb

Attached:

- Fabricated Plan Sheets: B-3159, showing PLS statements, including:
  1. Cover Sheet
  2. Survey Sheets 1C-1 - 1C-4: Survey Control Data
  3. Survey Sheet 1-D: Proposed Alignment Data
  4. Survey Sheets 1E-1 - 1E-2: Right of Way and Permanent Easement Data
  5. Right Of Way Sheets RW1 Cover Sheet, RW4 - RW7
- Proposed Standard Index of Sheets for NCDOT Roadway Projects
- GS 47-30 (mapping law)
- Proposed 2017 House Bill H 501
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
PLANT FOR NEW
RIGHT OF WAY AND EASEMENTS

DAVIDSON COUNTY

LOCATION: BRIDGE NO. 22 OVER US 29-64-70 / I-85 BUS LOOP ON NC 8 / US 52
TYPE OF WORK: GRADING, DRAINAGE, PAVING, RETAINING WALL,
SIGNALS, NOISE WALL & STRUCTURE

GRAPHIC SCALE
- PLANS
- PROFILE (HORIZONTAL)
- PROFILE (VERTICAL)

DESIGN DATA
- ADT 2015 = 25,000
- ADT 2035 = 28,600
- DHV = 10%
- D = 60%
- T = 5%
- V = 40 MPH
- TST = 2
- DUAL = 3
- FUNC CLASS = ARTERIAL
- STATEWIDE TIER

PROJECT LENGTH
- LENGTH ROADWAY OF TIP PROJECT B-3159 = 0.261 MILES
- LENGTH STRUCTURE OF TIP PROJECT B-3159 = 0.028 MILES
- TOTAL LENGTH OF TIP PROJECT B-3159 = 0.289 MILES

Prepared in the Office of:
DIVISION OF HIGHWAYS
1001 Beech Ridge Dr., Raleigh NC, 27610

RIGHT OF WAY DATE:
JUNE 30, 2014

LETTER DATE:
OCTOBER 20, 2015

PROFESSIONAL LAND SURVEYOR
DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NC DOT FOR MONUMENT "B-3159-3"

WITH NAD 83/NGVD 1988 2007 STATE PLANE GRID COORDINATES OF NORTHING: 760804.96601 E: 1628523.34101

ELEVATION: 785.311

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.3999314

THE N.C. LAMBERT GRID READING AND LOCALIZED HORIZONTAL GRID DISTANCE FROM "B-3159-1" TO "L" STATION 7475.00 IS

56° 55' 25.3" E 54.10'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES

VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:

   HTTPS://WWW.NCDOE.EDU/SURVEY/LOCATION

   THE FILES TO BE FOUND ARE AS FOLLOWS:

   BUSH-LA.CONTROL.TXT

   SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

   INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL AND VERTICAL PROJECT CONTROL BY THE NC DOT LOCATION AND SURVEYS UNIT.

PROJECT CONTROL ESTABLISHED USING GLOBAL NAVIGATION SATELLITE SYSTEM.
SURVEY CONTROL SHEET B-3159

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NHCS FOR MONUMENT "B-3159-1"

WITH NAD 83/NSDS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 768717.8176061519
EASTING: 1628753.3410017
ELEVATION: 38.3511

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998914
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B-3159-1" TO 1- STATION 7475.00 IS
5° 6' 55" 25.3' E 54.10'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
HTTP://CONNECT.NCDS/GOVRESOURCES/LLOCATION/

THE FILES TO BE FOUND ARE AS FOLLOWS:
INQ04_08_CONTROL.TXT

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT IN FURTHER
INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

• INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL AND VERTICAL
PROJECT CONTROL BY THE NhCS LOCATION AND SURVEYS UNIT.
PROJECT CONTROL ESTABLISHED USING GLOBAL NAVIGATION SATELLITE SYSTEM.

NOTE: DRAWING NOT TO SCALE
SURVEY CONTROL SHEET B-3159

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B-3159-1"
WITH NAD 83/NGRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 760024.9660(FT) EASTING: 1628523.3410(FT)
ELEVATION: 788.311(FT)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT IS 0.9998514
GROUNDED TO GRID 1 IS: 0.9998514
THE W.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B-3159-1" TO L- STATION 7475.00 IS 5 6' 55" 25.3' E 54.10" ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
   HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION
   THE FILES TO BE FOUND ARE AS FOLLOWS:
   RHG18_CONTROL.TXT

2. SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT IF FURTHER INFORMATION IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

3. INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL AND VERTICAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT. PROJECT CONTROL ESTABLISHED USING GLOBAL NAVIGATION SATELLITE SYSTEM.

NOTE: DRAWING NOT TO SCALE
### SURVEY CONTROL SHEET B-3159

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#### DATUM DESCRIPTION

The localized coordinate system developed for this project is based on the State Plane Coordinates established by NODC for Monument "B-3159-1" with NAD 83/NSRS 2007 State Plane Grid Coordinates of Northing: T60094.9600ft; Easting: 1628523.3410ft  
Elevation: 789.314ft  
The average combined grid factor used on this project (ground to grid) is: 0.9999914  
The NCR Lambert grid bearing and localized horizontal ground distance from "B-3159-1" to L1 Station 7475.000 is  
S 6° 55' 25.3" E 54.10'  
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL VALUES. VERTICAL DATUM USED IS NAVD88.

### NOTES:

1. The control data for this project can be found electronically by selecting "PROJECT CONTROL DATA AT:

   HTTP://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/LOCATIONS

   THE FILES TO BE FOUND ARE AS FOLLOWS:

   "B-3159-1"  
   "B-3159-2"  
   "B-3159-3"  

   SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

   INDICATES GEODESY CONTROL MONUMENTS USED OR SET FOR HORIZONTAL AND VERTICAL CONTROL BY THE NOCOY LOCATION AND SURVEYS UNIT. PROJECT CONTROL ESTABLISHED USING GLOBAL NAVIGATION SAT NAV SYSTEM.
### DATUM DESCRIPTION

The localized coordinate system developed for this project is based on the state plane coordinates established by NCDOT for MONUMENT "B-3159-1". With NAD 83/NGS 2007 State Plane Grid Coordinates of Northings: 760344.0460 [ft], Eastings: 1528523.5418 [ft] and Elevation: 188.311 [ft].

The average combined grid factor used on this project is 0.999897. The N.C. licensed grid bearing and localized horizontal ground distance from "B-3159-1" to "L" is STATION 745.00 35 6° 55.25' 3' 54.10". All linear dimensions are localized horizontal distances. Vertical datum used is NAD88.

### NOTES:

1. The control data for this project can be found electronically by selecting project control data at: https://connect.ncdot.gov/resources/location/

The files to be found are as follows:

- NM88_L4_CONTROL.TXT

Site calibration information has not been provided for this project if further information is needed, please contact the location and surveys unit.

- Indicate geodetic control monuments used or set for horizontal and vertical control by the NCDOT location and surveys unit. Project control established using Global Navigation Satellite System.

**NOTE:** DRAWING NOT TO SCALE.
### RIGHT OF WAY CONTROL SHEET B-3159

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**DATUM DESCRIPTION**

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The average combined grid factor used on this project (GROUND TO GRID) IS: 0.999894

The N.C. Lambert Grid Bearing and Localized Horizontal Ground Distance from "B-3159-1" to L, STATION 7475-00 is 5° 55' 25.3" E 54'-0"

All linear dimensions are localized horizontal distances. Vertical datum used is NAVD 88

**NOTES:**

1. The control data for this project can be found electronically by selecting project control data at: https://enkiprotocol.ncdot.gov/resource/LOCATION.

2. Site calibration information has not been provided for this project. If further information is needed, please contact the location and surveys unit.

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**PROJECT LOCATION:**

**SITE LOCATION:**

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John Doe

Professional Land Surveyor

PLSM
### PERMANENT EASEMENT CONTROL SHEET B-3159

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#### PERMANENT EASEMENT MARKER 3

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<tbody>
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</table>

#### DATUM DESCRIPTION

The localized coordinate system developed for this project is based on the state plane coordinates established by NCDOT for monument "B-3159-1" with NAD 83/NGRS 2007 state plane grid coordinates of NORTING: 760804.966014 (41) EASTING: 1628023.3461 (41) ELEVATION: 788.511 (41)

**The average combined grid factor used on this project (ground to grid): 0.93998341**

**The localized horizontal ground distance from "B-3159-1" to L-2: STATION 745.00 IS 5.6" 55' 25.3" E 54.10"**

**All linear dimensions are localized horizontal distances**

**Vertical datum used is NAVD 88**

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**NOTES:**

1. The control data for this project can be found electronically by selecting project control data at: [https://connect.ncdot.gov/resources/locations](https://connect.ncdot.gov/resources/locations)

2. **The files to be found are as follows:**
   - B/BX_11_CTRNO ==
   - BXX_LX_CTRNO=
   - **Site Calibration Information Has Not Been Provided for This Project. If Further Information Is Needed, Please Contact the Location and Surveys Unit.**

   - **Indicates Geometric Control, Monuments Used or Set for Horizontal and Vertical Control by the NCDOT Location and Surveys Unit.**

   - **Project Control Established Using Global Navigation Satellite System.**

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**NOTE:** DRAWING NOT TO SCALE
## Proposed Standard Index of Sheets for NCDOT Roadway Projects

<table>
<thead>
<tr>
<th>Sheet Number</th>
<th>Name of Sheet</th>
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<tbody>
<tr>
<td>1</td>
<td>Title Sheet</td>
</tr>
<tr>
<td>1A</td>
<td>Index of Sheets and General Notes</td>
</tr>
<tr>
<td>1B</td>
<td>Conventional Symbols</td>
</tr>
<tr>
<td>1C-1 thru 1C-#</td>
<td>Survey Control Sheets</td>
</tr>
<tr>
<td>1D-1 thru 1D-#</td>
<td>Centerline Coordinate List</td>
</tr>
<tr>
<td>1E-1 thru 1E-#</td>
<td>R/W and Easement Coordinate List</td>
</tr>
<tr>
<td>2A-1 thru 2A-#</td>
<td>Pavement Schedule, Typical Sections, and Wedging Details</td>
</tr>
<tr>
<td>2C-1 thru 2C-#</td>
<td>Special Details as Needed</td>
</tr>
<tr>
<td>3B-1 thru 3B-#</td>
<td>Roadway Summaries</td>
</tr>
<tr>
<td>3D-1 thru 3D-#</td>
<td>Drainage Summaries</td>
</tr>
<tr>
<td>3G-1 thru 3G-#</td>
<td>Geotechnical Summaries</td>
</tr>
<tr>
<td>4 thru #</td>
<td>Plan and Profile Sheets</td>
</tr>
<tr>
<td>4R/W thru #R/W</td>
<td>Modified R/W Plan Sheets</td>
</tr>
</tbody>
</table>

Requested changes in Index and Sheet Numbering highlighted in **yellow**.

**NOTE:** The R/W sheets will be exact copies of the plan sheets without the proposed design. These sheets will only contain base topographic data, proposed CL alignments, Primary Horizontal & Vertical Control Symbols, Baseline Point Symbols, Property Data, Property ties to CL, Proposed R/W lines, R/W Monumentation, PUE Monumentation, and R/W Data.

No changes from this point forward. Everything else stays the same.
G.S. 47-30 Mapping Requirements for Recordable Maps
§ 47-30. Plats and subdivisions; mapping requirements.
(a) Size Requirements. – All land plats presented to the register of deeds for recording in the registry of a county in North Carolina after September 30, 1991, having an outside marginal size of either 18 inches by 24 inches, 21 inches by 30 inches, or 24 inches by 36 inches, and having a minimum one and one-half inch border on the left side and a minimum one-half inch border on the other sides shall be deemed to meet the size requirements for recording under this section. Where size of land areas, or suitable scale to assure legibility require, plats may be placed on two or more sheets with appropriate match lines. Counties may specify either:
(1) Only 18 inches by 24 inches;
(2) A combination of 18 inches by 24 inches and 21 inches by 30 inches;
(3) A combination of 18 inches by 24 inches and 24 inches by 36 inches; or
(4) A combination of all three sizes.
Provided, that all registers of deeds where specific sizes other than the combination of all three sizes have been specified, shall be required to submit said size specifications to the North Carolina Association of Registers of Deeds for inclusion on a master list of all such counties. The list shall be available in each register of deeds office by October 1, 1991. For purposes of this section, the terms "plat" and "map" are synonymous.
(b) Plats to Be Reproducible. – Each plat presented for recording shall be a reproducible plat, either original ink on polyester film (mylar), or a reproduced drawing, transparent and archival (as defined by the American National Standards Institute), and submitted in this form. The recorded plat must be such that the public may obtain legible copies. A direct or photographic copy of each recorded plat shall be placed in the plat book or plat file maintained for that purpose and properly indexed for use. In those counties in which the register has made a security copy of the plat from which legible copies can be made, the original may be returned to the person indicated on the plat.
(c) Information Contained in Title of Plat. – The title of each plat shall contain the following information: property designation, name of owner (the name of owner shall be shown for indexing purposes only and is not to be construed as title certification), location to include township, county and state, the date or dates the survey was made; scale or scale ratio in words or figures and bar graph; name and address of surveyor or firm preparing the plat.
(d) Certificate; Form. – There shall appear on each plat a certificate by the person under whose supervision the survey or plat was made, stating the origin of the information shown on the plat, including recorded deed and plat references shown thereon. The ratio of precision before any adjustments must be shown. Any lines on the plat that were not actually surveyed must be clearly indicated and a statement included revealing the source of information. Where a plat consists of more than one sheet, only one sheet must contain the certification and all other sheets must be signed and sealed.
The certificate required above shall include the source of information for the survey and data indicating the ratio of precision of the survey before adjustments and shall be in substantially the following form:
"I, ______, certify that this plat was drawn under my supervision from an actual survey made under my supervision (deed description recorded in Book ____, page ____, etc.) (other); that the boundaries not surveyed are clearly indicated as drawn from information found in Book ____, page _____; that the ratio of precision as calculated is 1: ____; that this plat was prepared NC General Statutes - Chapter 47-30 2
in accordance with G.S. 47-30 as amended. Witness my original signature, registration number and seal this ____day of ____, A.D., ____.

Seal or Stamp

__________________________________
Surveyor
Registration Number"

Nothing in this requirement shall prevent the recording of a map that was prepared in accordance with a previous version of G.S. 47-30 as amended, properly signed, and notarized under the statutes applicable at the time of the signing of the map. However, it shall be the responsibility of the person presenting the map to prove that the map was so prepared.

(e) Method of Computation. – An accurate method of computation shall be used to determine the acreage and ratio of precision shown on the plat. Area by estimation is not acceptable nor is area by planimeter, area by scale, or area copied from another source, except in the case of tracts containing inaccessible sections or areas. In such case the surveyor may make use of aerial photographs or other appropriate aids to determine the acreage of any inaccessible areas when the areas are bounded by natural and visible monuments. In such case the methods used must be stated on the plat and all accessible areas of the tract shall remain subject to all applicable standards of this section.

(f) Plat to Contain Specific Information. – Every plat shall contain the following specific information:

(1) An accurately positioned north arrow coordinated with any bearings shown on the plat. Indication shall be made as to whether the north index is true, magnetic, North Carolina grid ("NAD 83" or "NAD 27"), or is referenced to old deed or plat bearings. If the north index is magnetic or referenced to old deed or plat bearings, the date and the source (if known) the index was originally determined shall be clearly indicated.

(2) The azimuth or course and distance of every property line surveyed shall be shown. Distances shall be in feet or meters and decimals thereof. The number of decimal places shall be appropriate to the class of survey required.

(3) All plat distances shall be by horizontal or grid measurements. All lines shown on the plat shall be correctly plotted to the scale shown. Enlargement of portions of a plat are acceptable in the interest of clarity, where shown as inserts. Where the North Carolina grid system is used the grid factor shall be shown on the face of the plat. If grid distances are used, it must be shown on the plat.

(4) Where a boundary is formed by a curved line, the following data must be given: actual survey data from the point of curvature to the point of tangency shall be shown as standard curve data, or as a traverse of bearings and distances around the curve. If standard curve data is used the bearing and distance of the long chord (from point of curvature to point of tangency) must be shown on the plat.

(5) Where a subdivision of land is set out on the plat, all streets and lots shall be accurately plotted with dimension lines indicating widths and all other information pertinent to reestablishing all lines in the field. This shall include bearings and distances sufficient to form a continuous closure of the entire perimeter.
(6) Where control corners have been established in compliance with G.S. 39-32.1, 39-32.2, 39-32.3, and 39-32.4, as amended, the location and pertinent information as required in the reference statute shall be plotted on the plat. All other corners which are marked by monument or natural object shall be so identified on all plats, and where practical all corners of adjacent owners along the boundary lines of the subject tract which are marked by monument or natural object shall be shown. The names of adjacent landowners, or lot, block, parcel, subdivision designations or other legal reference where applicable, shall be shown where they could be determined by the surveyor. All visible and apparent rights-of-way, watercourses, utilities, roadways, and other such improvements shall be accurately located where crossing or forming any boundary line of the property shown.

(7) Where the plat is the result of a survey, one or more corners shall, by a system of azimuths or courses and distances, be accurately tied to and coordinated with a horizontal control monument of some United States or State Agency survey system, such as the North Carolina Geodetic Survey where the monument is within 2,000 feet of the subject property. Where the North Carolina Grid System coordinates of the monument are on file in the North Carolina Geodetic Survey Section in the Division of Land Resources of the Department of Environment and Natural Resources, the coordinates of both the referenced corner and the monuments used shall be shown in X (easting) and Y (northing) coordinates on the plat. The coordinates shall be identified as based on "NAD 83," indicating North American Datum of 1983, or as "NAD 27," indicating North American Datum of 1927. The tie lines to the monuments shall also be sufficient to establish true north or grid north bearings for the plat if the monuments exist in pairs. Within a previously recorded subdivision that has been tied to grid control, control monuments within the subdivision may be used in lieu of additional ties to grid control. Within a previously recorded subdivision that has not been tied to grid control, if horizontal control monuments are available within 2,000 feet, the above requirements shall be met; but in the interest of bearing consistency with previously recorded plats, existing bearing control should be used where practical. In the absence of grid control, other appropriate natural monuments or landmarks shall be used. In all cases, the tie lines shall be sufficient to accurately reproduce the subject lands from the control or reference points used.

(10) A vicinity map (location map) shall appear on the plat.

(11) Notwithstanding any other provision contained in this section, it is the duty of the surveyor, by a certificate on the face of the plat, to certify to one of the following:
   a. That the survey creates a subdivision of land within the area of a county or municipality that has an ordinance that regulates parcels of land;
   b. That the survey is located in a portion of a county or municipality that is unregulated as to an ordinance that regulates parcels of land;
   c. Any one of the following: NC General Statutes - Chapter 47-30 4
1. That the survey is of an existing parcel or parcels of land and does not create a new street or change an existing street;
2. That the survey is of an existing building or other structure, or natural feature, such as a watercourse; or
3. That the survey is a control survey.
 d. That the survey is of another category, such as the recombination of existing parcels, a court-ordered survey, or other exception to the definition of subdivision;
 e. That the information available to the surveyor is such that the surveyor is unable to make a determination to the best of the surveyor's professional ability as to provisions contained in (a) through (d) above.
However, if the plat contains the certificate of a surveyor as stated in a., d., or e. above, then the plat shall have, in addition to said surveyor's certificate, a certification of approval, or no approval required, as may be required by local ordinance from the appropriate government authority before the plat is presented for recordation. If the plat contains the certificate of a surveyor as stated in b. or c. above, nothing shall prevent the recordation of the plat if all other provisions have been met.
(g) Recording of Plat. – In certifying a plat for recording pursuant to G.S. 47-30.2, the Review Officer shall not be responsible for reviewing or certifying as to any of the following requirements of this section:
(1) Subsection (b) of this section as to archival.
(2) Repealed by Session Laws 1997-309, s. 2.
(3) Subsection (e) of this section.
(4) Subdivisions (1) through (10) of subsection (f) of this section.
A plat, when certified pursuant to G.S. 47-30.2 and presented for recording, shall be recorded in the plat book or plat file and when so recorded shall be duly indexed. Reference in any instrument hereafter executed to the record of any plat herein authorized shall have the same effect as if the description of the lands as indicated on the record of the plat were set out in the instrument.
(h) Nothing in this section shall be deemed to prevent the filing of any plat prepared by a registered land surveyor but not recorded prior to the death of the registered land surveyor. However, it is the responsibility of the person presenting the map to the Review Officer pursuant to G.S. 47-30.2 to prove that the plat was so prepared. For preservation these plats may be filed without signature, notary acknowledgement or probate, in a special plat file.
(i) Nothing in this section shall be deemed to invalidate any instrument or the title thereby conveyed making reference to any recorded plat.
(j) The provisions of this section shall not apply to boundary plats of areas annexed by municipalities nor to plats of municipal boundaries, whether or not required by law to be recorded.
(k) The provisions of this section shall apply to all counties in North Carolina.
(l) This section does not apply to the registration of highway right-of-way plans provided for in G.S. 136-19.4 or G.S. 136-89.184, nor to the registration of roadway corridor official maps provided for in Article 2E of Chapter 136 of the General Statutes.
(m) Maps attached to deeds or other instruments and submitted for recording in that form must be no larger than 8 1/2 inches by 14 inches and comply with either this subsection or subsection (n) of this section. Such a map shall either (i) have the original signature of a NC General Statutes - Chapter 47-30 5
registered land surveyor and the surveyor’s seal as approved by the State Board of Registration for Professional Engineers and Land Surveyors, or (ii) be a copy of a map, already on file in the public records, that is certified by the custodian of the public record to be a true and accurate copy of a map bearing an original personal signature and original seal. The presence of the original personal signature and seal shall constitute a certification that the map conforms to the standards of practice for land surveying in North Carolina, as defined in the rules of the North Carolina State Board of Registration for Professional Engineers and Land Surveyors.

(n) A map that does not meet the requirements of subsection (m) of this section may be attached to a deed or other instrument submitted for recording in that form for illustrative purposes only if it meets both of the following requirements:

(1) It is no larger than 8 1/2 inches by 14 inches.

(2) It is conspicuously labelled, "THIS MAP IS NOT A CERTIFIED SURVEY AND HAS NOT BEEN REVIEWED BY A LOCAL GOVERNMENT AGENCY FOR COMPLIANCE WITH ANY APPLICABLE LAND DEVELOPMENT REGULATIONS."

(o) The requirements of this section regarding plat size, reproducible form, and evidence of required certifications shall be met with respect to a plat that is an "electronic document," as that term is defined in G.S. 47-16.2(3), if all of the following conditions have been met:

(1) The register of deeds has authorized the submitter to electronically register the electronic document.

(2) The plat is submitted by a United States federal or a state governmental unit or instrumentality or a trusted submitter. For purposes of this subsection, "a trusted submitter" means a person or entity that has entered into a memorandum of understanding regarding electronic recording with the register of deeds in the county in which the electronic document is to be submitted.

(3) Evidence of required certifications appear on the digitized image of the document as it will appear on the public record.

(4) With respect to a plat submitted by a trusted submitter, the digitized image of the document as it will appear on the public record contains the submitter’s name in the following completed statement on the first page of the document image: "Submitted electronically by ______________ (submitter's name) in compliance with North Carolina statutes governing recordable documents and the terms of the submitter agreement with the ________ (insert county name) County Register of Deeds.

(5) Except as otherwise provided in this subsection, the digitized image of the plat conforms to all other applicable laws and rules that prescribe recording."

(1911, c. 55, s. 2; C.S., s. 3318; 1923, c. 105; 1935, c. 219; 1941, c. 249; 1953, c. 47, s. 1; 1959, c. 1235, ss. 1, 3A, 3.1; 1961, cc. 7, 111, 164, 199, 252, 660, 687, 932, 1122; 1963, c. 71, ss. 1, 2; cc. 180, 236; c. 361, s. 1; c. 403; 1965, c. 139, s. 1; 1967, c. 228, s. 2; c. 394; 1971, c. 658; 1973, cc. 76, 848, 1171; c. 1262, s. 86; 1975, c. 192; c. 200, s. 1; 1977, c. 50, s. 1; c. 221, s. 1; c. 305, s. 2; c. 771, s. 4; 1979, c. 330, s. 1; 1981, c. 138, s. 1; c. 140, s. 1; c. 479; 1983, c. 473; 1987, c. 747, s. 20; 1989, c. 727, s. 218(6); 1991, c. 268, s. 3; 1993, c. 119, ss. 1, 2; 1997-309, s. 2; 1997-443, s. 11A.119(a); 1998-228, ss. 11, 12; 1999-456, s. 59; 2000-140, s. 93.1(b); 2001-424, s. 12.2(b); 2008-225, s. 9; 2010-180, s. 1; 2011-246, s. 7.)
Enacts GS 13619.4A, directing the Department of Transportation (DOT) to include in any plan prepared for the purpose of acquiring property rights for a right-of-way a permanent easement, or both, which depict property lines, right-of-way lines, or permanent easements, a set of drawings that clearly identify (1) design alignments, (2) baseline control points, (3) found property related corner markers, and (4) new right-of-way and permanent easement corner markers.

Requires plans subject to the requirements of this statute to document the localized coordinates for each major control point along the design alignments. Requires the coordinates and associated localization metadata to be based upon and tied to the NC State Plane Coordinate system, and to be clearly identified within the plans. Requires all property and corner markers found and surveyed to be clearly identified within the plans in accordance with general surveying standards and procedures. Further requires each property corner marker to be accurately tied to the design alignment or the NC State Plane Coordinate system by either a system of bearings and distances or by station and offset.

Effective July 1, 2017, and applies to plans prepared for acquisitions on or after that date.

Intro. by Brody. GS 136