

**21 NCAC 56 .1605 CLASSIFICATION OF VERTICAL CONTROL SURVEYS**

(a) General. Vertical control surveys are defined as measurements taken by surveying methods (differential leveling, trigonometric leveling, and global positioning surveys) to determine elevation with respect to vertical datum, usually National Geodetic Vertical Datum of 1929 (NGVD29) or North American Vertical Datum of 1988 (NAVD88). Global Position Surveys shall only be used to obtain Class C surveys. For the purpose of specifying minimum allowable surveying standards, the following three general classifications of vertical control surveys are established.

- (1) For Class A vertical control surveys in North Carolina, the vertical error in feet shall not exceed 0.10 times the square root of the number of miles run from the reference datum.
- (2) For Class B vertical control surveys in North Carolina, the vertical error in feet shall not exceed 0.20 times the square root of the number of miles run from the reference datum.
- (3) For Class C vertical control surveys in North Carolina, the vertical error in feet shall not exceed 0.30 times the square root of the number of miles run from the reference datum. The vertical error in global position surveys shall not exceed five centimeters relative to the referenced benchmark(s) at the 95 percent confidence level (2 sigma) accuracy as defined in Federal Geographic Data Committee Standards.

(b) A certificate, substantially in the following form, shall be affixed to all maps or reports:

"I, \_\_\_\_\_, certify that this vertical control survey was completed to the Class \_\_\_\_ standard [(21 NCAC 56.1605(a)] under my direct and responsible charge from an actual survey made under my supervision."

*History Note: Authority G.S. 89C-10; 89C-20;  
Eff. November 2, 1992;  
Amended Eff. August 1, 2011; August 1, 2002; August 1, 2000;  
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. April 27, 2019.*