

INSTRUCTION 86-1

DATE: April 11, 1986
TO: ALL COUNTY SURVEYORS
FROM: James L. Brown, State Surveyor
SUBJECT: Monumentation of Corners
NOTICE: THIS INSTRUCTION SUPERSEDES AND REPLACES INSTRUCTION 85-3. AS OF THIS DATE INSTRUCTION 85-3 IS REPEALED.

Pursuant to Nebraska Statutes 23-1907 and 23-1908 this is an instruction to all Nebraska County Surveyors from the State Surveyor. The effective date of this instruction is July 1, 1986.

Due to concern expressed by various and numerous counties Instruction 85-3 is hereby being modified. The purpose of this modification is to reduce the fiscal impact to the various counties of the State.

When in the course of your employment as county surveyors you restore or reestablish the correct position for any corner which was monumented in the original government surveys of Nebraska you will assure yourself that the corner has as a minimum the following monumentation. Any point which does not comply with these minimum standards shall be remonumented by the County Surveyor to comply with these standards. Upon completion of such remonumentation the County Surveyor shall file a copy of resurvey containing a description of the monument and ties as provided in Neb.Rev.Stats. 23-1910 and 23-1911.

It is additionally recommended but not required that the County Surveyor remonument all corners he or she may locate or occupy to these standards, when funds permit.

Section 1 MONUMENTATION OF THE CORNER POINT

(A) When the point for the corner is accessible and it is practical to place a monument at the true point such monument shall comply with the following minimum standards.

The monument shall contain or be comprised of a steel pipe or cylinder a minimum of one (1) inch in diameter or in the alternative it shall contain or be comprised of a solid steel rod a minimum of 5/8 inch in diameter. In either case the minimum length of the steel rod or pipe shall be twenty four (24) inches. The use of aluminum monuments is allowed provided the mass of the aluminum monument is at least as great as the required steel and the monument contains a permanent magnet at the cap or top of the monument. The monument shall be stamped, permanently marked or have a cap permanently attached which is stamped or marked with the following data:

INSTRUCTION 86-1

page 2

- (a) The year the monument was placed.
- (b) The official trademark of the county surveyors office or in the alternative the official registration number of the County Surveyor.
- (c) The initial letters "G C" showing it to be an original government corner.

At the base of the monument a memorial shall be placed which shall be of permanent magnetic material (Strontium Ferrite) incased in corrosion resistant thermoplastic of a clear color. The memorial shall be marked or have a permanent label attached marked with the year as shown on the monument. If the monument is constructed in such a manner that the base, containing a permanent magnet, would remain in the ground if the monument was pulled the requirement for a memorial at the base may be considered fulfilled.

(B) If the corner point is inaccessible the monument shall be as described in (A) except that it shall be marked with the initial letters "W C" rather than "G C". The monument shall be placed upon a section line which intersects the point for the corner. If no section line intersects the corner point it shall be placed upon a fractional section line which intersects the corner point. The survey subsequently filed shall show the location of the corner point in relation to the witness corner.

(c) If the point may be occupied but it is impractical to place a standard monument on the corner point, such as in a concrete roadway or other permanent structure the County Surveyor may use such monumentation as he or she deems practical. This may be smaller monumentation such as spikes or automobile valves. The use of concrete nails is not recommended unless they are of sufficient size and placed in a manner to prevent destruction. In the event the monumentation is reduced the use of reference monuments will be increased as shown in a later paragraph.

Section 2 REFERENCE MONUMENTS AND TIES

In all cases ties or measurements should be made to at least four (4) permanent physical objects in the immediate vicinity of the monument. These permanent objects may be either natural or man made. They may be, but are not limited to the following; trees, boulders, rock outcrops, bridges, culverts, railroad tracks, power poles, telephone poles, corner fence posts, gate posts, etc. The surveyor must determine the probable life expectancy of all ties. In order to be considered permanent the object must have a life expectancy of at least twenty (20) years counting from the date the tie is made. The surveyor will take into account the type of object, current use of the object, condition of the object and present age in order to determine the life expectancy. If the surveyor determines that it is unlikely the object will remain in place an additional twenty (20) years then the tie to this object cannot be counted as one of the four required permanent object ties. Care must be taken in selecting objects for ties so that they are suitably dispersed at all points of the compass and located a practical distance from the corner suitable to the area. It is recommended that the objects be located no further than one hundred (100.00) feet from the corner point. This allows distances from the various ties to have only one common point of intersection. Care must also be taken in the marking and description of the object so that only one such object in the area will meet the description and marking. The distances to the objects (ties) shall be taken horizontally with equipment which is capable of an accuracy of one hundredth (0.01) foot in the measurement and recorded to the nearest one hundredth (0.01) foot.

INSTRUCTION 86-1

page 3

If a minimum of four(4) suitable permanent objects are not available for ties then the surveyor must resort to the use of reference monuments. Reference monuments shall always be used in pairs. Each pair of reference monuments shall either be placed in a manner which causes a straight line extended across the two reference monuments to intersect the corner point or in the alternative they are to be placed so that the angle from the corner point to the two reference monuments shall be no less than forty five (45) degrees and no more than one hundred thirty five (135) degrees measured in its smallest quadrant. This will allow the measurement from the two reference monuments to accurately define one point on the ground without the use of accurate bearing or azimuth. Reference monuments shall be constructed in the same manner as monuments defined in Section 1, paragraph (A) above. The reference monument shall be marked with the letters "R M" and the year. The county trademark or the registration number of the land surveyor is recommended but not required on reference monuments. The use of magnetic memorials at the base of reference monuments is not required. If magnetic memorials are used at the base of reference monuments they shall be clearly color coded in a thermoplastic case in the following manner to differentiate them from the memorial at the base of the monument.

Metallic silver; North or Northeast quadrant

Fluorescent Purple; East or Southeast quadrant

Fluorescent Blue; South or Southwest quadrant

Fluorescent Orange: West or Northwest quadrant

If it is impractical to set standard monumentation on the corner point as defined in Section 1, paragraph (C) the surveyor must have a minimum of two (2) reference monuments and four (4) ties as defined above. If the four (4) ties are not available they will be replaced by an additional reference monument bringing the total of reference monuments to three (3). The three (3) reference monuments shall be placed in a manner so that a straight line extended across two of the monuments will intersect the corner point and the angle measured from the corner point to the third monument shall not be less than forty five (45) degrees to either of the first two (2) monuments. This arrangement of three (3) monuments allows any two of the monuments working together to define one point on the ground without the use of accurate bearing or azimuth.

Section 3
PREVIOUS MONUMENTS

All monuments which were in place at the time you discovered the point for the corner must remain in place.

(A) Existing monuments which do not, in the opinion of the County Surveyor, occupy the correct position of the corner and are recorded in the official county record. These monuments must be protected from destruction by whatever means the County Surveyor determines appropriate. This may include lowering while maintaining horizontal position.

(B) Existing monuments which do not, in the opinion of the County Surveyor, occupy the correct position of the corner and are not recorded in the official county record. These monuments must not be removed but the County Surveyor is under no obligation to protect them.

(C) Existing monuments which do, in the opinion of the County Surveyor, occupy the correct position of the corner. These monuments must be preserved and their exact horizontal position maintained. If in the opinion of the County Surveyor the monument is subject to destruction or loss it shall be lowered with it's exact horizontal position maintained. If, in the opinion of the County Surveyor the monumentation is inadequate it shall be lowered and the monumentation described in Section 1, paragraph (A) of this instruction shall be placed directly above it. If, in the opinion of the County Surveyor, the monumentation is adequate but it does not entirely comply with Section 1, paragraph (A) it shall be stamped, permanently marked or have a cap permanently attached which is stamped or marked with the same information required in said paragraph. A permanent magnet as required in Section 1, paragraph (A) shall be placed as near the bottom of the monument as practical.

No monument shall be considered adequate unless it contains sufficient ferromagnetic material to be located using standard magnetic locators in normal surveying practices.

The surveyor shall make a complete and accurate record of all existent monuments in his or her record of survey which the surveyor is required to file. This record shall include historical information concerning the old monuments as well as an accurate record of the location of the old monuments. Regardless of value or historical significance no monument of previous surveys may be removed or moved from its horizontal position.

GENERAL INFORMATION

It must be remembered that all requirements shown above are the minimum allowable for monumentation. Monumentation in addition to the minimums shown is highly recommended. These additions may be in the form of increased size, concrete casing, additional monuments or references or any other additions the surveyor wishes to make. Surveyors are often remembered and surveys retraced by the types of monuments they regularly use. It is recommended that each surveyor develop his or her own monumentation which is suitable to the conditions of their normal work and maintain this type of monumentation throughout your work. Any additions or improvements which do not confuse the position of the corner point are approved. The minimums shown above cannot be reduced in any situation.

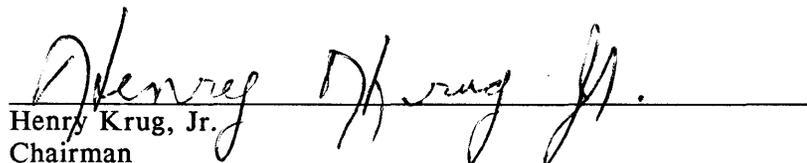
April 11, 1986

A handwritten signature in black ink, appearing to read 'James L. Brown', written over a horizontal line.

James L. Brown
State Surveyor

Issuance Approved

Board of Educational Lands and Funds

A handwritten signature in black ink, appearing to read 'Henry Krug, Jr.', written over a horizontal line.

Henry Krug, Jr.
Chairman