

# **Natural Resources Conservation Service**

## **Easement Programs**

### **Land Survey Specifications**

#### **A. SCOPE**

A professional land surveyor, licensed or registered in the State where the land survey is to take place, must complete all easement boundary surveys for Natural Resources Conservation Service (NRCS) easement programs. The work will consist of performing all surveys, measurements, computations, drawings, and descriptions required by this specification.

The contracting officer (CO) may, at his or her discretion, designate a contracting officer's representative (COR), a contracting officer's technical representative (COTR), or a contract inspector to assist in preparing, awarding, administering, inspecting, and accepting the professional land surveying services contract.

#### **B. QUALITY OF WORK**

The easement boundary description must be clear, accurate, and complete, and meet NRCS's intent.

All land survey work must follow recognized professional practices and standards and meet the accuracy specifications and positional tolerances set forth in the regulations of the State where the survey will take place. In addition, any land survey in a Public Land Survey System (PLSS) State requiring the survey and subdivision of PLSS sections, or parts thereof, must comply with the guidelines, directions, and procedures specified in the current Bureau of Land Management Manual of Survey Instructions. Geographic coordinates (latitude and longitude) will be provided for each property corner.

Access routes and corridors must be surveyed, but no monumentation of the access route is required unless otherwise directed by the COR. The surveyor will show both the easement and the ingress and egress route to a public right-of-way. The work and data presented must be in accordance with the State's minimum standards for rural land surveying.

All notes, sketches, computations, final documents, and other data must be complete, legible, and organized to allow reproduction of copies. The surveyor must prepare and submit to the CO a surveyor's report, documenting the make, model, and type of equipment and software as well as other pertinent data used in making the survey, and a summary of the field procedures and processes used to locate the boundaries and corners.

#### **C. NOTIFICATION OF INTENT TO SURVEY**

Prior to the start of survey field work, NRCS will schedule a pre-survey site visit, which will be attended by the surveyor, NRCS designated conservationist, and the landowner or the landowner's representative. During the pre-survey site visit, the proposed easement boundaries will be reviewed, as will the easement access route (if the easement is not adjacent to a public right-of-way).

The NRCS State WRP manager will provide the surveyor with a preliminary title search and location map or aerial photograph of the proposed easement area. The map will include the area

to be surveyed, including a minimum of two identifiable natural or man-made features, if available, which can be identified on the ground and through aerial photography, the ingress and egress routes or point of access, and any other descriptive information available.

Before fieldwork for surveying begins, the surveyor must notify the designated conservationist and the landowner of the date and time for conducting the survey. Notification must be a minimum of 3 business days prior to beginning work. If the work is not started on the planned date, the surveyor must notify the designated conservationist and landowner of the revised date and time that work will begin.

#### D. SURVEY AREA

The area to be surveyed for the easement will be marked by wooden stakes or flags. Only boundary angle points should be staked or flagged. For identification purposes, angle points are to be identified by sequential number on the photograph and on the corresponding wooden stakes or flags. Any significant (more than 5 percent) variation in the acres surveyed should be reported immediately to the COR and NRCS State WRP Manager. The surveyor will not modify the easement area surveyed at the direction of the landowner. The boundary of the easement area will not be changed from what is indicated. Only the NRCS contracting office may authorize a modification to the easement area boundary. Any variations in the number of acres surveyed should be reported immediately to the contracting officer. Any questions regarding the easement area should be directed to the contracting officer.

The surveyor must locate the easement area boundary angle points and record the description, using bearings and distances as referenced to the National Spatial Reference System. The boundary survey shall be a complete perimeter traverse of the easement area tied to two monumented corners of the PLSS or two monumented corners of a recorded deed. A latitude and longitude coordinate must be established for each angle point of the easement, using North American Datum 1983 (NAD 83) with a  $\pm 1$  meter accuracy.

Monuments and witness posts with signs must be installed by the surveyor at the time the survey is completed, unless otherwise specified by the CO. Monuments and witness posts with signs must be installed at each corner, angle point, road crossing, intersection of property lines, and approximately every 500 feet along the easement area boundary. All monuments must be thoroughly described and specifically identified as set or found, whenever shown on maps or referred to in documents prepared by the surveyor. Descriptions of monuments must be sufficiently detailed to readily facilitate future recovery by other surveyors and to enable positive identification.

Corner monuments must be a minimum 5/8-inch diameter, solid-steel rebar rod. The minimum length for the corner monument is 24 inches. The top of the monument must be driven to just below the ground surface. Monument caps (plastic, aluminum, or brass, approved by NRCS) must be placed on each rebar.

The surveyor must provide witness posts: steel, U-shaped channel posts at least 78 inches long and with a minimum weight of 1.25 pounds per foot. Posts must be of natural color, preferably green. NRCS will provide the signs, which the surveyor must pick up at the local NRCS office. The surveyor must attach an NRCS boundary sign to the top of each witness post, using two galvanized nuts and bolts, with one bolt and nut each at the top and bottom of the sign. A wire attachment is unacceptable. The NRCS easement signs have two 3/8-inch drilled holes. The

sign bolts must be bent after attachment to the signs and posts to prevent the nuts from separating from the bolts.

Upon completion, the surveyor will contact the NRCS designated conservationist to certify that the work has been completed according to the NRCS statement of work. This certification will be made prior to reimbursing the survey contractor.

Some easement boundaries may be a river, creek, bayou, or lake. In those cases, the easement boundary will be determined on a case-by-case basis. An onsite clarification of this boundary will be determined by the surveyor, NRCS designated conservationist, and landowner. A description point must be included for the boundary intersection points. A witness corner may need to be established on each boundary line intersecting a river, creek, bayou, or lake boundary. The witness corner position must have a permanent marker, whereas the river, creek, bayou, or lake boundary intersection point may not. The witness corner located on the boundary line allows for a physical marker on the ground to maintain the boundary's integrity. Visibility and potential stream bank changes and encroachment will be factors in locating the witness corner. Witness corners will be offset from the actual corner location in whole feet along both the incoming and outgoing boundary line segments, if possible. Witness corner locations and bearings and distances to the witness corners must be clearly documented on the survey plat of the easement area.

Areas excluded from the easement area (cutouts) within the easement perimeter will be surveyed, as described above. All private and public roads (and associated roadway easement) should be excluded from the main easement boundary area, unless otherwise specified by NRCS. The net easement area will be reported by the surveyor and computed by subtracting the cutout areas from the exterior perimeter boundary area. The net easement area will be computed to the nearest tenth of an acre.

The boundary description will include a delineated route of ingress and egress. The ingress and egress route to the easement area will be described in the survey, shown on the survey plat, and recorded with the easement deed.

When the boundary survey is complete, the NRCS designated conservationist and the landowner will ensure that the easement area delineated with permanent markers was the area that the landowner intended to place under easement, and that permanent markers were installed, as required. The surveyor will be required to meet with the NRCS designated conservationist and landowner to reconcile any discrepancy.

If the boundary survey is to be overlaid on aerial photography or remote sensing images, when possible the boundary survey will include survey ties to and geographic coordinates for a minimum of two physically identifiable ground features that can be positively and accurately identified on aerial photography and remote sensing images. These ground feature survey ties will allow the land survey to be properly referenced and oriented to aerial photography and remote sensing images.

#### E. PRESENTATION OF SURVEY

The surveyor will prepare an appropriately scaled drawing of the survey. The surveyor will provide to the COR an original and three 11- by 17-inch copies of the survey plat (and attachments that include the legal description and access description). The surveyor is not to provide a copy of the plat to third parties without the contracting officer's approval.

The survey plat must, at minimum, include the following items:

1. The surveyor's seal affixed to the survey plat, signed and dated by the surveyor in blue ink across the seal
2. Latitude and longitude for the point of beginning
3. The record description of the property or the reference to the source of the recorded description on the property on which the easement is located
4. The survey description of the easement area as attachment A to the survey
5. The survey description of the route of ingress and egress to the subject property as attachment B to the survey and shown on the survey plat
6. North arrow
7. Graphic bar scale
8. The direction of courses, shown in bearings, or azimuths (NAZ or SAZ) to whole seconds of arc, and the distances to hundredths of feet for all courses
9. The central angles, length of curves, radii, and the length and bearing of the long chords from the point of curvatures to the point of tangencies for each curve along the boundary line  
**Note:** In addition, curves should be noted on the survey plat as either simple curves, compound curves, or spiral curves (also note if they are railroad curves or highway curves)
10. Basis of bearings or azimuth
11. Monuments identified as set or found, along with a description of the monument
12. Area of the surveyed easement
13. Observed evidence of possession or occupation and use by others on the subject parcel or across any boundary lines of the subject property
14. Sufficient data, diagrams, maps, and survey ties to corners to indicate that the location of the boundaries and corners of the property were correctly surveyed and located, including diagrams to show that the PLSS section or sections were properly surveyed and subdivided to locate PLSS aliquot parts and PLSS lots
15. Name, registration number, address, and phone number of the professional land surveyor in responsible charge of the survey
16. Client name
17. Date survey was completed
18. NRCS contract number (in the legend of the survey plat)
19. NRCS property application number
20. Certification, with the following statement included on each survey plat: "This is to certify that the survey was done by the undersigned, in accordance with the most recent minimum standards for boundary property surveys as set forth by the     [name of state agency responsible for licensing surveyors]    . The accuracy and position tolerance also are in accordance with rural surveys."

The following must be included in the legal description (as attachment A to the survey plat) of the property:

1. A clear statement of the relationship between the described property and the survey control or the basis of the unique location
2. The basis of bearings and azimuths, when bearings or azimuths are used
3. Metes and bounds descriptions that include bearings or azimuths and distances to allow for computing mathematical closure and acreage

4. Citations to the recording information or other identifying documentation for any maps, plats, or other documents referenced
5. Detailed description of any natural or artificial monuments referenced

#### F. DELIVERABLES

The survey contractor will deliver the following to the CO within 45 days of issuance of the task order:

1. Original completed survey plat (34 inches by 24 inches) with required seal and signature
2. Three 11- by 17-inch copies of the survey plat
3. A printed legal land description of the easement area depicted on the surveyor's survey plat, and an electronic copy of the legal description in a format acceptable to the COR
4. A computer-generated tabulation of bearings, distances, and coordinates around the easement area, with a closure statement indicating the cited bearings and distances meeting acceptable state standards for survey closure accuracies and the area of the easement

**Note:** The survey plat, legal description, and tabulation demonstrating acceptable survey closure must all consistently traverse the perimeter of the easement area in the same direction and with the same starting and ending points.

5. In PLSS States, legible copies of the most recent and current GLO/BLM original survey plat and original field notes, or the GLO/BLM resurvey plat and field notes for the surveyed sections in which the easement area is located

**Note:** Copies of the survey plats and notes need only include the full sections in which the easement area is located; in the metes and bounds states, copies of the original source documents creating the subject parcel in which the easement area is located are acceptable.

6. One electronic (digital) copy of the easement survey

**Note:** The survey contractor must provide a CD or DVD containing the digital files in .dwg format compatible with AutoCad 2000. The .dwg file will be referenced to the appropriate State Plane Coordinate System, North American Datum 1983, local zone, U.S. survey feet, and basis of bearing to grid north. The perimeter of the easement should be attributed as a separate and extractable polyline layer or polygon feature component of the drawing for conversion to a geographic information system (GIS). The electronic copy of the easement survey must include the following:

- a. Documentation regarding registration of the survey to a standard coordinate system based on measurements referenced to the National Spatial Reference System infrastructure with a minimum of two tie points to the U.S. Public Land Survey System within the parcel's section
- b. Documentation identifying which coordinate system is used (for example, MO Coordinate System of 1983, West Zone, NAD 83 horizontal datum, survey units – U.S. Survey Foot).

All polygons should be labeled as indicated below:

1. Each polygon should contain four attributes:

- a. An NRCS-assigned agreement number
  - b. Easement acres (value to the tenth of an acre)
  - c. The length of the contract in years
  - d. The method of data capture
2. Each polygon should have the following metadata:
  - a. Date generated
  - b. GIS specialist contact information
  - c. Software and version used to generate file
  - d. Brief description of process used to generate files
3. Format, providing ESRI ARC information export (.e00) or shapefile (.shp, .dbf, .shx)
  - a. Projection must be clearly defined.
  - b. If not a geographic projection, the following is required:
    - Projection (NAD 83)
    - Units
    - Datum
    - Spheroid
    - X shift
    - Y shift
    - Central meridian
    - 1st standard parallel
    - 2nd standard parallel
    - Latitude of projection
    - False easting
    - False northing
    - Geospatial and data joining, identifying the data fields required to join the spatial data to the database.

#### G. CONFLICT OF INTEREST

A surveyor must not survey a NRCS easement property for a spouse, children, partners, or business associates, and must not have a financial interest in the property to be covered by the proposed easement.

#### H. NONDISCLOSURE

Work performance required by this specification will involve access to potentially sensitive information about governmental and landowner issues. All survey contractor personnel must comply with the terms of AGAR 452.224-70, "Confidentiality of Information," as well as provisions of the Privacy Act of 1974, 5 U.S.C Section 552a. Additionally, the survey contractor's employees must comply with the rules governing the privacy of personal information relating to Natural Resources Conservation Service programs, in accordance with section 1244 of title II of the Farm Security and Rural Investment Act of 2002 (Public Law 1078-171).

#### I. CIVIL RIGHTS AND PROGRAM DELIVERY

The survey contractor will ensure that personnel prohibit discrimination in all aspects of programs and activities related to the contract on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status.