

# CHAPTER 355

## STANDARDS FOR LAND SURVEYING

Referred to in §354.4, 354.6, 354.8, 354.15, 354.25

[P]

Platting and subdivisions; see also chapter 354

[P] This chapter not enacted as a part of this title; transferred from chapter 114A in Code 1993

	GENERAL PROVISIONS	355.12	Indexing of survey documents by recorder.
355.1	Definitions.	355.13	Surveys authorized by the United States government.
355.2	Applicability.	355.14	Federal surveys — defacement.
355.3	Rules.	355.15	Reserved.
355.4	Boundary location.		
355.5	Measurements.		
355.6	Monumentation.		
			IOWA PLANE COORDINATE SYSTEM
355.7	Plats of survey.	355.16	Iowa plane coordinate system defined.
355.8	Plats for subdivisions.	355.17	Designation of coordinate zones.
355.9	Descriptions.	355.18	Identification of geographic locations.
355.10	Record.	355.19	Application of terms.
355.11	United States public land survey corner certificate.		

### GENERAL PROVISIONS

#### 355.1 Definitions.

As used in this chapter unless the context otherwise requires:

1. “*Corner*” means a point at which two or more lines meet.
2. “*Division*” means dividing a tract or parcel of land into two parcels of land by conveyance or for tax purposes. The conveyance of an easement, other than a public highway easement, shall not be considered a division for the purpose of this chapter.
3. “*Government lot*” means a tract, within a section, which is normally described by a lot number as represented and identified on the township plat of the United States public land survey system.
4. “*Land surveying*” means surveying of land pursuant to chapter 542B.
5. “*Lot*” means a tract of land, generally a subdivision of a city or town block, represented and identified as a lot on a recorded plat.
6. “*Meander line*” means a traverse approximately along the margin of a body of water. A meander line provides data for computing areas and approximately locates the margin of the body of water. A meander line does not ordinarily determine or fix boundaries.
7. “*Monument*” means a physical structure which marks the location of a corner or other survey point.
8. “*Offset line*” means a supplementary traverse close to and approximately parallel with an irregular boundary line. An offset line provides data for computing areas and locates salient points on the irregular boundary line by measured distances referenced to the offset line.
9. “*Plat of survey*” means a graphical representation of a survey of one or more parcels of land, including a complete and accurate description of each parcel within the plat, prepared by a licensed professional land surveyor.
10. “*Subdivision*” means a tract of land divided into three or more lots.
11. “*Subdivision plat*” means a graphical representation of the subdivision of land, prepared by a licensed professional land surveyor, having a number or letter designation for each lot within the plat and a succinct name or title that is unique for the county where the land is located.

12. “Surveyor” means a licensed professional land surveyor who engages in the practice of land surveying pursuant to chapter 542B.

90 Acts, ch 1236, §1

C91, §114A.1

C93, §355.1

2012 Acts, ch 1009, §3

Referred to in §331.604, 716.6

### **355.2 Applicability.**

This chapter applies to all agencies of the United States government, this state, or a political subdivision of this state and to all persons engaged in the practice of land surveying.

90 Acts, ch 1236, §2

C91, §114A.2

C93, §355.2

### **355.3 Rules.**

Pursuant to chapter 542B, the engineering and land surveying examining board may adopt rules consistent with the rules prescribed by the Acts of Congress and the instructions of the United States Secretary of the Interior.

90 Acts, ch 1236, §3

C91, §114A.3

C93, §355.3

### **355.4 Boundary location.**

The surveyor shall acquire data necessary to retrace record title boundaries, center lines, and other boundary line locations in accordance with the legal descriptions including applicable provisions of chapter 650. The surveyor shall analyze the data and make a careful determination of the position of the boundaries of the parcel or tract of land being surveyed. The surveyor shall make a field survey, locating and connecting monuments necessary for location of the parcel or tract and coordinate the facts of the survey with the analysis and legal description. The surveyor shall place monuments marking the corners of the parcel or tract unless monuments already exist at the corners.

90 Acts, ch 1236, §4

C91, §114A.4

C93, §355.4

### **355.5 Measurements.**

1. Measurements shall be made with instruments and methods capable of attaining the required accuracy for the particular problem involved.

2. Measurements as placed on plats shall be in conformance with the capabilities of the instruments used.

3. In a closed traverse the sum of the measured angles shall agree with the theoretical sum by a difference not greater than thirty seconds times the square root of the number of angles.

4. Distances shall be shown in decimal feet in accordance with the definition of the U. S. survey foot. Distance measurements shall refer to the horizontal plane.

90 Acts, ch 1236, §5

C91, §114A.5

C93, §355.5

2007 Acts, ch 143, §4

### **355.6 Monumentation.**

1. The surveyor shall confirm the prior establishment of control monuments at each controlling corner on the boundaries of the parcel or tract of land being surveyed. If no control monuments exist, the surveyor shall place the monuments. Control monuments shall be constructed of reasonably permanent material solidly embedded in the ground and capable of being detected by commonly used magnetic or electronic equipment. The

surveyor shall affix a cap of reasonably inert material bearing an embossed or stencil cut marking of the Iowa license number of the surveyor to the top of each monument which the surveyor places.

2. Control monuments shall be placed at the following locations:

- a. Each corner and angle point of each lot, block, or parcel of land surveyed.
- b. Each point of intersection of the outer boundary of the survey with an existing or created right-of-way line of a street, railroad, or other way.
- c. Each point of curve, tangency, reversed curve, or compounded curve on each right-of-way line established.

3. If the placement of a monument required by this chapter at the prescribed location is impractical, a reference monument shall be established near the prescribed location. If a point requiring monumentation has been previously monumented, the existence of the monument shall be confirmed by the surveyor.

4. At least a minimum number of two survey control monuments are required to be placed before the recording of a subdivision provided the surveyor includes in the surveyor's statement a declaration that additional monuments shall be placed before a date specified in the statement or within one year from the date the subdivision is recorded, whichever is earlier.

90 Acts, ch 1236, §6

C91, §114A.6

C93, §355.6

2012 Acts, ch 1009, §4

Referred to in §355.7, 355.8

### **355.7 Plats of survey.**

A plat of survey shall be made, showing information developed by the survey, for each land survey performed for the purpose of correcting boundaries, correcting descriptions of surveyed land, or for the division of land. Each plat of survey shall conform to the following provisions:

1. The original plat drawing shall remain the property of the surveyor.
2. The size of each plat sheet shall not be less than eight and one-half inches by eleven inches.
3. The scale of the plat drawing shall be clearly stated and graphically illustrated by a bar scale on every plat sheet.
4. An arrow indicating the northern direction shall be shown on each plat sheet.
5. The plat shall show that the survey is tied to a physically monumented land line which is identified by two United States public land survey system corners, or by two physically monumented corners of a recorded subdivision.
6. a. The plat shall show the lengths and bearings of the boundaries of the parcels surveyed. The course of each boundary line shown on the plat may be indicated by a direct bearing reference or by an angle between the boundary line and an intersecting line having a shown bearing, except when the boundary line has an irregular or constantly changing course, as along a body of water, or when a description of the boundary line is better achieved by measurements shown at points or intervals along a meander line or an offset line having a shown course. The bearings shall be referenced to a United States public land survey system land line, or recorded subdivision line. If the boundary lines show bearings, lengths, or locations which vary from those recorded in deeds, abutting plats, or other instruments of record, the following note shall be placed along the lines:

Recorded as (show recorded bearing, length, or location).

- b. Bearings and angles shown shall be given to at least the nearest minute of arc.
7. The plat shall show and identify all monuments necessary for the location of the parcel and shall indicate whether the monuments were found or placed.
8. If United States public land survey system corners control the land description, the

corners shall be clearly identified on the plat including a description of the monumentation and shall indicate whether the monuments were found or placed.

9. Control monuments shall be adequately described and clearly identified on the plat and noted as found or placed. If additional monuments are to be placed subsequent to the recording of a subdivision as provided in section 355.6, the location of the additional monuments shall be shown on the plat.

10. Distance shall be shown in decimal feet in accordance with the definition of the U. S. survey foot. Distance measurements shall refer to the horizontal plane.

11. Curve data shall be stated in terms of radius, central angle, and length of curve, and as otherwise specified by local ordinance. In all cases, the curve data must be shown for the line affected.

12. The unadjusted error of closure shall not be greater than one in five thousand for an individual parcel.

13. If any part of the surveyed land is bounded by an irregular line, that part shall be enclosed by a meander line or an offset line showing complete data with distances along all lines extending beyond the enclosure to the irregular boundary, and shown with as much certainty as can be determined or as "more or less", if variable. In all cases, the true boundary shall be clearly indicated on the plat.

14. The plat shall be captioned to show the date of the survey, and shall be accompanied by a description of the parcel.

15. The plat shall contain a statement by a surveyor that the work was done and the plat was prepared by the surveyor or under the surveyor's direct personal supervision, shall be signed and dated by the surveyor, and shall bear the surveyor's Iowa license number and legible seal.

90 Acts, ch 1236, §7

C91, §114A.7

C93, §355.7

2007 Acts, ch 143, §5; 2012 Acts, ch 1009, §5; 2013 Acts, ch 30, §80

[T] Subsection 6 amended

### **355.8 Plats for subdivisions.**

Subdivision plats shall conform to the following provisions where applicable:

1. The original plat drawing shall remain the property of the surveyor.
2. The size of each plat sheet shall not be less than eight and one-half inches by eleven inches.
3. If more than one sheet is used, each sheet shall display both the number of the sheet and the total number of sheets included in the plat, and clearly labeled match lines indicating where the other sheets adjoin. An index shall be provided to show the relationship between the sheets.
4. The scale of the plat drawing shall be clearly stated and graphically illustrated by a bar scale on every plat sheet.
5. Each subdivision plat shall be designated, by name or as otherwise prescribed, in bold letters inside the margin at the top of each plat sheet.
6. An arrow indicating the northern direction shall be shown on each plat sheet.
7. The plat shall show that the subdivision is tied to a physically monumented land line which is identified by two United States public land survey system corners, or by two physically monumented corners of a recorded subdivision.
8. *a.* The plat shall show the lengths and bearings of the boundaries of the tracts surveyed. The course of each boundary line shown on the plat may be indicated by a direct bearing reference or by an angle between the boundary line and an intersecting line having a shown bearing, except when the boundary line has an irregular or constantly changing course, as along a body of water, or when a description of the boundary line is better achieved by measurements shown at points or intervals along a meander line or an offset line having a shown course. The bearing shall be referenced to a United States public land survey system land line, or recorded subdivision line. If the boundary lines show bearings,

lengths, or locations which vary from those recorded in deeds, abutting plats, or other instruments of record, the following note shall be placed along the lines:

Recorded as (show recorded bearing, length, or location).

b. Bearings and angles shown shall be given to at least the nearest minute of arc.

9. The plat shall show and identify all monuments necessary for the location of the tracts and shall indicate whether the monuments were found or placed.

10. If United States public land survey system corners control the land description, the corners shall be clearly identified on the plat including a description of the monumentation and shall indicate whether the monuments were found or placed.

11. Control monuments shall be adequately described and clearly identified on the plat and noted as found or placed. If additional monuments are to be placed subsequent to the recording of a subdivision as provided in section 355.6, the location of the additional monuments shall be shown on the plat.

12. Survey data shall be shown to positively describe the bounds of every lot, block, street, easement, or other areas shown on the plat, and the boundaries of the surveyed lands.

13. Distances shall be shown in feet to at least the nearest one-tenth of a foot in accordance with the definition of the U. S. survey foot. Distance measurements shall refer to the horizontal plane.

14. Curve data shall be stated in terms of radius, central angle, and length of curve. Unless otherwise specified by local ordinance, curve data for streets of uniform width need only be shown with reference to the center line and lots fronting on such curves need only show the chord bearing and distance of the part of the curve included in the lot boundary. Otherwise, the curve data shall be shown for the line affected.

15. The unadjusted error of closure shall not be greater than one in ten thousand for subdivision boundaries and shall not be greater than one in five thousand for an individual lot.

16. If part of the surveyed land is bounded by an irregular line, that part shall be enclosed by a meander line or an offset line showing complete data with distances along all lines extending beyond the enclosure to the irregular boundary, and shown with as much certainty as can be determined or as "more or less", if variable. In all cases, the true boundary shall be clearly indicated on the plat.

17. Interior excepted parcels shall be clearly indicated and labeled, "not a part of this survey (or subdivision)".

18. Adjoining properties shall be identified, and if the adjoining properties are a part of a recorded subdivision, the name of that subdivision shall be shown. If the survey is a subdivision of a portion of a previously recorded subdivision plat, sufficient ties shall be shown to controlling lines appearing on such plat to permit a comparison to be made.

19. The purpose of any easement shown on the plat shall be clearly stated.

20. The purpose of areas dedicated to the public shall be clearly indicated on the plat.

21. The plat shall be accompanied by a description of the land included in the subdivision and shall contain a statement by the surveyor that the work was done and the plat was prepared by the surveyor or under the surveyor's direct personal supervision and shall be signed and dated by the surveyor and bear the surveyor's Iowa license number and legible seal.

90 Acts, ch 1236, §8

C91, §114A.8

C93, §355.8

2007 Acts, ch 143, §6; 2012 Acts, ch 1009, §6; 2013 Acts, ch 30, §81

Referred to in §354.8

[T] Subsection 8 amended

### **355.9 Descriptions.**

A description defining land boundaries written for conveyance or other purposes shall be complete, providing definite and unequivocal identification of the property lines or

boundaries. The description shall be sufficient to enable the description to be platted and retraced. The description shall commence at or relate to a physically monumented corner or boundary line of record.

1. If the land is located in a recorded subdivision, the description shall contain the number or other description of the lot, block, or other part of the subdivision, or shall describe the land by reference to a known corner of the lot, block, or other part.

2. If the land is not located in a recorded subdivision, the description shall identify the section, township, range, and county, and shall describe the land by reference to government lot, by quarter-quarter section, by quarter section, or by metes and bounds commencing with a corner marked and established in the United States public land survey system.

90 Acts, ch 1236, §9

C91, §114A.9

C93, §355.9

### **355.10 Record.**

1. The surveyor shall record a plat and description with the county recorder no later than thirty days after signature on the plat by the surveyor if the survey was made for one of the following purposes:

a. To correct boundaries and descriptions of land.

b. For the division of land.

2. The plat and description shall show distinctly what piece of land was surveyed, the surveyor, and the date of the survey.

3. The thirty-day requirement shall not apply to subdivision plats.

90 Acts, ch 1236, §10

C91, §114A.10

C93, §355.10

### **355.11 United States public land survey corner certificate.**

1. A United States public land survey corner certificate shall be prepared as part of any land surveying which includes the use of a United States public land survey system corner, having the status of a corner of a quarter-quarter section or larger aliquot part of a section, if one or more of the following conditions exist:

a. There is no certificate for the corner on file with the recorder of the county in which the corner is located.

b. The surveyor in responsible charge of the land surveying accepts a corner position which differs from that shown in the public records of the county in which the corner is located.

c. The corner monument is replaced or modified in any way.

d. The reference ties referred to in an existing public record are not correct.

2. The surveyor shall record the required certificate with the recorder and forward a copy to the county engineer of the county in which the corner is located within thirty days after completion of the surveying. The certificate shall comply with the following requirements:

a. The size of the sheet or sheets making up the certificate shall not be less than eight and one-half inches by eleven inches.

b. The identity of the corner, with reference to the United States public land survey system, shall be clearly indicated.

c. The certificate shall contain a narrative explaining the reason for preparing the certificate, the evidence and detailed procedures used in establishing the corner position, and the monumentation found or placed perpetuating the corner position including reference monumentation.

d. The certificate shall contain a plan-view site drawing depicting the relevant monuments, physical surroundings, and reference ties in sufficient detail to enable recovery of the corner.

e. The certificate shall contain at least three reference ties, measured to the nearest one-hundredth of a foot from the corner to durable physical objects near the corner, which

are located so that the intersection of any two of the ties will yield a strong corner position recovery.

f. The certificate shall contain a statement by the surveyor that the work was done and the certificate was prepared by the surveyor or under the surveyor's direct personal supervision and shall be signed and dated by the surveyor and bear the surveyor's Iowa license number and seal.

3. A public land survey corner certificate may contain more than one corner that is being certified as part of the land surveying project. The recorder shall accept for recording a certificate containing multiple corners certified pursuant to this section.

90 Acts, ch 1236, §11

C91, §114A.11

C93, §355.11

2012 Acts, ch 1009, §7; 2012 Acts, ch 1024, §1

### **355.12 Indexing of survey documents by recorder.**

The recorder shall index survey documents and United States public land corner certificates by township, range, and section number. If the survey is in a recorded subdivision, the recorder shall also index the document alphabetically by subdivision name.

90 Acts, ch 1236, §12

C91, §114A.12

C93, §355.12

### **355.13 Surveys authorized by the United States government.**

1. A person employed in the execution of a survey authorized by the United States government may enter upon lands within this state for the purpose of exploring, triangulating, leveling, surveying, and doing any other work necessary to carry out the objects of laws relative to surveys, and may establish permanent station marks, and erect the necessary signals and temporary observatories, doing no unnecessary injury thereby.

2. If the parties interested cannot agree upon the amount to be paid for damages caused by entry upon lands pursuant to subsection 1, either of them may petition the district court in the county in which the land is situated and the district court shall appoint a time for a hearing. The district court shall order at least twenty days' notice to be given to all interested parties, and, with or without a view of the premises as the court may determine, hear the parties and their witnesses and assess damages.

3. The person entering upon land, pursuant to subsection 1, may tender to the injured party damages caused thereby, and if, in case of petition or complaint to the district court, the damages finally assessed do not exceed the amount tendered, the person entering shall recover costs. Otherwise, the prevailing party shall recover costs.

4. The costs to be allowed in cases taken pursuant to this section shall be the same as allowed according to the rules of the court and provisions of law relating to costs.

90 Acts, ch 1236, §13

C91, §114A.13

C93, §355.13

### **355.14 Federal surveys — defacement.**

If a person willfully defaces, injures, or removes a signal, monument, building, or other property of the United States national geodetic survey, or the United States geological survey, constructed or used under the federal law, the person is subject to a civil penalty not exceeding fifty dollars for each offense, and is liable for damages sustained by the United States in consequence of the defacing, injury, or removal, to be recovered in a civil action in any court of competent jurisdiction.

90 Acts, ch 1236, §14

C91, §114A.14

C93, §355.14

### **355.15 Reserved.**

## IOWA PLANE COORDINATE SYSTEM

**355.16 Iowa plane coordinate system defined.**

As used in this section, and sections 355.17 through 355.19, unless the context otherwise requires, “*Iowa plane coordinate system*” or “*coordinate system*” means the system of plane coordinates established by the United States national ocean survey, or the United States national geodetic survey, or a successor agency, for defining and stating the geographic positions or locations of points on the surface of the earth within the state of Iowa.

93 Acts, ch 50, §1

**355.17 Designation of coordinate zones.**

The Iowa plane coordinate system is divided into two zones designated as follows:

1. *a.* The area now included in the following counties constitutes the north zone: Allamakee, Benton, Black Hawk, Boone, Bremer, Buchanan, Buena Vista, Butler, Calhoun, Carroll, Cerro Gordo, Cherokee, Chickasaw, Clay, Clayton, Crawford, Delaware, Dickinson, Dubuque, Emmet, Fayette, Floyd, Franklin, Greene, Grundy, Hamilton, Hancock, Hardin, Howard, Humboldt, Ida, Jackson, Jones, Kossuth, Linn, Lyon, Marshall, Mitchell, Monona, O’Brien, Osceola, Palo Alto, Plymouth, Pocahontas, Sac, Sioux, Story, Tama, Webster, Winnebago, Winneshiek, Woodbury, Worth, and Wright.

*b.* The coordinate system north zone is a Lambert conformal conic projection of the North American datum of 1983, having standard parallels at north latitudes forty-two degrees, four minutes, and forty-three degrees, sixteen minutes, along which parallels the scale shall be exact. The origin of coordinates is at the intersection of the meridian ninety-three degrees, thirty minutes west of Greenwich, and the parallel forty-one degrees, thirty minutes north latitude. This origin is given the coordinates:  $x$  equals one million five hundred thousand meters exact and  $y$  equals one million meters exact.

2. *a.* The area now included in the following counties constitutes the south zone: Adair, Adams, Appanoose, Audubon, Cass, Cedar, Clarke, Clinton, Dallas, Davis, Decatur, Des Moines, Fremont, Guthrie, Harrison, Henry, Iowa, Jasper, Jefferson, Johnson, Keokuk, Lee, Louisa, Lucas, Madison, Mahaska, Marion, Mills, Monroe, Montgomery, Muscatine, Page, Polk, Pottawattamie, Poweshiek, Ringgold, Scott, Shelby, Taylor, Union, Van Buren, Wapello, Warren, Washington, and Wayne.

*b.* The coordinate system south zone is a Lambert conformal conic projection of the North American datum of 1983, having standard parallels at north latitudes forty degrees, thirty-seven minutes, and forty-one degrees, forty-seven minutes, along which parallels the scale shall be exact. The origin of coordinates is at the intersection of the meridian ninety-three degrees, thirty minutes west of Greenwich, and the parallel forty degrees, zero minutes north latitude. This origin is given the coordinates:  $x$  equals five hundred thousand meters exact and  $y$  equals zero meters exact.

93 Acts, ch 50, §2; 93 Acts, ch 180, §78

Referred to in §355.16

**355.18 Identification of geographic locations.**

The plane coordinate values for a point on the earth’s surface used to express the geographic position or location of the point in the appropriate zone of the coordinate system shall consist of two distances expressed in meters and decimals of a meter. One of these distances, to be known as the “ $x$ -coordinate”, shall give the position in an east-and-west direction; the other, to be known as the “ $y$ -coordinate”, shall give the position in a north-and-south direction. These coordinates shall be made to depend upon and conform to plane rectangular coordinate values for the monumented points of the North American horizontal geodetic control network as published by the United States national ocean survey, or the United States national geodetic survey, or a successor agency. Any monumented point may be used for establishing a survey connection to the coordinate system.

93 Acts, ch 50, §3

Referred to in §355.16



**355.19 Application of terms.**

The use of the term “*Iowa plane coordinate system north zone*” or “*Iowa plane coordinate system south zone*” on a map, report of survey, or other document shall be limited to coordinates based on the Iowa plane coordinate system as defined in this chapter.

93 Acts, ch 50, §4

Referred to in §355.16