



## **Martin County Survey Division** **Survey Checklist 2010**

**Project:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Surveyor:** \_\_\_\_\_

**All items shall be checked or marked N/A**

### **5J-17.051 General Survey, Map, and Report Content Requirements**

- (1) Nothing in these rules shall preclude a surveyor and mapper from entering into a contract with a client which requires more stringent surveying standards than those set forth in this rule.
- (2) Survey Data:
  - (a) REGULATORY OBJECTIVE: The public must be able to rely on the accuracy of measurements and maps produced by a surveyor and mapper.
  - (b) Surveyors and mappers must achieve the following minimum standards of accuracy, completeness, and quality:
    1. The accuracy of the survey measurements shall be premised upon the type of survey and the expected use of the survey and map.  
All measurements must be in accordance with the United States standard, using either feet or meters.
    2. Records of these measurements shall be maintained for each survey by either the individual surveyor and mapper or the surveying and mapping business entity.
    3. Measurement and computation records must be dated  
Measurement and computation records must contain sufficient data to substantiate the survey map  
Measurement and computation records must support the accuracy statement (closure calculations or redundant measurements, if applicable.)
- (3) Surveys, Maps, and/or Survey Products Content.
  - (a) REGULATORY OBJECTIVE: In order to avoid misuse of a survey and map, the surveyor and mapper must adequately communicate the survey results to the public through a map, report, or report with an attached map. Any survey map or report must identify the responsible surveyor and mapper and contain standard content.
  - (b) Surveyors and mappers must meet the following minimum standards of accuracy, completeness, and quality:
    1. Each survey map and report shall state the type of survey it depicts consistent with the types of surveys defined in paragraphs 5J-17.050(10)(a)-(k), F.A.C. The purpose of a survey, as set out in paragraphs 5J-17.050(10)(a)-(k), F.A.C., dictates the type of survey to be performed and depicted, and a licensee may not avoid the minimum standards required by rule of a particular survey type merely by changing the name of the survey type to conform with what standards or lack of them the licensee chooses to follow.

Type of Survey stated on map and report

As-built  
Boundary Survey  
Condominium Survey  
Construction Layout Survey  
Control Survey  
Hydrographic Survey

Mean High Water Line Survey  
Quantity Survey  
Record Survey  
Specific or Special Purpose Survey  
Topographic Survey



## **Martin County Survey Division**

### **Survey Checklist 2010**

2. All survey maps and reports must:
  - Bear the name, cert. of authorization number, street and mailing address of the business entity on the map and report,
  - Display the name and license number of the surveyor and mapper in responsible charge.
  - State the name, license number, and street and mailing address of a surveyor and mapper practicing independent of any business entity on each survey map and report.
3. All survey maps must reflect a survey date, which is the date of data acquisition. When the graphics of a map are revised, but the survey date stays the same, the map must list dates for all revisions.
4. The survey map and report and the copies of the survey map and report, except those with electronic signature and electronic seal, must contain a statement indicating that the survey map and report or the copies thereof are not valid without the signature and the original raised seal of a Florida licensed surveyor and mapper.
5. If either the business entity or the individual licensee does not possess professional liability insurance, then the map, report, and/or survey must contain the following printed statement in letters at least 1/4" high: The survey depicted here is not covered by professional liability insurance.
6. Additions or deletions to survey maps or reports by other than the signing party or parties is prohibited without written consent of the signing party or parties.
7. All computed data or plotted features shown on survey maps must be supported by accurate survey measurements unless clearly stated otherwise.
8. Bearings, distances, coordinates, and elevations shown on a survey map shall be substantiated by survey measurements unless clearly stated otherwise.
9. A reference to all bearings shown on a survey map or report must be clearly stated, i.e., whether to "True North"; "Grid North as established by the NOS; "Assumed North based on a bearing for a well defined line, such as the center line of a road or right of way, etc."; "a Deed Call for a particular line"; or "the bearing of a particular line shown upon a plat." References to Magnetic North should be avoided except in the cases where a comparison is necessitated by a Deed Call. In all cases, the bearings used shall be referenced to some well-established and monumented line.
10. A designated "north arrow" is shown prominently upon the survey map.
  - A stated scale or graphic scale
11. Abbreviations generally used by the public or in proper names that do not relate to matters of survey are excluded from the legend requirement.
  - a. Acceptable abbreviations on the face of survey maps are:

|                                        |                                       |
|----------------------------------------|---------------------------------------|
| N = North                              | ' = Minutes when used in a bearing    |
| S = South                              | " = Seconds when used in a bearing    |
| E = East                               | ' = Feet when used in a distance      |
| W = West                               | " = Inches when used in a distance    |
| or any combination such as NE, SW, etc | ° = Degrees                           |
| AC = Acres                             | +/- = More or less (or Plus or Minus) |
| metric notation                        |                                       |
  - b. Any other abbreviations relating to survey matters must be clearly shown within a legend or notes appearing on the face of the map or report.
12. When special conditions exist that effectively prevent the survey from meeting these minimum standards, the special conditions and any necessary deviation from the standards shall be noted upon the map or report.



## **Martin County Survey Division**

### **Survey Checklist 2010**

13. The map or report must:

Clearly state the licensee who is responsible for all mapped features stated on the map or report.

Clearly state the individual primarily responsible for the map or report when mapped features have been integrated with others.

14. Report Items:

- a. Report items are information, such as: abbreviations, legends, accuracy statements, feature lists, datums used, and things done or not done as part of the survey and mapping process.

The map or report shall contain other items necessary for an adequate communication of survey methods and results as judged by the surveyor and mapper such as: data sources, measurement methods, history and lineage of data, and limitations pertaining to the information presented.

- b. Text Report items shall be displayed either through notes on the map, report, or in a text report delivered with the map. When the report is produced as a text document and a map is attached, the report shall be signed and sealed.

When the map is delivered in digital form only, then a report is required.

An attached map must clearly reference the report by title, date and subject; and the report must likewise clearly refer to the map by title, date, and subject.

Statements must be made on the map and in the report that neither is full and complete without the other.

15. Map Accuracy.

- a. Vertical Feature Accuracy:

Vertical Control: Field-measured control for elevation information shown upon survey maps or reports shall be based on a level loop or closure to a second benchmark.

Closure in feet must be accurate to a standard of plus or minus .05 ft. times the square root of the distance in miles.

All surveys and maps or reports with elevation data shall indicate the datum and a description of the benchmark(s) upon which the survey is based.

Minor elevation data may be obtained on an assumed datum provided the base elevation of the datum is obviously different than the established datum.

- b. Horizontal Feature Accuracy:

- i. Horizontal Control: All surveys and maps or reports expressing or displaying features in a publicly published coordinate system shall indicate the coordinate datum and a description of the control points upon which the survey is based.

Minor coordinate data may be obtained and used on an assumed datum provided the numerical basis of the datum is obviously different than a publicly published datum.

- ii. The accuracy of control survey data shall be verified by redundant measurements or traverse closures. All control measurements shall achieve the following closures:

Commercial/High Risk Linear: 1 foot in 10,000 feet;

Suburban: Linear: 1 foot in 7,500 feet;

Rural: Linear: 1 foot in 5,000 feet;

- iii. When statistical procedures are used to calculate survey accuracies, the maximum acceptable positional tolerance, based on the 95% confidence level, should meet the same equivalent relative distance standards as set forth in sub-sub-paragraphs 5J-17.051(3)(b)15.b.ii., F.A.C.

- iv. Intended Display Scale: All maps or reports of surveys produced and delivered with digital coordinate files must contain a statement to the effect of: "This map is intended to be displayed at a scale of 1/\_\_\_ or smaller".



## **Martin County Survey Division**

### **Survey Checklist 2010**

#### **5J-17.052 Specific Survey, Map, and Report Requirements.**

##### **(1) As-Built/Record Survey:**

- (a) When performing as-built or record surveys, the surveyor and mapper shall obtain field measurements of vertical or horizontal dimensions of constructed improvements so that the constructed facility can be delineated in such a way that the location of the construction may be compared with the construction plans.
- (b) When the surveyor and mapper prepare as-built maps they will clearly show by symbols, notations, or delineations, those constructed improvements located by the survey.
- (c) All maps prepared shall meet applicable minimum technical standards.
- (d) The vertical and horizontal accuracy of the measurements made shall be such that it may be determined whether the improvements were constructed consistent with planned locations.

##### **(2) Boundary Survey, Map, and Report:**

###### **(a) Boundaries of Real Property:**

1. The surveyor and mapper shall make a determination of the position of the boundary of real property in complete accord with the real property description shown on or attached to the survey map or report.
2. All boundary surveys shall result in a map.
3. Any discrepancies between the survey map and the real property description must be shown.
4. All changes in direction, including curves, shall be shown on the survey map by angles, bearings or azimuths, and will be in the same form as the description or other recorded document referenced on the map.
5. Curved lines with circular curves shall show the radii, arc distances and central angles, or radii, arc distances, chord distances and chord bearings.
6. When intersecting lines are non-radial to a curve, sufficient angular data shall be shown to relate the line to the curve.
7. Surveys of all or part of a lot(s) which is part of a recorded subdivision shall show the following upon the map:
  - a. The lot(s) and block numbers or other designations, including those of adjoining lots.
  - b. A comparison between recorded directions and distances with field measured directions and distances when they vary.
  - c. A comparison between the recorded directions and distances with field measured directions and distances to the nearest street intersection, right of way intersection or other identifiable reference point.
  - d. The dimensioned remaining portion of a lot(s) when part of a lot is included within the description.
8. Surveys of parcels described by metes and bounds shall show the following upon the map:
  - a. The relationship of the parcel(s) to at least one established identifiable real property corner;
  - b. All information called for in the property description, such as point of commencement, course bearings and distances, and point of beginning;
  - c. A comparison between recorded directions and distances and field measured directions and distances on the boundary when they vary;
  - d. The most current abutting recorded instrument or recorded plat either known by the surveyor and mapper or furnished to the surveyor and mapper.

###### **(b) Boundary Monuments:**

###### **1. The surveyor and mapper shall:**

Set monuments as defined herein, unless monuments already exist or cannot be set due to physical obstructions at such corners or unless a water boundary has been located in approximate position.

Clearly label all approximate water boundaries with notes and these shall be mapped in a distinctly different graphic fashion from water boundaries located to full survey accuracy.



## **Martin County Survey Division**

### **Survey Checklist 2010**

2. Every boundary monument set shall:
  - a. Be composed of a durable material;
  - b. Have a minimal length of 18 inches;
  - c. Have a minimum cross-section area of material of 0.2 square inches;
  - d. Be identified with a durable marker or cap bearing either the Florida license number of the surveyor and mapper in responsible charge, the certificate of authorization number of the business entity; or name of the business entity;
  - e. Be detectable with conventional instruments for finding ferrous or magnetic objects.
  - f. When a corner falls in a hard surface such as asphalt or concrete, alternate monumentation may be used that is durable and identifiable.
3. All monuments, found or placed, must be described on the survey map.

The corner descriptions shall state the size, material, and cap identification of the monument as well as whether the monument was found or set.
4. When a parcel has an irregular roadway as a boundary, such as a dirt road or a common law road, then a monumented meander or survey line shall be established along or near the feature.
5. For other irregular boundaries such as a river, lake, beach, marsh or stream, not identified as in subparagraph 5J-17.052(2)(a)1., F.A.C., a dimensioned meander or survey line may be used.

When a meander or survey line is used, monuments shall be set at the meander or survey line's terminus points on real property boundary lines and dimensions shall be shown between a meander or survey line and the boundary line sufficient to show the relationship between the two.
6. A boundary survey updating a previous survey made by the same surveyor and mapper or business entity, and which is performed for the purpose of locating non-completed new improvements by measurements to the property lines or related offset lines placed on the property since the previous survey, need not have the property corners reset.
7. Side ties to locate or set monuments shall be substantiated by a redundancy of measurements.

#### **(c) Boundary Inconsistencies:**

1. Potential boundary inconsistencies that the survey process did not attempt to detect shall be clearly indicated and explained on the survey map or in the report. Where evidence of inconsistency is found, the nature of the inconsistency shall be shown upon the survey map, such as:
  - a. Overlapping descriptions or hiatuses;
  - b. Excess or deficiency;
  - c. Conflicting boundary lines or monuments; or
  - d. Doubt as to the location on the ground of survey lines or property rights.
2. Open and notorious evidence of boundary lines, such as fences, walls, buildings, monuments or otherwise, shall be shown upon the map, together with dimensions sufficient to show their relationship to the boundary line(s).
3. All apparent physical use onto or from adjoining property must be indicated, with the extent of such use shown or noted upon the map.
4. In all cases where foundations may violate deed or easement lines and are beneath the surface, failure to determine their location shall be noted upon the map or report.



## **Martin County Survey Division**

### **Survey Checklist 2010**

(d) Rights-of-Way, Easements, and Other Real Property Concerns:

1. All recorded public and private rights-of-way shown on applicable recorded plats adjoining or across the land being surveyed shall be located and shown upon the map.
2. Easements shown on applicable record plats or open and notorious evidence of easements or rights-of-way on or across the land being surveyed shall be located and shown upon the map.
3. When streets or street rights-of-way abutting the land surveyed are physically closed to travel, a note to this effect shall be shown upon the map.
4. When location of easements or rights-of-way of record, other than those on record plats, is required, this information must be furnished to the surveyor and mapper.
5. Human cemeteries and burial grounds located within the premises shall be located and shown upon the map when open and notorious, or when knowledge of their existence and location is furnished to the surveyor and mapper.

(e) Real Property Improvements:

1. Location of fixed improvements pertinent to the survey shall be graphically shown upon the map and their positions shall be dimensioned in reference to the boundaries, either directly or by offset lines.
2. When fixed improvements are not located or do not exist, a note to this effect shall be shown upon the map.
3. Building corners are acceptable as monumentation so long as use of building corners as monumentation is clearly noted on survey drawing.
4. When a boundary survey updating a previous boundary survey is made by the same surveyor or survey firm for purpose of locating non-completed new improvements, then property corners need not be reset; however, when a boundary survey is updating a previous survey made by the same surveyor or survey firm and is performed for purpose of locating completed new improvements then property corners must be recovered or reset. When a boundary survey updates a previous boundary survey made by a different surveyor or survey firm for the purpose of locating either non-completed or completed new improvements, then property corners must be recovered or reset.

(3) Construction Layout Survey:

- (a) When the surveyor and mapper provides construction staking, these stakes must be based on controls established using the survey standards set out in Rules 5J-17.051 and 5J-17.052, F.A.C., of this chapter. The stakes provided should be adequate in number and position so that the physical items can be constructed from the plans as designed.
- (b) Horizontal and Vertical Controls for Public and Private Construction Layout:
  1. Section 472.003(3), Florida Statutes, provides an exemption from licensing for certain classes of individuals performing construction layout from boundary, horizontal and vertical controls that have been established by a licensed professional surveyor and mapper. This rule is designed to set out what constitutes horizontal and vertical controls.
    - a. Horizontal control monumentation for the purpose of this rule includes:
      - (I) Points of Curve, Points of Tangency, Points of Tangent Intersections, Points on Line and Points on Curve.
      - (II) Points of Intersection of other streets or roads.
    - (III) Angle points or changes in direction.
  - b. Horizontal control monumentation for road center-lines, right-of-way lines, reference lines or base lines shall be at least a minimum of two (2) points placed so that no point on the line being monumented is more than 700 feet from a control monument.
  - c. Horizontal control monumentation for main utility lines (such as water, sewer, storm drainage, electric, telephone, television, gas, etc.) when not constructed within or along a road right-of-way control in accordance with sub-subparagraph 5J-17.052(3)(b)1.b., F.A.C., shall be at least a minimum of two (2) points placed so that no point on the line being monumented is more than 700 feet from a control monument.
  - d. Horizontal control monumentation for buildings and/or primary constructions shall be at least:



## **Martin County Survey Division**

### **Survey Checklist 2010**

- (I) Boundaries, or
  - (II) Control or base lines (minimum of 2 points), or
  - (III) A minimum of a four-corner envelope for non-residential construction improvement layout.
    - e. Horizontal control monumentation required by plans as a control for horizontal location not included in sub-subparagraph 5J-17.052(3)(b)1.b., c., or d., F.A.C., shall meet the requirements of sub-subparagraph 5J-17.052(3)(b)2., F.A.C.
  - (c) All construction requiring benchmarks shall have a minimum of two (2) existent or established benchmarks for vertical control.
  - (d) Vertical control for linear type construction sites such as roads and sewer lines shall have a maximum of 1,100 feet between existent or established benchmarks.
  - (e) Vertical control for acreage construction sites shall have two (2) existent or established benchmarks on the first ten (10) acres plus an additional benchmark for each additional ten (10) acres.
  - (f) The only required documentation for this type of survey product shall be field notes.
- (4) Control Survey:
- (a) Geodetic Control Surveys: When applicable, all geodetic control surveys, both vertical and horizontal, shall conform to the Standards and Specifications for Geodetic Control Networks (1984) as set forth by the Federal Geodetic Control Committee (FGCC), which Standards and Specifications are incorporated herein by reference, effective 5-13-96, and the Geospatial Positioning Accuracy Standards Parts 1, 2, and 3, FGDC-STD-007.1-1998, entitled "Geospatial Positioning Accuracy Standards Part 2: Standards for Geodetic Networks", and FGDC-STD-007.3-1998, entitled "Geospatial Positioning Accuracy Standards Part 3: National Standard for Spatial Data Accuracy", which are hereby incorporated by reference, effective 5-18-00, copies of which may be obtained via the internet web site ([http://fgdc.gov/standards\\_publications/](http://fgdc.gov/standards_publications/)). No use of the terminology of these standards may be made without completely adopting and following all the standards in their entirety. When these standards are not employed, then a survey, map, or report shall explain applicable standards used in the geodetic control survey. All geodetic control survey maps or reports shall show the horizontal and vertical datum used and shall contain adequate graphical or written descriptions of the locations, construction and marking of all marks used or set and shall explain methods employed in the survey and adjustment.
  - (b) Other Control Surveys: Any control survey map or report shall detail the datum used and control stations used in a manner consistent with the general survey and map provisions of subsection 5J-17.051, F.A.C.
- (5) Descriptions/Sketch to Accompany Description:
- (a) Descriptions written by a surveyor and mapper to describe land boundaries by metes and bounds shall provide definitive identification of boundary lines.
  - (b) When a sketch accompanies the property description, it shall:
    - Show all information referenced in the description
    - State that such sketch is not a survey.
    - Contain an initial point in the description that shall be tied to either a government corner, a recorded corner, or some other well-established survey point.
- (6) Digital Data:
- (a) When survey information is provided in digital form only, the surveyor and mapper shall provide a signed and sealed report as set forth in paragraph 5J-17.051(3)(b)14.b., F.A.C.
  - (b) The digital file will reference the report and that
    - The digital file is not full and complete without the report.
- (7) Ortho-Images/Photos:
- (a) The survey, map, and/or report must contain a list of control points employed in geo-referencing the image along with the source of control positions used.





## **Martin County Survey Division**

### **Survey Checklist 2010**

- (b) Positional Accuracy: Feature accuracies shall be stated.
- (c) The Ortho-Image/Photo shall comply with the December 1996 US Department of the Interior, US Geological Survey National Mapping Divisions, "National Mapping Program Technical Instructions Part 2 Specifications Standards for Digital Orthophotos," which are incorporated herein by reference.
- (8) Quantity Survey: The surveyor and mapper shall obtain horizontal and vertical measurements adequate to delineate graphically geometric configurations and/or dimensions that can be mathematically computed.
- (9) Raster Imagery:
  - (a) The survey and report must contain:
    - A list of control points employed in geo-referencing the image along with the source of control positions used.
    - A statement clearly stating that "This is not an ortho-image or ortho-photo."
  - (b) Feature accuracies shall be stated.
- (10) Subdivision Record Plat: This rule shall not apply to plats being prepared for filing and recording pursuant to Chapter 177, Florida Statutes; however, this rule shall apply to any boundary survey performed during the preparation of the plat.
- (11) Specific Purpose Survey:
  - (a) Surveys which are performed for a purpose other than the purposes encompassed by the definitions in paragraphs 5J-17.050(10)(a)-(i) or (k), F.A.C., shall be permitted only where unusual conditions make impracticable or impossible the performance of one of the types of surveys defined in paragraphs 5J-17.050(10)(a)-(i) or (k), F.A.C.
  - (b) Such purpose and conditions shall be clearly shown upon the survey map or in the survey report.
  - (c) Surveys performed for purposes of monumenting, referencing, describing, and mapping centerline or baseline may be performed as Specific Purpose Surveys. Additionally, surveys performed for the purpose of monumenting official right-of-way lines may be performed as Specific Purpose Surveys.
- (12) Topographic Survey:
  - (a) Topographic surveying and mapping by field methods shall meet general provisions applicable to all surveys and maps as set out in Rule 5J-17.051, F.A.C. A minimum of two site benchmarks on or near the survey shall be indicated upon the survey map.
  - (b) Topographic Features.
    - 1. Intended Features.
      - Can you correctly interpret the intended map coverage?
      - Reported which topographic features were intended to be surveyed and mapped
      - The style of cartographic representation employed for each feature
      - Degree of intended completeness in the surveying and mapping of each feature stated.
      - As with abbreviations, any symbols, line types, etc. shown on the survey map shall be explained and/or defined in a legend.
    - 2. Obscured Areas.
      - Features in obscured areas where the desired points or surfaces being mapped are not clearly visible on source images shall be clearly labeled on the map as "interpolated" or "estimated" through the use of notes
      - Features in obstructed areas are depicted graphically clearly different from other surveyed features.
    - 3. Scale of Map. The scale of the map that is selected when provided in hard copy shall be sufficient to accurately and clearly show the results of the survey.
    - 4. Property Lines. Any depiction of property lines on a topographic map shall be accompanied with a statement as to the source of the property lines shown.

Check-List Review Completed By: \_\_\_\_\_ Date: \_\_\_\_\_