



Oconee County Public Works Department
◇ Roads and Bridges ◇ Solid Waste ◇ Engineering ◇ Stormwater/Environmental

Technical Guidance Document
GPS/GIS Monumentation
September, 2006

1.0 Purpose & Scope

The scope of this technical directive is to provide guidance for the location and installation of GPS/GIS monuments. The purpose of these monuments is to better manage county mapping and data collection programs as well as provide consistency in the monument system.

2.0 Regulatory Reference

Land Subdivision Regulations

Section 400.5.5

Section 502.2

3.0 Guidance - Installation Of GPS Monuments

- a. A Georgia registered land surveyor shall install all permanent GPS/GIS monuments. A Monument Installation & Description Form will be completed by the Surveyor for each monument and provided to the Public Works Department.
- b. At least two GPS/GIS monuments shall be installed for each subdivision of five or more lots. Monuments will be intervisible at time of placement. Generally, monuments shall be located in the back two (2) feet of the right-of-way. Reference points for survey and placement of monuments will be one or more National Geodetic Reference System (NGRS) points. Accuracy will be determined by using differential corrections for locational data within 12 inches horizontally and vertically, and by performing quality control checks on the locational data collected. Standard deviation shall not exceed ten times the horizontal accuracy of the GPS unit. Position Dilution of Precision (PDOP) shall not exceed eight (EPA QA/G-5G).

GPS/GIS monuments will be marked with a solid iron rod or pipe of not less than one half inch diameter and not less than four feet long, centered within a poured concrete post. The posts may be either round or square in cross-section, but must each be of one piece (solid) and 4 to 6 inches in width/diameter. The post will be buried a minimum 36 inches deep and will extrude exactly 12 inches visible above ground surface. A brass cap with a pinpoint divot will clearly mark the center of the rod and post's top. In addition to the central divot, the brass cap shall be labeled "OCPWD," followed by "GPS Monument," and then a unique monument designation obtained from the Oconee County Public Works Department. Monument designations and number

assignments will be performed at the Pre-Construction meeting. All elements must be neat, legible, and plainly visible.

- c. A completed Monument Description Form will be submitted to the Oconee county Public Works Department for each GPS/GIS monument installed. GPS/GIS Monument X and Y coordinates must be provided in latitude and longitude, and in state plane coordinates, Georgia West DATUM NAD83 feet. Vertical coordinates should orthometric heights determined using GEOID03 (preferred) or GEOID99 (if required due to survey reference points). Geoid name and NGRS reference point name and coordinates will be provided, along with other data as required.
- d. All GPS/GIS Monuments shall also be submitted digitally in a shapefile (.shp) format. Each Monument must be named by the number on the marker installed (i.e.06-N7-01). Applicable fields/attributes should also be present within the layer. Marker number should be entered under the field/title "ID_NUMBER," and elevation in feet shall be present under the title/field "ELEVATION." Elevation shall be taken to three decimal places. Latitude and Longitude shall also be contained within the field.

Three files shall be submitted per job/subdivision (.shx, .shp, & .dbf). Projection files (.prj) are welcomed but not mandatory.

- e. Installed survey and GPS/GIS monuments shall be indicated on all plats.
- f. The latitude and longitude coordinates for center line intersection of all streets shall be shown on the final plat. No data sheets or monuments are required for these coordinates.



Oconee County Public Works Department
GPS/GIS Monument Installation and Description Form

Number _____

1. Subdivision/Development Name _____

2. Description of Station/Monument Location

The following should refer to Datum NAD83 and NAVD88.

3. Latitude (DD.DDDDDDD) _____

4. Longitude (DD.DDDDDDD) _____

5. State Plane (Georgia West) Easting _____

6. State Plane (Georgia West) Northing _____

7. Orthometric Height (NNN.N ft.) _____

(if Z datum other than NAVD88 used, specify) _____

8. GEOID used for orthometric elevations (circle one) 03 99

9. Primary Reference (NGRS) Benchmark Number _____

If not applicable:

Standard Deviation _____

PDOP _____

10. Other Reference Marks _____

11. Number and Type of Receivers used

12. Name, Contact Number, and Affiliation of Surveyor Who Went to Mark (if easier, attach business card).
