

**From the City of Winter Garden's  
Manual of Standards and Specifications for Utilities Construction**

**12.4 AS BUILT REQUIREMENTS/RECORD DRAWINGS**

**12.4.1 RECEIVABLES**

The DESIGN ENGINEER shall submit FOUR (4) certified sets (24"X36") of Record Drawings to the CITY prior to issuance of Certificate of Completion for the improvements. The DESIGN ENGINEER shall be responsible for recording information on the approved PLANS concurrently with construction progress. Record Drawings submitted to the CITY as part of the project acceptance shall comply with the following requirements:

- 1 - CD or DVD\*\* in a jewel case to include Two (2) electronic files of record drawings shall be provided to the City. One Drawing file shall be PDF format (Signed and Sealed) and the second shall be in AutoCAD format. \*\*The disk label shall include the following:
  1. Engineering and/or Survey Company Name with prepared by statement
  2. Project Name, City of Winter Garden Project Number
  3. Date the data is burned onto disk
  4. Designate "Record Drawing", "Preliminary Record Drawing" or "Other".
- Auto-CAD Files must be submitted in DWG format minimally.
- Each file should be for one section of development and one layer included below. Multiple sections will not be accepted in one file.
- Provide outline of layers on the Auto-CAD file.
- Auto-CAD files shall be saved by using the E-TRANSMIT command.
- Drawings shall clearly show all field changes of dimension and detail including changes made by field order or by change order. Everything in the ground shall be "as-built" and turned in to Engineering Dept. in a Signed & Sealed scanned PDF format.
- Drawings shall clearly show all details not on original contract drawings but constructed in the field. All equipment and piping relocation shall be clearly shown.
- Tie into section corners in the Florida State Plane Coordinate System East to insure proper orientation at each end of baseline. Section corner tie sheets can be obtained from the Orange County Surveyor's web page.
- Each sheet of the PLANS shall be signed, sealed and dated by the DESIGN ENGINEER as being "Record Drawings". Construction PLANS simply stamped "As-Built" or "Record Drawings" and lacking in above requirements will not be accepted, and will be returned to the DESIGN ENGINEER. The "Certificate of Completion" will not be issued until correct "Record Drawings" have been submitted.

#### **12.4.2 DATUM**

- As used in the design and shown on the Record Drawing; Horizontal datum shall be referenced to North American Datum of 1983, on the 1990 adjustment for Florida Transverse Mercator - East Zone. **The same datum used in the design and shall be shown as the datum used in the Record Drawing;** Vertical datum shall be referenced to the National Geodetic Vertical Datum of 1929 or to the North American Vertical Datum of 1988. **THIS SHALL BE CLEARLY NOTED ON THE PLANS.**
- Where there is no baseline, the baseline for water main should be the sanitary sewer, if there is no sanitary sewer then the storm sewer, if no storm sewer the property/ROW line, baseline for sanitary sewer should be the sanitary sewer, baseline for storm sewer should be the storm sewer.
- All record data shall be digitally positioned on the design drawings prepared by the engineer of record. Said design drawings shall be complete and include both plan and profile views of the infrastructure.
- In all cases, State Plane Coordinates shall be used in the electronic datum, station, off-set and elevations shall be shown on the plan.

#### **12.4.3 GENERAL (FOR ALL LAYERS)**

- All references to "proposed" and "plan" are to be removed from the Record Drawing.
- All lines, structures, and other items that are relocated will be removed and shown in the proper location (hand written notes and "x"ing out will not be allowed).
- All record drawings will be signed and sealed by Certified Land Surveyor or Professional Engineer licensed to practice in the State of Florida. If certified by a Surveyor, P.E. will sign off Stating that the record drawings were checked by the engineer, verifying that they inspected the work.
- Lot numbers on the as-builts shall match the lot numbers on the recorded plat.
- Clearly mark existing infrastructure which is to remain.
- Clearly mark existing infrastructure which has been abandoned, and how it was abandoned.
- Station, length, width and depth of flowable fill used.
- Record Drawings shall not be greater than 1" equals 30'.
- All Detail sheets shall be included with each record drawing.
- Location by station and elevation, width, depth and length of flowable fill used for all uses
- Supply all surveys of the project and or property

#### **12.4.4 WATER, REUSE AND FORCE MAINS (EACH TO BE LOCATED ON A SEPERATE LAYER)**

- Location of all meter boxes, valves, tees, bends, reducers, caps, plugs, fire hydrants, backflow preventers, water services, taps, air release valves, including top of pipe at ARV, and centerline of water main on

station and offset not to exceed 100'. All horizontal deflections shall be called out.

- Top of pipe elevations should be shown on all tees, valves, bends, reducers, caps, plugs, centerline of water main not to exceed 100 lineal feet, and bottom flange of barrel section of the fire hydrant. All vertical deflections shall be called out.
- Restrained joint pipe length (station to station).
- Manufacturer, model, usage, type and size of valves shall be shown on the plan.
- Numbered sample points locations needed for DEP submittal (to be removed from "final" as-built).
- Length of run between fittings, type of and size of pipe material.
- Call out variation (if it exists) in stationing of corporation compared to meter box.

#### **12.4.5 SANITARY SEWERS: (TO BE LOCATED ON A SEPARATE LAYER)**

- Manhole rim elevation, invert elevations and directions.
- Length of run between sanitary structures, type of and size of pipe material with calculated percentage of slope for the run of pipe.
- Location of sanitary service wyes with station and offset, together with the invert elevation, station and offset, pipe diameter and material (only at clean-out).
- Applicable lift station information should be filled out on the detail sheet for lift stations.

#### **12.4.6 WATER/SANITARY/STORM/REUSE PIPE CROSSINGS AND SEPARATIONS (PART OF WATER, SANITARY, REUSE AND/OR STORM LAYER)**

- Pipe types, sizes and material.
- Crossings; Top and bottom elevations of pipes crossing each other and the distance between the outside of the two lines.
- Separation; Distance between the outside of the two lines.

#### **12.4.7 CONFLICT STORM/WATER/SANITARY/REUSE STRUCTURES (PART OF EACH APPLICABLE LAYER)**

- Top and bottom of casing.
- All info asked for in storm or sanitary manhole descriptions with the addition of top of all pipes.

#### **12.4.8 CASINGS (PART OF EACH APPLICABLE LAYER)**

- Material and thickness.
- Top of and invert of casing.
- Length and station and offset of ends.
- If used, station and offset for vent, including tap location, and fittings.

#### **12.4.9 STORM SEWERS AND UNDERDRAIN (TO BE LOCATED ON A SEPARATE LAYER)**

- Manhole and catch basin rim elevation, outfalls and top of headwall invert elevations and direction, weir elevations, bottom of manholes and catch basins (sumps).
- Length of run between storm structures, type of and size of pipe material with calculated percentage of slope for the run of pipe.
- Location of service connections (without manholes) together with the invert elevation, pipe diameter and material.
- Dry retention, wet retention, dry detention, wet detention areas.
- Exfiltration trenches, Station at beginning and end of system, width, depth.
- Top of and toe of slope on berm elevation designed to stop flooding.
- Underdrain, Station at beginning and end of the system, type of and size of pipe with clean-out locations.

**12.4.10 STREET LIGHTS (TO BE LOCATED ON A SEPARATE LAYER)**

- Manufacturer, model, and height of poles shall be shown on the record drawings.
- Manufacturer, model, and wattage and voltage of lights shall be shown on the record drawings.
- Pull boxes, station and offset.
- Length of conduit runs between boxes and poles, type of, and size of pipe material. Shown as, laid in the ground not as a wiring schematic, with amount, by color, type of, and size of wiring material.
- Service connection, type (Duke Energy owned, City metered) station and offset.

**12.4.11 IRRIGATION (TO BE LOCATED ON A SEPARATE LAYER)**

- Backflow preventer, control stand location, Control valve, zone, station and offset.
- Main line piping size, material, lengths, depth.
- Heads, Type (1/4, half, 3/4, full circle) zone, station and offset.
- Control Stand, station and offset.

**12.4.12 LANDSCAPING (TO BE LOCATED ON A SEPARATE LAYER)**

- Tree type, caliper, and height.
- Tree grate, size, and model.
- Station, elevation, length, width, and depth of Structural Soil used.
- Top of and toe of slope on berm elevation for landscaping.

**12.4.13 PRIVATE CONSTRUCTION IMPACTS TO RIGHT-OF-WAY (TO BE LOCATED ON A SEPARATE LAYER)**

- Private utility or revocable easements in the City ROW's or on City property must be shown on the plan. Any improvements within the easement need to be shown and called out as private. The recording information should be on the as-built.

- Privately owned lighting, irrigation and landscaping in the City right-of-way needs to be called out as private and identified.
- All aerial and underground footer easements (in ROW).

**12.4.14 FLOWABLE FILL (PART OF EACH APPLICABLE LAYER)**

- Limits of flowable fill shall be noted on the as-built (Location, Length, Width, & Depth).