

City of Pompano Beach
Digital Record Drawing Standards and Requirements
November 2013

1. PURPOSE

1.1 These guidelines are designed to facilitate timely updates to the City Utilities Digital GIS Atlas. Properly submitted updates will assist future developers, engineers and contractors in obtaining more accurate record drawings. It is the developer's, contractor's and/or engineer's responsibility to meet these guidelines in a timely fashion to allow for scheduled turnover of utility infrastructure. The project will not be released for service until the Record Drawing submittal documents are approved.

2. OVERVIEW

2.1. Standard hardcopy submittals for record drawings will continue to be required as per individual contract with developer, engineer or contractor.

2.2. Prior to acceptance of the utility portions of the project by City of Pompano Beach, the developer must submit a digital copy of the record drawings in CAD or GIS format. As a minimum, these files shall meet the criteria as described in this document. Deviations from these guidelines will be allowed only by written permission from the City Engineer.

2.3. Initial GIS submittals must be delivered to CITY on a CD with the paper record drawings. E-mail and/or ftp submittals are not acceptable for initial submittals. E-mail and/or ftp are only to be used to resubmit if and only if corrections to the GIS data are requested by CITY. Use of E-mail and/or ftp to re-submit GIS data must be approved by the CITY in advance.

3. COORDINATE SYSTEM

The term 'coordinate' or 'coordinates' mean northing and easting values in the Florida East Zone / North American Datum, NAD 83-90 High Accuracy Reference Network, HARN Feet State Plane Coordinate System. Coordinates shall be accurate to the nearest tenth of a foot and shown to a precision of the nearest tenth of a foot.

To support checking of the coordinates, CITY may request the submittal of a metadata report that addresses the following:

1. Identify the coordinate datum and projection.
2. Identify control points used to establish the project coordinates. Provide full backup information regarding the source of the control point coordinate data and their coordinates. If the source control point coordinate datum/projection differs from the project coordinate datum/projection, then provide coordinates for the control points in both the source datum/projection and in the project datum/projection. Indicate the method and/or software/version utilized to make the conversion.
3. Describe the method used to establish the project coordinates.
4. Indicate the estimated accuracy of the project coordinates.

All elevations will be based on NAVD 88 (North American Vertical Datum of 1988)

4. MINIMUM AS-BUILT AND RECORD DRAWING REQUIREMENTS

As used in this document, the term 'record drawing' refers to the final drawing set signed and sealed by the Engineer of Record. The Engineer of Record will prepare or have prepared record drawings based on as-built information provided by a Professional Surveyor Registered in the State of Florida and from information provided by the engineer's staff. The Engineer of Record

shall retain the signed and sealed 'as-built' drawings provided by the PSM with the other project records for possible review by CITY upon request.

Each sheet of the record drawings must be signed and sealed by the Engineer of Record. The cover sheet is to be signed and sealed by the Engineer of Record and shall include the following statement: "I certify that these record drawings have been reviewed by me or by individual(s) under my direct supervision and that these drawings incorporate the information contained in the certified as-builts. To the best of my knowledge and belief these record drawings reflect the potable, reuse, wastewater and stormwater facilities as constructed. The accuracy of these record drawings is reliant on the accuracy applied by the surveyor that prepared the certified as-builts, which was [include the surveyor's name, business name, PSM number, address and telephone number]. The surveyor has certified to me that the as-built location information of the water and sewer facilities conforms to the minimum technical standards for land surveying in the State of Florida, chapter 61G17-6 (Florida Administrative Code)."

Record Drawings will contain the information in the design and as-built drawings (including cover sheet, overall layout, blowups, details, standard details, legends, etc.), plus the following additional requirements. Digital photographs of any unusual situations will be included to memorialize any major field adjustments.

Drawings are to show as constructed information, not document changes between the design and construction. Any CITY facilities constructed in a horizontal or vertical location different (one-tenth foot horizontal, one-tenth foot vertical) than the design location will have their design location erased and will be redrafted at the constructed location. All information that is incorrect due to changes during construction will be corrected. Incorrect information will not be struck through; it will be erased and replaced with the corrected information. Any information that is no longer relevant due to changes during construction will be deleted. Design drawing dimensioning to potable, reuse, wastewater and stormwater facilities will be corrected as necessary.

5. MINIMUM AS-BUILT AND RECORD DRAWING CONTENTS

In general, the record drawings will show:

Entire water System including potable water, re-use water, raw water, private systems.

Sewer System includes gravity sewer, manholes, forcemain, lift stations.

All dimensioning will be in English units.

All information on the drawings must be clear and understandable to CITY.

Show all abandoned in place facilities including the extent and method of abandonment.

Show elevations to the nearest tenth of a foot for:

- a. Top of pipe for water mains, force mains and reclaimed water mains at vertical deflection points and every 200 feet along straight runs.
- b. Top of pipe of water or sewer facilities where they cross all other facilities (drainage, telephone, cable TV, electric, etc.)

Show elevations to the nearest one hundredth of a foot for:

- a. Manhole rims.
- b. Inverts of every gravity sewer, stormwater pipe and force main connections to manholes.
- c. Lift station top of slab, bottom of wet well, influent pipe invert and control set points.

Coordinates will be provided for CITY maintained facilities, including:

- a. Water mains, force mains and reclaimed water mains at deflection points and every 200 feet along straight runs.
- b. The center of each manhole, fitting, valve, blow off, hydrant, water meter box, sewer cleanout, lift station wetwell, double detector check or other non-pipe water or sewer facility.
- c. The location of each connection to existing facilities.
- d. The corners (vertices) of all easements being granted to the County as a part of the project.
- e. Other locations designated by CITY.

Each main will be marked with its size and type of material. Gravity pipes will also be marked with their length and slope. Each fitting will be marked with its size and type (i.e. 45 degree bend or 6X8 Tee). Each fitting will be marked with its material if the material is different than the main's material. Valves will be marked with their size and type. Each water service line will be marked with its size. Each water service line and sewer lateral will be marked with its material.

Indicate pipe joint locations where potable, reuse, wastewater and stormwater piping cross other City Owned assets.

Show the location of any non-water/sewer features so they are at the visually correct location relative to CITY maintained facilities.

Indicate facilities that are or will be owned by CITY verses private or other utilities' facilities.

Show the size of all water and irrigation meters, and indicate if meter box is a "double meter" box.

Show all main horizontal and vertical deflection points. A deflection point is a change in horizontal or vertical alignment other than the normal minor alignment change associated with a "straight" pipe.

Show and dimension all rights-of-way and easements and reference as to whether by plat or otherwise. All easements to be identified as to type: CITY Utility Easements, FP&L Easements, etc.

Show all known potential underground conflicts, using "blow-up" views and digital photographs when necessary. Show vertical clearances between potable water/ sanitary sewer facilities and other features.

Show the location of all bacteriological sampling points. If the sampling points are subsequently modified during the Health Department permitting process, the Engineer of Record will adjust the drawings accordingly and resubmit to BCWWS for re-approval.

6. DIGITAL CAD SUBMITTAL REQUIREMENTS

Apart for the hard copy submittal, the CITY will require a record drawing in digital format using the above defined coordinate system and showing all the same information required above. If the submittal is in CAD format, the following criteria must be met.

Version AutoCAD 2008 or later. Files shall be submitted as an "etransmit" file which will include all DWG, XML, SHX, TIFF, BITMAP, JPEG, CTB (Plot Style Table), all External Reference Files, Font Files, Texture Files, Files from Data Links, Photometric Web Files and any other files which are included in the CAD Drawing. All included in the submitted ZIP file.

The CD label shall include the following:

- a. Engineering Company Name with prepared by statement

- b. Project Name
- c. Date that data is burnt onto CD
- d. Designate CD as As-built, Construction Plan or Other

DIGITAL FILE INDEX: All consultants, with each completed project, shall submit a project file index in Word, Excel, or WordPerfect format. Both CIP consultants and private consultants shall submit the digital file index in Word or Excel format. These indexes shall be current archived information on the project files within the project directory. The Digital File Index needs to contain the following information and can be in Word, Excel, or hardcopy (paper) format:

- a. Organization or company name.
- b. Contact person/position
- c. Street address
- d. City
- e. State or province
- f. Postal code
- g. Country
- h. Phone number
- i. Fax number
- j. Email address
- k. Final date of data/design entry by technician
- l. Layer Name Listing: including Description, Layer Name, Color, and Line Type

The CAD drawing will have separate layers representing different features as described below. Separate layers will be provided for potable water, re-use water and raw water. Separate layers will be provided for new or adjusted, existing in place and abandoned facilities.

Separate layers will be required for:

- Water lines
- Valves
- Fire Hydrants
- Water Services
- Meters
- Gravity Sewer Lines
- Sanitary Manholes
- Force Main
- Lift Stations
- Sewer Laterals
- Drainage Lines
- Drainage Structures

All CAD lines will be snapped to end features. Lines will be continuous starting at one feature and ending at another feature. Water and Forcemain lines will start and stop at fittings but be continuous through pipe deflections, lateral and service connections. Gravity and Drainage lines will start and stop at structures but be continuous through laterals. There will be no duplicate lines representing one feature.

7. DIGITAL GIS SUBMITTAL REQUIREMENTS

Digital submittals in GIS format will be acceptable to the CITY in lieu of CAD drawings. The CITY will provide a blank schema to facilitate this process.