

Minimum Drawing & Electronic Submittal Requirements For Record Drawings /As-Builts



City of Fort Myers
Engineering Division

PUBLIC WORKS ENGINEERING DEPARTMENT

Revised: February 1, 2017

MINIMUM DRAWING REQUIREMENTS

A. GENERAL PLAN REQUIREMENTS:

- All drawings are to be submitted on 11" x 17" or 24" x 36" size sheets.
- All information on the drawing shall be legible. CFM reserves the right to reject any plan that is found to be unreadable with no further comment other than it's illegible.
- The drawing should include a legend that identifies all symbols and abbreviations.
- An index shall be provided on the cover page identifying the sheet number and description.
- Include the vertical datum being used on all plan sheets.

B. COVER SHEET REQUIREMENTS:

- The following information shall be provided on the cover page:
- List the project name and the township section, range where the project is located.
- Include the engineering firm's name, telephone number, fax number, mailing address and email address.
- Engineer of Record Name and Florida Registration Number.
- Engineer's seal and signature
- Date of plan preparation
- A revision block showing all dated revisions
- A detailed location map showing the project boundary with all local existing roads.
- Include the statement:
 "Construction and materials shall be in accordance with the City of Fort Myers Design and Construction Standards Manual. Plans are in accordance with CFM's Minimum Drawing & Electronic Submittal Requirements for utilities dated..."
- Utility owners will be listed

C. OVERALL LAYOUT SHEET REQUIREMENTS:

The following information shall be provided for drawing sets containing more than one plan view sheet.

- The drawing shall contain an overall layout of the project on a single sheet, if possible, which indicates all phases of construction
- Title block
- Engineer of Record Name and Florida Registration Number.
- Engineer's seal and signature
- A revision block showing all dated revisions
- Horizontal scale
- North arrow

D. UTILITY PLAN SHEET REQUIREMENTS:

The following information shall be provided on the plan sheets

- Include title block
- Engineer of Record Name and Florida Registration Number
- Engineer's seal and signature
- Project name and date
- A revision block showing all dated revisions
- Horizontal scale between 1" = 10' and 1" = 50'
- North arrow
- Match lines for sheet navigation

- Show all existing at connection points and new utilities
- All public and private roadways labeled and identified by the right-of-way line,
- Edge of pavement, and centerline Provide the dimension of the right-of-way
- Show the location of any bike path or sidewalk within the project limits
- Show all existing or new easements and identify the type of easement
- Any utilities being dedicated to the City must include a utility easement sketch for the utilities being maintained by the City as required.

Site Plan project should include everything listed above and in addition

- A perimeter boundary for the project site being serviced
- Block and lot numbers
- The street address
- The outline of building being serviced. Include the total gross square footage
- Include the limits of pavement this will include parking and sidewalk areas

Subdivision projects should include everything above but excluding the site plan information: Additionally include:

- All boundary lines for property's being serviced
- Include all block and lot numbers
- Show the outline for each building being serviced
- Show the number of units in a building and unit numbers for multifamily residential buildings
- Show the existing and proposed pavement including driveways

E. PIPING PLAN VIEW

- All new utilities and location of services should be shown. Every main shall be marked with its size, type of material, and class. For storm water and gravity sewer it should also indicate the pipe slope. Storm inlets shall be marked by size and type. Typical fittings shall be marked with its size, and type. Valves shall be marked with their size and type. Each water service line and sewer lateral shall be marked with its size, material and class. With the exception of length, water and sewer services may be marked on each plan sheet as 'Typical' if appropriate.
- Elevations will be provided for CFM maintained facilities, including:
 - Top of pipe every 100 feet along straight runs.
 - The center of each maintenance access structure (manhole), fittings, valve, blow off, hydrant, water meter, sewer cleanout, lift station wet well, double detector check, and inlets, etc...
 - The location on the potable and reclaimed water main of each tap for a service line.
 - The location on the sewer gravity main of each service lateral.
 - Other locations designated by CFM
- State Plane Coordinates will be provided for CFM maintained facilities, including:
 - Top of pipe every 100 feet along straight runs.
 - The center of each maintenance access structure (manhole), fittings, valve, blow off, hydrant, water meter, sewer cleanout, lift station wet well, double detector check, and inlets, etc...
 - The location on the potable and reclaimed water main of each tap for a service line.
 - The location on the sewer gravity main of each service lateral.
 - The location of each connection to existing facilities.
 - The corners (vertices) of all easements being granted to the City as a part of the project.
- All distances from valve to valve, valve to fitting, manhole to manhole and fitting to fitting, inlets to inlets shall have incremental measurements
- Show all horizontal deflection points on all mains

- Benchmark information relating to project shall be shown
- Zoomed in detail views shall be used in congested areas
- Show the size and location of all water, irrigation, and reclaim water meters. These meters are to be located within the right-of-way
- Show the location of air releases, blow off assemblies, fire hydrants, fittings.
- All manholes and pumping stations shall be shown and numbered. The piping inverts and rim elevations shall be provided.
- The location, size, material, and elevations (inverts and castings/rims) of all existing and proposed storm sewers and appurtenances (catch basins, inlets, manholes, headwalls, outlet structures, detention/retention areas etc.) shall be shown.
- When a conflict box is required, it should include all invert elevations, pipe diameters, and box dimensions.
- All existing and 'To Be Abandoned' utilities shall be shown. The method of abandonment shall be noted, i.e. removed, pressure grouted and capped, crushed in place, or determined by CFM staff

F. PIPING PROFILE:

- The profile will show the existing and finished grade line; size, material, and class of pipe; manhole locations including drop, doghouse or core bored with pipe inverts and rim elevations lengths of pipe between manholes with pipe slopes; wet well locations including rim and invert elevations of all pipes and force mains; attributes of mains, fittings, valves, hydrants, air release valves, vacuum release valves, etc.. Where sewer laterals maybe in conflict with paralleling water mains, gravity sewer profiles shall include sewer lateral locations. All maintenance manholes and pump stations must be numbered.
- Vertical scale shall be between 1" = 1' and 1" = 5'.
- All vertical deflection points should be shown.
- Plan view and profile shall be aligned.
- Boring and horizontal directional drilling locations shall be shown

G. SURVEYOR AS-BUILT REQUIREMENTS:

- Surveyor's will include a signed and sealed letter from a Florida registered surveyor and mapper with the following certifying statement:

"I hereby certify that the as-built location information of the water, sewer, and reclaimed water facilities shown on these drawings conforms to the minimum technical standards for land surveying in the State of Florida, rule: 5J-17.052 (Florida Administrative Code), as adopted by the Department of Agriculture and Consumer Services, Board of Professional Surveyors and Mappers in May 11th 2015, and that said as-builts are true and correct to the best of my knowledge and belief as surveyed under my direction."
- Surveyed as-built point data shall be supplied in one of the following formats: SDF file (Autodesk spatial data file), CSV file (comma separated values) or DBF (dBase file)

H. ELECTRONIC DATA DELIVERABLE:

An electronic data deliverable package (EDDP) shall be submitted with the record drawing review.

The CD will be labeled with the following information:

- Date: The date the media was created
- Project: The title of the project including the phase
- Company: The name of the company which created the CD.

Included within the CD:

- A project file index that includes the organization name or company, address, phone number, fax number, email address, contact person, and the Cad date of completion
- All AutoCAD files (DWG) drawings associated with the creation of the record drawing.
- Geographic Information System (GIS) database files for the as built utilities
- Portable Document Format (PDF) of the record drawing

I. AUTOCAD REQUIREMENTS:

- **SOFTWARE APPLICATIONS:**
 - AutoCAD 2010 or higher
- **COORDINATE SYSTEM:**
 - Electronic files shall be based on the coordinate system Florida State Plane NAD83, West Zone, US Foot. Vertical Elevation will be in North American Vertical Datum (NAVD88)
- **MODEL SPACE/PAPER SPACE**
 - All drafting entities are to be drawn in AutoCAD's Model Space the axis should be set to 0. Paper Space should be used for title blocks, north arrows, and other data not pertinent to the geodatabase
- **AUTOCAD LAYERS:**
 - A description for all layers are included.
- **DRAWING UNITS**
 - Drawing Units should be set to decimal or engineering. Each drawing unit shall represent 1 foot.
- **FONTS**
 - Standard AutoCAD fonts are used. If a nonstandard AutoCAD font is used, an electronic font file .SHX must be supplied.
- **EXTERNAL REFERENCES**
 - *It is suggested to use AutoCAD's ETRANSMIT Command. This allows you to pull together all files that the main DWG file depends on.
 - All AutoCAD drawings submitted with attached External References (xrefs) must be included on the CD submittal
- **SNAPPING & CONNECTIVITY**
 - All line work and objects will be created using the AutoCAD "Osnap" command. Objects inserted as blocks such as valves, meters, hydrants, drainage basins etc... shall be snapped to the center point. Each line will have a beginning and end point entity
- **LINEWORK:**
 - All line work must be a continuous polyline. This is critical for reuse, potable water, gravity, and force utilities. The utility must be a continuous line from valve to valve or fitting to fitting. Services for water and sewer must be in the correct layer. All line work must be in the appropriate layer or it will be automatically rejected.

J. GEOGRAPHIC INFORMATION SYSTEM (GIS) REQUIREMENTS

The City of Fort Myers requires As-built data to be submitted in GIS format. The city has provided GIS templates for Potable Water, Reclaimed Water Wastewater, and Storm water in a geodatabase format located on their website. For more information regarding the GIS requirements refer to Fort Myers Florida Code of Ordinances **Sec. 102.83**

https://www.municode.com/library/fl/fort_myers/codes/code_of_ordinances?nodeId=SPBLADECO_CH102BUCORE_ARTIIAD_DIV3PE_S102-81COPERE

- **SOFTWARE APPLICATIONS:**
 - ArcGIS 9.0 or higher

- **COORDINATE SYSTEM:**
 - All data shall be based on the coordinate system Florida State Plane NAD83, West Zone, US Foot. Vertical Elevation will be in North American Vertical Datum (NAVD88)

- **ATTRIBUTES:**
 - All attribute fields have been populated with the correct information

- **LINWORK:**
 - All line is a continuous polyline and broken at fittings, valves, manholes, inlets, etc...