Rolesville
Genuine Community • Capital Connection
Est. 1837

As-Built PDF Requirements

The following requirements for a submittal of PDF plans have been prepared for the purpose of keeping Town records, so that accurate data may become available to Town staff, engineers, and the larger development community.

- ☐ Town will be reviewing storm drainage system as-builts but please include the full plans for the Town's record, including City of Raleigh's **approved** sewer and water as-builts.
- ☐ Plans shall be prepared, and signed and sealed, by a Professional Land Surveyor (PLS) or Professional Engineer (PE) registered to practice in North Carolina.
  - ☐ Plans shall include an as-built stamp or notation in the title block.
- ☐ As-Built Plans shall include the following information for the storm drainage system:
  - ☐ All PDF sheets should reflect as-built locations. Design drawings shall be updated based on as-built survey.
  - ☐ Design information shall be crossed out and as-built information displayed next to the design information.
    - ☐ If a pipe/structure was installed per plan, cross off the design note and copy the information to notes the as-built so it is clear it has been verified.
    - ☐ Structure information including: name, rim elevation, invert elevation, description and location.
      - Location shall be the as-built surveyed location.
      - Including a Storm Drainage Structure Table is acceptable.
    - ☐ Pipe information including: length, diameter, slope, material and location
      - Location shall be the as-built location based on surveyed structure locations.
    - ☐ Invert elevations and planted vegetation (if applicable) of all measures, controls, and devices as installed.
    - ☐ Enough survey shots shall be taken, and displayed, of the pond bottom, side slopes and grade breaks to verify the volume of the ponds.
      - Emergency overflow elevations and locations shall be verified.
  - ☐ Detailed drawings for each stormwater control device to reflect as-built conditions and elevations.
- ☐ Final design specifications and details for all stormwater management facilities and practices shall be included with as-built submittals.
- ☐ Plans shall show all recorded drainage and access easements for each SCM (Stormwater Control Measure), referencing book map and page number.

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As-Built CAD Requirements

The following requirements for a submittal of CAD data have been prepared for the purpose of incorporating the digital submittal information into the Town's Geographic Information System (GIS) base mapping, so that accurate data may become available to Town staff, engineers, and the larger development community.

- ☐ The CAD file must contain public utility infrastructure (water, sewer and stormwater) and plat information within a single drawing in DWG format, that was constructed during the project.
  - Files in DXF, DWF, or DGN format are not acceptable.
  - The drawing must be a "stand-alone" without the necessity of attaching Reference or XREF files or modifying layers.
  - The CAD file must be saved in the current CAD version.
- ☐ The infrastructure shall be drawn in the file for as-built locations as surveyed and certified by a Professional Land Surveyor (except for buried features like bends, tees, crosses and reducers who locations can be derived from CAD data).
  - All as-built survey data collection must be within an accuracy tolerance of 0.10' horizontal and 0.05' vertical, based on the project's horizontal and vertical datum.
    - The data must be projected in North Carolina State Plane Coordinates: North American Datum 1983 (NAD 83), Vertical Datum tied into NAVD88, and units are US Survey Feet.
- ☐ Public/private utility infrastructure and plat information must be organized into separate layers according to feature type and drawn as polylines and blocks (except for annotation). All layers must be turned on and visible/unfrozen.
  - Layer names should be intuitive and descriptive of the objects on that layer.
  - Features must be clearly segregated into their appropriate layer, and not appear on other unrelated layers.
  - Remnants of lines or points used in the development of the drawing but not representative of actual real-world features (trim lines, transit points, etc.) should be removed from the drawing.
  - Features that should appear in the drawing on separate layers are listed below in the *Public and Private Storm Drainage System Requirements*. Any additional features not listed are optional and must also be on separate layers with clear, understandable layers names. Existing elevation contours are not needed and should not be included within the provided file.
  - Include an updated, as-built storm pipe network.

- If a pipe network is not available, include an SDF file with the as-built storm network information.

☐ Please include a project extents polygon to define the project boundary.
- All polygons must close without overlaps.
  - All lines must be snapped at their endpoints and free of gaps or dangles.
  - Annotation text that breaks the continuity of lines should be shifted out of the way of the line.

☐ The CAD data is not meant to be printed. As such, it should not be all inclusive of the information displayed on the plan sheets.
- Objects normally set up in the layout tab ("paper space") for the purposes of plotting plan sheets, such as title blocks, page borders, legends, vicinity maps, and north arrows, should NOT be included in the CAD file.
- Callout detail boxes also should not be included.

Public and Private Storm Drainage System Requirements:

<u>Structures/Points:</u>

- All structures should be points or blocks under the same layer.
- The attributes of the points are to include those listed below.
  - Structure Name
  - Rim Elevation
  - Invert Elevation
  - Structure Description

  NOTE: Apron invert elevations are required on all flared end structures and storm sewer stubs.

- A sample table of the attributes can be found below:

Point No.	Northing	Easting	Rim Elevation	Invert Elevation(s)	Description*

*FES, HW or EW, JB, YI, DI, CB

Pipes/Lines:

- All pipes should be lines under the same layer.
- The attributes of the pipes should include the following:
  - Pipe ID
  - Upstream structure ID
  - Upstream invert
  - Downstream structure ID
  - Downstream invert
  - Pipe diameter
  - Pipe material
- A sample table of the attributes can be found below:

	From		To			
Link ID	Structure ID	Invert	Structure ID	Invert	Diameter	Material*

*RCP, CSP, HDPE, PVC, DIP

SCM/Polygons:

- Polygons should be provided for the HWL and NWL of all SCMs on site.
  - All polygons must close without overlaps.
    - All lines must be snapped at their endpoints and free of gaps or dangles.
    - Annotation text that breaks the continuity of lines should be shifted out of the way of the line.
  - The polygon shall be set at the HWL/NWL elevation.