



HYDRAULIC / FFA SUBMITTAL REQUIREMENTS

Please reference the Town's [Approved Water Map](#) and [Long Range Water Capital Improvement Plan Map](#) located on our website.

To request copies of FFA's for approved projects, please submit a request to dsintake@hollyspringsnc.gov

The applicant's engineer is responsible for performing the fire flow test; please coordinate with Mark Harris (919-524-4725) or mark.harris@hollyspringsnc.gov with Development Services to ensure a Town staff member can be present.

SUBMITTAL REQUIREMENTS ARE SEPARATED INTO TWO (2) GROUPS:

- Section A: Proposed development extending water mains.
- Section B: Proposed development only constructing a water main to service a single site.

SECTION A: PROPOSED DEVELOPMENT THAT IS EXTENDING A WATER MAIN TO PROVIDE FIRE PROTECTION.

- Submit Town Approved water infrastructure map and indicate where development will occur and where proposed piping will connect to Town's existing pipes
- Demonstrate how total demand was determined and explain how demand is distributed in the model
- Please refer to the Town's [Engineering Design & Construction Standards](#) (ED&CS) Section 6 Table E1 to determine minimum required fire flow.
- If a reduction in fire flow is desired, please submit your request directly to the Town's Fire & Rescue Department. A letter of documentation is required to be provided to review Staff by the applicant to receive approval for this report.
- Conduct a fire flow test in accordance with Chapter 6 of AWWA M-17. Reference includes guidance on Planning, Field Procedures, and Determining Available Flow.
- Submit fire flow test results that include the following:
 - Map showing location of residual hydrant and flow hydrant
 - Flow hydrant port size and number of ports used during test
 - Flow hydrant discharge pressure (psi) and resulting flow rate (gpm)
 - Residual hydrant elevation (ft. above msl)
 - Static pressure at residual hydrant (psi)
 - Residual pressure at residual hydrant (psi)
 - Time of day test completed
 - Nearest elevated tank level
- If a pump curve is used to simulate system supply based on fire flow test results, submit calculations used to develop model's pump curve (minimum 3-point curve)
- Perform a pipe network analysis using a pipe network program, and submit the model as an EPANET file (.inp file)
- Pipe network should have a North Carolina State Plane coordinate system (NAD_1983_StatePlane_North_Carolina_FIPS_3200_Feet). When the model is imported into GIS, it should be located spatially in the correct location and should be properly scaled.



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Submit model output data that should at minimum include the following:

Node data (hydrant nodes should be identified as such):	Pipe data	Pump Data
<ul style="list-style-type: none"> ▪ Node ID ▪ Demand (gpm) ▪ Elevation (ft. above msl) ▪ Needed fire flow (gpm) ▪ Available fire flow at residual pressure of 25 psi (gpm) ▪ Total flow available (gpm) ▪ Static pressure (psi) ▪ Residual pressure (psi) 	<ul style="list-style-type: none"> ▪ Pipe ID ▪ Diameter (inch) ▪ Material ▪ Length (ft) ▪ Hazen Williams Roughness Coefficient ▪ Minor loss coefficient ▪ Head loss (ft) ▪ Flow (gpm) ▪ Velocity (ft/s) 	<ul style="list-style-type: none"> ▪ Pump ID ▪ Elevation (ft above msl) ▪ Shutoff head (ft) ▪ Design Head (ft) ▪ Design Discharge (gpm) ▪ Maximum operating discharge rate and corresponding head ▪ Modeled discharge rate (gpm) ▪ Modeled pump head (ft)

SECTION B: PROPOSED BUILDING THAT WILL RECEIVE FIRE FLOW PROTECTION FROM AN EXISTING WATERLINE

- Submit Town's Approved water infrastructure map and indicate site location
- Please refer to the Town's [Engineering Design & Construction Standards](#) (ED&CS) Section 6 Table E1 to determine minimum required fire flow.
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 - Static pressure at residual hydrant (psi)
 - Residual pressure at residual hydrant (psi)
 - Time of day test completed
 - Nearest elevated tank level
- Submit required fire flow for site with supporting documentation substantiating required fire flow
- Submit calculations that indicate the available fire flow at a residual pressure of 25 psi and indicate if this meets the required available flow for the site.
- Submit the peak hour demand of site (gpm)
- Account for sprinkler demand.