

**FINDING OF NO SIGNIFICANT IMPACT
AND ENVIRONMENTAL ASSESSMENT**

**STOKES COUNTY
STOKES WATER AND SEWER AUTHORITY
AND
STOKES-DANBURY WATER SYSTEM**

**RESPONSIBLE AGENCY: NORTH CAROLINA DEPARTMENT OF
ENVIRONMENTAL QUALITY**

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October 19, 2023

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FINDING OF NO SIGNIFICANT IMPACT

Article I, Chapter 113A of the North Carolina General Statutes requires an action to be subject to the requirements of the North Carolina Environmental Policy Act (NCEPA) if it involves the expenditure of public funds and if a potential impact is anticipated to the environment. The project has been evaluated for compliance with the NCEPA and is determined to be a major agency action, which will affect the environment.

Project Applicant:	Stokes County, North Carolina
Project Description:	The proposed project will provide interconnection between the non-community water system serving the Stokes County Early College (PWS ID 30-85-007) in the Meadows area and Stokes-Danbury Water system. The proposed infrastructure includes modifications to the existing Stokes County Early College well; development of an existing test well off Dodgetown Road; a new 100,000-gallon elevated storage tank; approximately 25,500 linear feet (l.f.) of 4-inch through 12-inc water main to connect with the Stokes-Danbury water system; a pressure reducing station to provide acceptable pressures in low elevation areas; and a booster pump station to deliver water to the Danbury storage tank.
Project Number:	WIF-2004
Project Cost:	\$5,312,772
Drinking Water State Revolving Loan Fund:	\$5,208,600
Local Funds:	\$104,172

The review process indicated that significant adverse environmental impacts should not occur if mitigative measures are implemented, and an environmental impact statement will not be required. The decision was based on information in the Engineering Report/Environmental Information Document (ER/EID) submitted by the applicant and reviews by governmental agencies. The attached Environmental Assessment (EA), prepared by the Division based on the ER/EID, supports this action and outlines mitigative measures that must be followed. This Finding of No Significant Impact (FONSI) completes the environmental review record, which is available for inspection at the State Clearinghouse.

No administrative action will be taken on the proposed project for at least 30 days after notification that the FONSI has been published in the North Carolina Environmental Bulletin.

Sincerely,

Stephanie Suter
Stephanie Suter, Deputy Director
Division of Water Infrastructure

ENVIRONMENTAL ASSESSMENT

A. Proposed Facilities and Actions

The Stokes-Danbury water system needs critical infrastructure to address diminishing well supply. The proposed project will provide interconnection between the non-community water system serving the Stokes County Early College (PWS ID 30-85-007) in the Meadows area and Stokes-Danbury Water system. The proposed infrastructure includes modifications to the existing Stokes County Early College well; development of an existing test well off Dodgetown Road; a new 100,000-gallon elevated storage tank; approximately 25,500 linear feet (l.f.) of 4-inch through 12-inch water main to connect with the Stokes-Danbury water system; a pressure reducing station to provide acceptable pressures in low elevation areas; and a booster pump station to deliver water to the Danbury storage tank.

Funding Status: The estimated total cost for the project is \$5,312,772. The County is applying for a Drinking Water State Revolving Fund (DWSRF) loan of \$5,208,600. Closing costs/administrative fees of \$104,172 will be paid with local funds.

B. Existing Environment

Topography and Soils. The project is located in the Northwestern Piedmont physiographic region with elevations ranging from 750 feet to 1,075 feet MSL. The dominant soil series in the project area is Rhodhiss, Fairview, and Stott Knob soils with 25 to 60 percent slopes and parent material of saprolite derived from granite and gneiss and/or schist.

Surface Water. The project is located in the Roanoke River Basin (HUC 03010103). The area includes Mill Creek, Flat Shoals Creek, and two unnamed tributaries to the Dan River.

Water Supply. Public drinking water in the project area is primarily provided by county owned wells.

C. Existing Water Treatment Facilities

The Stokes-Danbury water system (PWS ID NC 02-85-020) is owned and operated by Stokes County to serve the Town of Danbury and some areas outside of town. Water is drawn from two groundwater wells and serves approximately 76 residential, commercial, and institutional customers. The majority of the system was constructed in the in the early 1970s. The wells have a current combined 12-hour yield of approximately 37,440 gallons per day (GPD) based on observed pump rates. The well system is operating at nearly 100% of available capacity with daily water consumption by customers averaging 36,500 GPD.

Well 1, originally constructed in the 1970s, includes a concrete block well house, radium removal system (added more recently), chemical feed systems, SCADA, and a pump station to

transfer wastewater from the radium removal system to the sewer system. The current well yield is approximately 40 gallons per minute (GPM), which is sufficient for a 12-hour supply of 28,800 GPD. The well has lost capacity over time from its rated capacity of 36,000 GPD. Well 2, also constructed in the 1970s, has a similar design to Well 1 including well head, block building, chemical feed systems, SCADA, radium removal, and pH adjustment system. The current well yield is approximately 12 GPM, which is sufficient for a 12-hour supply of 8,640 GPD. This well has lost significant capacity from its rated capacity of 25,000 GPD. The distribution system includes a 100,000-gallon ground storage tank and approximately 6.6 miles of 2-inch through 8-inch water main lines. The system is divided into two pressure zones. Pipe failures are not uncommon, and the County allocates funding annually to replace aging mains.

Stokes County also operates the Meadows Water System, which is a non-community, non-transient system (PWS ID 30-85-007) to serve the domestic water needs of the Forsyth Tech Stokes County campus and the Stokes County Early College. Water is provided by a single groundwater supply well onsite and 4-inch and 2-inch distribution mains. The existing well was drilled in 2010 and has a safe yield of 50 GPM for a 12-hour supply of 36,000 MGD. The system is relatively new and in excellent working condition, but recent tests indicate that iron removal is needed. A test well is also located northeast of the existing well with a safe yield of 65 GPM for a 12-hour supply capacity of 46,000 GPD. Testing performed when the well was drilled indicates that iron removal may be needed.

D. Need for Proposed Facilities and Actions

The Stokes-Danbury system has experienced failing supply capacity in both water supply wells since 2019. Well 1 has lost approximately 22% of its rated supply capacity, and Well 2 has lost approximately 50% of its rated supply capacity. Average runtime for both wells in 2019 was over 12 hours per day and included a low yield in October of 2019 with Well 2 operating continuously and Well 1 operating almost continuously. During this time, the system was almost without water, and Public Water Staff contracted with Davis Water Service to haul water from the Stokes Water and Sewer Authority to supplement stored water.

Although well production has recovered somewhat since the lowest output was recorded in 2019, the observed conditions continue to indicate dwindling supply. The Town of Danbury has dug test wells at four locations, but due to a combination of low yield, high radium, and other contaminants, system operators are not confident that adequate supply capacity can be obtained from wells in the Danbury area.

This project is needed to replace capacity of the failing wells in the Stokes-Danbury service area. The project will also make public water service available in an area with contaminated soil and groundwater that resulted from an underground storage tank failure that was part of a NCDOT maintenance facility.

E. Alternatives Analysis

Do-Nothing: This alternative would make no changes to the water system. It would not address the needs of the service area; therefore, this alternative is considered infeasible and was rejected.

Alternative 1 – Rehabilitation: This alternative considers rehabilitation of existing infrastructure. In this case, there are no opportunities for rehabilitation that would address the capacity needs of the service area; therefore, this alternative is considered infeasible and was rejected.

Alternative 2 – Groundwater Supply Expansion: This alternative evaluates the possibility of expanding the existing groundwater system. Several test wells have been drilled in various locations, but none have been able to provide adequate yield to supplement the capacity deficiencies of the existing system. This alternative is considered infeasible and was rejected.

Alternative 3 – Surface Water Treatment Plant: This alternative would include a new 0.1 MGD surface water treatment facility drawing from the Dan River. Project components would include river intake structure, raw water pump station and water main, treatment process, finished water clearwell, high service pump station, elevated tank, and site piping to connect to the existing distribution grid. This alternative would address the project needs, but the environmental impacts associated with construction in and adjacent to the river would be more significant than the preferred alternative. This alternative would also require approvals and permits that could result in significant delays. For these reasons, this alternative was rejected.

Alternative 4 – Meadows/Danbury Interconnection: This alternative would create an interconnection between the Stokes Danbury water system and the water system in the Meadows community that serves the Forsyth Tech Stokes Campus and Stokes County Early College. The proposed interconnection would include approximately 27,000 lf of 4-inch through 12-inch water main; an elevated tank in the Meadows area; modifications to the existing well including pump improvements and treatment for iron removal; a pressure reducing station; and a booster pump station to fill the existing Stokes-Danbury storage tank. The interconnection mains will provide water service access for approximately 75 residences and 10 businesses. Environmental impacts are expected to be minor related to construction adjacent to road right of ways. This alternative is preferred because it meets the project needs with lower costs and lower potential for environmental impacts compared to other alternatives.

F. Environmental Consequences and Mitigative Measures

Topography and Soils: The project will not have significant impacts on topography and soil. Total disturbed area will be approximately 14.4 acres. Permanent impacts will be limited to approximately 2.0 acres for the proposed well, elevated tank, booster pump, and pressure reducing sites. There will be temporary impacts to install the water main within existing road rights-of-way with disturbed areas to be backfilled and returned to original grade. Construction activities in floodplain areas will comply with state and local requirements, and all floodplain areas will be returned to original contours. Native soils will be used to the greatest extent possible. Appropriate permits will be obtained as needed through the county and state for work in floodplains. The project is primarily intended to serve existing customers within the Town of

Danbury and the Meadows community. Although some future development along the route is possible, future growth is not expected to be significant. As a result, adverse secondary and cumulative impacts (SCI) are not anticipated.

Land Use: Existing land in the project area includes residential, industrial, and commercial uses. No significant changes to land use are anticipated as a direct result of the project. While there is some potential for additional users to connect to the water system, significant growth is not expected and will adhere to county ordinances, and therefore no significant SCI are anticipated.

Wetlands: Impacts to wetlands are not expected to be significant. There are four stream crossings that may impact adjacent wetlands. Wetland and stream delineations will be completed by a qualified environmental professional. Excavated areas will be backfilled with native material to return to original elevations. Construction will be in compliance with Army Corps of Engineers and NCDEQ requirements. The project is primarily intended to serve existing customers within the Town of Danbury and the Meadows community. Although some future development along the route is possible, future growth is not expected to be significant. As a result, adverse SCI are not anticipated.

Important Farmlands: The proposed project is expected to impact less than 1 acre of soil types consistent with prime and unique farmland in existing rights-of-way or areas that are not currently used for farming. No prime or unique farmlands will be converted from farming activities. The project is primarily intended to serve existing customers within the Town of Danbury and the Meadows community. No adverse SCI are anticipated for prime and unique farmlands in the area.

Public Lands and Scenic, Recreational, and State Natural Areas: Hanging Rock State Park is approximately two miles from the northernmost portion of the project area. No impacts to the park are anticipated.

Cultural Resources: Based on consultation with the State Historic Preservation Office, there are no known archaeological sites within the project area. There are two properties on the National Register of Historic Places (William Neal House and James Rierson, Sr House) near the proposed water line. Work in these areas will be within existing road rights-of-way and will not require removal of mature plantings, fences, or other items that would change the character of these sites.

Air Quality: Impacts to air quality are not expected to be significant. Construction activities may cause temporary and localized dust and exhaust emissions. Impacts will be minimized through compliance with emission standards and controls for construction equipment and generators, wetting surfaces as needed for dust control, and restrictions on open burning of construction debris. Although some future development along the route is possible, future growth is not expected to be significant. As a result, adverse SCI are not anticipated.

Noise Levels: Noise impacts are not expected to be significant. Construction activities may cause temporary and localized increase in noise. Construction operations will comply with local noise ordinances and will be limited to 7:00 am to 9:00 pm on weekdays and 8:00 am to 7:00 pm on

Saturdays. Although some future development along the route is possible, future growth is not expected to be significant. As a result, adverse SCI are not anticipated.

Water Resources: Impacts to wetlands are not expected to be significant. There are four stream crossings that may impact adjacent wetlands. Wetland and stream delineations will be completed by a qualified environmental professional. Due to significant rock, open trench construction will be used for crossings. Crossings will be in or near previously disturbed areas within or adjacent to DOT rights-of way, with temporary impacts expected. Impacts will be minimized by completing construction during low flow conditions and implementing an approved erosion and sedimentation control plan. Construction will be in compliance with Army Corps of Engineers and NCDEQ requirements. The project is primarily intended to serve existing customers within the Town of Danbury and the Meadows community. Although some future development along the route is possible, future growth is not expected to be significant. SCI to groundwater will be mitigated through adherence to 12-hour run time on all well pumps to allow sufficient time for replenishment of the groundwater source.

Forest Resources: Significant impacts to forested areas are not anticipated. Most of the project area included DOT rights-of-way that are not forested. A small amount of clearing (less than 2.0 acres total) will be required for the tank site, bore pits along the water line route, and booster pump station and pressure reducing sites. While there is some potential for additional users to connect to the water system, significant growth is not expected, and therefore no significant SCI are anticipated.

Shellfish or Fish and Their Habitats: Impacts to shellfish, fish, and their habitats are not expected to be significant. As requested by U.S. Fish and Wildlife Service, the project area was surveyed for suitable habitat for threatened and endangered (T&E) aquatic species and identified suitable habitat for James spiny mussel. Potential impacts to this species will be minimized by limiting streambed impacts to temporary disturbance during stream crossing at two unnamed tributaries to Flat Shoals Creek with areas restored to pre-disturbance elevation and conditions. Tributaries 2, 3, 4, and 6 will be crossed using a bench cut above the culvert to avoid any streambed disturbance. Work will be completed in compliance with US Army Corps of Engineers requirements including field surveys to verify that T&E species will not be impacted. Construction will be in compliance with an approved sediment and erosion control plan. With these measures in place, impacts are not expected to be significant.

Wildlife and Natural Vegetation: A survey was conducted and concluded that there are no known occurrences of T&E species in the project area; therefore, impacts are not anticipated. Most work will be done within existing rights-of-way. While there is some potential for additional users to connect to the water system, significant growth is not expected, and therefore no significant SCI are anticipated.

Introduction of Toxic Substances: Potential impacts related to toxic substances are not expected to be significant. Construction equipment will be routinely inspected and repaired as needed and a double wall fuel tank generator will be used to avoid fuel, oil, and hydraulic fluid leaks. There is potential for contaminated soils related to previously recorded spills. Any excess contaminated soil will be disposed of in accordance with North Carolina hazardous waste rules.

The U.S. Fish and Wildlife Service was consulted and did not object to the project (December 9, 2020, May 19, 2021). The North Carolina Wildlife Resources Commission, Natural Heritage Program, and DWR Raleigh Regional Office do not object to the proposed project. The U.S. Army Corps of Engineers was consulted and did not object to the project. The North Carolina Department of Natural and Cultural Resources is aware of no historic resources which will be impacted by the proposed project (ER 20-2509 January 22, 2021).

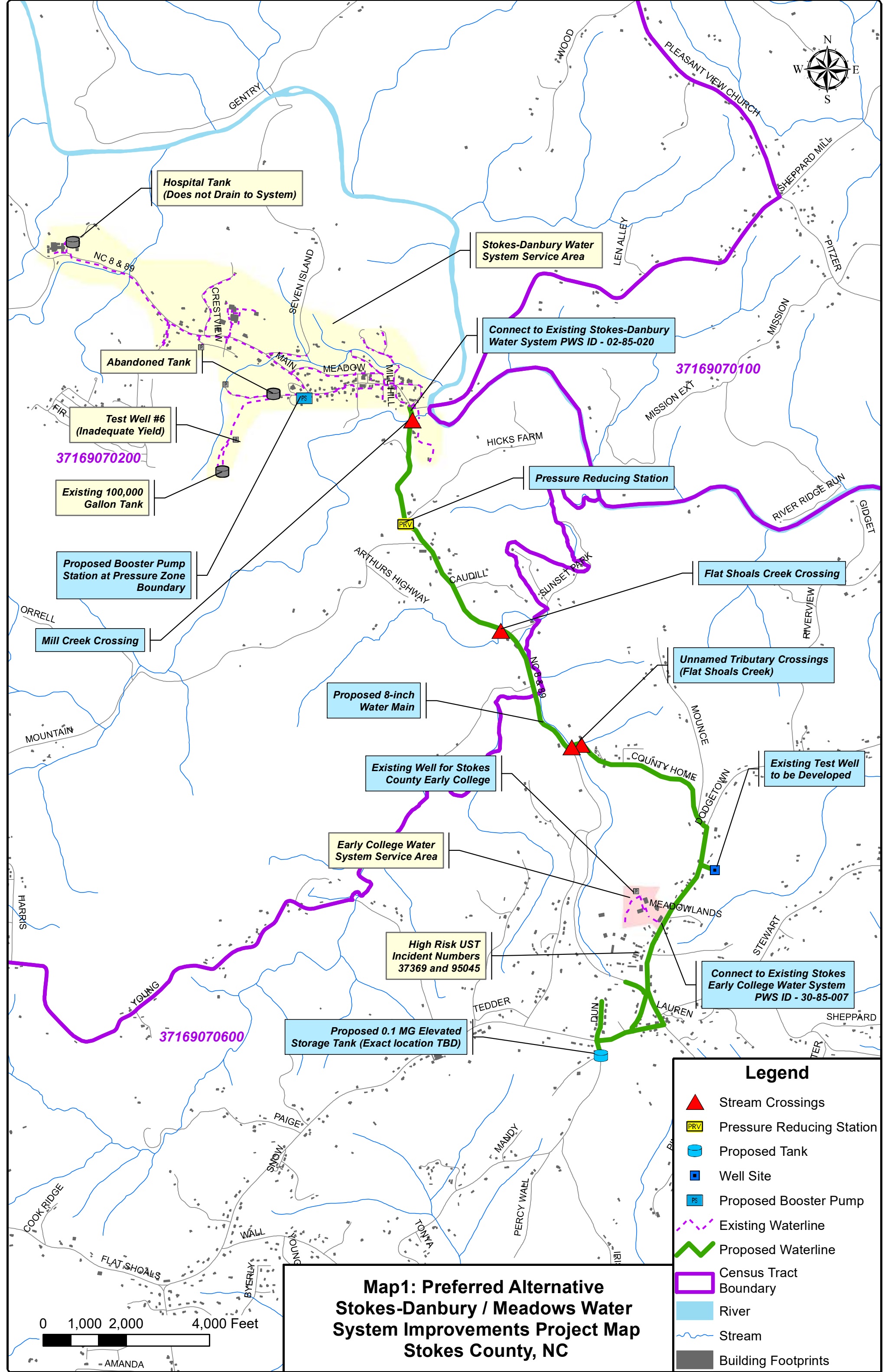
G. Public Participation, Sources Consulted

Stokes County held a combined in-person and virtual public meeting on October 11, 2021. The meeting included a presentation about the project and opportunity for public comments at the meeting and following the meeting. Two community members asked questions about location of the water tower, associated costs and impact to users, need for the project, and potential future service.

The current user charge for a typical residential customer is \$71.50 per month for sewer and water combined, based on consumption of 5,000 gallons per month. The proposed project will increase the bill by 30.86 (approximately 43%) using conservative estimates, for a future sewer bill of \$102.36. The impact is less than two percent of the monthly median household income and is therefore not considered significant.

Sources consulted about this project for information or concurrence included:

- 1) Stokes County
- 2) Town of Danbury
- 3) North Carolina Department of Environmental Quality
 - Wildlife Resources Commission
 - Natural Heritage Program
 - DEQ Winston-Salem Regional Office
 - Division of Air Quality
 - Division of Water Resources
 - Division of Forest Resources
 - Division of Environmental Assistance and Customer Service
 - Division of Waste Management
- 4) North Carolina Department of Natural and Cultural Resources
- 5) North Carolina State Clearinghouse
- 6) North Carolina Department of Public Safety
- 7) U.S. Fish and Wildlife Service
- 8) U.S. Army Corps of Engineers



Map1: Preferred Alternative Stokes-Danbury / Meadows Water System Improvements Project Map Stokes County, NC

Legend

- ▲ Stream Crossings
- PRV Pressure Reducing Station
- Proposed Tank
- Well Site
- PS Proposed Booster Pump
- Existing Waterline
- Proposed Waterline
- Census Tract Boundary
- River
- Stream
- Building Footprints

