

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

**DAVIE COUNTY
EAST DAVIE WASTEWATER COLLECTION**

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

**CONTACT: SETH ROBERTSON, P.E., CHIEF
STATE REVOLVING FUND SECTION
DIVISION OF WATER INFRASTRUCTURE
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February 12, 2018

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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:	Davie County, North Carolina
Project Description:	The proposed project will make improvements to the collection system serving the Eastern Davie Sewer Area located in northeastern Davie County. The project includes the following improvements: (1) installation of approximately 4,700 linear feet (l.f.) of 8-inch force main (FM) from the Yadkin River Pump Station (PS) along Highway 158 to connect to the existing 8-inch Smith Creek FM, which will be repurposed as the new Yadkin River FM and allow for the capacity of the Yadkin River PS to be decreased from 1,286 gallons per minute (gpm) to 610 gpm; (2) evaluation of and possible pump replacement at the Yadkin River PS to fit the new FM system characteristics; (3) demolition of the Smith Creek PS; (4) installation of approximately 3,400 l.f. of 18-inch gravity interceptor along Smith Creek from the lower end of the existing Smith Creek interceptor at Highway 158 to the new Bermuda Run West PS; (5) construction of the new Bermuda Run West PS with a capacity of 3,100 gpm at the end of Talwood Drive; (6) installation of approximately 6,800 l.f. of 16-inch FM from the Bermuda Run West PS to the new East Davie Transfer PS; (7) construction of the new East Davie Transfer PS with a capacity of 3,700 gpm; (8) installation of approximately 31,000 l.f. of 20-inch force main to convey wastewater to the City/County Utility Commission of the City of Winston-Salem and Forsyth County's (CCUC) Muddy Creek Interceptor via the proposed Idols Road Regional PS; (9) CCUC plans to design, build, and operate a pump station called Idols Road Regional PS which will receive flow from the East Davie Transfer PS and repump that flow to the Muddy Creek Interceptor. CCUC's Idols Road Regional PS is included in the environmental review for this project but it will be constructed and funded as a separate project.
Project Number:	CS370795-01
Project Cost:	\$18,562,980
Clean Water State Revolving Loan Fund:	\$18,199,000
Local Funds:	\$363,980

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 and reviews by governmental agencies. The attached Environmental Assessment 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,

A handwritten signature in blue ink, appearing to read 'S. Robertson', with a long horizontal flourish extending to the right.

Seth Robertson, P.E., Chief
State Revolving Fund Section
Division of Water Infrastructure

ENVIRONMENTAL ASSESSMENT

A. Proposed Facilities and Actions

The proposed project will make improvements to the collection system serving the Eastern Davie Sewer Area (EDSA) located in northeastern Davie County. The project includes the following improvements: (1) installation of approximately 4,700 linear feet (l.f.) of 8-inch force main (FM) from the Yadkin River Pump Station (PS) along Highway 158 to connect to the existing 8-inch Smith Creek FM, which will be repurposed as the new Yadkin River FM and allow for the capacity of the Yadkin River PS to be decreased from 1,286 gallons per minute (gpm) to 610 gpm; (2) evaluation of and possible pump replacement at the Yadkin River PS to fit the new FM system characteristics; (3) demolition of the Smith Creek PS; (4) installation of approximately 3,400 l.f. of 18-inch gravity interceptor along Smith Creek from the lower end of the existing Smith Creek interceptor at Highway 158 to the new Bermuda Run West PS; (5) construction of the new Bermuda Run West PS with a capacity of 3,100 gpm at the end of Talwood Drive; (6) installation of approximately 6,800 l.f. of 16-inch FM from the Bermuda Run West PS to the new East Davie Transfer PS; (7) construction of the new East Davie Transfer PS with a capacity of 3,700 gpm; (8) installation of approximately 31,000 l.f. of 20-inch force main to convey wastewater to the Winston-Salem/Forsyth County-City/County Utility Commission's (CCUC) Muddy Creek Interceptor via the proposed Idols Road Regional PS; (9) CCUC plans to design, build, and operate a pump station called Idols Road Regional PS which will receive flow from the East Davie Transfer PS and repump that flow to the Muddy Creek Interceptor. CCUC's Idols Road Regional PS is included in the environmental review for this project but it will be constructed and funded as a separate project.

Funding Status: The estimated total cost for the project is \$18,562,980. The Town is applying for a Clean Water State Revolving Fund (CWSRF) loan of \$18,199,000. The loan fee of \$363,980 will be covered by local funds.

B. Existing Environment

Topography and Soils. Davie County is located in the Piedmont Physiographical Province. Elevations in the project area range from approximately 666 feet to 894 feet above mean sea level. Slopes vary but tend to be moderate with exceptions along deeper stream valleys and the Yadkin River. The area is underlain by metamorphosed gabbro and diorite formations.

The East Davie County area includes many different soil types, but the dominant soil type is Tomlin clay loam, moderately eroded, with slopes between two and fifteen percent. Cordorus loam, frequently flooded, is the second most dominant soil type in the area. The Idol Roads PS project area is dominated by Pacolet fine sandy loam with slopes ranging from two to fifteen percent. The second most dominant soil in this area is the Rasalo fine sandy loam.

Surface Water. The project area is located in the Upper Yadkin River Sub-Basin (HUC 03040101). The only named stream in the East Davie project area is Muddy Creek, which is a Class C surface water. Other streams in the service area include Baily Creek (Class C), Carter

Creek (Class C), Smith Creek (Class C), and Sheek Creek (WS-IV). These streams drain to the Yadkin River.

Water Supply. The County provides drinking water drawn from the Yadkin River and South Yadkin River.

C. Existing Wastewater Facilities

Approximately 42% of the EDSA is served by the public sewer system. The system includes seven pump stations with capacity ranging from 42 to 1,286 gpm, approximately 9 miles of forcemain ranging from 2 to 10 inches in diameter, and approximately 22 miles of 8-inch, 10-inch, and 18-inch gravity sewer. The County's collection system conveys wastewater to Forsyth County for treatment. Many septic systems in the area are in marginal soils and have needed repairs.

D. Need for Proposed Facilities and Actions

Several factors contributed to the need for the proposed project in the EDSA. The area is poised for significant growth, and CCUC has only approved a short-term agreement for additional capacity at the Tanglewood Pump Station, which is owned and operated by CCUC and receives flow from the EDSA. Additional capacity will be charged a significant fee for CCUC upgrade expenses. Sewer fees in the area have not kept up with increasing charges from CCUC. Under agreement with CCUC, if the County constructs conveyance to the Muddy Creek WWTP, then CCUC will not charge two times the inside rate for conveyance. The project will also allow for additional future capacity to extend public sewer service to areas currently served by septic systems in marginal soils. This project also gives the Town of Bermuda Run an affordable option to address their sewer needs by pumping to CCUC and decommissioning their WWTP (which will be done as a separate project). The proposed project will implement a collection system expansion to improving conveyance of wastewater, accommodate future growth in the EDSA, and provide affordable rates to customers.

E. Alternatives Analysis

No-Action Alternative: Under the No-Action alternative, no project would be constructed. This alternative was rejected because the County would run out of capacity to serve the EDSA and sewer rates would continue to rise at alarming rates.

Alternative 1 – Construction of a Wastewater Treatment Plant: This alternative would include constructing new collection system components and a treatment plant. The collection system would include approximately 4,700 l.f. of 8-inch forcemain, evaluation and possible pump replacement at the Yadkin River PS, demolition of the Smith Creek PS, and installation of approximately 22,000 l.f. of new gravity interceptor to the treatment plant site. The treatment

plant construction would include installation of a new tertiary wastewater treatment facility using the AeroMod biological process followed by clarification, membrane filtration and UV disinfection. This alternative was rejected because of higher capital costs and increased environmental impacts.

Alternative 2 – Expansion of the Existing System through the CCUC Tanglewood PS/FM System: This alternative would include installation of approximately 20,000 l.f. of 18-inch parallel force main and construction of a new duplex pump station on the existing pump station site. The capital cost for this project is lower than other alternatives, but the CCUC will charge Davie County two times the inside rate for the wastewater conveyance. This alternative was rejected because of the high long-term cost to Davie County customers.

Alternative 3 – Expansion of the East Davie Wastewater Collection: This alternative will include installation of approximately 4,700 linear feet (l.f.) of 8-inch FM from the Yadkin River Pump Station (PS) along Highway 158 to connect to the existing 8-inch Smith Creek FM, which will be repurposed as the new Yadkin River FM and allow for the capacity of the Yadkin River PS to be decreased from 1,286 gpm to 610 gpm; evaluation of and possible pump replacement at the Yadkin River PS; demolition of the Smith Creek PS; installation of approximately 3,400 l.f. of 18-inch gravity interceptor along Smith Creek to the new Bermuda Run West PS; construction of the new Bermuda Run West PS with a capacity of 3,100 gpm at the end of Talwood Drive; installation of approximately 6,800 l.f. of 16-inch FM from the Bermuda Run West PS to the new East Davie Transfer PS; construction of the new East Davie Transfer PS with a capacity of 3,700 gpm; and installation of approximately 31,000 l.f. of 20-inch force main to convey wastewater to the CCUC Muddy Creek Interceptor via the proposed Idols Road Regional PS. This is the preferred alternative because it protects the environmental by improving wastewater conveyance, accommodates the expected future growth in the project area, and provides affordable rates to customers.

F. Environmental Consequences and Mitigative Measures

Topography and Soils: Some temporary changes in topography are expected from construction. Most areas will be returned to pre-construction elevation and slope upon completion of construction. Minor permanent changes to topography are anticipated for proper grading for the proposed pump stations. The Bermuda Run PS will impact approximately 0.6 acre. The East Davie Transfer PS will impact approximately 1.0 acre. The Idols Road PS will impact approximately 0.9 acre. Portions of the alignment will cross floodplains but permanent impacts to the 100-year floodplain or floodways are not expected.

Land Use: Much of the construction alignment is within existing utility easements or roadside rights-of-way. Clearing will be required for some segments of sewer lines and construction of pump stations. No significant impacts to land use are anticipated.

Wetlands: The construction corridor includes approximately 2.32 acres of wetlands. Temporary excavation will occur followed by backfilling and grading to pre-construction contours. Permitting approvals will be obtained as needed from the U.S. Army Corps of Engineers for

construction in jurisdictional wetlands. Construction will be limited to corridors 40-feet or less in width. Disturbed wetlands will be re-seeded with appropriate plantings for the season and location. Construction will be in accordance with a NCDENR-approved and county-approved erosion and sedimentation control plan and other provisions of the Sedimentation Pollution Control Act of 1973 to minimize impacts from erosion and sedimentation. The U.S. Army Corps of Engineers was contacted and did not object to the project (August 3, 2017).

Important Farmlands: There will be no net loss of important farmlands. Most of the land that will be disturbed is not currently in agricultural use. Approximately 0.9 mile of the construction corridor crosses land in active agricultural use as cow pasture. Lines will be buried below tilling depth and all impacted areas will be returned to original use upon completion of construction.

Public Lands and Scenic, Recreational, and State Natural Areas: The Tanglewood golf course might experience minor and temporary noise impacts during construction. There will be no negative permanent impacts to public lands or scenic, recreational, or state natural areas.

Cultural Resources: In a memorandum dated September 11, 2017, (No. CH 16-0937), the North Carolina State Historic Preservation Office (SHPO) stated that they are aware of no historic resources which would be affected by the project.

Air Quality: Temporary impacts to air quality including increased dust and vehicle exhaust emissions may occur during construction activities. No open burning will occur unless compliant with local requirements. Dust control measures will be implemented, and proper vehicle maintenance and emission control devices will reduce impacts. Emergency generators will be included with pump station design but due to the size and anticipated frequency of use, no adverse air quality impact is anticipated. Odor control facilities will be included as part of pump station design. Force mains will require air release valves which may periodically release localized odor but these impacts are expected to be minor. No significant impacts are anticipated.

Noise Levels: There will be a temporary increase in noise related to construction equipment during weekday working hours unless exceptional circumstances require limited weekend and after-hours construction work. Operational impacts will be associated with lift stations and are not expected to be significant. Emergency generators will be contained in sound-proof enclosures to minimize impact.

Water Resources: There is the potential for temporary impacts due to erosion and sedimentation during construction, including thirteen stream crossings. The Yadkin River will be crossed by directional drill methods. Directional drilling is being considered for all stream crossings. Where such methods are not practical, stream crossings will be constructed during low flow conditions whenever feasible to minimize impacts. All crossings will be installed perpendicular to flow. To minimize construction impacts, all construction will be in accordance with a NCDENR-approved and county-approved erosion and sedimentation control plan and other provisions of the Sedimentation Pollution Control Act of 1973.

Forest Resources: A maximum of 27 acres of forest removal will be required for construction based on 100-foot wide off-road corridors and 30-foot wide roadside corridors. Most of the area

will be allowed to regenerate as forest vegetation except for approximately 8 acres for maintenance corridors.

Shellfish or Fish and Their Habitats: Impacts to shellfish, fish, and their habitats are not expected to be significant. Construction impacts will be minimized through adherence to a NCDENR-approved and county-approved erosion and sedimentation control plan and other provisions of the Sedimentation Pollution Control Act of 1973. Aquatic passage will be maintained as required by the Nationwide Permit 12 conditions. Permanent impacts will be limited to some replacement of substrate with rip rat at or below the pre-project stream bed. Evaluation of boring for all stream crossings is being evaluated.

Wildlife and Natural Vegetation: Impacts to wildlife and natural vegetation will not be significant. Most of the impact will be temporary due to construction activities. With the exception of maintenance corridors through forested areas, project areas will be allowed to regenerate after construction.

Introduction of Toxic Substances: Introduction of toxic substances from construction activities is possible from vehicle fluids. Spill prevention and containment measures will be implemented along with best management practice to prevent and control spills. Pump Stations and lines have been sized minimize the possibility of leaks.

The U.S. Fish and Wildlife Service reviewed the proposed project and concluded that the requirements of Section 7(a)(2) of the Endangered Species Act have been fulfilled (August 23, 2017, Log No. 4-2-16-448). The North Carolina Wildlife Resources Commission, Natural Heritage Program, and DWR Winston-Salem Regional Office concur with the proposed project. The U.S. Army Corps of Engineers was contacted and did not object to the proposed project. The North Carolina Department of Cultural and Natural Resources is not aware of any properties of architectural, historical, or archaeological significance that would be affected by the project).

G. Public Participation, Sources Consulted

A public meeting was held on January 23, 2018 including a presentation about the proposed project. There were no objections to the project. The current user charge for a typical customer is \$92.70 per month for 5,000 gallons for sewer and water combined. The proposed project is expected to cause an increase of \$1.99 per month for a total of \$94.69.

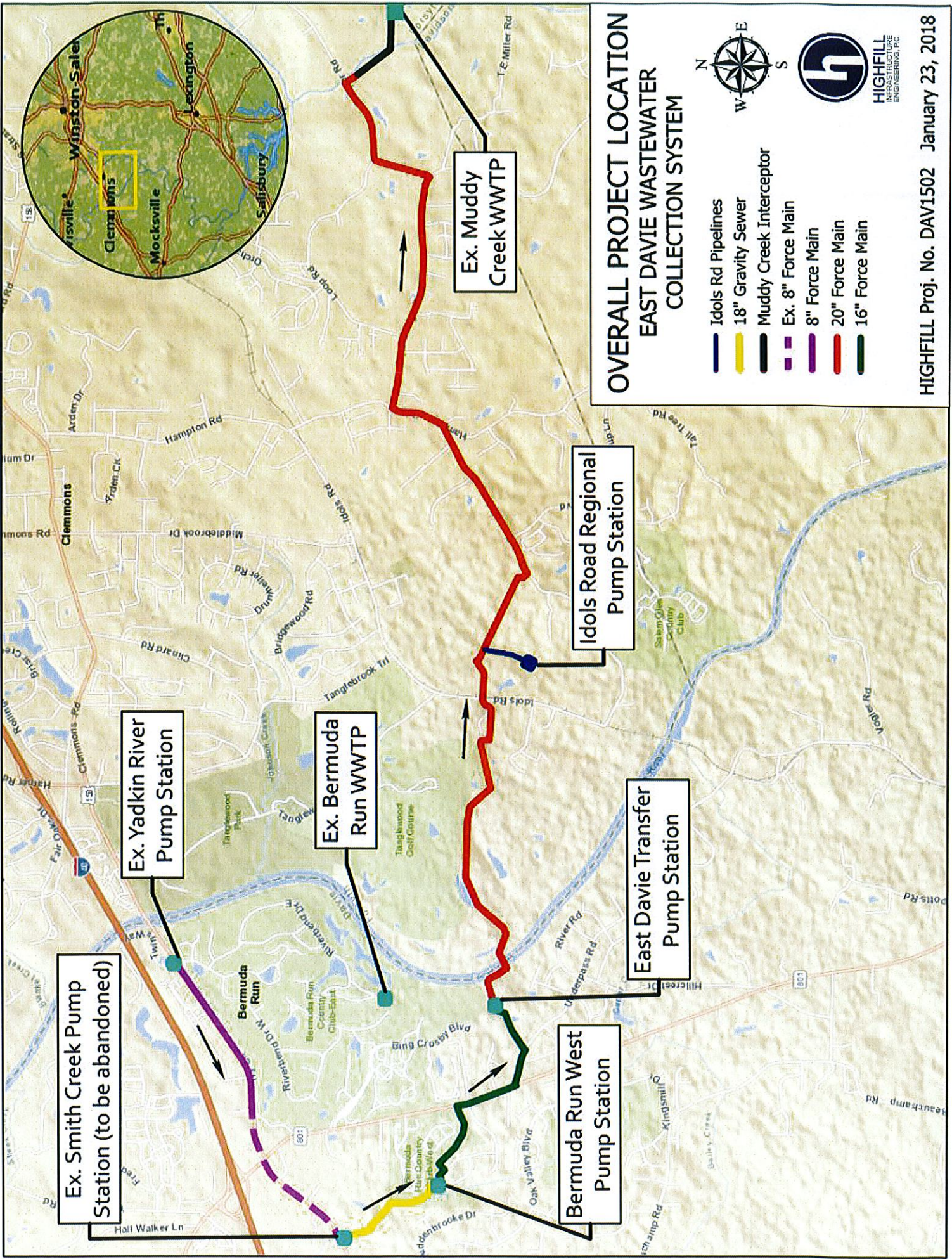
Sources consulted about this project for information or concurrence included

- 1) Davie County
- 2) Winston-Salem/Forsyth County-City/County Utility Commission
- 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 Cultural and Natural 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

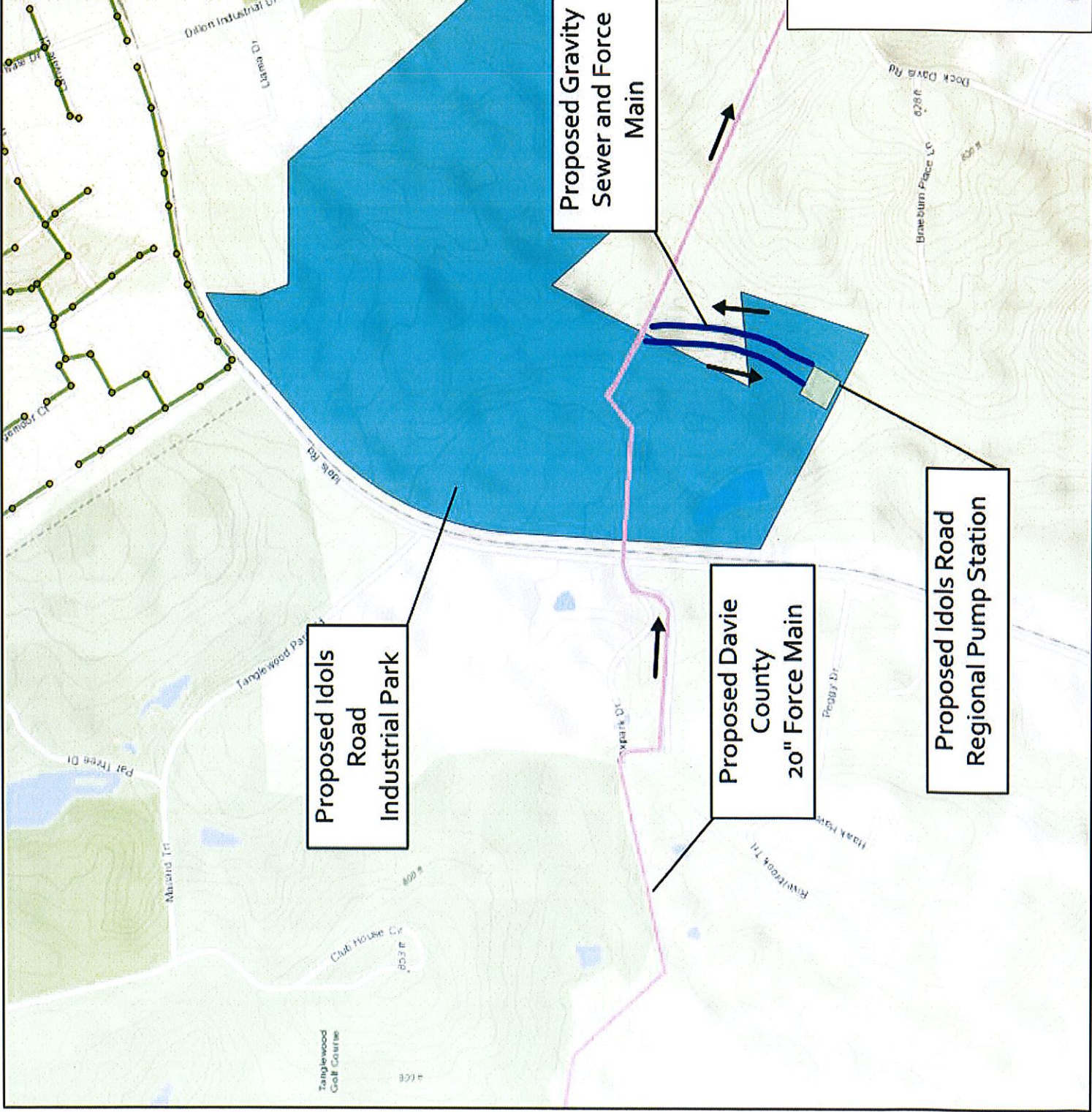
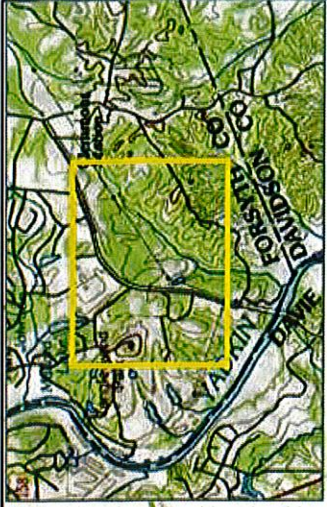


OVERALL PROJECT LOCATION
EAST DAVIE WASTEWATER
COLLECTION SYSTEM

-  Idols Rd Pipelines
-  18" Gravity Sewer
-  Muddy Creek Interceptor
-  Ex. 8" Force Main
-  8" Force Main
-  20" Force Main
-  16" Force Main



HIGHFILL Proj. No. DAV1502 January 23, 2018



Proposed Idols Road Industrial Park

Proposed Gravity Sewer and Force Main

Proposed Davie County 20" Force Main

Proposed Idols Road Regional Pump Station

PROJECT MAP PROPOSED IDOLS ROAD PUMP STATION

- Ex. Sewer Manhole
- Ex. Sewer Main
- Proposed Idols Road Gravity Sewer



0.05 Miles



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